THE ROLE OF OPEN GOVERNMENT DATA IN THE REPURPOSING OF LAND ADMINISTRATION IN POST-APARTHEID SOUTH AFRICA: AN EXPLORATION

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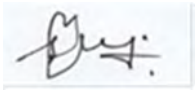
DECLARATION

I declare that “The Role of Open Government Data in the repurposing of land administration in the post-apartheid South Africa: An exploration” is my own original work. All other sources, used or cited information and ideas from various authors and other intellectual sources have been fully acknowledged by means of complete references. This thesis has not been published in any form or submitted to any other university for degree purposes.

Siyabulela Sobantu Manona March 2021

Signature



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Co-supervisor: Prof Ian Meiklejohn (Rhodes University)

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Given the scope of this dissertation and the manner in which some of the information was gathered, it is not possible to single out everyone who has directly or indirectly shaped my thought processes by name. Some played what could be considered inspirationalrole/s prior to the decision to embark on the lonely PhD journey, while others I crossed paths with at different stages of the process made invaluable inputs. The very design of the study was largely premised on drawing from people in their natural settings, some of them not even known to the researcher. Dunleavy (2003:26) makes the point so aptly, "We never think entirely alone: we think in company, in a vast collaboration; we work with the workers of the past and of the present. [In] the whole intellectual world…each one finds in those around him [or her] the initiation, help, verification, information, encouragement, that he [or she] needs."

With the end of the journey in sight I can afford to harvest from the treasure of hindsight. I am particularly indebted to my colleague at Phuhlisani NPC, Dr Rick de Satgé who broke the camel's back in his collegial suggestion to embark on the PhD journey. While initially taken lightly, when the thought finally sunk in my mind, I never turned back, but started making some tough decisions about how I would create time for the journey. Among those I can single out are Gwebinkundla Matebese, Prof Luvuyo Wotshela and Dr Rosalie Kingwill --among some of my ex-colleagues at the Border Rural Committee (BRC), a non-profit company in the Eastern Cape, South Africa, where my lifelong career in land started – with whom I walked a long path on the subject matter of land governance and administration. I took a lot of encouragement from a distance from, Prof Sonwabile Mnwana at the University of Fort Hare – where I presented some of my formative ideas at one of University of Fort Hare Friday Seminar Series, held on 15 March 2019, "An overview of South Africa's Data Ecosystem: A stepping stone to repurposing land administration in South Africa."

I am indebted to my father the late Dr Cecil Wele Manona, who would have taken great pleasure at seeing me walk the journey and finally coming to the end. During the course of my journey, a copy of his PhD theses was a permanent feature under

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From the moment I had more or less selected the topic I wanted to focus on, the first battle was to choose a University that would be my academic home base. Largely due to the intersectional nature of the topic, I kept drifting from one academic institution to another. As I went through these decisions, it is only when I could not find a possible suitable supervisor that resulted in me changing decisions. A special thanks goes to my supervisor , Prof Thembela Kepe, who I finally decided to settle on, who also happened to have been my masters degree supervisor. From the onset he took the approach of co-learning along with me as he provided guidance and support. We spent countless hours on internet calls going through my ideas, and in the processes marshalling my ideas and arguments. I am also grateful to him for giving me some financial assistance for the study, through his University of Toronto research funds.

I extend my sincere gratitude to my PhD colleagues Sine Memela and Phillipa Irvine for various forms of technical they assisted with. I feel I cannot omit my visit to Rhodes on 12 April 2019 at which I had a contact session with my supervisor. As I meandered through the reconfigured campus layout, marvelling some of the renamed buildings, -- as someone who had done his bachelor degree at the same university -- my mind went into an audit mode, taking stock of what had changed. I also came to a realisation of how much things have remained the same, within the sea of transitions. The pronounced feelings of 'blackness in a white university' 24 years into the transition to a 'new' South Africa' was mind boggling. The same feelings of 'blackness' became even more pronounced, as I made my way into the

Department of Geography – while taking a glimpse at the departmental notice board, where there were photos and names of all Honours, Masters and PhD students. The skewed racial geographies of the country and of Makhanda were reduced to notice board scale -- a realisation that the privilege that was conferred to one racial group also was *de facto* denied to black bodies, by default. To say the least, I felt like a stranger in my own country, dominated by heightened consciousness of my black skin from which my body was overwhelmed by multiple contradictory feelings -- a turmoil in my inner repository of lived experience, aspirations and identity. In hindsight this whole experience did not only foreground the nexus between geographies and identity - but it was also a revelation of my own inner response to coloniality that is embedded in my knowledges.

At one level I considered myself as one individual who had aspirations of joining the 'academic elite' by writing my own big book, and making a contribution to my country South Africa and and the wider African continent. From the minute I started, I could not stop thinking how many black bodies actually lose their black thinking skins in such geographies. The rest is history.

I have no words to express enough gratitude to a 'star-starded-star' Tshego Sehlodimela, for the heart, the energy and sterling editorial prowess she put into this work. She came in as a stranger and she amazingly and swiftly moved into a space where I had no accommodation for relay. If there is anything I will take with me going forward is the ability to execute iteratively. I salute you my sister, keep up the good work. *Ndiyabulela ntombi yaseAfrika!!* Brought together by the big book, myself, the supervisor and the editor ended up in coalition of knowledge creation in what became an iterative approach that the relay tradition of how PhDs have been written. Last but not least, I am greatful to the three external examiners for their insightfull and invaluable comments, which have emensily improved the scholarly pedestal of the study on both technical as well as conceptual fronts. The comments were robust and balanced, in a study that had such a wide scope.

ABSTRACT

Almost three decades after the official end of the apartheid, South Africa has been on a sturdy path that is characterised by deepening spatial economic inequalities. A plethora of policy instruments unleashed since 1994 had not only failed to stem the tide of poverty and inequality, but had deepened them. As part of this, South Africa's most ambitious social engineering programme – land reform -- had disappointing outcomes. Premised on a view that these apartheid continuities were embedded in South Africa's land administration system – which was incoherent and fragmented and requiring a systemic overhaul -- the study sought to explore the potential role of Open Government Data (OGD) in the repurposing of land administration system in the post-apartheid South Africa. To achieve this goal, the study was guided by the following objectives: to explore the ontology and the state of land governance and administration in the context of the post-apartheid South Africa; to undertake an evaluation or assessment of South Africa's land data ecosystem; and to explore the potential role of OGD in the repurposing of land administration system in the post-apartheid of South Africa. This study was steeped in qualitative research methods, underpinned by primary and secondary literature review. While the study was primarily pitched on a national scale – the combination of the systems and multiple scales approaches – yielded results which dislodges solutions that are required outside of the domain of a single state.This is one glaring example of land governance complexities that straddle beyond national scale – specifically in respect of new policy trajectories on trans-national boundaries and governance of water resources. Based on the holistic ontology of land, this study concludes that land administration and land governance overarching conceptual orientation -- concerned with land use decisions made by humans at various scales from a praxis and policy perspective –constitute two sides of the same coin, the former steeped towards practice and the latter steeped towards policy. Drawing from decolonial theories the study concludes that land does not only have multiple dimensions, but it also has multiple meanings, in a manner that calls for an ontological shift away from the western ontology, towards an inclusive and holistic conceptualisation.

Historiography that is anchored in de-colonial thinking of South Africa's land governance helps us understand how and why – colonial/apartheid norms acrimoniously found their way into the post-apartheid order -- the post-apartheid institutions of modernity rest on the same hierarchies of identities, classification and pathologisation. The study concludes that, while the colonial/apartheid administration may be gone, it's underlying power matrices continue -- i.e. capitalism/European/patriachal/white – in a manner which explains the continuities of South Africa's spatial inequalities and the associated economic inequalities. The organising principle for land relations (including opportunities) continues to be underpinned by gender, race and class, in ways that expose the mythical dimensions of the 'post-apartheid' underbelly. While identifying the need for homogenisation and rationalistion of colonial, apartheid and post-apartheid institutions (on a national scale) that is insufficient for the transformation of the colonial situation of what is in essence a part of the global system, the study advocates for the 'repurposing of land governance and administration' – underpinned by de-colonial thinking. Repurposing is seen as political imaginary that would entail uncoupling thought processes and praxis from the colonial matrices of power. The study goes on to conclude that there is a definite role for Open Government Data in repurposing of land administration in the post-apartheid South Africa – as a necessary, though in and of it's own it is an insufficient condition to achieve that ideal -- but presents an opportunity to enhance transdisciplinarity approaches and efficiencies in internal government functioning and evidence-based decision making and policy formulation processes.

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Disclaimer

Any typographical errors and inaccuracies are the sole responsibility of the author.

Key terms used

Term/s	How the term is used
colonial	The term is used to make reference to the 'colonial situations' presided over by the presence of a colonial administration such as the period of classical colonialism. It does not refer to 'classical colonialism' and does not have any bearing on the presence of a 'colonial administration' (Grosfoguel, 2007).
colonial situation	Refers to "the cultural, political, sexual, spiritual, epistemic and economic oppression/exploitation of subordinate racialized/ethnic groups by dominant racialized/ethnic groups with or without the existence of colonial administrations" (Grosfoguel, 2007: 220).
data	Refers to data that is raw, unprocessed facts, figures, etc.
data portal	"A data portal is an online collection of data that is freely available to users from a single source or website. The data are arranged into sets based on the content and the portal contains dashboards that provide at-a-glance views of key data indicators, allowing users to determine the different data sets and content of the portal. Data portals are the most common platform for OGD as they provide a single point of entry to all government data, properly arranged, and they usually provide search facilities for ease of use" Williams-Elegbe et al., (2017: 12)
information	It refers to data that is interpreted or presented within a context, to make it meaningful or useful to relevant parties.
land	Unless qualified, whenever the term 'land' is used in the

	dissertation, is inclusive of natural resources.
national independence	When used with reference to the global South ‘independence’ is considered to be part of the liberal conceptual arsenal and inflated illusion (Grosfoguel, 2007: 220 Wallerstein, 1995, 1991a, 1991b).
post-colonial	This terms ‘post-colonial’ and ‘former coloniser’ are used with extreme caution in this study, because colonialism did not come to an end, but has recreated itself, taking different forms at different spatial and temporal points. Refers to the period in which colonial administrations were officially eradicated from the national, continental or global world-system (Grosfoguel, 2007).

CHAPTER ONE : INTRODUCTION

1.1 PRELUDE

The Bank of Lisbon Building, which accomodates the Departments of Human Settlements and Co-operative Governance and Traditional Affairs (COGTA), as well as the Gauteng Department of Health, in the centre of the City of Johannesburg, South Africa, went up in flames on Wednesday 5 September 2018 (Malovich, 2018). The fire raged on for more than 48 hours, resulting in the death of three firefighters. A week before the fire broke out, the Gauteng provincial government had received a report warning them of eight government-owned buildings, among them the Bank of Lisbon building, that were non-compliant in respect of occupation, health and safety standards (Njilo & Gouws 2018; Tau, 2018). The Gauteng member of executive committee (MEC) for infrastructure confirmed that the building had been declared unsafe, receiving a 21% score from the Johannesburg Metro, instead of a compliance 85% minimum score. Rico's 2018 cartoon (Figure 1.1), a graphic reflection of some of the salient land administration paradoxes in South African cities, highlights some of the discrepancies between the visible physicalities of our built environments and the invisible underlying institutional breakdown.

Figure 1-1: Underlying land administration paradoxes of South Africa's cities (Rico eNCA, 7 September 2018).

Barely six months after the Lisbon Building fire incident, parts of Southern Africa were devastated by Cyclone Idai leaving behind a trail of destruction in Malawi, Mozambique, Zimbabwe and Madagascar, affecting more than two million people with a conservative official death toll estimated at more than 1 000 people (*Agence France-Presse*, 2019). The United Nations (UN) graphically described Cyclone Idai as one of the deadliest storms (combining wind and rain) in living memory.[1] While the affected countries were still counting their losses, Mozambique was hit by yet another disaster, Cyclone Kenneth (Reuters, 2019).

The common denominator between these incidents is in their exposureof some of the deep-seated land governance and and administration -- a glimpse of some of challenges of the 21st century, which are consequences of the human touch on planet earth l (Rindzevičiūtė, 2018; Williamson, 2000). The increasing rate of population growth in relation to finite land resources is the driving force behind the emergence and evolution of land governance institutions (Lund, 2006; von Benda-Beckmann, 1981). For the purposes of this study, land administration can be understood as a set of institutions that provide the practical manifestation (the doing or execution) of governance, implying interconnectedness (Steudler, Rajabifard, & Williamson, 2004: p8). The conception of connectedness suggests that governance and administration (built-in procedures or regulations)intricately connected and parts of the same system, at least theoretically. While the unfortunate Bank of Lisbon building incident is easily attributable to human omission or error on the part of a designated sphere of government – the City of Johannesburg – it is fundamentally a reflection of the failure of land governance and administration institutions at level of both policy as well as execution. With respect to the climate-driven events such as Cyclone Idai, the cause-effect line is unfortunately fuzzy and not that easily discernible as the are 'translocated' or 'telecoupled' and externalities are thrown far and wide both spatially and in time, in a manner that complicates analysis and linear causal explanations (Radel et al., 2019; Robbins, 2012). Similarly, ecosystems and other environmental processes are tempered by multiple human and non-human actors at different points in time, in ways that disrupt linear explanations. The challenges that are highlighted by these incidents suggest that the challenges of land

[1] https://en.wikipedia.org/wiki/Cyclone_Idai (Viewed 25 April 2019)

in South Africa are more go beyond simply transferring hectares from some to others, posing fundamental question, not just about the content, but about how land challenges are framed and how subsequent policies are in turn formulated. The next section explores and examines the nature of problems of land administration as prompteded in the examples above.

1.2 PROBLEM STATEMENT

1.2.1 South Africa's Space Economy on a National Scale

The approximate period around 1994 in South Africa is marked by inequality (social, economic, and spatial) and poverty which coincide with racial contour lines, within the context of a poorly performing economy (Guimarães, Duca, & Ndlovu, 2018). The year 1994, also epitomises the official end of approximately 350 years of colonial and apartheid rule, ushering in the much-anticipated 'new South Africa' which is marked by the post-apartheid Constitution (Manona, 2005). The 'political freedom' moment was accompanied by immense anticipation for a better life for the subaltern, the majority of whom happen to be South Africans of colour(Pieterse, 2009). From the onset, and central to South Africa's development policies and programmes, the then Reconstruction and Development Program (RDP) had an overriding goal of breaking the back of poverty and inequality (Harsch, 2001). The RDP could be considered as the first major policy pronouncement of the post-apartheid era underpinned by 'noble' notions of integrated growth, development;redistribution,unified programmes, etc. (Manona, 1995; ANC, 1994). With the benefit of hindsight it is not only the 'noble' goals or intentions that have increasingly come under the spotlight, but the underlying frames of 'growth', 'development', and 'redistribution', within the context of neoliberal policy trajectories. The National Spatial Development Framework (NSDF), an idea that emerged from the RDP office, signaled a recognition of the close interconnectedness between the space economy, the wider economic development and livelihoods (DRDLR & DPME, 2019). The first National Spatial Development Programme (NSDP) (1995-1996) was stillborn, frustrated by divergent infrastructure spending priorities between provinces and national line function departments.

The abrupt abandonment of the RDP in 1996 and it's subsequent replacement with the Growth Employment and Redistribution Strategy (GEAR) – South Africa's

macroeconomic strategy – became a watershed moment to the nascent state. GEAR ushered in what was to be a major policy shift placing significant emphasis on macro-economic stabilisation that is personified through inclinations to notions of fiscal prudence and reduction in social spending (Tshitereke, 2006; Friedman, 2004; Aliber, 2003; Bond, 2000). GEAR's underlying policy thrust was predicated on the idea of government outsourcing to the private sector a significant part of it's service delivery responsibilities, such as the provision and supply of water, refuse collection, meter reading, street cleaning, housing provision etc. Among other dimensions underpinning GEAR was the emphasis it placed on the recovery of costs commensurate with the level of service received (Bhana, Hendricks, Moegsien & Tonkin, 2011; Visser, 2004). The trade liberalisation trajectories that were coupled with GEAR were not only a reflection of an economy that was embedded in the global neoliberal international economic system, with concealed detrimental consequences for the poor, who were on the receiving end of the rising economic inequality and spatial divide (Kwenda, Ntuli, & Mudiriza, 2020; Pieterse, 2009

In 2005, slightly over a decade after the demise of apartheid, the National Spatial Development Framework – an initiative of the Office of the Deputy President (later renamed the Presidency) sounded caution on the resilience of South Africa's divided, segregated and unequal cities, which was evident on the back foot of the RDP and GEAR (NSDP, 2005). The impromptu discarding of the RDP from the policy arena, arguably on the grounds that it was neoliberal and anti-rural, became a new policy frame within the ruling party (DRDLR & DPME, 2019) as part of concerted government efforts to rescue the poor (UNDP South Africa, 2003). Whether the reasons advanced for the abandonment of RDP were indeed the real reasons remains debatable, and among others Pieterse (2009) cautioning on the signs of what he saw as deferment of the plight of the poor much earlier on – 16 years after the dismantling of apartheid.h.

Among the plethora of interverntions, Operation Phakisa (Translated as *Operation hurry up*) made it's first appearance on the policy stage in 2014 in former the President Jacob Zuma's State of the Nation Address Response to Parliament. It was touted as a radical change agent that would deliver prosperity by reducing

inequality as measured by the Gini coefficient, from 0.69 to 0.6.[2] Among the ambitious priorities of Operation Phakisa was the unlocking of the Oceans Economy, which purportedly had the potential of creating 800 000 to one million jobs, behind an 18% annual GDP growth, over a period of five years. From it's inception, substantial time was spent in planning sessions tagged as Operation Phakisa 'war room sessions' with some ideas pointing at all the right policy challenges such as the integration of programmes, the results were not evident on the space economy.

One further policy instrument that promised reconfiguration of space and inequality was the 2016 Integrated Urban Development Framework (IUDF) and the Spatial Planning and Land Use Management Act #16 of 2013 (SPLUMA) as part of the toolkit (DRDLR & DPME, 2019). The IUDF could have been justifiably labelled as urban-biased, which amounted to the same criticism that had been levelled against the 2005 NSDP. An additional policy layer, the draft NSDF was released,[3] partially explaining the resilient spatial development patterns to South Africa's colonial and apartheid past, with a significant share of it being a product of the 25 years of democracy. The significance of this perspective is some level of acknowledgement by the post apartheid state that continuities of colonialism and apartheid continued to be perpetuated within the context of the post-apartheid dispensation (s7.2).

Approximately 25 years after 1994 a glimpse at two successive census reports – 2001 and 2011 -- point to a country that is still largely characterised by racial segregation, where different racial categories continue to be stuck along the same racial lines that were locked by the apartheid regime (Hosken, 2019). Some South African cities are broadly typified by job-seekers, while others by wealth and age.[4] In the midst of the 25th liberation anniversary celebrations, the World Bank[5] gave South Africa what became an implicitly embarassing accolade, by placing it at the apex of global inequality charts while also sending a message that this position is a major constraint to economic growth because of it's dampening effect on policy

[2] https://www.operationphakisa.gov.za/cc/Documents/Open%20Day%20Operation%20Phakisa%20Introduction%20Posters%202014.pdf (Accessed 12 June 2019)

[3] An initiative led by the then Department of Rural Development and Land Reform.

[4] https://www.timeslive.co.za/sunday-times/news/2016-05-26-12-maps-that-explore-the-changing-racial-divide-in-our-biggest-cities/ (Accessed 19 May 2019)

[5] http://povertydata.worldbank.org/Poverty/Home (Accessed 02 June 2019)

certainty and the attendant depressing effect on investment appetite (Scott, 2019; Creamer, 2018). In comparison to other African and Latin American countries, specifically Angola, Madagascar and Argentina, South Africa ranks the highest in terms of inequality (Keeton, 2019:14). Schwab (2016) cautions that among some of the greatest societal concerns associated with the Fourth Industrial Revolution (4IR) is the imminent risk of a further rise in inequality, that will be a direct byproduct of the epochal transition.

On the back of South Africa's fifth post-apartheid national election held in 2019, which saw a third successive decline of the ANC's popularity to 57.5% of the national tally, warning signals found some landing ground at the June 2019 ANC *Lekgotla* (meeting) (Morais, 2019). Coincidentally, the meeting followed the release of the first quarter Gross Domestic Product (GDP) figures reflecting a 3.2% drop to a ten-year low.[6] The ANC came out of the meeting with much bravado, committed to reducing unemployment from 27% to 14% in the following five years, but with no plan on how that would be achieved. The idea of changing the Reserve Bank's mandate to include development is one of the contradictory messages from the ANC which was tantamount to outsourcing of government responsibility of development to the Reserve Bank (Planting, 2019). Developmental state experts, who made a damning presentation to the cabinet *lekgotla*, characterise the South African state as "disorganized, disabling and distant" (Makhanya, 2019).

Between July and September 2020 only 37.5% of black South Africans of working age (ages 15 - 64) were in employment, surpassing not only the 1994 picture, but also lingering at more than half the global average (Belling, 2020). While the Covid-19 pandemic has amplified the already bleak unemployment picture, by reducing jobs by ten percent, policy choices made since 1994 are heavily implicated. Among those is the scrapping of the pro-poor RDP. Among the programmes that is the unexplained abandonment of the commonage programme which constituted for 44% of all land redistributed during the period between 1994 and 2002, while accounting for only 10% of the annual land reform budget (Kepe & Hall 2016; Anderson & Pienaar, 2003). The scrapping of the commonage programme and it's replacement

[6] ENCA News at 9:00. Planting qualifies the lowest with the 2016 post Nene-gate figure.

by Land Reform for Agricultural Development (LRAD) signified a shift away from a pro-poor land reform, towards black commercial farming (ss6.2.5).

Albeit with reference to the Covid-19 pandemic reaching South Africa's shores in early March 2020, du Toit (2020) aptly characterises South Africa's situation as being on a collision course at the intersection of a fragile economy marked by poor governance and bad policy choices within an unhelpful context of turbulent global economic and health crises. While cognisant of the broader state capacity and policy challenges, this study is primarily concerned with the with the specific challenges that are associated with managing people-land relationships.

While the South African constitution for example is widely celebrated globally, largely for the manner in which it repeats some of the celebrated 'enlightenment themes' which bear resemblance to or are the American or other European country constitutions (Chakrabarty, 2002). Jacobs (2012) is critical of South Africa's constitution for being hard-wired in neoliberal trajectories. On the other end of continuum, Lapavitsas (2005), on the other hand, is relentlessly critical of a Keynesian social welfare state intervention in land relations. Fully cognisant of these conflicting views, for the purposes of this study, South Africa's constitution is not subjected to a critical evaluation, largely because it is considered to provide a set of key policy benchmarks as well as for the purposes of stability of policy design analysis. With that in mind, the study is concerned with the extent to which the space provided by the 1996 Constitution to optimally to address issues of poverty and inequality (Howlett et al, 2013).

The distinction between 'colonialism' and 'coloniality' provides conceptual tools to understand the continuities of colonial forms of domination (Grosfoguel, 2007). Grosfoguel (1997: 220) defines 'colonial situation' as "the cultural, political, sexual, spiritual, epistemic and economic oppression/exploitation of subordinate racialised/ethnic groups by dominant racialised/ethnic groups with or without the existence of colonial administrations." In the case of South Africa this same distinction helps us understand how and why the colonial/apartheid cultures and structures linger on, almost three decades after the demise of apartheid (ss 6.2; s 7.3). The phenomenon of 'coloniality of power' which is characterised by the centre-periphery migrancy patterns is inscribed not only between South Africa's urban and

the former homelands, but also in the the country's relationships with it's neighbouring states. In the same way that South Africa's Apartheid economy was built on the shoulders of centre-periphery forms of labour -- black labour from the homelands and neighbouring countries -- the post-apartheid institutions of modernity rest on the same hierarchies of identities, classification and pathologisation. In similar ways that global coloniality cannot be reduced to presence or absence of a colonial administration, South Africa's transitions from apartheid state to the new order exposes the mythical dimensions of the 'post-apartheid state' (Grosfoguel, 2007). The apartheid administration may be gone, but it's underlying power matrix continues. Notwithstanding all that, March et al. (2011) caution that one should not read failure in a negative light only, because massive failure is also a condition for change.

In view of the aforementioned national policy initiatives, it is evident that South Africa has had no shortage of overarching policy initiatives which are aimed at turning the tide of poverty, unemployment and inequality. Unfortunately, each one of the efforts at steering change have come to naught for (DRDLR & DPME, 2019). Some of the arguments, particularly from politicians, place emphasis on causal explanations for the inability to fix South Africa's multiple land challenges at the door of colonialism and apartheid (DRDLR, 2011). Another set of arguments points to policy design choices at different scales (Howlett & Rayner, 2013).

1.2.2 Land reform policy trajectories

As South Africa transcended into a new democratic order in the period between 1994 and 1996, the country inherited the most uneven patterns of land ownership coupled with racialised, hierarchical, and fragmented land administration system (Lahiff, 2003). This triggered the aforementioned land reform programme. It is in the backdrop of perception and reality one of South Africa's most ambitious social engineering programmes – the land reform programme – was designed pivoting around land restitution, redistribution and tenure reform which which were tailored in line with the 'internationally lauded Constitution' (Manona, 2019a; Makombe, 2018; Lahiff, 2003; DLA, 1997). Restitution sought to address historical land injustices that involved the dispossession of blacks, while redistribution sought to address current land needs and imbalances based on race; land tenure reform sought to extend

secure land tenure rights to those sections of the population that had been historically excluded on racial grounds (DLA, 1997). The White Paper on South African Land Policy justified the need for land reform based on four grounds: to redress the injustices of apartheid; foster national reconciliation and stability; underpin economic growth; and improve household welfare and alleviate poverty.

The land reform policy design process was punctuated by the *White Paper on South African Land Reform* (DLA, 1997). It is within the context of tumultuous contradictions emanating from the transition that some initial ideas for the 'reform' of land administration started emerging (even if termed and conceived differently at the time). Despite the fairly broad conceptual definition of land administration, the *White Paper on South African Land Reform* took a much narrower perspective; largely limiting land administration to the management of public land, state land in particular, a perspective that has somewhat continued within some government circles (DLA, 1997). Notably, the *Land Reform White Paper*, while clearly acknowledging the racially polarised system of land administration, gave a lot of attention to the 'three legs' of land reform, with issues of land administration emerging by default rather than as product of conscious policy design. Multiple elements of land administration were scattered throughout the *White Paper* in various guises, crossing paths with the land reform policy theme in ways which resulted in subtle policy 'incoherencies' (Howlet et al*.,* 2013). One of the fundamental inherent contradictions associated with the broader land policy design processes from apartheid to the post-apartheid land governance dispensation was the preoccupation with transferring land from one group to another; devoid of an holistic approach to land governance and administration. The bulk of the land policy and institutional design process was underpinned by the dominant conceptual silo paradigms which emanated from the apartheid era, which of fragmented government architectures and rationalities. Various elements of land such as water, minerals, environment, etc. were scattered around a fragmented state architecture, with little, if any, consideration for requisite concomitant land administration tools and their fitness for purpose (ss7.2.4).

What was intended to be the urban version of land reform, the subsidised housing programme, entailed the provision of subsidised housing for all poor people with internal services secured through a title deed is just one example of poor policy choices (Oranje et al., 2019; Winkler, 2019; Carthright et al, 2017; Hall, 2014;

Pieterse, 2009).The very idea of an urban version of land reform, in another name raises questions about conceptual foundation not only of 'land form', but also the ontology of land (s4.2.1). Flowing from the logic of subsidised housing constituting the urban version of land reform, the parameters of land reform are murky – giving rise to questions as to why are other transfers which are part of the mix as development of malls, town houses, gated estates –are excluded (ss7.2.4.4) (Oranje et al., 2019). In 1994, the government's *White Paper on Housing* estimated an urban housing backlog to be in the range of approximately 1.5 million units, a figure that was increasing by approximately 178 000 units a year as a result of population growth (Prestorius, 2019 a & b; 2017 Stats SA). By 2018 the backlog had reached 2.2 million units.[7] The very idea of providing free housing for the poor was intoxicating and addictive to the ANC, masking underlying complexities. A 40-year old policy warning made by Forrester cautions against the danger of blanket approaches to subsidised housing, among which is the distortion of housing versus employment ratios when the houses are not accompanied by an equally high drive at job creation (Meadows, 1999; Forrester, 1969).

The White Paper on South African Land Reform (DLA, 1997) and the subsequent Green Paper on Land Reform (DRDLR, 2011) the conceptual meaning of 'land' is largely steeped towards positivist paradigm. The subsequrnt Green Paper on land reform stops at lambasting – the latter simply lingers around lambasting colonialism without an explicit pathway on how the decolonial turn would be approached from a policy as well as practical perspective (Mignolo et al., 2013; DRDLR, 2011; Grosfoguel, 2007). The decolonisation or de-coloniality visions represent a fundamental conceptual shift, which in turn gives rise to fundamental questions, core of policy foundations and trajectories.

In December 2015, the Speaker's Forum of the Parliament of the Republic of South Africa established the independent High Level Panel (HLP) on the Assessment of Key Legislation, chaired by the former President Kgalema Motlanthe with a mandate to investigate, among other things, the impact of a suite of post-apartheid statute in respect averting the challenges of poverty, unemployment, inequality and land reform. During it's lifetime, the HLP undertook extensive provincial consultative

[7] In 2011 had an estimate of 2.4 million - See Bhana *et al*., 2011

processes alongside round-table seminars and specialist studies.[8] The final report was released in 2018 revealing a bleak picture of how South Africa was reproducing it's past ills (Kwenda et al., 2020; Motlanthe et al., 2017), notwithstanding that most of the land laws in the post-apartheid statutes were from the colonial apartheid era. The HLP reviewed a range of post-apartheid legislation and institutions relating to socio-economic transformation by highlighting poor land reform outcomes and a collapse of land administration. Manona and Kingwill *(*2019: 33) expand on the meaning of the collapse of land administration, arguing that:

> No systematic recordal, management, and enforcement of rights and duties; disputes and conflicts have to be resolved through the courts as a matter of first resort rather than as a last resort, since there are no official administrative systems for adjudicating rights; spatial planning and land use management systems blind to property rights that are off-register who are the majority of rights holders; enforcement is weak sporadic and patchy; rights of the poor are becoming increasingly vulnerable to capture by moneyed elites (Manona et al., 2019b; RSA Parliament, 2017).

In it's recommendations, the HLP made a proposal for re-engineering of the land administration system.

Before the recommendations could be digested and assimilated, on 18 September 2018, the President of the Republic of South Africa appointed yet another panel, the Presidential Advisory Panel on Land Reform and Agriculture, and purportedly tasked with the responsibility of advising the Inter-Ministerial Committee (IMC) on a broad range of policy matters pertaining to land reform (redistribution, restitution and tenure reform) and agricultural development (Ngqakamba, 2019). The final report was delivered to President Cyril Ramaphosa on 11 June 2019.[9] Despite the hallmarks of a state kicking the can down the road.

In addition to the state sponsored reviews, there is an exhaustive list of explanations that have hitherto been advanced by a range of scholars for the failure of land reform in South Africa - inclusive of lack of political will, declining budgets, lack of

[8] https://www.parliament.gov.za/high-level-panel (Accessed on 12 June 2019)
[9] https://www.gov.za/AdvisoryPanelOnLandA (Accessed on 12 June 2019)

integration, state bureaucratic incompetence, etc. (Kepe et al., 2018). While many of these explanations have some credence, none of the critics point to the conceptual foundations of what 'land' and 'land reform' actually means and entails. Much of the policy analysis is constrained within the confines of the failure of the 'land reform programme', to the exclusion of analysis of how the land question or problem was conceptualised and in turn framed (van Hulst & Yanow, 2016; Rein & Schön, 1977). Land justice, in this instance personified through land reform 'is everyone's responsibility, but no one's job' (Yanow, 2018:251). The decolonisation or de-coloniality visions represent a fundamental conceptual shift, which in turn gives rise to fundamental questions, not only about South Africa's land policy foundations and trajectories, but also those of the rest of Africa (Mignolo & Escobar, 2013). The binary characterisation of South Africal's land relations by Hall (2014) and van der Walt (1999) was somewhat corrent, but largely insufficient as a basis of understanding both the bigger picture as well as the nuance. This conceptualisation has unfortunately largely constituted the cornerstone for land reform policy design, not only in South Africa but the rest of Africa. Conceptualised in this frame, land reform simply becomes an issue of items called 'land' from one end of the continuum to another (see Fig. 1.2).

There is a groundswell of acknowledgement in academic circles that land reform did not only not have poor outcomes, but it also did not go far enough in undoing the the impact of colonialism (Makombe, 2018; Matlala, 2014; Jacobs, 2012; Milonakis & Fine, 2007). Kepe & Hall (2018; Levin, Kepe & von Lieres, 2016) are critical of land reform policy design that is fixated on the transfer model as insufficient in addressing the dehumanising effects of colonial and apartheid land dispossessions. There has been consistent red flags on performance of land reform from numerous reviews on the performance of land reform over the last two decades laments it's poor performance (Mtero, Gumede & Ramantsima, 2019; Parliament RSA, 2017). Among the many reasons given for the poor land reform outcomes are the challenges associated with land administration (RSA, Parliament, 2017).

Notwithstanding what 'land reform' actually means – what it includes and what it excludes -- Kepe, Lewinson, Ramasra & Butt (2011b; Polanyi, 1957; Aliber, 2014; Castree, 2010 Aliber & Mokoena, 2002) have expressed serious doubts if any 'land reform' that is underpinned by neoliberal policy trajectories, presents a viable

solution to the deep rooted poverty and land injustices (ss4.2.1). South Africa's vision of 'development' that is oriented towards catching-up with or moving in the same direction as Western countries -- as in being industrialised and modern – cannot be left unimplicated in any explanations for South Africa's current destination (Ndlovu-Gatsheni, 2013; Chakrabarty, 2000). Mabasa & Mabasa (2021) in concurrance on the poor performance suggestinting a review the foundational principles on which South Africa's land rights and property institutions are resting on – a proposal that does not come as a surprise.

Hall (2014; van der Walt, 1999) draws a critical connection between the desired intent of the 1913 Land Act and present land relations, arguing that blackness meant an association not only with insecure rights but with poverty too, while whiteness has been traditionally associated with privilege, power, wealth and the perception of secure rights to land. Instead of dismantling this historical pathway, the land reform process has done less than tweak the fringes. The picture painted by Hall (2014) and van der Walt (1999) continues to haunt South Africa 25 years after the initial roll out of the land reform programme. Effectively, the 1913 Land Act created a path dependency not only in material terms but also in how the dominant paradigm played itself out (s7.2 & s7.3). Figure 1.2 illustrates the hierarchical and racially dualistic system of land rights, as a defining feature of the country's land rights landscape, which have persisted or remained intact more than two decades into the democratic dispensation (van der Walt, 1999). While this representation is broadly accurate, it fails in capturing the changes at the fringes, that of poor whites and wealthy black people. Lowly as Jan Smuts thought of the African (native) he was critical of the 1913 Natives Land Act for it's failure to accommodate the growing African population emanating from the manner in which it restricted black ownership, in a manner that was consistent with his segregationist ideology (Edgar et al., 2016). While there is surprisingly a lot of commonality between Jan Smuts' and the post apartheid government to the 1913 Land Act, the one thing while Smuts is unavailable to provide solutions, current evidence shows that South Africa's government has not been able to uproot the effects of this law. Without negating the argument of 'path dependency' continuities back to the 1913 Land Act remain in bold print, 25 years after the demise.

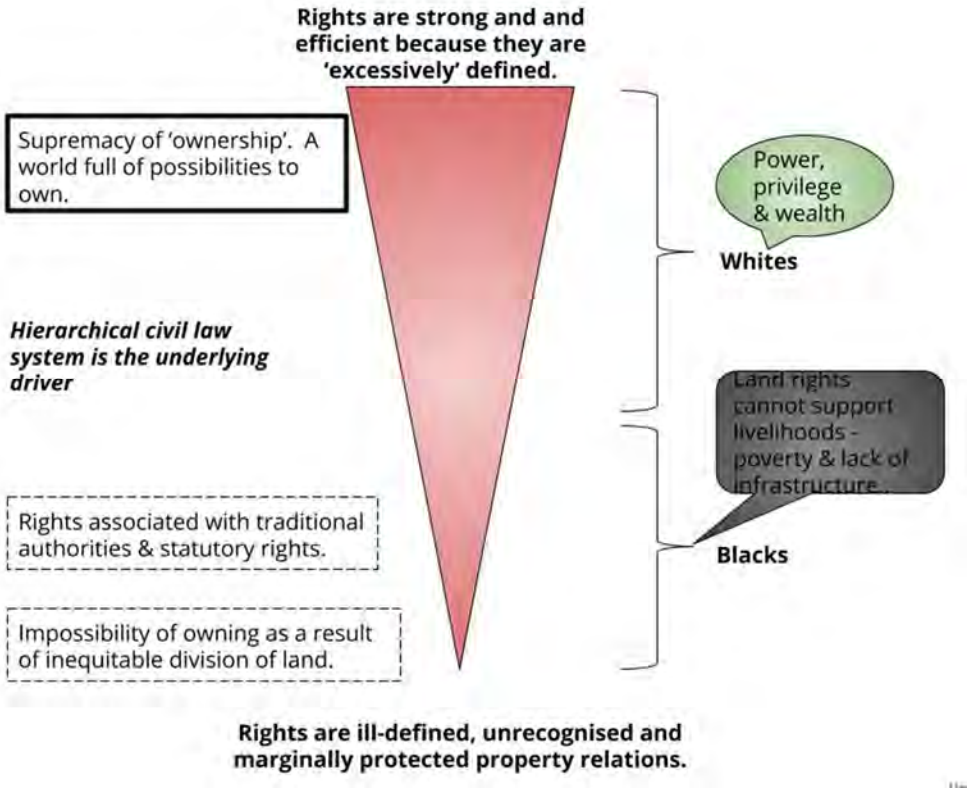

Figure 1-2: Hierarchical and dualistic land rights conceptualisation (adapted from van der Walt, 1999)

By default, the omission of land administration from the broader land reform process entailed it's foreclosure of as an overaching perpective (Zelli et al.'s, 2012) while also unintentionally forcing the post-apartheid state to adopt land administration institutions from the remnants of it's colonial and apartheid past. The post-apartheid government's inability to overhaul land administration instituions and statecraft is a serious problematic policy choice that has resulted unintended consequences of locking South Africa in path dependencies for a long time (s7.2). In hindsight, the country's land administration system should have been restructured, redesigned and expanded to include all South Africans as part of the transformation process. The entire system should have been (re)conceptualised to entrench new sets of inclusive rules and systems. A policy blind spot provides a plausible explanation, which does make logical sense in the context of a country where many moving parts need to be managed simultaneously.

All of the developments in South Africa have taken place within a global context in which the period after the 1980s is marked by a surge in thinking about land that is increasingly accompanied by an unprecedented concern for the quality of the environment and resource scarcities, which in turn demands careful stewardship (McLaughlin, 1985). If this stewardship is to be undertaken with any degree of seriousness, information on land is the starting point. While important and essential, the availability of information is not on it's own critical, but the location, timelines and the form of data and or information that is published. It is this context, combined with advances in technology that Land Information Systems (LIS) and Land Information Management Systems (LIMS) have grown, with the primary concern being motivated by management requirements.

This study argues for the idea of 'repurposing' of the land administration system through the land information domain as a leverage point and OGD as a key component. The next section outlines the aim and objectives of the study.

1.3 RESEARCH AIM

The aim of the study is to explore the potential role of Open Government Data (OGD) in repurposing land administration system in post-apartheid South Africa. This breakdown in land administration emanates from various institutions of land administration statutes finding their way into the post-apartheid era, within a context of state architecture that is in a restructuring process (s7.2). (This is taken up further in Chapter Seven). To this end, this study makes a proposal for the 'repurposing' of land administration. The thesis is that OGD is a necessary, but insufficient, condition for the repurposing land administration in South Africa. More specifically, the study has the following objectives:

1. To explore the ontology and make up of land governance and administration in the context of the post-apartheid South Africa.
2. To undertake an assessment of South Africa's land data ecosystem.
3. To explore the role of open government data in repurposing land administration systems in the context of South Africa.

The next section briefly reviews the literature on land administration, and without going into detail, defers it to Chapter Four. Section 1.4.2 provides a brief

background and an appraisal of the literature on Open Government (OG) and Open Government Data (OGD) movements, which is a second component of the study.

1.4 LAND ADMINISTRATION, OPEN GOVERNMENT AND OPEN GOVERNMENT DATA: A REVIEW

1.4.1 Land Administration Systems

Land administration as a concept – or as a subject of inquiry – is deeply embedded in a set of contradictions resulting from a combination of historical events and developments, globalisation, neocolonialism, and a 21st century existential crisis (climate change and Fourth Industrial Technologies (De Maria, 2019; Özsu 2019). The one layer of contradictions emanates from divergent conceptual meanings of land (Li, 2014; Kepe, Hall & Cousins, 2008), which in turn feeds into land administration. These divergent conceptual frames emanate from, and are driven by the fact that meaning is a product of combination of attributes and rationalities of the multiple actors, on the one hand, as well as the attributes of the object, called land, on the other.[10] Menga & Swygedouw (2018) argue that the various manifestations of land – be it landscapes, ecosystems, waterscapes and boundaries – coexist, are interdependent and intricately intertwined to a network of interests. It is the inherent contradictions emanating from the interface between what is both a private and a public good, which gives rise to the need for varying extents of control and management (Doebele (1987) which create need for land governance and administration.

It is within this background that a more detailed re-examination of the conceptions of land administration is warranted and desirable. Under the circumstances, Dunleavy's (2003: x; Oakshott, 1962) abstraction through which he explains the role of a university is apt. He writes:

> A university is an association of persons, locally situated, engaged in caring for and attending to the whole intellectual capital which composes a civilization. It is concerned not merely to keep an intellectual inheritance intact, but to be continuously recovering what has been lost, restoring what

[10] This is pursued further in Chapter Four.

> has been neglected, collecting together what has been dissipated, repairing what has been corrupted, reconsidering, reshaping, reorganizing, making more intelligible, reissuing and reinvesting.

The diversity of scholarly opinions pertaining to land administration directly feeds into opinions about what it's goals are or should be. Land administration has a well-established body of knowledge and is subject to multiple hypotheses (Enemark Williamson, Wallace, 2005; Williamson, Enermark, Wallace, & Rajabifard, 2010; Dale & McLaughlin, 1999; UN-FIG, 1999). The wide-ranging diversity in scholarly definitions of land administration reflect numerous issues and differences over the essence, emphasis, goals, and possibly use different conceptual frameworks. Gravity towards narrow conceptualisations of land administration is a worrisome tendency. Similar to other academic specialties, divergent opinions and theories are not unexpected in an established scholarly field such as land administration (Dale and McLaughlin, 2000). The diversity of views on the essence of land administration, coupled with it's goals, is a matter that requires an in-depth examination.

The family of land administration concepts, techniques, procedures which constitute standard processes – i.e. land tenure security, land use planning, land use management, sustainable land use -- are embedded in fields of expert knowledge that are successively shaped by particular notions of what is 'good' and 'bad' practice, what is 'backward', 'sustainable' or 'efficient' through a range of calculation techniques, creating an outward appearance of being apolitical (Kingwill, 2019; Boelens & Vos, 2012; Boelens, 2009, 2008; Foucault, 1980, 1995; Bourdieu, 1977). These tools are embedded in subtle legitimation of worldviews and interests, and in the process certain kinds of knowledge/s and rights in land are legitimate and others illegitimate.

The entire suite of land reform post-apartheid dispensation suggest that the conceptual meaning of land governance and administration remains unresolved. Earnest attempts at defining land administration surfaced in the *Green Paper on Land Reform*, where it was defined as "the functions involved in regulating systems of land use planning, control and development, land transfer and land tenure" (DLA, 1996). While subtle, the Green Paper highlights two points: it foregrounds institutions

that underpin the functions and development very clearly. The subsequent *White Paper on South African Land Reform* (DLA, 1997) devoted a substantial amount of space to land administration, albeit in a truncated manner.

Foucault's idea of interconnectedness of power and knowledge suggests that through the exercise of power, knowledge is generated which in turn supports the exercise of power (Boelens & Vos, 2012; Foucault, 1980). According to Foucault (1980: 102), through the power-knowledge dynamic, power establishes frames for truth and through the deployment instruments, generation of knowledge includes "methods of observation, techniques of registration, procedures for investigation and research, apparatuses of control". Illustrating how the power cannot be extricated from the how data is managed, Di Gregorio, Fatorelli, Paavola, et al. (2019) make an example of Trinidad and Tobago where the withholding of access to information by the central government from other actors has been used as a specific form of exercising power. Bennett, Rajabifard, Williamson and Wallace (2012) contend for national data infrastructures or taking a national approach – a point that is often overlooked in contemporary technical land administration literature. While not far-reaching enough, the point bodes well for a secondary component of this study: Open Government (OG) and Open Government Data (OGD). The following subsection presents a brief review of literature on Open Government, Open Data and Open Government Data.

1.4.2 Open Government, Open Data and Open Government Data Movements

According to Ackoff (1999), data are symbols that represent certain properties of objects and events. This implies that data has no inherent value until meaning is attached to it, in order for it to be considered as information and usable. Having access to raw data is considered an important building block for knowledge because it enables the recipient to form their own opinions and conclusions. In an attempt at demonstrating linkages between these concepts, Bernstein (2009) makes use of the Data-Information-Knowledge-Wisdom hierarchical model, which was originally developed by Ackoff in 1988. The term 'data' is generally used among OGD movements to emphasise raw data within the context of a continuum where information and knowledge should be made open.

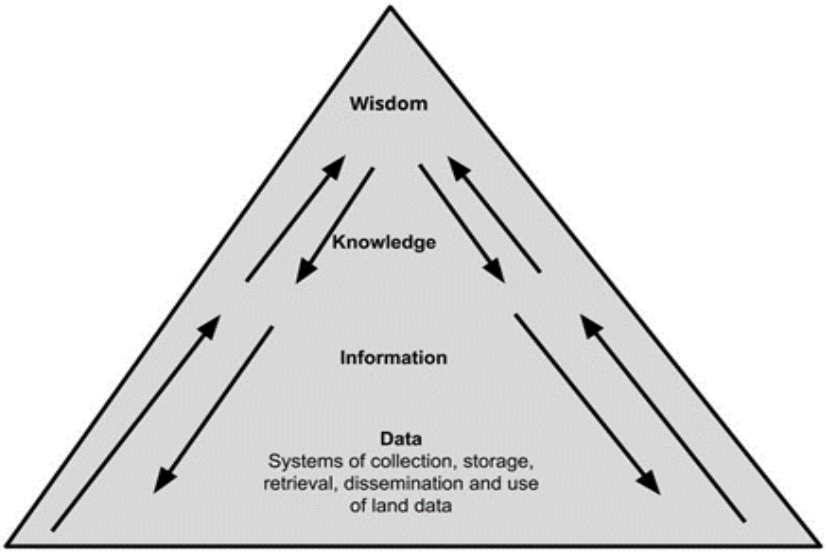

Figure 1-3: Data-Information-Knowledge-Wisdom hierarchy (Ackoff, 1999)

The difference between data and information is conceptually intangible with no solid boundary line inbetween. In numerous instances, what constitutes data to one person may be information to another (Nichols, 1993). By way of example, a set of draft settlement layout plans from a town planner's field notes constitutes information to a planner who is concerned with the relative location of land parcels, street frontage considerations and provision of essential services. However, the same set of symbols may constitute a data set to a municipal manager who is concerned with the quantum of land parcels for revenue purposes. For this reason, and for the specific purposes of this dissertation, data and information are along the data-information-knowledge hierachy or continuum.

Open Data (OD) is data that is made accessible from sources that are not necessarily government (Williams-Elegbe & Ojomo, 2017). One typical example of OD is economic performance figures that are generated and made public at daily, weekly quarterly and annual intervals, which Sean Hannon identifies as economic performance indicators for inflation, employment, property markets, consumer spending patterns, market confidence, etc.[11] These figures carry significant power in the analysis of economic performance in market economies. There is power in the

[11] https://www.stocktrader.com/2009/04/22/track-top-leading-economic-indicators-us-stock-market/ (Accessed 01 June 2019).

figures, in that the data depicts what is happening to parts of as well as the broader economy. Economists make use of the data to inform economic decision making processes. Gurin & Manley (2015:2) define OD and OGD as data freely available online for anyone to use, share, modify and republish for any purpose, where OD is generated from any source, while the latter is data generated specifically by government-supported institutions.[12] While the meaning of 'open' could be context specific, some advocates of OGD attach a precise meaning to it as robust data commons in which access is promoted for anyone to participate and interoperability is maximised.

Both the OD and OGD concepts as well as the political movements (notions of access to [government] information) have, over different historical times and places spawned a range of teleological and conceptual progenies for different actors in different contexts. The origins and evolution of OG and OGD movements are not only traceable to ancient history but also have diverse international origins. Contrary to popular belief, Tauberer (2014) clarifies that the history of these movements is not a creation of the western world, conceding that modern OG and OGD movements also draws heavily from 17th-century China more than any western tradition of the time. Tauberer (2014) traces the legal history of OGD to the 6th century when Athens started a process of codifying it's laws from oral tradition. Tauberer (2014; Hawke, 2011) suggests that the law codification process was not implemented with the idea of a participatory government in mind or the democratisation project but as part of a reactionary agenda of maintaining the social structure within the context of a fast-changing social milieu that was characterised by high population growth and new wealth. In essence, the codification process was fundamentally a project that was intended to bolster 'the needs of the elites'. Tauberer (2014) also identifies some early signs of the movement's growth in colonial America during the early 1700s. The need for codification arose due to perceptions of the government's confusion on laws that were in place and those that were inapplicable, which resulted in indecision and uncertainty in managing the economy. The Pennsylvania assembly began publishing it's law twice a week, while Massachusetts published it's

[12] Open Knowledge International- http://opendefinition.org/od/2.1/en/ (Last accessed 30 December 2019); also see https://okfn.org/ (Accessed 30 December 2019).

law journals around 1715 (Tauberer, 2014). While the driving force behind these reforms may have been fanned by elitist interest, in similar waysthe situation in Athens, there is evidence that the general public started to take advantage of the opportunities presented by OG/OGD in ways that had previously not been possible. Private citizens could confront erratic government officials with copies of legislation (Ohlson, 1992). In concurrence with Yu & Robinson's (2012) characterisation of the modern concept of OGD as a recent vintage, Tauberer (2014) identifies the origins of modern OGD movements to have arisen from Web 2.0 political campaigns, and innovations inside of municipal governments. Much later in history, in 1766, these movements culminated in the Kingdom of Sweden making access to government information a constitutional right alongside the drive for the dissemination of government information (Tauberer, 2014). These early beginnings of OG have led the transformation of how governments manage data and information. The aftermath of World War II left federal American governments in a state of information opacity, which was partly a response to fears of espionage with much pressure for openness and transparency mounting during the 1945-1955 decade (Yu et al., 2012). Since then the notion of OGD has been used in a manner that is specifically targeted at previously undisclosed information. It is from these origins that the early notions for access to government information arose.

The notion of OG is about the mission to make government more inclusive, responsive transparent and accountable. At a technical level, the use of computers creates new opportunities for sharing of data in ways that were hitherto impossible. Williams-Elegbe et al. (2017), moving from a clearly western context point of view, posits that genuine democracy is a participatory process, and within that, places the right of access to data/information as a necessary right for the purposes of effective participation in governance. Dantec & DiSalvo's (2013; Braun & Whatmore, 2010; Callon et al., 2009; Latour & Wiebel, 2005) make reference to an established a scholarship that is anchored in notions of techno-democracy, which appreciates the opportunities that emanate from broadening governance, largely on the assumption that participation and engagement are essential ingredients of democratisation. The notion of object-oriented democracy in which the role of objects and things is understood to play a pivotal role is central to the idea. What OG does is create conditions for effective participation in decision making possible.

The rise of OG and OGD movements has, over time, found resonance with international multilateral institutions such as the United Nations and the World Bank resulting in them taking positions in respect to OGD (Gurin et al., 2015). Furthermore, the World Bank has developed a methodology to assist governments around the world assess and build their Open Data programmes. The post-2015 United Nations Development Goals[13] report acknowledges the potential role of OGD and development. The report identifies four key potential benefits of OGD for developing countries: fostering economic development and job creation; improvement of efficiency, effectiveness and coverage of public services; increase in transparency, accountability, and citizen participation; and facilitation of better information-sharing within government.[14] A study undertaken by the Open Data Institute (ODI) demonstrates how OD can help assist countries towards achieving many of the objectives outlined in the Millennium Development Goals (MDGs) and the draft Sustainable Development Goals (SDGs) (Gurin et al., 2015).

Alongside the buy-in from multilateral institutions, a further manifestation of the evolution of OD movements, has been a surge in the number of international non-profit entities that collectively advocate for slightly different aspirational variants of OG/OGD, aimed at governments (Gurin et al., 2015). Among them are Open Knowledge International, Sunlight Foundation, Open Government Partnership (OGP), and others. The various NPCs are investing energy and effort on slightly different aspects of the concepts, such as conceptual clarification of the ideals, engage in policy advocacy, anddeveloping practical guidelines for implementation. Open Knowledge International, a global non-profit organisation, has a mission of realising the ideal of open data for society by supporting organs of civil society in accessing and using data in the process of taking action in tackling societal problems.

The winds of change fanned by the OG and OGD movements in it's various guises, have made their way into governments across the globe. Gurin et al. (2015) points to the growing global trend wherein governments are increasingly opening and

[13] https://sustainabledevelopment.un.org/content/documents/1579SDGs%20Proposal.pdf (Accessed 03 June 2019).

[14] See Report of the Open Working Group of the General Assembly on Sustainable Development Goals.

providing access to data they collect as a new kind of public resource for many beneficial purposes. For instance, for identifying social and economic trends, improving public services, building a trust relationship with government, and lending weight to international development discourses etc. Several non-state actors such as businesses, foundations, NGOs, and academic institutions could also potentially find beneficial use for such data.

Based on a growing body of scholarship, there is a belief that OD and OGD can be used to create both social and economic value, which may run into trillions of dollars annually worldwide (Luna-Reyes, Bertot & Mellouli, 2014; Zuiderwijk, & Janssen, 2014; Kundra, 2012; Jansen, 2011; McDermont, 2010). Among others, one of the typical arguments advanced by advocates of OD is a claim of the significant surge of knowledge and innovation at the point of intersection between scientists and entrepreneurs, an argument used in advocacy for governments to make freely available data that they generate (Harrison et al., 2012; Pollock, 2011;[15] OECD, 2004;[16]). Notwithstanding all the aspirational ideals of OD, OG and OGD, there is also an understanding that not all data can be made open. Some personal data that has specific information about specific individuals may not qualify as open data, under certain circumstances that are determined by policy. Similarly, some data that may contravene specific security laws of a country may also fall outside of the OD ambit. Where one draws the lines between what qualifies as OGD and what is not, is a major policy fissure facing OD movements.

There is also a discernible global trend where countries are congregating around OG. South Africa is among the initial eight founding members[17] of the Open Government Partnership (OGP),[18] an initiative that was formed in 2011 with a view to providing an international platform for domestic reformers, who share a common commitment to making their governments more open, accountable, and responsive

[15] http://blog.okfn.org/ (Accessed 16 January 2019).

[16] http://www.oecd.org/science/scienceandtechnologypolicy/name,79792,en.htm.

[17] South Africa's participation in this body requires further thinking to assess whether it is meaningful or not. An initial scan suggests that SA has not made any plans relating to land data. The founding countries of this multilateral partnership are South Africa, Brazil, Indonesia, Mexico, Norway, the Philippines, the UK and the USA. (DPTC; 2016).

[18] https://www.opengovpartnership.org/ (Accessed 17 January 2019)

to citizens.[19] Eligibility for membership of countries is predicated on the endorsement of the Open Government Declaration that was endorsed by the initial 75 founding countries. Notwithstanding that, it is important to note that commitment to OG is a different matter to a commitment to opening up of government data. The advocates of OGD view the opening up of government data as one of the strategies of the bigger agenda of open government.

A set of principles that underpin the OG and OGD movements distinguish them from LISs/LIMSs. Tauberer (2014: no page 1) lists them as follows:

i. Data must be **complete.** All public data is made available. Data is electronically stored information or recordings, including but not limited to documents, databases, transcripts, and audio/visual recordings. Public data is not subject to valid privacy, security or privilege limitations, as governed by other statutes.

ii. Data must be p**rimary.** Data is published as collected at the source with the finest possible level of granularity, not in aggregate or modified forms.

iii. Data must be **timely.** Data is made available as quickly as possible to preserve the value of the data.

iv. Data must be a**ccessible.** Data is available to the widest range of users for the widest range of purposes.

v. Data must be **machine processable.** Data is reasonably structured to allow automated processing of it.

vi. Access must be **non-discriminatory.** Data is available to anyone with no requirement of registration.

vii. Data formats must be **non-proprietary.** Data is available in a format where no entity has exclusive control.

[19] This theme is taken up further in Chapter Eight, Section 8.2 with specific reference to South Africa.

viii. Data must be **license-free.** Data is not subject to any copyright, patent, trademark or trade secret regulation. Reasonable privacy, security and privilege restrictions may be allowed as governed by other statutes.

Central to the meaning of 'open' is principle of interoperability, which "denotes the ability of diverse systems and organizations to work together (interoperate)".[20] South Africa's Minimum Interoperability Standards (MIOS) defines interoperability relationally between information systems as the ability of multiple information systems or technology components to interconnect and exchange data (s8.2; ss8.3.1.1; 9.2.3.3; 9.2.3.5; s9.3) (DPSA, 2011). This implies the ability aggregate or disaggregate data-sets from different sources.

It is important to make a distinction between concepts that are at the same intersection with OG/OGD, such as Land Information Systems (LIS) and Land Information Management Systems (LIMS), which are primarily concerned with land data for the purposes of management. Nichols (1993: 230; McLaughlin, 1985) defines LIS as "a combination of human and technical resources, together with a set of organizing procedures, which pivot around the collection, storage, retrieval, dissemination, and use of [land] data in a systematic fashion". McLaughlin & Nichols (1987: 11) define a LIS as a system comprising multiple dimensions which among others include a technological dimension (e.g. hardware and software), a set of organising procedures, which structure the relationship among the components, an institutional element including corporate structure, and a platform or resource-base on which data is stored and can produce meaningful land information for analysis and dissemination. LIS entailtechnical data management tools and are explicitly devoid of any explicit philosophical or political undertones, while the idea of OG and OGD are overtly loaded with both technical, and philosophical/political undertones. Sietchiping et al. (2009) attribute the rise in implementing the Land Information Management System (LIMS) to a constellation of good practices from the spectrum of global experience from the 1970s right through to the 1990s.[21] While the tradition of Open Government Data (OGD) is understood to constitute a fundamental

[20] http://opendatahandbook.org/guide/en/what-is-open-data/

[21] The discussion on LIS and LIMS is taken up further in Subsection 1.4.2 distinguishing them from Open Government Data (OGD).

departure from notions of LIS and LIMS, the common thread between the two systems is that they both entail collection, processing, storage and dissemination of facts about land.

The use of computers is an essential requirement for OGD, while LISs are not necessarily embedded in the use of computers (Nichols, 1993). Harrison et al. (2012; Fung, Graham & Wiel, 2007) view the phenomenon as the intersection between the goal of transparency within the context of government and the contemporary information communication and technology (ICT) tools. Looked at differently, this a different way government conducts itself in relation to the management of data. The OGD logic of collecting, processing, storing and disseminating data is qualitatively different from undertaking the same exclusively for internal execution of state functions associated with managing land as a national economic resource; managing state-owned land (stocks and flows); planning and managing land reform etc. The OGD is anchored in the logic of undertaking the same exercise primarily for empowering public participation in governance processes, while the LIMS are limited to satisfying state requirements. Harrison et al. (2012:917) reiterate that it is not untoward for government to collect, analyse, and use of information to enhance it's governance functions as an essential part of delivering services to citizens. However, from the data available to them, governments have rarely had insights into what their constituents deem to be valuable. At a technical level, they identify the key advantage of ICT convergence as a cost reduction of capturing, managing, consumtion and sharing of data (Harrison et al., 2012). While it is generally accepted that OGD systems involve the use of technology to provide access to government-held data, it does not inherently drive open government even though it has the potential to create enabling conditions (Williams-Elegbe et al., 2017). From this perspective, OGD is a subset of OD, with the former concerned with data that is generated by the government.

Notwithstanding the long history of OG and OGD movements, Zuiderwijk et al. (2014; McDermott, 2012, 2010; Bertot, Jaeger & Grimes, 2010) point to the surge in scholarly attention given to the nature and form of OD, OG and OGD in recent years. In spite of the recent surge, Zuiderwijk et al. also note the absence of an overview of

existing open data policies coupled with an overarching framework for comparison of OD policies. While the notion of open comes in different guises, sometimes referred to as open Public Sector Information (PSI), transparency is critical to understand them as a movement with different tendencies. A further discussion of land data as a domain of land administration is taken up in Chapter Four, while a detailed assessment of South Africa's land data ecosystem is undertaken in Chapter Eight. The next subsection provides an outline of the chapters of the dessertation.

1.5 SIGNIFICANCE OF THE STUDY

This study pivots around the land justice imaginaries. Land justice imaginaries are not a replacement, but instead build on the degrowth discourses in ecology – which pivot around sectoral concepts such as environmental justice, climate justice, aviation justice etc. (see Ertör & Hadjimichael, 2020). Among some of the elements of this set of ideas is Rawl's (1971) notion of territorial social justice and Soja's (2010, 2009, 2000) expositions of spatial justice. Rawl's (1971) theory of justice revolves around equity of freedoms and materials, by redistributing towards the disadvantaged by way of raising the floor. A crucial element of land justice is not only about the internal ethical land relations within the confines of the bounded state territory, but also about ethical sovereign relations with other sovereign states -- about "alternative forms of sovereignty, political subjectivity and personhood" (Safransky, 2018:501). Some of the philosophical pillars of justice include concepts such as 'equity', 'fairness' and 'inclusion', which are concerned with raising the floor for the subaltern (ss6.2.7) (Fitzgibbons, 2019). There is no doubt that for the world to be a better place for everyone, and for the [land] environment to stand a chance of being protected, the economic conditions of the poor have to be raised (Noyoo, 2007, Brundtland, 1987; Rawl, 1971). The study relooking at land administration as a concept --deconstructing and assembling -- as a phenomenon that has been studied objectively in the past with the belief that the exercise will uncover new insights or raise new questions that had previously not been discovered the process of (Leedy et al., 2014).

The study represents a break from the functionalist knowledge which have hitherto dominated land administration scholarship, advancing an assemblage of systems and systems thinking and institutional approaches (Walby, 2007). The study partly

addresses Jacobs et al., (2011) caution in respectct of the positivist tradition, by positioning 'land' as a unifying subject of inquiry (as opposed to it,s constituent parts), between what are essentially intertwined constitutive elements: water, energy, agriculture, forestry, environment, and minerals sectors, among others, etc. On the one hand, the land governance and administration perspective also creates an overarching scale for research, which looks at land holistically, as opposed to it's constituent parts (Zelli et al., 2012). From that perspective, this study will hopefully contribute to the academic body of knowledge by providing a broader conceptual understanding of land governance and administration. On the other hand, land governance and administration as overarching frameworks which create a unifying research pedestal -- land at the center—has implications for boundaries between disciplines and transdisciplinary approaches and practices and subsequently knock-on effects on how state architectures are re-imagined.

Ultimately the study represents a break from conventional Eurocentric conceptions of land and land administration, by taking a holistic perspective to land, has a direct and indirect implications for how policies in the land sector are formulated not only in South Africa, but to Africa as well. For government the policy implications relate to how policy is formulated and how government architectures are configured to deal with land systems transitions holistically. To the extent that the exercise places a prism on conceptual meanings of land, it has disruptive consequences for the meaning of 'land data', with implications for both research approaches and practices.

The study is located in the emerging discipline of land systems science (LSS) and earth systems governance (ESG) and is conceptualised as part of the process of producing transformational knowledge that could potentially form part of the toolkit for the development of policies and practices for sustainability trajectories (Dong. et al., 2019; Nielsen, etal., 2019; Verburg, et al., 2015). On one level the study contributes in the form of a tangible solution, setting out elements and principles for the 'repurposing of land administration' in a post-apartheid South Africa. On another level, the proposed notion of repurposing of land administration is articulated around a set of global normative goals and principles making it's application possible on a regional and continental scale. Lastly, the proposed notion of repurposing and administration sets out the basis for guiding implementation of OG, and OGD within

a developing country context in a manner that counterbalances the dominant information protection paradigms.

While supportive of overall thrust of the various versions of OGD principles, the study identifies a research gap to address customisation of the global principles to the African context, and South Africa in particular (s8.2). The study also draws relevant lessons from international praxis in a manner that sets out new trajectories while also anchored within a South African context. The next subsection identifies some of the limitations of this study.

1.6 CHAPTER OUTLINE

The dissertation is structured as follows:

Chapter One provides an outline of the problem, the goal and objectives of the study. The chapter undertakes a preliminary review of literature in both nominated study areas, with respect to land administration, on one hand, and Open Government (OG) and Open Government Data (OGD), on the other. The chapter goes on to sketch out the significance of the study. In addition, the chapter briefly sketches how the dessertation is structured, by logically drawing attention to the linkages between the chapters and the different elements of the study. (Evans, Gruba *et al*., 2014).

Chapter Two provides a high-level overview of the study, starting by detailing methods used, and a justification for the specific combination of methods selected, supported by literature. It goes further to clarify and the limitations of the study. More importantly, this chapter briefly clarifies how the study contributes to the body of knowledge.

Chapter Three largely premised on the overarching aspirational ideal of repurposing land administration in the post-apartheid South Africa, the chapter starts off by making a case for building a capable state, coupled to building an active citizenry.[22] It goes on to provide a brief outline of the assemblage of theoretical frameworks that are deployed in the study, inclusive of the general systems theory, complexity theory,

[22] Active citizenry is used interchangeably with the concept of publics that was introduced in Chapter One.

the institutional and multiple scales approach, as the preferred conceptual frameworks for the land governance and administration component of the study. The ecosystem metaphor, a branch within the general systems theory, is the preferred framework for the Open Government (OG) and Open Government Data (OGD) component of the study.

Chapter Four deconstructs land administration as a concept or an idea. The specific objective of the exercise was to differentiate between what falls within the ambit of land administration and what does not, thus eliminating confusion. This exercise seeks to place some buoys,[23] both literally and figuratively, by unpacking the ontology of land administration based on the literature review. The concept of land administration is also explored from multiple perspectives in relation to a cluster of related concepts such as land governance, land management and land tenure, finally coming to the conclusion that land governance and land administration are inextricably linked, with the latter representing the implementation component of the former and that the two should be seen as two sides of the same coin (the presence of one implies the presence of another) (ss 2.2.1; s2.4; 3.2) .

Chapter Five provides a broad overview of the global and continental land governance architectures and institutional arrangement as part of contextualising the broader environment in which land governance and administration are located. This chapter starts off by examining land governance architectures at a global scale, before exploring some of the key institutions in global land governance. After providing a broad brush on land governance architectures and institutional arrangements on a global scale, the chapter picks up on a select set of themes in land governance; sovereignty-territory triad; state post-World War II development paradims; Intersection between economics and land, and; geo-data technologies in land governance

Chapter Six provides a broad overview of the continental – with specific reference to Africa -- land governance architectures and institutional arrangement as part of contextualising the broader environment in which land governance and

[23] The free dictionary defines a buoy as "as a float that is placed in water and usually moored as a mark of a location, enable retrieval of a sunken object, or record oceanographic data." https://www.thefreedictionary.com/Bouy (Accessed 25 April 2020).

administration are located. The chapter proceeds to explore the history and legacy of Africa's trans-national boundaries as a land governance theme. The chapter briefly explores land rights regime in Africa, before exploring complexities of hydro-politics in the continent, with specific focus on the SADC region. The chapter explores some of the regional integration in Africa, and the new scramble for Africa.

Chapter Seven provides a brief historiography of South Africa's land governance and administration system with specific focus on the transition from apartheid to the post-apartheid dispensation, in the process isolating some key institutional complexities that have arisen from a convoluted history. The chapter proceeds to explore some of the land governance instruments that were either used or not used, which had a role in the perpetuation of exclusion – land rights; customary law; regulatory instruments. The chapter goes on to unpack the factor that drive the phenomenon of spatial inequality. The chapter concludes by evaluating land administration.

Chapter Eight undertakes an assessment of South Africa's land data ecosystems, as a domain of land governance and administration deploying the ecosystems theoretical framework.

Chapter Nine sketches out the idea of repurposing of land administration, casting a high-level scalable, aspirational goal and allocating a broad meaning by unpacking what it's essential elements should be, based on the findings in Chapters Seven and **Chapter Eight**. The chapter proceed on making a case for the election of data domain as a leverage point for repurposing of land administration and also provides an outline of some of the principles that should underpin the repurposing imaginary.

Chapter Ten summarises the key issues that emerged from the review of policies, literature and the empirical evidence and discusses the main findings of the study. it goes on to present key findings and isolates out implications of the findings.

1.7 CONCLUSION

This chapter sets the scene by articulating the problem statement in South Africa's land reform policy trajectories, drawing a close link between spatial inequality, the wider challenges of economic development, and growing poverty. In the transition

from apartheid to the post-apartheid dispensation, South Africa put in place a plethora of policy measures which were intended to turn the tide of poverty trajectories around, among them, the land reform programme. Largely due to perspectival limitations during the transition to the post-apartheid order, land governance and land administration were not included in the policy design. Within a decade of the transition, it became apparent that spatial inequality and poverty were soaring, as South Africa was topping the global charts. The chapter highlights the domination of South Africa's land policy by land reform, to the exclusion of land governance and land administration.

After outlining the research aims, the chapter undertook a brief review of literature on the land administration OG and OGD. The chapter draws a link between the trend of contemporary history towards OD, OG and OGD, on the one hand, and ideals of transparency and accountability, on the other. Firstly, international multilateral institutions such as the United Nations and the World Bank, among others, are taking positions in respect to OGD as in the post-2015 United Nations Development Goals report acknowledging the potential role of OGD and development.[24] Secondly, the global increase in the emergence of a number of international non-profit entities that collectively advocate for slightly different aspirational variants of OG/OGD aimed at governments.[25] Thirdly, the chapter further attests to the growing global trend wherein governments are increasingly opening and providing access to the data they collect as a new kind of public resource for many beneficial purposes (Gurin et al., 2015). All these developments are accompanied by a surge in scholarly attention given to the nature and form of OD, OG and OGD in recent years (Zuiderwijk et al., 2014; Bertot, Jaeger & Grimes, 2010; McDermott, 2012, 2010). Arguments from advocates of OD that it supports both knowledge and innovation among and between scientists and entrepreneurs, are built into advocacy campaigns for governments to make freely available data/information that they generate (Harrison et al., 2012; Pollock, 201; OECD, 2004). In spite of the recent surge, Zuiderwijk et al. also note the absence of an overview of existing open data policies

[24] https://sustainabledevelopment.un.org/content/documents/1579SDGs%20Proposal.pdf (Accessed 03 June 2019).

[25] https://okfn.org/about/ ; also see https://okfn.org/ (Accessed 16 January 2019).

coupled with an overarching framework for comparison of OD policies. The chapter is wrapped up by providing outlining the structure of the dissertation.

The next chapter presents the research design that underpins the study, including justification for methodological approaches deployed in analysing and packaging the information. The chapter ppaints a brief picture of the researcher's positionality, going on to provide an outline of the methods used to gather data, and justifies the selection of methods. It goes on to isolate the elements that are considered to be limitations of the study.

CHAPTER TWO : RESEARCH DESIGN

2.1 INTRODUCTION

The previous chapter set the scene by articulating the problem statement, with a particular focus on South Africa's space economy, highlighting how the land reform policy design was dominated by narrow land transfer models, to the exclusion of governance and administration perspectives. In part, this study was inspired by a sense of a growing disjuncture between land policy goals, in spite of what Agholor and Obi (2013) refer to as a storm of poverty reduction strategies, the growing spatial inequality, poor land reform outcomes and growing poverty and. What the researcher sought to understand the role of overarching systemic frameworks of land administration. This study rests on a land justice or just land transitions pedestal, focusing on the nexus between geographical distribution of resources (Yennet, Komali & Golubchkov, 2016).

The chapter also outlines the researcher's positionality, and – to the extent possible – touches on some of the key orientation issues emanating from that. This chapter presents an outline of the methods used to gather data, and justifies the selection of methods methodological approaches deployed in analysing and packaging the information together (s2.3). Furthermore, the chapter outlines the limitations of the study, from the perspective of the researcher. The next subsection provides a broad outline of research methods that were deployed in the study.

2.2 RESEARCH DESIGN AND BACKGROUND TO THE STUDY

2.2.1 Researcher's Positionality

Dussel (1977) reminds us of the notion of 'geopolitics of knowledge' -- the idea that our knowledges are always situated – identifying the inescapable linguistic, cultural, class, gender and geography hierarchies that are embedded in the colonial modern world system. As part of the epistemic journey, the researcher draws from the decolonial thinking, a conscious effort to shift the locus of knowledge generation away from the West and disrupt longstanding power relations emanating from colonialism (Ndlovu-Gatsheni, 2013; Mignolo & Escobar; 2013; Mignolo, 2011;

Grosfoguel, 2007). As opposed to producing knowledge from the Eurocentric 'point zero' perspective -- as if one has no point of view -- failure to decolonise concepts is tantamount to privileging the hegemony of Western matrix of knowledge systems and spirituality, which in turn entrenches historical power hierarchies -- racialisation, classification and pathologisation -- by default. In other words, simply accepting Western concepts without scrutiny is tantamount to allocating to the West the exclusive franchise for thinking tools which we should use to understand not only our situation but also how to change our situation. Chakrabarty (2008:89) argues that "The dominance of 'Europe' as the subject of all histories is part of a much more profound theoretical condition under which historical knowledge is produced in the third world." But the calls to provincialise Europe, i.e. to get beyond treating all of the West as one seamless, modern whole, call precisely for a deconstruction of the intellectual traditions of the West (Chakrabarty 2000). In reality there are many Western scholarly, theoretical and ideological positions, and many of them have been established in direct opposition to each other. Rigid binaries about the knowledges of the global North and South also play into the fallacy associated with the idea that Africa remains the intellectual dark continent with little to contribute to global scholarship. As a result of multiple scales approach, the researcher takes a dim view of both Eurocentric and Afrocentric fundamentalism -- anti-colonialism and anti-nationalism - or idea that any single epistemic tradition should be used as a sole source of universality (Grosfoguel, 2007). From a decolonial perspective, positionality foregrounds some knowledges while it simultaneously forecloses others (Grosfoguel, 2007). Grosfoguel, (2007) argues that decolonial epistemology emphasises the need to decolonise concepts (see ss4.2.1). In concurance Ndlovu-Gatsheni's (2013) notion of indigenisation is understood as a necessary part of detachment of thought processes from the Eurocentered knowledge hegemonies (ss6.2.7). Much of the transition narratives in developing countries remain locked in the imperialist civilisation goals, which revolve around 'modernisation' and 'catching up' with the global North (Chakrabarty, 2008: 86). Much of these narratives hinge around sketching out how development unfolds elsewhere in around the skeleton of that which is substantially Europe.

Nicolescu (2014: 186; Ehrlich & Ehrlig, 2012) arguing from transdisciplinary approach is critical of the ideology of scientism for the manner in which it did not only

result in the development of science in separation from ancient visions and separation of the knowing subject from reality, and resulted in the phenomenon of 'objective knowledge'. Mignolo & Escobar (2013) characterise the notion of epistemic decolonisation or de-coloniality as an ideal vision wherein intercultural communication and rationality places life at the apex of human endeavour, in which norms are at the service of society instead of the other way round. Contrary to the 'decolonial turn' being a theoretical school of thought, it is a broad body of slightly divergent scholarship orientations, which all congregate around the idea of coloniality being the fundamental problem of global society (ss6.2.7) (Ndlovu-Gatsheni, 2013). The researcher draws a lot of intellectual resources from this body on knowledge.

The researcher is a male of African descent – started his working life in the land sector, in policy, research and advocacy, working for a Non-Governmental Organisation (NGO) for five years (1992-97) – which period coincided with the height of South Africa's transition from apartheid to the post-apartheid dispensation. While primarily located in the Eastern Cape Pronvince, during this period, he was involved in national land policy development process through a network of land sector NGOs. A key dimension of the researcher's positionality is the extent to which he is embedded in the embroidery of the land sector stakeholders, with it's advantages as well as disadvantages. For the current purposes, the preferred understanding of the publics is one that emphasises a federation of multiple diverse voices, opinions and positions as opposed to a uniform mass of people (Dantec et al., 2013). Given his professional and activist background, the researcher undertook this study acknowledging his own biases, constantly taking a step back, in order to avoid imposing his own views to reality. For the following ten years (1997-2007) he joined a consultancy company that provided research and development planning support to various government entities. From 2003 to date he has been part of another consultancy – which specialised in planning and land reform. From 2009 to 2020 he held a position at another NGO (Phuhlisani NPC) that specialises in land reform on a national scale. At the time of writing this dessertation he had worked in the land sector on a professional basis as well as an an activist, for approximately 28 years. The researcher considers the entire period of 28 years as a researcher, planner and activist in the land sector as a long journey of learning from knowledges

that are ‘located’ somewhere along the continuum of dominant or subaltern ends of power relations (Grosfoguel, 2007).

While some dimensions of the researcher’s positionality were seen as advantageous during the course of the study, the same or a slightly different aspects of positionality brought about diverse responses from other informants. From his experience on various consultancy assignments across South Africa, the researcher was aware that consultants are perceived differently by various actors. The same is true of activists that are associated with scertain NGOs. It is now a fact of history that some of these antipathies from government officials dampened willingness of would be informants from participating in the research, due to negative predisposition towards the researcher -- clearly suspicious of his impartiality -- viewing the study as part of a systematic attack on government, rather than as an academic inquiry. On the down-side emanating from the researcher being known among those who had been in government for long periods, some prospective informants were reluctant to avail themselves for formal interviews. Notwithstanding that, the researcher made use of those officials who were willing to participate in the study, as a means of ensuring that reliable information is acquired. Some of the reactions were not totally unexpected in contexts where transformative ideas are contested. On th upside, the researcher took full advantage of beingpart of a number of land sector civil society formations, members of which regularly exchanged information on a range of topical land related discussions via email. These email exhanges often provides current information on key policy isssues, turning into an important source of unsolicited information.

Capitalising on the researcher’s positionality, his knowledge of the terrain and standing in the sector, the researcher went further than direct observation, by actively and strategically pursuing specific consultancy assignments that had some resonance with the study. During the course of the study, the researcher participated in seven commissioned studies, producing one research report,[26] two

[26] Manona, S. & Kingwill, R. 2019. Land Tenure and Land Administration on South Africa. Open Society Foundation and Phuhlisani Partnership.

concept notes[27], one policy submission[28], and three discussion documents,[29] all of which fall within the ambit of land governance and administration. While these various reports were not necessarily part of the original methods design and did not necessarily have a hand-in-glove fit with the dissertation, they contributed immensely in providing nuanced and in-depth insights into specific nooks and crannies of the subject under study. One of these assignments provided a rare opportunity to scan various internet based land data resources from a selection of state entities. This sort of involvement in the wider sector constitutes an interesting 'insider-outsider' positionality, which needed to managed with extreme caution, given the ethical issues it often elicited.

Largely drawing from Shaeffer et al. (1988) the researcher exercised his own judgement in undertaking the diagnosis of South Africa's land data system (See Chapter Eight). Notwithstanding the national focus being the primary subject of this investigation, the researcher adjusted the study's focus outwardly and inwardly between international, (UN scale) continental (AU scale), and regional (SADC scale), national and local scales as part of a search for a holistic perspective of systems at different levels of abstraction (Malecic, 2017). The change of focus between scales had to be done with extreme caution, with full awareness that the parts of the system under study are not uniform, and that some phenomena at these different scales have wider implications beyond a single scale. For instance, South African provinces cannot be simplistically lumped together without losing sight of the historical factors differentiating each province, while considering matters such as the footprints left behind by the former homeland system. The shift between scales was undertaken within the context of revealing connections and disjunctures between

[27] Manona, S. 2019. Concept Note for a National Land Observatory, Ver. 1.1 9 October 2019; Manona, S. A Concept Note for a National Land Observatory, Ver. 2.4, March 2020. Prepared for presentation to a policy brief the Land Governance and Agrarian Transformation Policy Round - an initiative of the Multi-Stakeholder Platform Event postponed due to Covid-19 outbreak).

[28] Submissions compiled by S. Manona and R. Kingwill on land governance and administration, prepared on behalf of LandNNES towards the RSA: Presidency 2019 Presidential Advisory Panel Report on Land Reform and Agriculture.

[29] Manona, S. 2019. Discussion document for LandNNES: An overview of South Africa's Land Data Ecosystem for a People Centered Land Governance system; Manona 2020. Towards a strategic response to Covid-19 global pandemic: A discussion document for the Alliance for Rural Democracy (ARD), March 2020; Manona, S. & Hornby, D., 2020. Covid-19 in South Africa: An argument for a single, open access spatial data infrastructure (Internal LandNNES discussion document).

multiple scales. The unfortunate part of shifting between scales is that less attention was given to local scale, than the researcher would have envisaged.

The study is primarily exploratory in nature, intended to facilitate a context-appropriate framework for conceptualisation and analysis of land administration (Leedy & Ormond, 2014). Largely based on social science deductive research logics and methods, the study moves from the premise that some facts had been discovered and are known. A combination of three key considerations played a significant role in determining the choice of overarching research methods for this study. While this study transcends qualitative/quantitative binaries, by drawing from both, the double-barrel subject of the study – land administration and open government data – coupled with the national pitch of the study and the research questions, steeped the study more towards qualitative methods (Curtis & Curtis, 2017; Neuman, 2014; Ochieng, 2009). Qualitative methods were found to be appropriate for the subject of inquiry at hand, largely for their sensitivity to context and their capability of depicting complexity of socio-political phenomena and processes. A combination of literature review (ss2.3.1), direct and indirect observational methods and key informant interviews were used . (ss2.3.2; 2.3.3) (Patton, 1990; Schwandt, 1989; Guba & Lincoln, 1985; Reichardt & Cook, 1979)

2.2.2 A Review of Literature

On both themes under study (land administration and OGD), the researcher sought to develop insights into what had gone on before in the areas of inquiry under study, drawing heavily from primary and secondary literature in it's various forms (Curtis & Curtis, 2017; Neuman, 2014). The first layer of the literature review entailed identifying and reading scholarly journals and books; the second layer entailed identifying and reading of secondary material such as legislation, policy documents, agency documents, media publications, and; the third layer entailed a website scan involving online searches, making use of internet search engines. These three layers entailed an exploration of the terrain, distinguishing between high-lying and low-lying areas and finding gaps where they existed, by following the contour-lines or where deemed necessary, going against the literature where warranted, underpinned by an endeavour to develop clarity of what is currently known about the

subject matter. In the process the researcher was simultaneously on a journey of discrimination of both quantity of facts, and the quality of the material available.

A literature review provides a framework for deductive analysis, that emerges from an analysis of literature in it's various guises, i.e. scholarly, literature, government policies and reports, websites (Neuman, 2014). One of the advantages of the ICT era is the unprecedented availability of secondary data sources -- data already exists out there in the public domain –it is time and cost effective to collect secondary sources, compared to collection of data from original source/s (Powell, Dawson, Topakas, Durose & Fewtrell, 2014; Sørensen, Sabroe, & Olsen, Jørn, 1996). The downside however is that research data selection, the quality of data available and effective data collection methods fall outside the control domain of the researcher. The literature review found a special resonance in this study more and specially in the nexus between the state of land administration system and the normative ideal of repurposing that the study advocates. This cannot be left without a caveat, given that much of the international literature on both subjects is heavily tainted with the western- experience and perspective/s that do/es not necessarily represent the African context. The researcher attempted to navigate through these vagaries cautiously by drawing out what is relevant and useful to the context under study. With respect to the data/information component of the study, the researcher paid special attention to philosophical and technical underpinnings of Open Government (OG) and Open Government Data (OGD) without losing sight of the technology divide between western and African country contexts, as well as contextual factors that inform policies in these specific situations (Zuiderwijk et al., 2014).

In addition to secondary sources, much of the primary land data on South Africa's data ecosystems was collected over the internet by examining land data sources available and evaluating what is available and comparing various data-sets on the internet based on Manyika et al's (2013) four OD principles – access; machine readability; no or low cost, and; right of reuse (Tauberer, 2014). In the interest of quality of facts available, the researcher excluded the four OGD principles from the analysis, because in a number of instances much of the data that relates to the entity manadate was not published. Instead the researcher added three new criteria: availability of an index that showed which data categories and sets are published; availability of a OGD plan, which indicated which additional data sets each entity was

planning to make open, and; whether land data relating to core mandate was published or not. Making use of Microsoft Excel, the researcher compiled a table of government departments, recording the internet links of the data source wherein a record of data-sets that is generated or stored. Largely due to the number of municipalities, the exercise was limited to 27 randomly selected (representing approximately 10%) municipalities, randomly selcting one and counting and seling every ninth one. In addition the South African Local Government Association (SALGA) in it's capacity as a representative body was on the basis of purpuseful selection..

While this study is primarily about ideas of justice within the context of South Africa, the researcher relied heavily on secondary literature, as opposed to key informant interviews, the voices that represent the poor, and 'would be' beneficiaries of justice transitions (s1.5). While listening to multiple voices that cajole government policy in different directions would have been ideal, it was an impossible task and beyond what could be achieved by an individual, in the back-drop of the Covid-19 pandemic context. This meant that that the strategy of listening to a wide variety of voices had to be downwardly adjusted..

2.2.3 Observational Methods

Taking advantage of the researcher's positionality as practitioner and activist in the land sector, an assemblage of observational (direct and indirect) methods were deployed. Direct observation also known as observational study methods, wherein the participants are either unaware that the research is taking place, or the awareness is too remote to change the participant behaviour, in ways informants think the researcher expects (Holmes, 2013). This broad assemblage of observation methods converges in what Curtis & Curtis (2017; Kellehear; 1993) classify as unobtrusive methods, that have found some landing ground in many research questions and disciplines within social sciences,. Unobtrusive methods work better when used as a supplement to existing research or literature review, subject to considerations of presence or absence of features that could either enhance or undermine the validity of the findings (Curtis and Curtis, 2017). Even though the possibility of doing harm cannot be completely excluded when dealing with people, whether directly or indirectly unobtrusive research methods present the possibility of

research with minimum ethical concerns,. Notwithstanding that, there seems to be consensus that observation carried out in public settings is highly unlikely to breach the usual social and ethical boundaries of appropriate behaviour. In the context of public spaces, participants are aware of the public eye that could well include media and research publics.

Partly informed by the ideal of collaboration with others as an essential part of the academic endeavor (Leedy et al., 2014), the researcher made a design choice of direct observation by carefully observing and analysing land administration procedures, specifically in the domains of land reform, land usemanagement and town planning sub-domain. This method enabled the researcher to draw on a wealth of information in which the phenomena or processes are observed in their natural environment without interference. Given the extent of overlap between the professional domain of the researcher and the subject matter under study, the researcher had unequalled access to key informants and an exceptionally wide professional and academic network of colleagues that had in-depth insights and often varied perspectives into the enquiry. The network of key informants subsequently had a snowball effect in widening the network of informants in providing pointers and access to further sources of information.

In the course of the study, the researcher participated in various capacities (as either participant, in some cases a respondent and in other as panelist) in a range of conferences, virtual seminars, and workshops where participants were expected to discuss issues outside of formal interview constraints.[30] In all these events the researcher had a rare exposure to a wide range of stakeholders, including officials at different scales of government, representatives of civil society formations, consultants, activists in non-profit companies as key informants, which is is likely to be in the grey area in terms of research ethics. Participation in all these events provided an opportunity to interact with a variety actors in the discipline and gain insights on current and emerging thought processes and solict responses to specific questions of interest (Dunleavy, 2003; Young, 2002). Bearing in mind the peculiar

[30] A comprehensive list of conferences, seminars and workshops is available in Annexure 2, broken down by event date, event name and venue, convener and approximate number of participants. https://docs.google.com/spreadsheets/d/1P9ChDBhI-9FX3QegmtJwR0uQpm95puqBIJLHOVGM7l0/edit?usp=sharing

settings of conferences, seminars and workshops, wherein participants are generally expected to engage in policy debates more freely than they would in formal interview settings, one of the lessons that emerged early on from this approach, is the fine line (grey area) dividing personal perspectives and organisational perspectives. To navigate this quandary, the researcher drew from his own resources, which are anchored in pre-existing knowledge generated in the course of his own professional work as well as knowledge of the individual actors and institutirons.

In navigating his way around these ethical dilemmas, the researcher made a verbal declaration in many of the smaller group seminars and workshops with a caveat that if any ideas found their way into the report, identities would be concealed. Where the researcher needed to reveal a source, for the purposes of the strength of source, permission would be requested on a case-by-case basis. In bigger conferences and colloquia, the researcher did not make any similar declaration on the understanding that those were by all means public events. The unobtrusive methods are inexpensive, partly because the groups were not convened for the specific purposes of the research (Curtis & Curtis, 2017). The next subsection deals with key informant interviews.

2.2.4 Key Informant Interviews

During the course of literature review and observational processes, a number of questions arose – as expected -- the responses to which were directed at purposefully identified key informants, with the idea of shedding light on specific or general questions (Marshall, 1996). While the technique has roots in ethnographic research in anthropology, it has found application beyond it's origins. The researcher had the ultimate liberty to select individual/s and categories of key informants, based on their expert knowledge, their understanding or repertoire of manifestation, origins, meaning, functions or purpose of systems that are embedded in cultures and traditions which had to be considered. In the selection of key informants, the researcher made use of Tremblay's (cited in Burgess, 1989) characterisation of an ideal key informant as a benchmark: the informant's positionality in relation to the area of inquiry; willingness to participate; internalised knowledge that the informant could explain; the informant's ability to communicate

his/her knowledge and; the ability to separate their own perspectives from those of others.

One of the strong points with respect to key informant interviews is that data can be mined in relatively short time spans (i.e. a telephone call inquiry), when compared to the potentially prohibitive effort associated in-depth face-to-face interviews, which require travelling. Notwithstanding that, the researcher approached the issues, bearing in mind that key informants are not free from the colonial political baggage, underlying assumptions, which often constitute the the rubric of their professional training -- which created them in the first place (Ludwig & Macnaghten, 2019). Taking advantage of his own positionality, the reseacher was able to turn to social, professional and other networks when key informants were required. The Covid-19 of implications of lock-downs and physical distancing requirements created a major hurdle to would be key informant interviews, who could have been engaged personally. To get around the situation, the researcher resorted to telephonic interviews and exchange of emails to gather information from key informants. In total, 17 key informant interviews were undertaken on different areas of inquiry – seeking clarity -- over the telephone, ranging anywhere between 10 and 45 minutes, depending on the nature of the issue requiring clarity at any particular point.

Given the conceptual nature of the study, the researcher only relied on a informational conversations with a range of stakeholders in government at a national, provincial and local level as well as individuals outside of the state in order to close gaps in the literature. Official records, where available, such as letters, planning documents were sourced from key informants and used as a key source of information – for triangulation purposes. The next section outlines selected case studies.

2.2.5 Selected Case Studies

This study takes a very broad view of land administration as a subject of inquiry, with multiple sub-domains and dimensions, informed by a holistic conceptual ontology of land. The researcher was ultimately guided by the idea that all humanly decisions that have ultimate impact on land use, in the decision value chain, inherently have implications for land administration. Such decisions may be at a personal or micro-scale, such as a personal decision to work from home, cycle to work, drive own

vehicle to work or to use public transport etc. For example a decision by a private property developer making a choice on what toilet flush system to use in housing development, constitutes a land use decision, given the ultimate water use implications of that decision along the value chain. Such decisions could be decisions by local municipality to influence land use decision on the part of communities, by putting in place a set of policy measures to either encourage or discourage certain land use activities. Government at both provincial as well as at a national scale often make investment decisions, which ultimately impact on land use, thus turning those into land administration decisions. In some instances the land nexus is direct and clear, but in other instances the nexus nexus is indirect, fuzzy and complex. What this implies is that land administration goes way beyond the land sector.

While fully cognisant of the breadth of land administration that emanates from such a broad conceptual meaning of landdecided to work around selected thematic areas, for the purposes of this study, the researcher selected two specific themes – water and trans-national boundaries that are studied on a global, continental and national scales, for reasons of practicality. On the one hand, the theme of trans-national boundaries is selected for it's application at multiple scales, intersectionality, the fixed nature of boundaries, and it's political and economic legacy in Africa. On the other hand, the water resource theme is selected for similar reason, in addition the transient nature of the resource and it's poor fit with bounded state administrative boundaries. For the purposes of assessment of South Africa's land administrations and governance policy focuses largely draws from the historiography of the transition from apartheid to the post-apartheid dispensation, using Howlett's (2013) evaluation criterial of consistency, coherence, congruence and integration. Howlett's evaluation criteria were selected because they provide a useful analytical tool for understanding policy design logics, a strength that emerges in the assesment of the land data ecosystem, as a domain of land administration. For the purposes of assessing South Africa's land data ecosystem as a domain of land administration, the study elects three sub-domains, the national address system, the national archives system and the Deeds Registry (DR) and Surveyor General (SG), largely because of availability of information. Throughout the study, the issues of climate change and

sustainable development are constantly weaved in as a cross-cutting 21st century phenomenon.

For the purposes of assessing South Africa's land data ecosystem, purposeful sampling was used, partly with convenience considerations in mind, as well as to reveal diversity, largely informed by prior knowledge from a prior consultancy assignment (Suri, 2011). Largely due to diversity and representivity considerations, a combination of random and purposeful selection was used to select one metro from three different provinces (Western Cape[31], Eastern Cape[32] and Kwazulu-Natal[33]). A total of three metropolitan municipalities were selected – the City of Cape Town, Ethekwini and Nelson Mandela Bay – using random selection. After examining 24 randomly selected local municipality websites, all with no land data, the researcher made a conscious decision to exclude local municipalities from the. In order to make up exclusion of local municipalities from the sample the South African Local Government Association (SALGA) website was included in the sample as an entity that represents organised local government.[34] The Municipal Demarcation Board (MDB) was also added to the sample, largely because local municipalities had been removed from the sample. A total of eight sector departments were selected using purposeful sampling on the basis of the categories and land data-sets they publish online.[35] These included the Department of Environmental Affairs and Tourism (DEAT), Department of Human Settlements (DHS), Department of Agriculture Rural Development and Land Reform (DARDLR), Departmment of Minerals and Energy (DME), Department of Science and Technology (DST), Department of Sport Recreation Arts and Culture (DSRAC). The Departments of Science and Technology DSTand Sports, Arts and Culture and the South African National Space Agency (SANSA) were included in the final sample list

[31] Selected representing a province without a homeland foot print.

[32] Selected representing a province with a foot print of two former homelands (Ciskei and Transkei).

[33] Selected representing a province with a foot print of a single large former homeland (KwaZulu).

[34] This is all in the context of 226 municipalities, 44 district municipalities, eight metros and 40 national line departments as outlined in Chapter Eight.

[35] Any authoritative determination was only limited to data that was accessible to the researcher, online and nill or negligible cost.

by the researcher largely because of their concealed land data functions. In total a total of 34 data categories with 72 data-sets were examined (see Annexure 2).

While any approach that focuses on a single species in making an assessment of the ecosystem would be seriously flawed, the sheer scope and size of South Africa's land data ecosystem renders the analyses of the system on the basis an inventory of numbers of actors every individual organism or the presence or absence or condition of a single actor is both impractical and unnecessary (Schaeffer et al., 1988). Instead the assessment of the system focuses on analysing system behaviour within a circumscribed domain or cluster of departments, as a basis to extrapolate the health of the system. It is within this context that Schaeffer highlights the importance of the assessor's knowledge, including having an understanding of the normal sequential changes and successions that should naturally take place within the [data/information] ecosystem. It is within this context that the diagnostician's background and knowledge become fundamental. In direct contrast to human/animal health diagnosis, there is no generally accepted criteria for the assessment of data ecosystem health (ss2.2.1) (Schaeffer et al., 1988).[36]

The first criteria used was whether the web-site had any index or not, which guides the user at a glance, on what data categories and sets were published.

SALGA and Metros were assessed in respect of land use planning, land use management, and delivery of water services. Notwithstanding other associated functions, the DARDLR was only assessed in respect of the land reform mandate (land redistribution, land restitution and land tenure reform). The Department of Human Settlement Department (DHS) was specifically assessed in respect of the department's core mandate of delivery of Human Settlements, for the poor which elicits the need to publish data about the housing applicants, land that is going through feasibility studies, land that is earmarked for housing, human settlement feasibility studies, human settlement layout plans, title deeds issued, etc. The MDB was assessed in respect of it's core mandate of demarcation of municipal boundaries. The DSRAC was assessed in respect of data pertaining to it's functions

[36] Open Data principles have not been customised to South African context in Section 8.2.

related to national heritage resources and place names. Each entity web site was allocated a code on each of the evaluation criteria as follows;

Y = Affirmation that the entity meets the specific criteria.

Yq = The entity meets criteria with qualification.

N = Non-affirmation of entity in relation to the specific criteria.

Nq = Non-affirmation of entity with qualification on the specific criteria.

? = Not possible to evaluate entity based on data that is available.

While the researcher examined each individual web site, much of the attention was largely on each actor within the context of the wider ecosystem. For reasons of inaccessibility of data -- in 26 instances -- it was not possible to assign an affirmation of no-affirmation of the entity on all the four open data criteria. For this reason the four criteria were excluded from the analysis.

Based on the synthesis from the prior layers of assessment the study makes use of two diagnostic tools: Cairns, McCormick & Niederlehner (1993) groupings of five indicators; i.e. environmental condition from an adequacy perspective; trends in condition over time; anticipation of potentially hazardous condition; identification causal relationships and demonstration of interdependenceand. In addtition, the study also deploys Lu, Wang & Zhang's (2015) three indicators i.e. resilience, equilibrium and equity (s8.4). The next subsection lifts some of the discernible – from the perspective of the researcher -- limitations of the study.

2.3 LIMITATIONS OF THE STUDY

While this study is positioned primarily as a geographical inquiry, it is also positioned as a transdisciplinary inquiry drawing heavily from the broad body of social sciences and a range ofdisciplines such as history, philosophy, law, planning, geomatics, ecology, environmental sciences, Internet Computer Technology (ICT), etc.. Many of these disciplines have hitherto remained in fragmented knowledge territories. The effect of positivist fragmentariness does not only have consequences of narrowing of system boundaries, but also the consequential foreclosure of other parts of the same system, which is tantamount to prematurely treating an aggressive problem as though it were tame (Rittel & Webber,1973). The broad scope of land governance and administration, is characterised by complex intricately intertwined people-land

relationships (Sangha, Russel-Smith & Costanza, 2019), it's scope is way beyond this study. Because of the sheer vastness of the scope of land administration it naturally presents a limiting factor, from which the researcher had to make choices, by selecting specific manageable thematic areas to focus on, without losing holism.

Social sciences have hitherto indeed been dominated by a culture whereby the reward system is based on providing a critique of pre-existing analytical frameworks of others and replacing old paradigms with new ones. Further, unwillingness or inability of researchers across disciplines involved with institutional dimensions of land transitions to congregate around common conceptual definitions, to isolate key variables in a manner that supports compatibility, and to work around harmonised data in evaluation of hypothesis is commonplace (Young, 2002). While this study is in keeping with prevalent academic traditions, it also symultaneously strives to engender a shift towards transdisciplinarity (ss9.2.3.6). The researcher treads carefully in the analysis of both case law and ICT, in an endeavour to provide a balanced analysis. Disciplines such as law and ICT are appreciated as fast-shifting sands, and for that reason, ICT insights may be limited by perceptions of what is currently known or existing technological capabilities, as opposed to what may be currently possible but not yet realised. Similarly, while critical in providing insights into changing institutions, common law and court rulings only provide a limited view of societal institutions.

Many land governance decisions do not only have far-reaching consequences, but also have traces that cannot be easily and effectively reversible (Rittel& Webber, 1973). For example, one cannot build a dam or highway in order to see how it works andrely on future corrective measures, that could be executed after after unsatisfactory outcomes. For example, the decision by a municipality to procure a compacting waste removal truck has far reaching implications for future solid waste practices, environmental implications for destination waste disposal site/s, etc. Whenever such a decision is made any attempt to correct the undesirable consequences of that one decision, will inevitably have far reaching waves of repercussions s in both space and time. Rittel & Webber (1973) have long advanced an argument that policy designs choices which respond to societal problems cannot

be accurately and simplistically assigned into simple categories of goodness and wickedness. Having said that it follows that some explanations may be arbitrary from a logic point of view, but plausible from the analyst's world view implies that the modes of reasoning to support arguments which are generally permissible in wicked problems is much wider than that which is permissible in techno-sciencelogic.

The extensive scope of land administration juxtaposed with the cross-disciplinary character poses a challenge for the selection of concepts that are used, because different concepts have roots in either different disciplines or geographies. It is practically impossible to think of any place without stumbling across the multitude of concepts that are deeply entrenched in European intellectual traditions (Chakrabarty, 2002). Many of those concepts e.g. citizenship, nationhood, sovereignty, the state, human rights, equality before the law, security of tenure, etc. all bear the hallmarks of European thought history (s5.2 & 5.3). The way these concepts are constructed and used carries power in ways that do not only shape the truth but also shapes human behaviour (Foucault, 1980). The very manner in which these concepts are typically deployed in policy documents inadvertently takes the status of neutral facts, concealing their social origin to both their creators and actors (Boelens & Vos, 2012). The paradox is that these concepts are both unavoidable and indispensable in providing intellectual resources for making sense of various life practices that constitute our history, politics and futures. The practical problem that arises with the use of concepts emanating across disciplinary boundaries is the constant need to explain each concept, at almost every turn, which is very disruptive to the flow of ideas and analysis. Leedy et al. (2014: p12) capture this in a simple but yet profound example when they state that “the words ‘tempo’, ‘timbre’ and ‘perfect pitch’ are useful to the musicologist. Such terms as ‘central business district’, ‘folded mountain’ and ‘distance to k’ have special meaning to the geographer. Terms such as ‘lesson plan’, ‘portfolio’, ‘charter school’ etc. communicate a great deal to the educator.” In order to minimise the inevitable transdisciplinary turbulences, where possible, the researcher makes use of concrete examples to make abstract ideas digestible. In this process the researcher had to rely on discretion on which concepts had to be explained and which could to be left unexplained.

A grasp of South Africa's data ecosystem has not been simple, because it is deeply rooted in data-sets and information that is not published for public access. A

hierarchy of policies may be in place but the question is how these are arranged on what is supposed to be a justice pedestal by the state bureaucracy. It is what is not published and therefore unavailable in the public domain that reveals the essence of data policy trajectory (Zuiderwijk *et al.*, 2014; Jaeger, 2007).

2.4 CONCLUSION

This chapter started off by presenting some of the key tenets of the reseaarcher's positionality, before proceedding to provide a summary of the research design that underpins the study, literature review, observational methods and key informant interviews. The various layers of literature such as reading and review scholarly journals, secondary material sourceand books entailed an identification and statutes, policy documents, agency documents and media publications and a website scan of s in sources such as. A combination of observational methods – direct and indirect – were used in the study, largely capitalising on the researcher's positionality. The chapter some of the discernible limitations of the study.

The next chapter presents the overarching conceptual framework for the two components of the study, the general systems theory, which is primarily used in the land administration component of the study, alongside constitutive theoretical constructs of 'intersectionality', 'path dependency' and 'leverage points', which are useful analytical instruments and part of the broader analytical toolkit. It also provides a brief outline of the ecosystems metaphor as a framework that is largely deployed in the Open Government (OG) and Open Government Data (OGD) component of the study. The chapter goes on to introduce the institutional and multiple scales approaches that are pivotal to the land governance and administration component of the study.

CHAPTER THREE : CONCEPTUAL FRAMEWORK

3.1 INTRODUCTION

The previous chapter started off by sketching out some of the key tenets of the researcher's positionality in the context of the study. The chapter went onto provide an outline of the research methods that underpinned the study. The chapter closes off by pressenting some of the descernible limitations of the study. This chapter primarily presents the overarching conceptual framework for the study by building on a theme that emerged as part of the problem statement: the idea of building state capacity (see Chapter One). This chapter provides a broad outline of general systems theory and introduces the theoretical constructs of 'intersectionality', 'path dependency' and 'leverage points', which are useful instruments within the analytical toolkit. The chapter goes on to provide an outlines the ecosystems metaphor specific element of the systems theory for detailing aspects of the study dealing with Open Government (OG) and Open Government Data (OGD). The chapter closes of with an brief outline of the institutional and multiple scales approaches which are critical frameworks in the study of land governance and administration.

3.2 THEORETICAL BACKGROUND

Andrew Borraine and Bernie Fanaroff's hard-hitting presentation to the South African cabinet, and their characterisation of the South African state as "disorganized, disabling and distant", within a context of policies that are not only ambitious, but also too complex to be executed by South Africa's limited skills and resources, is a sobering one (Makhanya, 2019:4). Within South Africa's corridors of power, the National Development Plan (NDP), which engenders the narrative of building a capable state, is only one acknowledgement of either a fragile or broken state (ss1.2.1) (NPC RSA, 2010). Taken at face value, Borraine and Fanaroff's analysis implies that the prescription to South Africa would, at a minimum, entail three elements: recalibration of policy, training of bureaucrats, and injection of resources. However, in reality, finding solutions to such a vast and complex national set of challenges is not a simple endeavour. Among some of the pressing issues is the country's constrained financial resource base to which there are no simple. Muller

(2019: 1) obliquely advances four reasons why South Africa's public finances are in a perilous state: firstly, economic growth is hovering on the low to non-existent end. Secondly, tax revenue collection is repeatedly below forecasts. Thirdly, debt levels have risen rapidly and are now at their highest levels in the post-apartheid era. Fourthly is the issue of excessive amount of government support that is injected into poorly performing state-owned enterprises. Notwithstanding the reality of the country's bleak financial situation, a recalibration of land data domain policy does not necessarily entail a higher expenditure, but may possibly present a cost-saving pathway. Muller (2019) is skeptical of policy consensus within the rulling party in the near future, because the African National Congress's (ANC) policy discourse has been characterised by recycled disagreements dating back to the adoption of the Growth Employment and Redistribution Strategy (GEAR)[37] strategy. Reaching consensus is not just a simple matter, but a monumental policy challenge in it's own right, which is aligned to other policy choices within the ANC.

On one level, the narrative of building state capacity triggers a set of context-specific complications at both conceptual and practical levels, particularly when juxtaposed with the post-colonial and developing state context(Fritz & Menocal, 2007). Fritz and Menocal (2007), offering global insight, acknowledge that the state-building policy narrative has become a leading priority for the development fraternity. In a post-colonial context such as South Africa, a deeper appreciation of the overarching global forces of neocolonialism or imperialism is fundamental to any discourse that has a bearing on land governance and administration because both have a high appetite for land (s5.5). On another level of analysis, a fundamental recalibration of South Africa's national policy machinery needs to seriously contend with the deeply entrenched path-dependency challenges (Walby, 2007, 2006). The very essence of the political imaginary of repurposing of land administration in post-apartheid South Africa, which is at the centre of this study, should be viewed in context, not as a tour to find a magic wand but as a small but yet critical contribution to the analytical toolkit of building a capable state.

[37] Growth Employment and Redistribution Strategy (GEAR), South Africa's 1996 macroeconomic strategy that was predicated on the idea of government outsourcing to the private sector a significant part of it's service delivery responsibilities such as the provision and supply of water, refuse collection, meter reading, street cleaning, housing provision and others.

Fritz & Menocal (2007) identified a growing international policy trend relating to three core functions of the state: outputs in delivery of social services; management of the economy; and delivery of justice. If the post-apartheid South African state needs capacity enhancement, land governance and land administration systems, inclusive of the associated institutions, is just a single entry point into what is a complex problem. Land governance and administration cut across all three functional areas of the state, land constituting the common base on which they have to be rendered a necessary, but yet an insufficient success-failure factor. Land systems, in their multiple dimensions, are integral for the provision of services – be it the provision of water services, health services or infrastructure. Secondly, it is rather simple to understand the relationship between the broader space economy as one pillar of the economy whether viewed from a poverty elimination or wealth creation perspective. Thirdly, the development and exercise of a coherent set of legal frameworks at local, national and global levels is a central tenet of land justice. The Land Claims Court in South Africa is just one small but yet important illustration of overlap between the administration of justice and governance/administration of land. In the South African context, the very idea of building state capacity is inextricably intertwined with building a capable active citizenry is a necessary but insufficient condition to finding solutions to managing the country's land resources effectively and efficiently (Lund, 2006). Premised on the understanding that the state is an intangible entity, involving a set of 'multiple choreographies of power' (of contestation) that cannot be fixed at any particular point and moment, because the very notion of enhancing state capacity is a natural embodiment of top-down and bottom-up calibration of ideas and imaginaries (s5.3) (Menga & Swyngedouw, 2018). The study of social capital is influential in foregrounding the importance of a vibrant active civil society in shaping state policy (Putnam, 1993). Köhler et al. (2019; see North, 2011; Sine & Lee, 2009), drawing from social movement theory, acknowledge the critical role of bottom-up processes – inclusive of civil society, private sector and trade unions -- in the process of pressuring government to swerve in different policy directions.

The connection between the emergence of the state and the evolution of concomitant land governance and administration systems in ancient history cannot be ignored (Sietchiping et al., 2011). The state machinery taken in all it's vestiges, inclusive of land administration systems of countries in the global South, are not only

imports but are lock-stock-and-barrel engendered in the Western ideal or alternatively fashioned in the ideal model of the former colonisers (Eriksen, 2011). This is what Mahmood Mamdani termed 'history by analogy', which implies that the praxis or experience of the global South is only understood as a deviation from 'normal', with the global North being the benchmark (cited by Eriksen, 2011: 234). Using the Western model as the benchmark is not only ideologically flawed but renders any attempts at evaluating land administrations systems futile (Steudler et al., 2004). Understanding the intricacies of colonial continuities and discontinuities, neocolonial linkages with Africa, specifically with respect to land and it's resources, bring to the fore questions about the connectedness of the African and European experience.

Given the link between the land systems in Africa and former colonial countries in the global North, a paradox arises pertaining to the value of an analysis that is framed based exclusively on European experience. Notwithstanding the paradox, Eriksen (2011) advances three compelling reasons for seeking an understanding of the Western experience. Firstly, the architecture of post-colonial states is fundamentally based on the European model of three branches of the state – the executive, parliament and the judiciary – and a suite of appendage principles such as separation of powers and popular representation. Secondly, all states in the global North and the global South are part of the international system of states, a colloidal medium in which participant states imbibe conceptions of what constitutes an ideal modern state (Eriksen, 2011; Rotberg, 2004, 2003). Within this framework of an 'ideal' international system, the states are provided with a sense of 'systemness' through which the norms and ideals are generated and pursued. It is also within the context of this 'systemness' that the developing states find themselves in barrage of universal formal institutions which emanate from their colonial histories, their present and those that are fostered from the global 'systemness'. African countries, and South Africa in particular, are not exempt from this paradox. Thirdly, in the analytical domain of social sciences there is no option other than to use concepts that happen to be predominantly Western imports, despite the differences between Western and non-Western states. In the light of this, any analysis of land governance systems in developing countries should be located within the context of the somewhat contradictory and unequal relationship in

which developed countries constitute the ideal, a hand-full of which also double up as the former colonisers (ss5.5.3).

This study's architecture is founded on dual thematic areas: 'land governance/administration' and Open Government (OG) and Open Government Data (OGD). For both these themes, the preferred theoretical framework is a combination of the systems theory and the complexity theory. As part of the assemblage, the researcher employs the institutional approach. The ecosystems theoretical framework, a branch of systems theory, is the preferred framework for the OG and OGD theme. The rationale for this particular choice is based on the motivation that the revision of the systems theory which incorporates intersectionality theory is geared towards an analysis of multiple complex phenomena at the various points of intersection (Walby, 2007; Crenshaw, 1991).

With this choice in mind, the researcher is fully aware that all theories have their strengths and weaknesses. Ostrom (1990:24) makes an important and very relevant point about the nature of theories, arguing that "the power of a theory is exactly proportional to the diversity of situations it can explain", implying that all theories have their own limitations. This calls for caution in the use of theories and frameworks by carefully identifying those elements that work and those that do not work in specific contexts. A crucial part of scientific knowledge entails an understanding of phenomena and the scope of situations for which specific theories are relevant as part of understanding of their limits. The next subsection provides a broad outline of the general systems theory (GST).

3.3 UNDERSTANDING GENERAL SYSTEMS THEORY

In general, the systems theory is understood as a theory that seeks to explain the behaviour of complex phenomena from a range of disciplines such as biology, psychology, to geography (Whitchurch & Constantine, 2009). The emergence and evolution of GST is largely credited to an Austrian biologist, Karl Ludwig von Bertalanffy, for his work on Newtonian concepts of linearity between cause and effect in the context of closed systems (Anderson, 2016). The same line of work culminated in what became known as the general systems theory (GST) in the late 1960s, which advocated for the idea that systems should not be reduced to isolated

parts, but the relationship between parts must be understood (Anderson, 2016; von Bertalanffy, 1969). The theory found resonance in the disciplines of development psychology and classical science (Cox et al., 2010; Cox & Paley, 1997, 2003; Gottlieb, 2007; Sroufe, Egeland, Carlson & Collins, 2005; Magnusson & Cairns, 1996). Rittel & Webber (1973:156-157; Hitch, 1960) alludes to the big questions which dominated the rise of systems analysis in the 1960s; "What do the systems do?" as opposed to "What are they made up of?", and even more importantly; "What should these systems do?" This era inaugurated or signified the rise of discourses which sought to clarify national directions or goals and social indicators, alongside that, goal finding, which should ideally be one of the most critical functions of planning, turned out to be an exceptionally obstinate task. It is considered to be a way of thinking about the world and worldly interrelated phenomena or a prism through which to look at the world in which objects are interrelated to each other.[38] The application of the general systems theory (GST) transcends disciplines, straddling across natural and social sciences (Rindzevičiūtė, 2018; Malecic, 2017).

Systems integrative analysis requires a combination of two analytical thrusts: one that focuses on the system under study in relation to it's environment and another which focuses on the internal relational functioning of parts of the system (Gunawardena, 2019). The basic etenet of systems thinking emphasises the notion of 'systemness' or holistic thinking in relation to the parts. From the dawn of early civilisations, the desire to understand how complex systems behave has always been linked to the dilemma of understanding the inner workings of systems and how the systems relates to the environment within which they are situated has always been central to the quest for knowledge. However, the vast amount of literature on systems theory makes it clear that there are several ways in which this theory is understood. While there are several definitions around, they all share some common characteristics. Figure 3.1 presents a selection of these definitions, which all help in understanding the fundamentals of systems thinking. Rittel et al. (1973) concedes to the idea that the most difficult challenge is that of understanding the problems -- differentiating between an observed conditions from a future desired condition.

[38] http://environment-ecology.com/general-systems-theory/137-what-is-systems-theory.html (Accessed on 27 May 2019).

Directly related to that - and equally challenging -- is the the identification actions that would narrow the gap between current undesirable state and what-ought-to-be. Land governance and administration can be equated to a large open and interconnected network of systems, in which outputs from one create inputs to others. Within such a framework it becomes less clear where problem centres are pinned, and less apparent where and or how to intervene, even when the desired goal/s are known. Within the context of such a complex system repercussions of multiple waves of problem solving actions are often translocated and aggravated elsewhere, thus requiring an expansion of the system boundaries complicating the operationalisation of the plan.

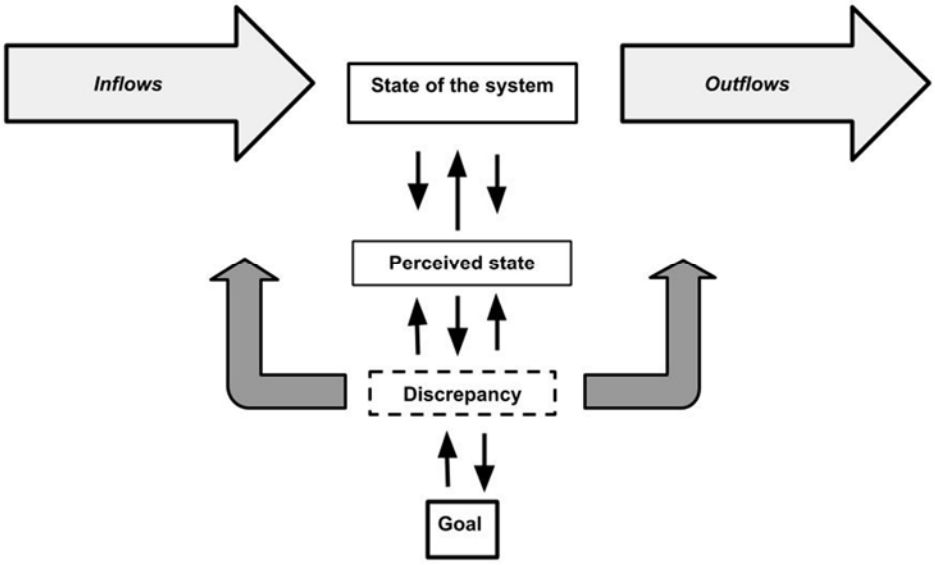

Figure 3-1: Systems theory model adapted (Source: Meadows; 1999)

From a systems point of view, the wider space-economy (see Chapter One) system constitutes a part of the environment within which land administration system is nested – the understanding of which is just one of the necessary requirements for the purposes of integrative analysis (Gunawardena, 2019). A critical dimension of the integrative analysis entails an understanding of the 'systemness' of the different elements (or domains) of land administration (fiscal system, cadastral system, registration system, planning and regulatory system and data/information systems), which are in their own right extremely complex systems, underpinned by an understanding that the whole system cannot be reduced to the sum of it's parts. The

next section outlines a revision of systems theory that entails synthesis with complexity theory.

3.3 COMPLEXITY THEORY AND SYSTEMS THEORY

As part of the evolutionary process, Walby (2007) makes an important contribution to the revision of systems theory by marrying it to complexity theory. Complexity theory is located within the tradition of social theory as inspired by Marx and Weber (Marxism), instead of Durkheim and Parsons (functionalism). The complexity theory advances the appreciation of the notion of 'intersectionality', which emphasises the idea that the entirety of [land administration] system is not equal to the sum of it's constituent parts (Walby, 2007; Phoenix & Pattynama, 2006; McCall, 2005; Brah & Phoenix, 2004; Collins, 1998; Crenshaw, 1991). Within the context of land and landed natural resources, the neo-Marxist epistemological tradition tends to pay more attention to issues of 'social inequalities, injustice, political conflict, and the role of political actors in shaping their historic and contemporary dynamic (Zinzani, 2017:5; Blanchon & Graefe, 2012; Swyngedouw, 2004; Castree, 2003). These approaches link land transitions to broader political and economic push-and-pull factors such as the commodification of natural resources as opposed to the modernist society-nature binaries which view them as separate entities – a subject of much scholarly critique. Instead of being external to landed resources, sociopolitical and power relations are intricately intertwined with land (ss4.3.3) (Budds, 2009; Loftus, 2005; Swyngedouw, 2004). Regulatory frameworks, policies, infrastructures frame how landed resources are distributed and allocated. Rittel & Webber (1973:169) locates social policy design and or planning at the center of politics and the expert as a key player in that game, "seeking to promote his particular vision of goodness over others'."

This is an important contribution to theory in that an earlier version of GST that predates the complexity theory makes the analysis of multiple social relations within a single institutional domain unavailable as a theoretical construct. The earlier versions do not make provision for constructs to take ontological depth that is rooted across different domains such as gender being anchored in culture and family while class is anchored in the economy domain. A typical example of this phenomenon is the South African Parliament's (Parliament RSA, 2017) identification of what it terms

the ‘triple challenges’ of poverty, unemployment and inequality, of which spatial inequality constitutes a key element. This logic incorrectly suggests that 1 (poverty) + 1 (unemployment) + 1 (inequality) = 3 challenges. This theoretical flaw is rooted in pre-complexity systems theory that does not make allowance for a system to saturate it’s territory, arising from the interface between the complexities (Walby, 2007).

The more recent versions of systems thinking transcends old notions of proportionality between cause and effect, introducing the notion of non-linearity between entities during change processes (Walby, 2007; Capra 1997; Kauffman 1993; Waldrop 1992). The complexity theory adds value to other elements of systems theory, such as those that were associated with functionalist approaches of Durkheim (1966) and Parsons (1951) (Walby, 2007). Among those is the notion that a system would typically default to norm or some equilibrium from a small change of the mechanism of the negative feedback loop. This new understanding came about with the discovery of the notion of ‘leverage points’, which are points in a system that have the capacity to yield big results from small adjustments (Walby, 2007). The notion of leverage points is just one of many revisions to the GST that specifically addresses the fundamental issue of the death of the theory of proportionality, or linearity between cause and effect, which dominated the Newtonian thought processes. The concept of leverage points is particularly relevant in a study of complex systems such as land administration (ss3.3.3).

With obvious ambivalence to systems theories, Malecic (2017) argues that it is the integrative analysis of backward-forward movement between different levels of abstraction and de-abstraction that potentially allows an assessment of the different levels of systems and compare their power to provide explanations to issues that are under study. Abstraction is understood to mean the zooming out for a holistic perspective of the full set of systems processes, while de-abstraction entails narrowing into specific system details, and in the process allowing for improvement in systems perspective in both natural and artificial phenomena and relationships.

Malecic (2017; Neuman, 2014), introducing the notion of linkage propositions, uses phrases such as ‘is a (partial) cause of’, ‘is a (partial) result of’, ‘inhibits’, and ‘influences’, which at one level portray logical connections between phenomena

under study. Their role is more than just establishing logic, but they also reveal a level of abstraction and de-abstraction. Understanding these linkages correctly in natural sciences carries the potential to expand theories across disciplines, which presents opportunities for design of artificial systems, as opposed to systems in their natural state. This perspective is particularly important for systems such as land administration, which are creatures of human creativity. The next sub-sections introduce the concepts of 'intersectionality', 'path dependency', and 'leverage points', which are useful concepts that form part of the systems and complexity theory synthesis toolkit.

3.3.1 Intersectionality

The fusion of complexity theory with systems theory provides support for the theorisation of 'intersectionality' in social theory and philosophy of social science (Walby, 2007). It helps in theorising the complexities emanating from the point of intersection of more than one system such as class and gender. Yuval-Davis (2007) makes a distinction between additive and constitutive intersectionality; the former founded on the idea of summing up two phenomena while the latter recognises the reinforcing dynamic between phenomena (also see McCall 2005; Phoenix & Pattynama 2006; Brah & Phoenix 2004; Collins 1998; Crenshaw 1991. The notion of intersectionality presents a new analytical tool for studying multiple complex phenomena at the point/s of intersection which accounts for how they influence each other in a manner that cannot be reduced to a mere summation of the parts. Stretching the theory beyond multiple inequalities to the point of intersection of multiple complex systems is a particularly useful tool in understanding land administration, which is inherently about the interface between multiple systems. Land administration is usually defined in terms of it's constituent elements and will benefit from theorisation of intersectionality that emphasises that the whole of land administration is not equal to the sum of it's constituent parts (Yuval-Davis, 2007). As systems in their own right, each of the different domains of land administration – the fiscal system, cadastral system, registration system, planning and regulatory system, and data/information systems etc. – are extremely complex systems, and understanding how the whole functions cannot be reduced to the sum of it's parts.

Behrens et al. (2007; Lösch, 1938) make use of GST in the context of economic geography in trying to understand what is meant by a region as a system and what to look at in studying regional interactions. They proceed to define the term 'region' as a cluster of any two or more interacting places. Two regions can only interact directly, but when a third region enlists, the interaction can be both direct and indirect, bringing in the into the picture the 'three-ness' effect comes, which significantly complicates the analysis (Behrens & Thisse, 2007). When there are only two regions, any change in the structural parameters necessarily affects directly, either one of the two regions or both. On the contrary, when there are more than two regions, any change in parameters directly now generates spatial spillover effects that are likely to affect the third region. Therefore, any isolation of two regions from the rest of the economic system is likely to yield biased estimates and incorrect conclusions.

There are numerous debates that theorise intersectionality, which collectively elicit theoretical dilemmas. The first dilemma is around overgeneralisations (Walby, 2007; Mohanty 1991). A typical example of overgeneralisation is to make sweeping statements about a category or a class such as women or the poor without an appreciation of the differences within the category or class. It is not uncommon to hear of reference to African countries as a singular category, ignoring differences between the countries. The second dilemma is in relation to the dangers of reductionism, where one ignores differences within conceptual categories. A typical example of reductionism is the tendency to assume that the whole is equal to the sum of the parts, thus ignoring what happens at the point of intersection (ss4.2.4) (Rindzevičiūtė's, 2018). The third dilemma entails micro-reductionism, which is a product of debates that reject the conceptualisation of social relations in systems. This renders the systems analysis to be inherently incapable of theorising multiple forms and differences in complexity (Walby, 2007). The fourth dilemma is that which completely rejects categorisation in analysis on the grounds that the categories are way too abstract from reality (McCall, 2005). The fifth dilemma entails segregational reductionism, which places more emphasis on a deeper analysis of categories instead of rejecting categories (Walby, 2007). These theoretical debates are going to come handy in evaluating literature, particularly in a study that is predominantly

qualitative in nature. The next subsection explores path dependence as a theoretical expression.

3.3.2 Path Dependence

The concept of path dependency is a compelling theoretical expression of complexity in modern social science, which stems from the complexity theory, has some detractors, with regard to the nature of the phenomenon (Walby, 2007; Rihani, 2001; Nee & Cao, 1999). Path dependency is a crucial process in understanding continuities and discontinuities in different forms of institutional domains in different policy contexts (Kay, 2005). The notion of path dependence is predicated on the idea that the scope of current decisions is, to varying extents, not only limited by but is also dependent on, past knowledge trajectories and decisions, which pose limits to the current competence base. In other words, history imposes limits to current decision-making situations and has strong limiting influence on decisions about the future. As such, current competencies are built on history and those in turn set limits to new possibilities. This is highly pronounced in technological development processes that emerge and gradually grow, layering over past knowledge over time (s7.2).

Central to this phenomenon are processes that lock in certain development trajectories in vastly different forms, through multiple bundles of rewards, power, opportunity and knowledge (Walby, 2007). . Contrary to the thinking of path dependency from a historical point of view, this approach looks at current interventions as creating future path dependencies. In this regard, the complexity theory makes available an approach that suggests that change in social systems is not necessarily gradual, but could be rapid, even in ways which could create new path dependent trajectories (Walby, 2007). The understanding and appreciation of path dependency is critical to the understanding and explanation of resilient colonial continuities in land administration (s7.2.2). At the same time, some of the post-apartheid policy choices such as universal housing subsidy for the poor in South Africa have created future path dependencies, are locked in colonial/apartheid trajectory path dependencies. The next sub-section introduces and explains the expression of leverage points which will be particularly useful in making

determination on where to intervene in repurposing a complex system such as land administration later (ss9.2.2).

3.3.3 Leverage Points

Donella Meadows (1999; Casali, 2015), one of the pioneers on leverage points, is famous for using a very simple model to explain how complex systems function (see Fig. 2.1) and proceeded to explain how the model could be used as a basis for decisions on acting on complex systems (Casali, 2015). On the face of it the model appears very meta-physical, to a point that it cannot be useful in some disciplines. This calls for caution in it's application, which means one must draw from it only what is useful. The construct of 'leverage points' means "places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing can produce big changes in everything" (Meadows, 1999: 1). Using the model of leverage points, Meadows demonstrated that we have only indirect influence over the "state of the system" other than by adjusting variables around the system. This suggestion was that the "perceived state" is about what we can understand not the "real state" of the whole system, which is too complex for full comprehension. The notion of "perceived state" is an acknowledgement that there are elements of a complex system that are beyond comprehension. By adjusting the variables, we are able to influence the system in whatever desired direction, which gives rise to questions about which direction and how much to turn the lever. Meadows proceeded to develop 12 points to intervene on a complex system (see Table 2.1).

The notion of leverage points is found in unauthenticated daily stories and terminology such as "silver bullet", "miracle cure" or "a leap over a humongous obstacle" (Meadows, 1999). Meadows's claim that leverage points are counterintuitive constitutes the difference between intuition and science because it demonstrates that leverage points cannot be identified by intuition and even when identified, one needs to know which way to turn the lever and by how much. This implies that there must be some level of understanding on how the system functions. Responding to a question raised by the Club of Rome on the inter-relatedness of "major global problems such as poverty and hunger, environmental destruction, resource depletion, urban deterioration, unemployment" and how they might be

solved, which Forrester was able to identify a clear leverage point that used in computer modelling (Meadows, 1999:1). On the assumption that there is consensus on "growth" being a leverage point, at face value the fundamental challenge is that "growth" means one thing whereas it means different things under different circumstances. It may mean positive growth, slow growth and no growth, as well as quite possibly negative growth in various instances. The Forrester's (1969)Urban Dynamic Study, is a classic example, points to subsidised urban housing as a leverage point (Meadows, 1999; Forrester, 1971, 1969). While countries may somewhat accept that this is a leverage point, the problem is that different players in the housing sector may be turning the lever in different directions. This implies that in some instances one may require many houses, while there may be no need for such houses in another or only a small number may be needed in another. Central to this idea is that if urban housing is not driven by, or accompanied by, a corresponding effort at job creation, it only creates a distortion in the city's housing versus employment ratios, which in turn raises social welfare costs. These two examples from Forrester, carry very important policy lessons for South Africa low income housing programme, that one cannot generalise about complex systems, exactly because of their underlying complexity (see ss1.2.1; ss1.2.2; s3.2; ss3.3.2; ss4.3.4; s5.4; s5.6; ss6.2.4; ss6.2.7; ss7.2.4.4 & ss8.3.1 for discussions on the neliberal mantra of growth).

The model of leverage points is founded upon parameters of stocks, delays, flows and feedback (Meadows, 1999). In explaining Fig. 2.1, making use of state land as an example is used. The 'state of the system' refers to stocks-in-hand, which are considered to be important to the system. In the context of land reform in South Africa, the standing stocks could be the amount of land that is either held by the state at any one point in time or land that is potentially available for possible acquisition. Ordinarily, stocks refer to quantitative phenomena even though these could also include psychological factors such as the degree of trust in public officials or capacity of officials (Casali, 2015; Meadows, 1999).

In the context of land reform in South Africa, inflows could entail the processes of land acquisition from private owners, by the state, irrespective of the methods by which that is done. The different methods of land acquisition have implications of efficiency and effectiveness, with the effect that some methods will slow down or

increase the inflows. Negotiated land acquisition, compulsory acquisition or a combination of the strategies are some of the land administration instruments that are available to increase inflows and hence stocks. In the process of balancing the rate between inflows (acquisition) and outflows (disposal), the state of the system obeys laws of conservation and accumulation. On the other hand, the state also has control over different methods by which land outflows to beneficiary groups is released. The two are correcting loops: one correcting inflow and the other controlling outflows (Meadows, 1999). In the context of land reform, the state would increase it's rate of acquisition in the adjustment of stocks available for redistribution. From the perspective of inflows, land acquisition negotiations could be tough and take long, while in other scenarios private land owners could come in numbers wanting to dispose of land. Whichever the case prevails, it will have significant change implication on stocks. Outflows could entail land that is actually made available to land reform beneficiary groups and/or individuals. Yet, in other instances, outflows could refer to land that is released to municipalities for housing development; it could be commercial farmland that is either given or leased to targeted groups in another context.

In the same land reform context, system goals would refer to whatever land reform goals would have been set such as redistributing the set quantum of land (, hectares, water rights, mineral rights etc.) from the state to targeted beneficiary groups or individuals. The perceived state refers to the difference between the status quo and the goal (see Fig. 1.2 in ss1.2.2) (Casali, 2015; Meadows, 1999). Racially skewed land ownership patterns could represent an articulation of the perceived state of the system. Returning to the Bank of Lisbon story, the perceived state could be poor levels of health and safety (percentage compliance) of the building as measured by the municipality with jurisdiction, while the goal may be to enhance fire safety of buildings to between 80% and 100% range. Such a goal could imply setting up fire safety regulations that would be considered necessary for the building plan approval processes or setting up systematic or random monitoring of compliance measures (s1.1). Conversely, at a different level, that would require enforcement measures, possibly a suite of incentives and/or penalties that would apply.

In systems theory jargon, 'parameters' are the numbers that determine how fast one can release land, on the one hand, and how fast one can acquire land for 'purported'

land reform beneficiaries, on the other. Within the same land reform context, when the consideration is limited to quantities of land, the system may look simple. However, it gets very complex when one starts looking at other aspects of the system such as developmental outcomes, security of tenure, regulation of land, and enforcement. The next section briefly outlines the ecosystems metaphor, which is a dominant framework or paradigm in the scholarship of OG and OGD.

3.4 THE ECOSYSTEMS METAPHOR

An ecosystem is defined as "a system of people, practices, values, and technologies in a particular local environment" (Harrison, 2012:906; Nardi, 1999). The underlying logic is that photosynthesis is the primary biological process through which energy is incorporated into plants. Animals access this energy by feeding on each other or on plant matter, and in the process enhancing the biomass. Through the process of nutrient recycling, decomposers convert energy that is stored in the biomass back into the environment for further use by plants and microbes. It is primarily concerned with how the ecosystem can be changed or manipulated through human intervention. The ecosystem metaphor is a branch within the broader body of systems theory, but with inclination to ecological systems (Harrison, 2012). Within the technology policy context, the ecosystems metaphor is largely predicated on multiple interdependent actors such as shared technology-enabled infrastructure or platform sharing information-intensive symbolic resources. The one variation that differentiates the ecosystems metaphor from the GST is that the interacting systems are categorised as both producers and consumers of information within a network of interacting systems involving a multiplicity of entities, including citizens, civil society, commercial, academic, and state actors.

The ecosystem metaphor is founded on the notion of living organisms functioning in a family of living and non-living components within the environment connected through nutrient cycles and energy flows. The metaphor already has a significant degree of traction in the analysis of how Internet Communication Technologies (ICTs) are driving change (van Schalkwyk, 2015). Yet others within the ICT sector make use of the metaphor with specific reference to communities of users and software developers working on open source software platforms. According to Harrison et al. (2012: 904) it is "often used by policy makers, scholars and

technology specialists to convey a sense of the interdependent social systems of actors, organisations, material infrastructures, and symbolic resources that can be created in technology-enabled, information-intensive social systems." Van Schalkwyk (2015; Harrison, Pardo & Cook, 2012) argues that the ecosystem metaphor holds dear the belief that it enables a more accurate analytical tool for the understanding of the value chain[39] of resources, producers, providers and consumers in a context where the state is not the sole producer and consumer of data. This conceptual frame resonates with multiple producers and consumers of data beyond the state.

The concept of value chains is well entrenched in the agricultural and industrial sectors, among others, in particular, where commodities go through transitions in form and location along a chain (Qian, Ruiz-Garcia, Fan, RoblaVillalba, McCarty, Zhang, Yu & Wu., 2020; Taylor & Fearne, 2009). For instance, a primary commodity within the agricultural sector, such as cattle, is produced at point A and is transported to an abattoir for slaughter at point B. After slaughter, the meat is distributed to different markets as fresh meat (point C), processed as specialised meat in the production of biltong or canned meat (point D), while the skins may be used to producespecialised leather items such as handbags or shoes and or car seats (point E, F & F0), possibly ending up in the manufacturing of.

This phenomenon also applies with respect to data/information as part of ecosystem value chain logics. One sense in which the data/information value chain metaphor is deployed may be with respect to the three phases that it typically undergoes: a systematic process of collection data (production), which involves the identification, collection, processing, analysis, followed by dissemination and finally how the data is used, tempered and reused (See Fig. 3.2).

[39] This is consistent with the notion of data value chains used in Chapter Ten

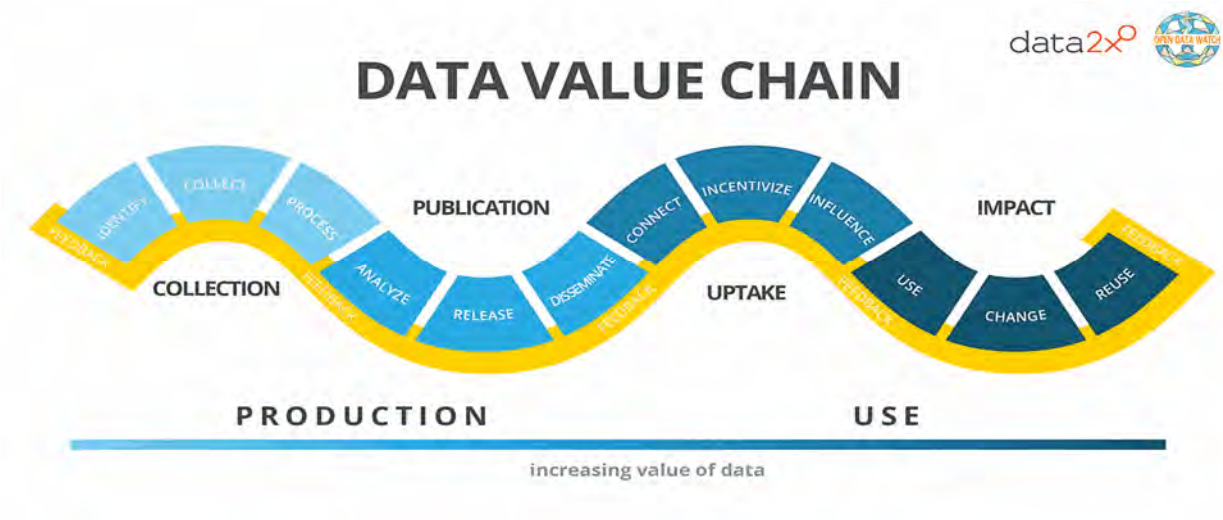

Figure 3-2: Data/information value chain model. (Source: Open Data Watch)

Another slightly different sense in which this same notion is deployed is with respect to how data flows through different layers of producers, curators and consumers. For example, the South African National Space Agency (SANSA) collects raw data from the earth's surface and space, which after a series of curations is delivered to the South African Weather Services (SAWS), who ultimately produce what we know as the weather (information). This is an example of a land data/information value chain involving overlays of multiple layers of data curation, between the original source through various users and info-mediaries, ultimately resulting in the weather outcome on one's television screen or smart phone. Making use of the logics of ecosystem metaphor identifies data/information value chains and cycles in which intermediaries release back into the system data that is curated (cleaned, corrected, integrated), in forms that are of more value than the original data-sets (Ochieng, 2016; Harrison, 2012;Pollock, 2012). Figure 3.2 demonstrates a typical data value chain. The data/information value chain is integral to the ecosystem theoretical framework and is consistent with Harrison et al.'s (2012; O'Reilly, 2007; Anderson, 2006; Tapscott, 2006) idea that users function as producers and consumers of data and form complex networks of interaction with each other and other organisations and the communities they are part of. Some of what could be considered as simple land data value chains are also a part of a wider set of networks of data/information value chains (system wide networks). A typical South African example is the

Municipal Demarcation Board (MDB),[40] whose constitutional mandate is to make determinations on municipal boundaries (wards, local, district and metropolitan municipalities),[41] which in turn frame municipal jurisdictions and voting districts for various categories of wall-to-wall municipalities, authorised through a designated set of statute.[42] Deriving from the demarcations by the MDB, the jurisdictions frame territories that determine service delivery areas for municipalities and metropolitan areas and further set up a spatial framework for voting districts inclusive of the voter's roll and addresses, as well as the management of elections and electoral processes by the Independent Electoral Commission (IEC). From this perspective, the MDB may be a small but important player within the wider context of land governance/administration, arising from it's custodianship of municipal boundary demarcation data. From an ecosystems perspective, the MDB, acting as a primary generator of municipal boundary data, is a producer while the Independent Electoral Commission (IEC) and Statistics South Africa (StatsSA) are consumers of MDB land data. More importantly, the ecosystems theoretical framework also draws attention to the data-information process as opposed to exclusive focus on data status or outcomes (Ochieng, 2009).

From a high level of abstraction, land data value chains can be understood as the standardised bureaucratic workflow procedures or progression chains or stages through which data undergoes, i.e. the identification of the need for data, the creation of data and ultimately use and possible reuse thereof (see Figure 3.2) (Open Data Watch, 2018:1). From a slightly lower level of de-abstraction, these four stages can be further broken down into 12 stages: collection, processing, analysis, release, dissemination, connection, incentivisation, influence, use, effect change, and reuse. Within the context of an organisation, land data value chains may be construed as workflow procedures, which are ordinarily formalised in law and/or regulations (though that is not necessarily the case) in the context of land administration, with each stage in the process involving sequential and varying amounts of verification and/or generation of data.

[40] Established in terms of the *Local Government: Municipal Demarcation Act, 1998*.

[41] http://www.demarcation.org.za/site/ (Accessed 20 February 2020).

[42] Through the *Local Government Municipal Structures Act No. 117 of 1998,* and land use management powers authorised through *Spatial Planning and Land Use Management Act No. 16 of 2013* (SPLUMA).

Open Data Watch emphasises the importance of iterative backward and forward (end-to-end) feedback loops between data producers and other stakeholders along the data value chains. Different data value chains also vary in both length and in complexity; some chains maybe confined to a single department within an organisational framework, while others span across multiple departments within an entire organisation and even straddling across multiple organisational boundaries. In the context of a municipality, simple procedures that relate to an application for temporary street closure may be dealt with and concluded (approved or turned down) by one or a numbe of municipal officials within the boundaries of the municipality. On the other hand, other more complex procedures such as an application for rezoning, subdivision or consolidation of land, removal of restrictive title conditions or an application for a mining right (land use change), span across municipal, provincial and national government organisational boundaries. The next section introduces the institutional approach to land administration embedded with the systems theory, with full appreciation that land administration not an exclusive state domain.

3.5 THE INSTITUTIONAL APPROACH INTO THE ASSEMBLAGE

Land administration, together with a cluster of related concepts that constitute the subject of this study, have two common threads: land and a plethora of institutions. North (1991:1) defines institutions as “the humanly devised constraints that structure political, economic and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct), and formal rules (constitutions, laws, property rights).” In simple terms, institutions are socially constructed rules of the game that support legitimation. Institutions are a human historical legacy that come to existence and evolve for the sole purpose of creating some level of certainty in various social interactions. They evolve incrementally in complex processes that constitute the nexus between the past, present and future, giving rise to the idea that history is a story of evolution of institutions. The Marxist philosophy takes a view that the evolution of institutions arises out of class contradictions, and is a result of interpenetration of opposing tendencies (Cornforth, 1963). What this amounts to is that the institutions or rules of the day are the

manifestation of the socially legitimated means of resolution of conflict, constructed to manage the present and future, based on past.

From a philosophical point of view, Cornforth (1954:16; Engels, *Ludwig Feuerbach*) argues that throughout the history of society "the actors are all endowed with consciousness; [...] are men acting with deliberation or passion, working towards definite goals; nothing happens without a conscious purpose, without an intended aim". In the context of people-land relationship, when the purposive act is in respect of the same object, such as land and associated resources (in it's broadest sense ss4.2.1), conflict is bound to arise requiring some systems for mitigation or resolution. Simple logic is that when human populations are low in comparison to land resources, the requirement for institutions is minimal, however, when the populations increase, within the context of finite land resources, the need for robust institutions also grows, mainly for mediation of the inevitable conflicts (Lund, 2006; von Benda-Beckmann, 1981). On the one hand, the combination of human need, perceptions of territory and social organisation and the state of the associated resources on the other, gives rise to the need for the development of robust institutions institutions (Lund, 2006; McLaughlin, 1985; von Benda-Beckmann (1981). It is in this context that institution come about and evolve within the context of contestations makes use of disputes for creating opportunities for lending political credence to their narratives. Viewed from a decolonial perspective, institutions are also implicated in complexity, not only for their unintended outcomes, but for the contradictory role they play, wherein society is at the service of institutions, instead of the other way round (ss2.2.1) (Mignolo & Escobar, 2013). Societal institutions package the possibility of assemblages such as what one should or could do with a resource. Institutions determine who has a right to sell and who does not.

Lund's (1981) contention is loaded with implications that the rules of the day, including the 'law', are in essence a manifestation of societal power dynamics, not the neutral arbiter they are often presented to be. If the idea that social institutions are socially legitimated instruments, it follows that law law is legitimated by the same system it belongs to and that creates it. It follows then that arguments of fairness, neutrality of norms or institutions are concealing the underlying societal drivers of

injustice and inequality (Harris, 1995). Whichever way the balance of scales lies and whatever the rules are at any point in time, they nevertheless remain 'contested' rules of the day until they are replaced by new institutions.

The emergence and growth of new institutionalism as a movement around the 1980's is a noteworthy development within the broad arena of social sciences, marked by pragmatism and empiricism, while placing emphasis on applied rules (rules in use) as opposed to older forms of institutionalism which focused on formal rules i.e. "contracts, constitutions, treaties or other constitutive documents" (Young, 2002:4; Schelling, 1978). The nebulous adhesive that holds this movement together is the desire to understand the nexus between institutions, on the one hand, and the drivers of individual motives and macro-behavior in multiple settings, on the other. Notwithstanding that rules seldom provide the full account of changes in land use transitions in different situations, there is general acceptance among institutional scholars of the approximate role institutions play in meditating the people-land relationship (Young, 2002). In other words, rules only constitute one driving force, among many other drivers of anthropogenic behavior, which also vary across situations. The key feature of the institutional research agenda involves isolation of institutional drivers from other drivers and developing a deeper understanding of how the multiple drivers collectively account for observed behavioral outcomes. Some of the key features of the institutional research agenda involves isolation of institutional drivers from other drivers and developing a deeper understanding of how the multiple drivers account for observed behavioral outcomes. Among others, the dominant paradigm which emphasises the power of rational institutional design approaches *vis a vis* environmental realities, fails to acknowledge other driving forces to institutional and behavioral change (Brunsson & Olsen, 1998). Goodin (1996) articulates this conundrum of dynamics of institutional change aptly, as a product of some design elements, competitive selection and extrinsic accidental shocks.

The institutional research endeavor is dominated by two broad approaches, one logic that congregates around consequences, and another logic that congregates around appropriateness of institutions (March & Olsen, 1998). The diagnostic approach moves from the basic premise that one size does not fit all, and that institutional design for environmental problems should be context and problem

specific. The climate change phenomenon as an example, poses an existential crisis for humanity that requires enhancement of knowledge about the problem, in order to bring about adjustment to both institutions and human behavior. The success of both institutional diagnosis and institutional design relies on their interdependent on the anthropogenic data being generated. One of the key conceptual concerns to researchers is the notion of density of institutions, which often operate in similar ways to ecosystems that are interconnected in complex interdependent ways, simultaneously within and across scales (e.g. family, clan, local area, social setting, municipality, national etc.).

The institutional approach to land administration, particularly in the African context, suggests that an appreciation of the role of the 'state' and 'non-state institutions' in land administration is fundamental (Lund, 2006). The list of common definitions of land administration in Table 4.1 creates does not only reflect poor conceptual coherence, but also creates an incorrect impression that land administration functions are limited to the state (Groenendijk et al., 2012). The broad conceptualisation of land administration logic leads to the question of who performs land administration functions within the African context, and South Africa in particular. The logical question that flows from this relates to the relationship between broad public administration and land administration. The answers to such questions are not easy within the African context, where land administration and public administration have a partial overlap, as opposed to a neat one-to-one fit, as might be the case in Western contexts. While most elements of land administration may be regulated by statute and hence fall in the domain of public administration, the situation is much more complex in Africa because there are elements of land administration that fall outside the ambit of public administration. The complexities arising from legal pluralism in South Africa one window into this dilemma (ss6.2.7 & 7.2.4.2).

In South Africa, the institution of traditional leadership represents what Lund (2006) refers to as a 'twilight institutions' that occasionally linger in the twilight with respect to land governance and administration. Traditional leadership continues to play a critical – but contested -- role in matters of land administration and with respect to administration of justice, specifically in the former homeland areas (Cousins, 2008). In the South African province of KwaZulu-Natal, the phenomenon of a *khonza* fee or

"homage", which is some form of local tax collection by traditional leaders, is well known. In a similar vein, characters that sell land illegally are a familiar phenomenon in South Africa; however, this a partly a reflection of poor state capacity to deliver land development (Ndamase, 2019). For instance, land invaders at Farm 924 near East London Airport, Eastern Cape Province, South Africa, were sold residential plots at R6 000 per unit by a man known only as Dlamini,[43] who had neither the right nor the legal authority to sell. In this particular instance, Dlamini drew his power from the vulnerability and desperation of those who were in need or wanted land. While this sort of phenomenon is sometimes associated with traditional leaders in South Africa, also suggests that this is an altenative form of land reform pathway.

Traditional leaders feel marginalised by the state in that their role is not 'sufficiently' or 'meaningfully' entrenched in the law to their desires. In addition, the weakness of municipalities legitimises the traditional leaders as a response to chaos. In this context in which municipalities are seen as distant and weak, traditional leadership entrenches it's authority, while at the same time trying to claim their space as a quasi-state functionaries. The spread of discontent breeds a narrative where traditional leadership structures pronounced intent to form a political party, that would arguably erode the rural support base of the ruling party, the ANC. Based on a perception, on the part of the ANC, that the narrative is lacking in any revolutionary content because they do not have uncontested legitimacy and support, the traditional leaders are content with being Members of Provincial Legislatures (MPLs) or Members of Parliament (MPs) of the ruling party through the Congress of Traditional Leaders in South Africa (CONTRALESA). They paradoxically are placed at the interface between the state and the 'exterior' (Lund, 2006).

The construct of land administration sits uncomfortably in Menger's scheme in which he categorises social phenomena as either organic or pragmatic (cited by Palagashvili *et al.*, 2017). In his scheme, Menger characterises organic social phenomena as those that cannot be simplistically explained by linking them back to a specific originator and cannot be explained as resulting from anyone's intentional action. He defines pragmatic social phenomena as those that are a result of purposive individual or group action, such as a government department or a

[43] Dlamini is a Xhosa clan name, equally used to refer to the group and the individual.

developer for the construction of a block of flats, thus bearing features that can be directly linked back to the ideas of the originator. Palagashvili et al. (2017) make a counter, yet equally debatable, argument that not all social phenomena can be explained as having goals or intentions because they are just not anyone's intention. This is where Menger's analysis misses the point on social social behaviour, in that traditions may not have a rational goal within the context of the current set of actors, who may not even know why one is behaving in a particular manner, other than conforming to tradition. Palagashvili et al's (2017) argument fails to appreciate the dynamic nature of institutions in which they have no goal but are in flux or a state of becoming. The "either-or" binary in Menger's construct is problematically metaphysical, ignoring that institutional phenomena are in complex processes of becoming. A specific land administration example, such as building height restrictions that may have been set out at one point in time, may not make rational sense at a different point in time.

The deployment of the institutional approach as part of the assemblage with the systems thinking has serious implications, not only for the depth of understanding and analysis, but also for the development of future decolonised analysis and theory around land administration systems. The institutional approach is a particularly important analytical tool in the context of land administration where institutions take multiple bureaucratic and, in some cases, "non-state" procedures such as planning procedures, land surveying systems, land and property valuation systems, tax collection systems, bond registration procedures, data/information systems. Many of these institutions have evolved over many centuries and are constantly in transition. The next subsection briefly explores the multiple scales approach.

3.6 MULTIPLE SCALES APPROACH

Introduced by Smith (1992), and subsequently developed by others (Brenner, 2001; Marston, 2000; Smith, 1992), marks the emergence and rise "politics of scale, a politics of location and a politics of territorial identity". Brennner (2001: 602), among political ecologists and geographers, considers the multiple scales framework to have power in theorising spatial units and hierarchies of human effort. According to Zinzani (2017), the notion of multiple scales highlights the fluidity of scale within a context where none of the embedded scales have qualities that have a natural or

perfect fit across socio-economic and ecological processes or rationalities but are instead deployed by political actors to pursue a specific project (see Fig. 3.3). Fig. 3.3 depicts the interlinked relational connections between, often misconfigured scales in land administration. The contradictions of competing rationalities between different scales and the mechanisms used to calibratemanagement of land and natural resources has been and continues to be a subject of much debate. Notwithstanding all the concerns (Zinzani, 2017; Linton & Budds, 2014), the multiple scales approach has enormous power in providing an analytical tool to questions relating to the nature of social relations, the power structures, and the technology interventions to produce or reproduce the resources at different scales. The multiple scales approach is consistent with the systems theory and the institutional approach.

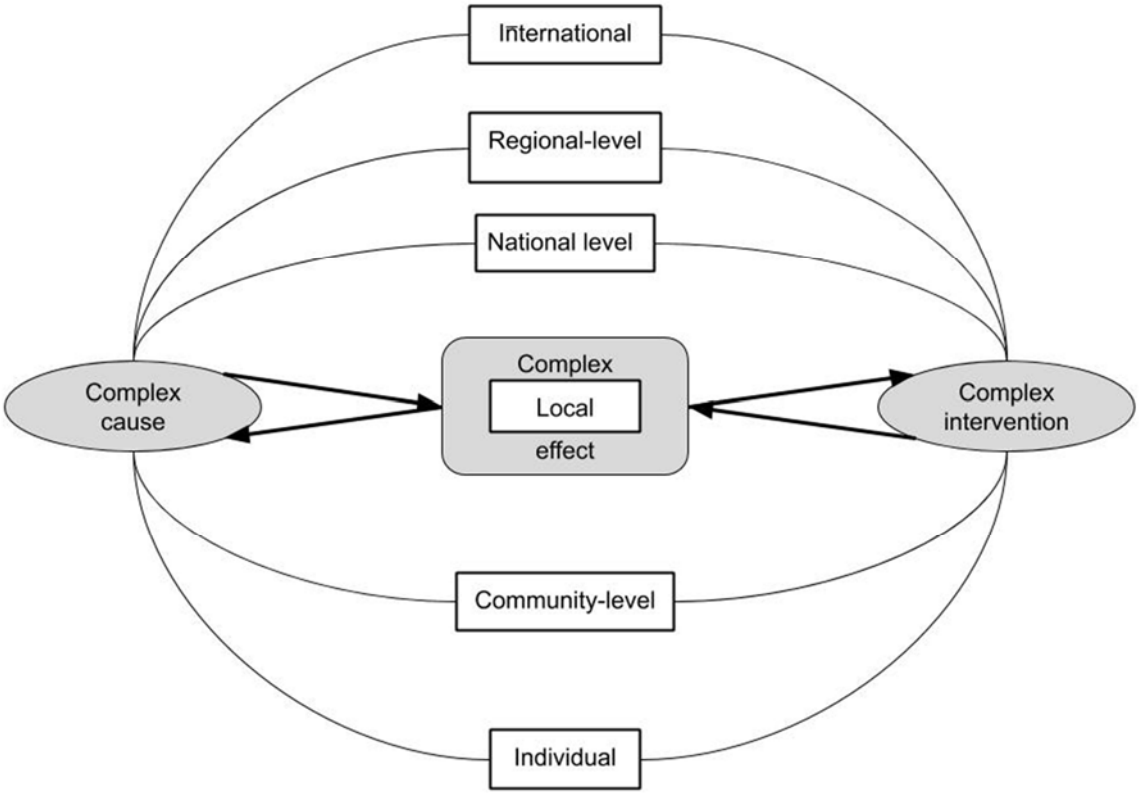

Figure 3-3: Diagrammatic illustration of the relationship between complex problems and scale (Adapted from Jacobs et al., 2011).

The multiple scales approach is just one of those analytical tools which, despite it's limitations, is very useful in understanding the origins of norms, how they are reproduced and transformed across scales in a manner that is consistent with the systems thinking. This notion also highlights the fluidity of scale in a context where none of the scales have embedded qualities that fit across socio-economic and

ecological processes or rationalities, but are instead deployed by political actors to pursue a specific project. One of the key strengths of the multiple scales approach in land governance is that it makes available a range of institutional resources – inclusive of customary, moral, traditional (Damonte & Boelens, 2019) – that would otherwise remain in the blind spot This approach is geared towards how different institutions at different scales intersect and shape each other and the actors. The contradictions between competing scales and the mechanisms that are used to calibrate resource management has been a subject of debate. With respect to landed natural resources, the neo-Marxist epistemological tradition consciously pays attention to issues of "social inequalities, injustice, political conflict, and the role of political actors in shaping their historic and contemporary dynamic" (Zinzani, 2017:5; Castree, 2003; Blanchon & Graefe, 2012; Swyngedouw, 2004; Brown & Purcell, 2005).

3.7 CONCLUSION

The assemblage of the GST and complexity theory in concert with the institutional and multiple scales approaches were chosen as the preferred theoretical frameworks. Integrative analysis, which an essential part of the GST, provides two analytical thrusts: one focusing on the system in relation to the environment in which it is located and other on internal relational functioning of the parts of the system (Malecic, 2017; Ganawaderna, 2019). This specific assemblage was selected as it is the most appropriate for a subject matter has such a broad scope, such as land administration. For the open data theme of the study, the ecosystems theory was elected as the preferred theoretical framework, largely because it is already an established framework in the data and ICT sector/s (van Schalwyk, 2015; Harrison, 2012).

Premised on the overarching aspirational ideal of repurposing land administration in post-apartheid South Africa, this chapter began by making a case for the building of state capacity, which was umbilically and conditionally bound to building an active citizenry. The chapter proceeded to provide an exploration of the assemblage of systems and complexity theory with the institutional approach as the preferred overarching theoretical framework for an analysis of land administration. The

chapter made a case for the ecosystem metaphor – a branch within the systems body of theory as the preferred framework for the OG and OGD theme.

The next chapter deconstructs and reassembles the concept of land administration from multiple points of view. Given the plenitude of scholarship using the concept of land with exploring it from different angles and in relation to a cluster of related concepts. In an attempt to determine if there is any conceptual convergence around the concept, the chapter identifies five discernible schools of thought on land administration. The chapter makes an argument for a normative conceptual definition of land administration, which is accommodative on non-Western traditions.

CHAPTER FOUR : DISASSEMBLING AND CONTEXTUALISING LAND ADMINISTRATION

4.1 INTRODUCTION

Largely premised on the overarching aspirational ideal of repurposing of land administrationin the post-apartheid South Africa, Chapter Three started off by presenting a case for building a capable state, conditionally coupled with building an active citizenry.[44] In addition to the assemblage, the previous chapter also identified, and briefly outlined, key tenets of the ecosystem metaphor – a branch within systems body of theory – as the preferred framework for the Open Government (OG) and Open Government Data (OGD) theme. That chapter proceeded to provide a brief outline of the assemblage that comprises the general systems theory (GST), the ecosystems framework, the institutional framework and multiple scales approaches as the preferred conceptual framework for the land administration component of the study.

Divided into two broad sections, the first part of this chapter examines the concept of land administration, beginning by deconstructing it into it's constituent elements, 'land' and 'administration', examines the concept from multiple angles, by specifically focusing on eliminating confusion and by clarifying what it is not, before outlining some discernible schools of thought in land administration. The second part of the chapter explores the various dimensions of land administration by looking at the concept, as a transversal state function[45]. Given that "land administration" does not exist in isolation, but in tandem with a cluster of interrelated concepts such as land tenure, land governance, land management, the chapter also examines it within the broader context of related concepts. Besides their embedded Eurocentric epistemic anchorage, many of these concepts are often used or understood differently or often confused – it is necessary to unpack them with a specific purpose of contextualising

[44] Active citizenry is used interchangeably with the concept of public/s that was introduced in Chapter One.

[45] A function that straddles across departments and ancross spheres of government.

and distinguishing them from each other, for the purposes of clarifying the central theme of this dessertation. The chapter is then wrapped up by examining the concepts land governance, administration and management and in relation to politics.

4.2 IN SEARCH OF ONTOLOGY OF LAND ADMINISTRATION

4.2.1 Deconstructing Land Administration

In an effort to establish the ontology of 'land administration', and premised on an assumption that the elementary and academic conceptions may differ slightly, the section begins with a basic understanding of land administration. The first step entails deconstruction of the concept into it's constituent parts – 'land' and 'administration' – before proffering into academic conceptions. A useful starting point is the meaning of the word "land", which the Merriam-Webster Dictionary defines as "the surface of the earth and all it's natural resources".[46] According to McLaughlin (1985), some people perceive land as three-dimensional space (horizontal and vertical space dimension, space above and underground), inclusive of the total life-supporting physical and cultural environment. The strength of both definitions is their inclusion of subsurface and above surface resources, which constitute a significant part of what constitutes land.

In a manner that is consistent with decolonial thinking, Li (2014; Grosfoguel, 2007) argues that the English word "land" carries some cultural baggage that requires a fair amount of disentangling for analytical purposes. Largely premised on the idea that different societies have varying conceptualisations of nature and the world, which are anchored in distinct world views, Blaser (2009) argues that the West should succumb to the ontological and epistemological differences that prevail. Some of these differences are discernible in different conceptions of phenomena such as time, nature, climate, causality etc. Notwithstanding that, efforts that are aimed at integration of Western and indigenous knowledge systems in resource management continue to encounter enormous difficulties at policy and practical levels, largely due to divergent world views that they are anchored in (Leonard, Parsons, Olawsky,

[46] https://www.merriam-webster.com/dictionary/land (Accessed 24 April 2019).

Kofod, 2013). These difficulties of integration cannot be extricated from the power dynamics emanating from the unequal power relations between the different world views (Di Gregorio et al., 2019). Li (2014) advances a three-pronged theoretical construct that is very persuasive as an analytical tool for grappling with the ontology of land. The first point in Li's theoretical construct entails an embrace of multiple and divergent meanings of land across different actors. Put simply, the ontology of land to a farmer differs from, and is not the same thing for, a farmworker. A municipality for example, may view a particular land parcel as an object of taxation, while an international investor sees the same phenomenon as a resource for global investment. The same land might be seen as a farming unit by an agriculturalist and as part of a water catchment by an environmentalist. Along similar lines Bridge (2014: Jacobs, 2011) also argues that natural resources tend to be intricately embedded in different forms of common sense, pivoting around positionalities of self and others, which in turn give rise to fundamental challenges, not only to understanding, but to governing the resource. Taken simplistically, Li's (2014) analytic does create an impression that there is a monolithic ontological conception of land within the categories, whereas in reality land, as a phenomenon, can have different meanings even within categories and the sub-categories of actors, such as different types of farmers. The diverse groups of actors also have distinct subjective ideas of the meaning of land (it's ontology), and how humans should interact with it, either as individuals or groups. The same analytic when applied across scholarly disciplines such as an environmentalist, geologist and agriculturalist, is likely to give rise to different assemblages of materialities for the same land phenomenon. Li (2014) introduces the analytic of "assemblage" of materialities of land as a resource that encompasses relations, technologies and narratives that are distributed or aligned systematically between diverse actors including villagers, scientists, investors, legal experts, government officials, etc. From a land administration perspective, one land phenomenon can be a water catchment, from the perspective of an official working at a Water Catchment Management Agency (WCMA), a conception that is encumbered by management and operational actions that collectively serve a set of WCMA goals. However, the same land is an object of agricultural practice (grazing or cultivation) to a community member which suggests that the different affordances overlap and should be managed concurrently. In Li's (2014) analytic, it is these nuances about land that constitute the complex

assemblage of opportunities and limitations that fall between the cracks of the multiple ways of knowing.

Making specific reference to the spatial dimension of land, -- which is tantamount to a slipping back to a single-dimension impositional ontology of land -- Li (2014) argues that tangible as it may be, land is not like a mat that you can simply roll away and take elsewhere. Li's (2014) mat analogy does not only place emphasis on the physical aspect of land by default, but it has a glaring blind spot to the processes of imperialism (in Lenin's sense) or neocolonialism that are essetially anchored in the extraction and relocation of natural resources from source to imperialist countries. Contrary to Li's mat analogy, air quality and water resource quantity and quality, which are key materialities of what constitutes land, are in many instances rolled up and taken away from subaltern in ways that are similar to a mat. The mat analogy is inconsistent with the scramble for Africa's landed resources, which are rolled up and taken away by global powers. A third part to Li's (2014) construct highlights the importance of physical and abstract tools, 'inscription devices' that are used in dealing with land. Physical tools may take the form of a hoe, an axe, tractor, etc., while abstract tools may take the form of maps, GIS and GPS, remote-sensing satellite technology, etc. (pursued further in s5.6).

The assemblage analytic highlights the importance of appreciating different rationalities – 'government, sectoral, economic' etc. – while it also emphasises the interplay between the ideas of the participating actors on one hand, and the characteristics of the land on the other hand (Li, 2014). Although the dominant Western paradigm creates an illusion of a unified clearly discernible material object, land is in actual fact ontologically a multi-faceted and multi-dimensional – a complex interplay between subjective and objective realms. If Li's (2014) notion of assemblage is anything to go by, it implies that analysis should seek to understand the nexus between the multiple objectives and/or ideas of the actors on one hand, and the characteristics of the land phenomenon, on the other. What then differentiates one land phenomenon from another is the combination of multiple objective characteristics of land phenomenon, juxtaposed with the multiple subjective ideas of different actors. Put differently, Li's analytic conjoins a set of objective characteristics of land with the subjective ideas of actors, about what could or should (or should not) be done with the land resource, giving rise to a wide spectrum of

"affordances". In a somewhat oversimplified hypothetical situation where there is one land item with only one objective characteristic and a single actor with only one subjective idea, that one idea still needs to be factored into one objective characteristic in order to arrive at the "assemblage" of the specific land phenomenon. In the real world, the simplicity of a single land item with a single characteristic and a single actor that has a single idea is a pipedream, because the real world is endowed with multiple landed phenomena/resources with multiple characteristics on the one hand and multiple actors, each having multiple ideas, on the other, which complexifies the picture in a manner that resonates well with the complexity theory.

The notion of 'affordances' of land which entails possibilities of what can be done with land has wider implications for land governance and land administration. The distinction between terrestrial, marine and air environs are examples of land resources that have different affordances. In the air space, flying a drone or airplane is possible but the same (flying) is not true in marine and terrestrial/geological spaces. Similarly, the marine environment presents fishing, diving and sailing opportunities as examples of affordances that are unavailable in the terrestrial and air environment. Even within the one space category, there are different affordances that are available at at different points within the same spatial medium. For example, there are different affordances across different water resources such as dams, lakes and rivers, national sea waters, international sea waters, etc.. Similarly, the category of national airspace presents different affordances between different airspace levels or points. One level/point in space may provide high resolution visibility, while another higher level/point may have a slightly lower resolution of visibility (see Kumar, 2018). Similarly, being on top of South Africa's Table Mountain has a different set of affordances to those associated with being at the foot of the same mountain. Applying the same construct of affordances to spatial inequality implies that the difference between Hout Bay, an elite suburb, and the neighbouring Imizamo Yethu informal settlement or township is fundamentally about difference in the affordances (see Fig. 4.1).[47]

[47] https://unequalscenes.com/hout-bay-imizamo-yethu (Accessed 03 July 1019).

Figure 4-1: Aerial view of Hout Bay suburb and *Imizamo Yethu* in Cape Town, South Africa depicting spatial inequality.[48]

Li's (2014; Kepe, Hall & Cousins, 2008) land analytic has serious implications which go beyond the conceptual meaning, to how land is governed or administered or managed. Examining why people have an interest in managing the environment (natural resources), and moving from a Western epistemic paradigm, Murphree (1993), makes a distinction between land and natural resources. The distinction is made on the basis of relative mobility of the resource and human ability to confine them, e.g. mamals, marine resources, the terrestrial earth surface or minerals such as platinum and diamonds. The basis of making the distinction is underpinned by 'control rationalities' -- the attributes of fluidity and transience of water resources positions water at the centre of intersection of natural resources (Menga et al., 2018). Benjaminsen, Cousins & Thompson (2002:1) also make a rather hard differentiation between land and natural resources, referring to "natural resources such as land, water, forests, rangelands and fisheries", muddying the waters even more, by conflating governance with ownership. While they acknowledge different governance regimes such as water catchments, protected areas etc., they also acknowledge misalignment between natural land governance regimes, administrative or political boundaries. Jacobs et al. (2011) are particularly instructive in cautioning against the positivist tradition for it's creation of artificial silos

[48] https://unequalscenes.com/hout-bay-imizamo-yethu

between what are essentially intertwined elements of land: the water, energy, agriculture, forestry, environment, and minerals sectors among others etc.

A conception of land that is anchored in fragmentation is consistent with Foucault's idea of governance by domain, which foregroundsinstitutional architecture in the establishment of specialised government departments; the inevitable result of which are fragmented institutional legal, knowledge silos and compartmentalised policies. The fundamental flaw of these fragmentary paradigms is in their foreclosure of 'systemness' (interlinkages): it forecloses the water input requirements for power/energy generation (potentially sun and wind); it forecloses the power/energy input requirements for water treatment and the moving of water; it forecloses the combination of water and power/energy input requirements for agriculture (food security) and forestry. The consequence of these approaches results in policies that are partial (atomistic), which only respond to small parts of complex intertwined problems based on linear causal linkages, whose solutions even work against each other. Albeit from an environment-centric perspective, Stringer (2018; Biggs et al., 2015; Termeer et al., 2010) cautions in respect of the challenges of multiple autonomous bodies that function on a sectoral basis, operating at different scales and time horizons instead of advocating for a combination of polycentric and systems-based approaches. In their view, this avoids complexities associated with top-down and bottom-up approaches to environmental governance. In a similar vein, Molle (2017) advocates for the "nexus" approach, which entails an integration of policy across sectors (agriculture, water and energy) and harmonisation of policy across scales.

The assertion by Jacobs et al. (2011; UN, 2006:12; Audouin et al., 2011; Dent, 2011; Pollard & du Toit, 2008; Berkes et al. 2003) that water is linked to all sectors falls into the same conceptual pitfall of missing the link between water, the environment and land. Jacobs et al. are correct in emphasising the importance of understanding the system within the context in which it is located -- i.e. socio-economic, cultural, spiritual, political development --considerations should be incorporated into the thought processes, as part of the whole. They however fail to distinguish between the system and the environment in which the system is located and parts of the system, as different levels of abstraction. It is on the basis of recognising these interconnections that land, in it's manifestations and natural resources inherently

triggers normative, ethical and subjective realities, hence the normative principles of sound management and equitable sharing or justice considerations (s2.1) (Safransky, 2018; Rawl, 1971).

Goldman et al. (2018: 2) albeit from an ecological perspective, reminds us how multiple actors know [land] the world (and thus climatic changes) is closely bound up with what [land] the world is for them, the types of [land] worlds they all participate in creating, and how this is constantly changing. They go on and argue that 'practices of knowing and being' are not isolable, but are rather 'mutually implicated' in configuring the [land] world in certain ways that are complex, multiple, and constantly changing. The dynamic nature of multiple parts that all in motion does unfortunately go against the grain of what is typically desired by scientific researchers and government officials for reports. South Africa's Constitution under the ambit of land reform social engineering imaginaries, assigns land reform to the goal of "equitable access to all of South Africa's natural resources", consistent with an inclusive conceptual ontology of land (what land is), authorising the state to make use of statutory measures to bring about equitable access to land inclusive of access to water and other natural resources (van der Walt, 2011; Constitution RSA, 1996).

Foucault (1980; Zinzani, 2017:19) had long argued the idea that "political discourse represents a way to exercise power, the discursive power and to convey forms of knowledge and truth". Foucault's idea is essential to understanding the relative weight of political discourse, either in support of or disruption of ideas about the ontology of land. The manner in which territory and natural resources are imagined and framed is supportive of, and anchored in, ideas of 'national identity' and 'sovereignty' etc., which are often inconsistent with land justice imaginaries (Ertör et al., 2020; Menga et al., 2018). George Lipsitz (1994) notion of 'black spatial imaginaries' and McKittrick's (2011) notion of 'black sense of place' are just some of the alternative land imaginaries, that are steeped towards supporting public spaces and services towards use value of land as opposed to exchange value. Breaking ranks with the dominant ways of knowing land, which congregate around property and territory, Mishuana Goeman (2015, 2008) advances a conceptualisation of land as a process of making meaning rather than as a claimed object -- a repository of lived experience, aspirations and identity and site of ritual communication. The concept of 'property' which is supposedly a conceptual construct that is a subset of

land is also not exempt from the decolonisation scrutiny -- which is beyond the scope of this study. A body of scholarship that is steeped towards the Western conceptualisation of land as 'property' – defines it as a bundle of negotiated social, political, legal, and economic relationships that confer value through exclusion (Hann 1998; Merrill, 1998).

In their criticism of South Africa's policy understanding of what land means, as reflected in fragmented policies, juxtaposed with the manner in which land is treated as a phenomenon that can be valued through market relations, Kepe, et al. (2011b; Castree, 2010; Polanyi, 1957) are highly critical of the conceptual thrust which equates land with property, largely because of the fundamental policy blind spot to the manner in which the very land markets, which constitute the bedrock of the capitalist economy, are locked in colonial power matrices and in turn perpetuate them. This is part of the system that forms the bedrock of the capitalist system. Along parallel lines Kared Barad argues that the multiple ways in which we know [land] the world is directly linked to how we act in shaping it in different ways (world making), the converse of which is that the multiple ways in which we act in relation to the [land] world shapes the ways in which we know [land] the world (Barad, 2007). All of these discourses, while originating from different disciplinary sources, all congregate around Safransky's (2018) call for accomodation of alternative ways of knowing land. Assigning the selection of ontology of land to scientists opens up a new can of worms, around how the different sciences and knowledges are arranged and in relation to each other.

The somewhat elaborate re-examination of the meaning of what land means is inspired by decolonial thinking -- epistemic decolonisation or de-coloniality visions – which is steeped towards detachment of thought processes from the hegemonic and Eurocentered matrices of knowledge, a shift away from impositional ontologies, and towards more discursive ontologies (Mignolo & Escobar, 2013). The decolonisation or de-coloniality visions represent a fundamental conceptual shift, which in turn gives rise to fundamental questions about not the ontology of land, but the policy foundations of South Africa's land policy.

Work in progress emanating from the body of scholarship that straddles across social sciences and humanities, which has been engaging with the 'ontological turn'

discourse (Goldman, Turner, Daly & Meaghan, 2018; Woolgar & Lezaun, 2015, 2013; Holbraad, Pedersen, & de Castro, 2014; Escobar, 2007) points towards going beyond epistemology [how we know land] and more in the direction of ontology. Notwithstanding that the assumption that there is one homogenous ontology of land out there, has outlived it's utility, while at the same time posing the challenge of how to overlay the different ontologies in order to come to what is accepted as what matters. The conceptual and practical challenges that the idea poses relates to how multiple ontologies simultaneously come to the fore and are assembled, or relate to each other, and how one determines which one matters (Mol, 2002). The combination of pluralism, complementarity and competing articulations of multiple ontologies of land turns the concept into a zone of contestation (Krausse, 2013), which gives rise to difficult questions of compatibility of multiple conceptionswhich constantly require constant alignment and intervention of the change process (governance) (ss3.3.1) (Ludwig et al., 2019). The next part proceeds to the second component of the land administration concept, 'administration'.

According to the Merriam-Webster Dictionary, the term "administer" comes from the Latin word *minister* meaning "servant".[49] The noun "administration" is the process or activity of running a business or organisation; it is "the day-to-day administration of the company".[50] In a manner that distinguishes "administration" from "governance", the Merriam-Webster Dictionary defines it as the execution of public affairs thus distinguishing it from policy-making.[51] The Law Dictionary defines "administration" in relation with the government or the state: "the administration of [government] means the practical management and direction of the [execution] or of the public machinery or functions or the operations of the various organs of the sovereign. The term "administration" is conventionally applied to the whole class of public functionaries or those in charge of the management of the executive [department]."[52]

The term "administration" is by no means limited in it's application to government but to other contexts as well, and so much that in everyday talk it is not uncommon to

[49] https://www.merriam-webster.com/dictionary/administration (Accessed 27 December 2019).
[50] https://docs.google.com/document/d/1AOVTyZ-KtMi8SLtWq9ersh6k-zloD9rjvsZ-CJAqOxc/edit# (Accessed 24 April 2019).
[51] https://www.merriam-webster.com/dictionary/administration (Accessed on 24 April 2019).
[52] https://thelawdictionary.org/administration/ (Accessed on 24 April 2019).

come across terms and phrases such as “administering medication” or “administering justice”. The administration of medication may hypothetically be executed by a parent to a child; the administration of justice could be with reference to a court of law making a ruling on a dispute. The commonality in the two examples, “administering medication” and “administering justice”, is that they are both examples, are underpinned by a strong element of execution which is pivotal to understanding the underlying meaning (see Kingwill, 2019; Steudler *et al*., 2004). The act of administering of medication entails both the decision and the act of dispensing the medication, which is in turn underpinned by some procedure, method or instruction. Similarly, the administration of justice is also underpinned by some decision/s and a set of standardised procedures. In both contexts administration is underpinned by some goal or intended outcome (Williamson, *et al*., 2010) and by a host of rules (institutions) (North, 1991; McLaughlin, 1985). In a nutshell, the exploration of elementary conceptions of land administration sheds useful insights on the ontology of the double barrel phrase – reflecting the underlying nexus. The next subsection explores the scholarly conceptions of land administration and identifies different schools of thought on land administration.

4.2.3 Multiple Conceptions of Land Administration

Based on the elementary conceptions of land administration as a starting point, it is safe to say that land governance and administration systems must have been born and evolved within the ancient historical context of the increasing and changing societal need to manage people-land relations (Williamson, *et al*., 2010). At the risk of oversimplifying extremely complex modern-day people-land dynamics, Ehrensperger, Bremond, Providoli et al. (2019) identify three global challenges that require land-based solutions – that is, providing food to the growing population, mitigating climate change and bringing to a halt biodiversity loss. In a similar vein, Palmer, Fricska & Wehrmann (2009:3) articulate some of the challenges that the world is increasingly faced with to include: “the adaptation and mitigation of climate change, rapid urbanization, increased demand for natural resources, growing food, water and energy insecurity, increased natural disasters, and resolution of violent conflict”. The underlying thread to all these societal challenges is that they are all underpinned by a land-people relational theme (nexus), which inherently requires a suite of institutions and systems that are underpinned by an implicit goal of reducing

the frictions in the people-land relationship. This high-level or normative understanding of land administration provides a useful conceptualisation that spans both history and the global North and South divide. At the same time, the level of abstraction unfortunately puts into perspective the perplexing ideological and practical challenges of balancing between these competing or contradictory institutional thrusts (the state, capitalism, democracy, etc.) – one where institutions serve society on the one hand and where society is at the service of institutions on the other (Mignolo, et al., 2013). This conceptualisation puts into perspective the difficult paradox between maintaining flexibility in institutions and developing robust and rigid institutions all within the context of dynamic social needs and realities. It is at this level of conception that the governments face land governance and land administration dilemmas. Borrowing from Li's (2014) analytic, the packaging of an assemblage of affordances is at the centre of land governance and land administration together with distributing the same between competing individual, societal, and state interests. From this broad normative understanding, logic follows that institutions for the management and control of land can only be suited to, and appropriate for, the specific context in which they arise. Before developing this point any further, it is important to explore some of the scholarly conceptions of land administration.

A rather traditional, but somewhat useful, starting point in the search for the meaning of land administration is one wherein it is defined in terms of it's constituent functional elements, by breaking it down into it's juridical, regulatory, fiscal, data/information and enforcement functions as constituent elements (see Table 4.1) (Kingwill,2019). These conceptions are inherently dominated by functionalist approaches that are largely based on the Western model (Fourie, 2002b) to the exclusion of any analysis of the inner workings of the different functions (interrelationships of parts or systemness). This inadvertently results in glaring divergent scholarly perspectives around what the constituent functions are.

Table 4-1: Breakdown of land administration into functional elements (Adapted from Kingwill, 2019; MXA 2002)[53]

Functions	What the functions typically entail
Juridical functions	• Allocation of rights to land (e.g., sovereign grants, sales, donations, inheritances, prescription, expropriation, reversion, servitudes, leases, mortgages) • Delimitation of the parcels (e.g., definition of the parcel, demarcation of boundaries on the ground, delimitation of the parcel on a plan) • Systems for adjudication (e.g., resolving doubt and dispute regarding use rights, limitations and boundaries) • Registration or recordal (e.g., official recording of information of rights and parcels
Regulatory functions	• Spatial planning • Land use controls (e.g., zoning, environmental regulations, etc. that restrict rights)
Fiscal functions	• Institutionalised systems for determination and actualisation of backward and forward financial flows between the state, society and private interests. Among the instruments property assessment (e.g., valuation of the land and improvements); Property taxation (e.g., determination and collection of taxes including transfer fees); Compensation regime (e.g. when land is expropriated by the state)
Data/Information management	• e.g., collection, storage, retrieval, dissemination and use of land information
Enforcement functions	• e.g., enforcement of regulations and land use controls and tax compliance, through the use of state power; protection of entitlements against other parties, enforcement of land use controls

4.2.4 Contemporary Conceptions of Land Administration

In South Africa, during the early days of transition from apartheid to democracy, the

[53] Investigation into Land Administration Systems in the Eastern Cape Province: Analysis of the Status Quo Position. Project OPSC001/01, Office of the Public Service Commission, Republic of South Africa.

Green Paper on Land Reform did invoked the concept of land administration defining it as 'the functions involved in regulating systems of land use planning, control and development, land transfer and land tenure' (DLA, 1996). Table 4.2 presents some of the more contemporary conceptual definitions of land administration, based on focus/interest and key aspects associated with each definition (Groenendijk et al., 2012). Broadly speaking, the different foci include functionality of the market economy (see UNECE, 2005, 1996; Dale & McLaughlin, 1999), land tenure (see FAO, 2002), sustainable development and management of people-land relationships (see Williamson, et al., 2010). While Groenendijk et al. (2012) do not explain what they meant by 'focus/interest', one assumes that they mean the normative goal of the system. Groenendijk starts to differentiate the definitions on the basis of focus or interest and key aspects (See Table 4.2). It is worth noting that only Williamson et al's (2012) conceptual definition invokes "development" which is absent others, despite the global challenges for sustainable development and climate challenge. The divergent directions taken by the different schools form such obtuse angles that they require no special geodetic skills to differentiate.

Table 4-2: Common definitions of land administration (Adapted from Groenendijk et al, 2012)

Author	Definition	Focus / interest	Key aspect
UNECE (1996)	The process of recording and disseminating information about ownership, value, and use of land when implementing land management policies	Land market; market economy; Eastern and Central Europe	Land information systems
Dale and McLaughlin (1999)	Those public sector activities required to support the alienation, development, use, valuation, and transfer of land	Land market; market economy	Public administration
FAO (2012)	The set of systems and processes for making land tenure rules operational. It includes the administration of land rights, land use regulations, and land valuation and taxation. Land administration may be carried out by agencies of the formal state, or informally through customary leaders.	Land tenure security; developing countries	Formal and informal land administration
UNECE (2005)	The process of determining, recording and disseminating information about ownership, value, and use of land when implementing and management policies.	Land market; market economy; good governance	Systems maintenance; e-services
Bennett et al. (2012; Enermak et al., 2005)	The management of land tenure, land valuation, land use, and land development.		Land management
Williamson, et al., (2010)	The processes run by government using public- or private-sector agencies related to land tenure, land value, land use, and land development.	Sustainable development	Land management

Williamson, et al., (2010)	The study of how people organise land. It includes the way people think about land, the institutions and agencies people build, and the processes these institutions and agencies manage.	People-to-land relationship; land tenure	Land management

Among scholarship that invokes 'land administration', this study has identified five discernible streams, while not eliminating the possibility of others. The different scholarly orientations or schools of thought are constituted not only on the basis of what land administration means or what purpose it serves, but rather by where each school of thought places emphasis. In this instance, the terminology of "school of thought" is used loosely to connote an analytical category rather than to imply monolithic scholarly groupings partly because different orientations do not necessarily have internal coherence or bounds, other than where each one places emphasis. In essence, the different schools of thought are founded on similar methodological starting points wherein parts of the system are confused with the actual system. In similar ways, the different scholarly orientations all share this common feature in that they place a higher level of emphasis on different elements of the same system. Taking precaution to avoid painting the different schools of thought with one brush, they do share a common feature – an adherence to a reductionist methodology – a characterisation that is worthy of qualification. Reductionism as a methodology holds dear the idea that the pursuit of understanding of complex systems can be facilitated by breaking them into smaller components and sub-components. Among others, one of the weak points of reductionism is that micro and macro level phenomena are often decoupled, thus creating difficulty in establishing causality links, and that an individual's behaviour cannot be used as a basis for the explanation of the behaviour of a group because of decoupling (Rindzevičiūtė, 2018; Oatley, 2011; Gaddis, 2002; Murphy, 1998; Ayala, 1974). This partly explains the extent of limitation of the functioning of an average scholar. Without any fear of contradiction, few theories actually give equal weight to all elements in a system in the analysis, and the result is for different orientations to treat different sub-systems either in reduced or enhanced forms (Oately, 2011).

Albeit within the context of studying international politics, Oatley (2011) despises the "reductionist gamble" where domestic politics are studied in isolation from the international context in which they are embedded. There is unquestionable merit in studying components and sub-components as these are systems in their own right but representing different levels of abstraction. The potential strength of such studies, however, lies in their ability to generate logically coherent and empirically accurate explanations of the behaviour of subsystems – an assemblage which could feed into explaining the behaviour of the higher-level systems. While there is acceptance that scholars can diisagree on such putative 'higher level systems', the question of who arbitrates in instance of 'under and or overstating' slips into the slippery slope of subjectivity. Oately (2011) is skeptical of reductionism when it results in overstating the causal importance of parts and understating the importance of environmental interactional factors. Partly to avoid the unfortunate blemishing connotations associated with reductionism, Lake uses the concept of "partial equilibrium analysis" (Oatley, 2011; Lake, 2009a &b; Frieden & Lake, 2005). An unfortunate unintended consequence of placing undue emphasis on one part of a system is the danger of diminishing or foreclosure of other equally important parts. Similarly, the different domains of land administration are each systems in their own right, worthy of study; however, fundamental methodological questions arise when the parts of a system are elevated to the whole. The reductionist conceptions of land administration, which tend to reduce the parts into the whole, represent Walby's (2007) notion of a false sedimentation of categories or alternatively poor integrative analysis, not without consequences on highly suspect conclusions. In other words, reductionism is not a condemnation but it is a legitimate method of inquiry, with it's limitations, it still has space in academic endeavours.

The first scholarly orientation places emphasis on the themes of land governance and/or land tenure. The UN-FAO (2002; 2012; also see Chitonge, 2020; Kingwill, 2019; Unjunwa, 2016; Lemmen, 2015; Palmer et al., 2009) distinguishes it's approach by introducing the notion of the governance of land tenure and administration of tenure. From this school of thought, the conception of land tenure is understood as the epicentre of land governance with emphasis on the mechanisms and methods by which people, communities and others are able to acquire rights and associated obligations to access, use and take control of land.

The UN-FAO is pursuing a specific issue-driven agenda that seeks to drive transformation of the intellectual apparatus underlying global land tenure governance policy trajectories. Problems and challenges in land tenure are often a reflection or manifestation of the relative strength of governance. Essentially good governance enhances land tenure security, while problems in land tenure are often a manifestation of poor governance.[54] This implies that tenure security is not an exclusive function of recordal, because recordal is only a small administrative part of governance. It is for this reason that Palmer et al. (2009) emphasise the need for mainstream land governance approaches in land reforms.

Kingwill (2019) uses a simple yet powerful analogy in which land administration is conceptualised as administrative infrastructure, analogous to a scaffolding or a network that supports land governance. While the analogy is loaded with explanatory value, it is symultaneaously highly problematic in that it reduces the overarching goal of land governance and administration to supporting land tenure much to the foreclosure of other domains of the same system (Rindzevičiūtė, 2018). In this analogy, the emphasis is on the network that provides a framework for functionality of different forms of tenure.

The second scholarly orientation follows a similar, albeit different theoretical distortion as the first by elevating cadastral systems, which are a part of land administration system, to the same level as land administration (Steudler et al., 2004). A major conceptual flaw with this approach is that it tacitly implies that the absence of the cadaster is tantamount to an absence of land administration system.

The third scholarly orientation places emphasis on the combination of the cadaster and land registration as constitutive of land administration, thus elevating the combination of the cadaster and registration. The spurious claim by Groenendijk et al. (2012; Williamson et al., 2010; Dale & McLaughlin, 1999) in their identification of what they refer to as additional functions of the cadaster-land registration duo, which includes demarcation of land parcels, legislation and associated regulations (Zevenbergen, 2002; UNECE, 1996) and valuation and taxation (Dale & McLaughlin, 1988) bears the hallmarks of Eurocentrism. The praxis of the state embarking on

[54] Dealt with more elaborately in Section 4.3.3

large-scale documentation of the people-land relationship and mapping draws it's history from two primary sources, fiscal and legal origins. The fiscal origin arose from the state's need to maintain accurate and complete land records, for the purposes of administering taxes (Groenendijk et al., 2012; Larsson, 1991). The publication of legal records draws it's original motivation from the need for a record of ownership and associated land rights. These two systems of managing the cadaster and the land registry evolved not just along parallel lines, but also along slightly different paths in different countries, which culminated in the emergence of a multi-purpose cadaster in Europe the 1970s with the sole idea of serving multiple users. (Williamson et al., 2010; Enermak, 2004). This was an important milestone in the evolution of land tenure administration. In practice the cadaster is a technical translation to scalable size of a conceptual layout plan, ordinarily executed by a spatial planner. Furthermore, this approach is Eurocentric, and implies that precolonial African polities did not have their own forms of land administration systems, and that land administration systems were entirely an import of the global North, because they had neither the cadaster nor the register. This conceptualisation would also incorrectly imply that there is partial land administration in African countries where the cadaster is limited to urban and commercial farmland spaces.

The fourth scholarly orientation places most emphasis on recording information much to the exclusion of other elements (Barry, 2018; Steudler & Williamson, 2012; Seudler, Rajabifard et al., 2004; UNECE, 2005, 1996; Nichols, 1993). The rise to prominence of the data/information domain of land administration is closely associated with international developments after the 1980s, a period that is marked by a thinking about land that is accompanied by growing concern for the environment and resource scarcities, and requisite careful stewardship. If this is to be undertaken with any degree of success, information on land is the starting point (McLaughlin, 1985). The land data/information domain is without any doubt a key cross-cutting system in land governance and administration, providing information on all the other domains/parts of the system, be it fiscal system, cadastral system, registration system, planning and regulatory system, supporting decision making.

In a hypothetical case, data could entail a range of information pertaining to the land. For instance, this includes visual representation of a land parcel or dimensions

thereof, people's interests such as title conditions to the property, bonds or servitudes registered against the property, planning and regulatory data such as zoning information, applicable rates, building plans, taxes etc.[55] Notwithstanding the cross-cutting nature and importance of the data/information system, it does not elevate it to the whole of which it is an important part.

Within the context of a South African municipal system, there are several intertwined land administration functions, inclusive of:[56]

- assessment of properties that enables municipalities to determine property rates;
- collection of revenue in the form of municipal rates which in turn make possible the maintenance of existing infrastructure as well as planning and rolling out of services to new areas;
- the revenue collected from services should in turn sustain the services such as water and electricity supply;
- spatial planning which entail forward-looking land-use futures;
- land use management that is a separate but related function, typically entails building controls, zoning and development controls.

In this context, municipalities require systems by which data on all the functional areas, by which data harvested, stored and shared in a manner that helps provide insights into issues of issues of compliance and contraventions. Information on contraverntions should provide a feedback loop into the system, by triggering enforcement where need arises.

The fifth scholarly orientation, as identified by Hornby (2006), and largely emanating from a South African experience, places emphasis on a murky constellation of planning and land use management or regulation. With specific reference to local government (municipalities) in South Africa, Hornby correctly explains that land use management is a domain that is responsible for how land is used, nested within planning, which is in turn a subset of a much wider land administration domain. In this specific context, land administration entails numerous other elements that are

[55] Based on personal observation by the author.
[56] Based on personal observation and prior knowledge by the author.

collectively necessary to enable planning and delivery of services in a way that supports fulfilling of mandates.[57] It is rather puzzling that planning and regulation are often condensed or treated as one system (domain) (Steudler et al., 2004). Much of the literature erroneously condenses spatial planning with land use management or reduces everything to land use management (Hornby, 2006). These seemingly minor distinctions are important and critical issues to take up because land use management does not only arise from planning but could result from either planning and/or environmental regulation.

In all fairness, each of these different orientations brings it's own lopsided insight into the ontology of land administration; however, the real meaning lies somewhere in the intersection between the different orientations. In a nutshell, the major flaw of the different schools of thought perspectival distortion emanates from lack of integrative analysis (Ganawardena, 2019). In light of these varying conceptions, one has no option but to differ with Groenendijk et al. (2012) that the trend is towards broadening the conception of land administration. In fact, the more modern conceptual definitions represent blocks of scholarship orientations that are increasingly drifting towards narrow conceptions. Barrios (2017) moving from a context of disaster and crisis management, cautions on the dangers resulting from vastly diverse ontologies -- not in the possibilities that the different conceptions foreground, but those that they foreclose. The underlying assumptions about the state's role in land administration is not only a common feature, but one that looms large resulting in a blind spot on the role of non-state actor and or informal institutions and or customary rights/entitlements that are not registered (see Lund, 2006; Dale & McLaughlin, 1999).

The approach advocated for in this study is steeped towards avoiding a concise definition highlighting the nexus between land governance and land administration, and moving towards a normative conception of land administration governance. For the purposes of this study, land administration is foremost conceptualised as a system or a domain, in it's own right,placing emphasis in the relationships of the parts (domains) as part of enhancing insights into the functioning of the whole system (Malecic, 2017). Ovens (2014), in *Improving Land Sector Governance in*

[57] Much of this constellation is based on the author's observation over the years.

South Africa: Implementation of the Land Governance Assessment Framework, is very much in concert with this approach. In her key observations, Ovens (2014) notes the limitation in nuance that potentially arise from a report that is largely pitched at a national scale. Largely anchored in systems thinking, this approach recognises the multiple scales at which land governance and land administration institutions operate.

An application of systems-complexity theory synthesis represents a break with thefrom the functionalist approach which gives rise to conceptualisation of the partsas "institutionalised domains", separated out into judicial, planning, fiscal, regulation and enforcement and data/information. The strength of the systems approach is in recognising the "systemness" wherein two of these institutionalised domains can only interact directly; however, when there are three institutional domains, these domains can interact directly and indirectly resulting in what Behrens (2007) calls the three-ness effect. The three-ness effect introduces feedback loops into the system, which significantly complicate the analysis. The next section explores different dimensions of land administration as a transversal state function, land tenure and the relationship between land governance, administration and management.

4.3 DIMENSIONS OF LAND ADMINISTRATION

4.3.1 Land Administration as a Transversal State Function

With the scope of land administration being so broad, questions arise on the nature and extent of the overlap with public administration. Given the closely intertwined history of government and land administration, any attempt at separating the two would be problematic. Notwithstanding the centrality of government in land administration, the role of non-state actors cannot be underestimated (Lund, 2006). Given the specific histories, logic suggests that the blend of land administration systems, which characterise Africa's post-colonial order, are a blend that combines elements from indigenous systems with traditions of former colonisers (Sietchiping *et al.*, 2011; Eriksen, 2011). While there is a definite overlap, any neat nesting of land administration with the state would constitute a gross oversimplification, anchored in Western experience. Notwithstanding that, this study focuses on the concept in

relation to government fully cognisant that land institutions are not necessarily the exclusive domain of the state (Lund, 2006). The centrality of institutions is fundamental to understanding land governance and land administration, while bearing in mind the different traditions that have evolved in different contexts. On the contrary, there is growing recognition that "formal governments can rely on informal arrangements whereby the use of land and it's resources is allocated to new users and owners, based on arbitrary unmapping of territory, thus denoting the 'territorial impossibility of governance'" (Menga et al., 2018:4; Roy, 2009; Agamben, 2005). Di Gregorio, Fatorelli, Paavola, et al., (2019) also allude to a growing trend in land governance towards an increasing occurrence of interactions between formal and informal spheres of authority. This implies that governance is not an exclusive government function. The next subsection explores land tenure as an aspect of land administration.

4.3.2 Land Tenure – Rights, Interests and Obligations in Land

The discussion on land tenure (rights, interests and obligations) is intended to eliminate confusion, which emanates from a popular paradigm that conflates or confuses land tenure with land administration. In keeping with the inclusive meaning of land and landed resources and the multiple scales approach, the term 'land rights regime' is preferred (ss4.2.1; s5.4 & ss6.2.3). Albeit within the Australian context, Moritz et al. (2018) define land tenure as a complex set of rights and obligations that are either gained or lost via a flexible set of alternate pathways. The three elements relating to land right are breadth, duration and assurance (Adams, Sibanda & Turner, 1999). Feder & Feeny (1991) in their attempt at defining land tenure, make a very useful qualification in which they clarify that their definition is within the context of modern economies, thereby implying Western liberal systems. This qualification is a useful disclaimer because it suggests that the definition is context specific. This results in a logic of a contextualised problem diagnosis and a contextualised prescription that emphasises the mediation role of the state, for an effective land rights regime.

According to the UNFAO (2012:3), "tenure systems define and regulate how people, communities and others gain access to natural resources, whether through formal law or informal arrangements." While conceptually correct, limiting tenure to natural

resources is very narrow and excludes other contexts such as rental of accommodation. The tenure norms determine who uses which resources, the duration and under what conditions; these rules may be based on written policies and laws and on unwritten customs and practices. Emanating from the focus on local and individual scale, this definition comes with ”ts own particular baggage associated with scale, because tenure systems or systems of rules rights, interests and obligations over land operate at multiple scales. One stream of scholarship which does not even invoke the term ‘tenure’, pays a lot of attention to the same system at an international scale (Ertör & Hadjimichael, 2020; Rampton, 2019). Within the broad ambit of land rights, there is another established body of scholarship that pivots around land rights on a national scale, invoking the notion of resource nationalism as a land administration policy design approach (Wilson, 2015; Stevens, Kooroshy, Lahn, & Lee, 2013; Stevens et al., 2013; Mares, 2010; Bremmer & Johnston, 2009; Vivoda, 2009; Phang, 2006; Doebele, 1987). The concept of resource nationalism also entails the deployment of a wide-ranging mix of economic nationalistic land administration policy instruments such as governmental expropriations and taxation by the state with a view to improve local returns from resource exploitation in ways that advance specific national goals (s5.5). A third stream of scholarship the focus on land right intersts and obligations, focuses on the fit between national and individual scales (Moritz et al., 2018; Rudman, 2011; Feder & Feeny, 1999).

The originators of one theory, Vernon (1971) and Mikesell (1971) explain resource nationalism, in predominantly economic terms, as a consequence of state-firm bargaining. The second stream of scholarship in resource nationalism is critical of the economic bargaining models emphasising the role of political dynamic (Berrios, Marak, and Morgenstern, 2011; Domjan & Stone, 2010; Mares, 2010). The rentier state theories explain resource nationalism in the context of authoritarian states as a combination of deployment of resources rents in the augmentation of state control machinery and the building of patronage alliances – the phenomenon of neopatrimonialism (Franke, Gawrich, & Alakbarov, 2009; Ross, 2001; Luciani, 1990). Castells (1992; Frieden, 1991; Haggard, 1990) explains resource nationalism in the context of developing countries using the “developmental legitimacy” theory that is underpinned by state intervention in development (see ss7.2.4.3 on land value

capture). Hancke, Rhodes and Tharcher (2009) explain resource nationalism in the context of neoliberal economies as part of a negotiated state-business coalition deploying market-based resource capture strategies such as taxation (see Mares, 2010). In the developing country contexts (i.e. China, Indonesia, India, Brazil and Chile) that are characterised by deep-rooted socio-economic transformation frames, resource nationalism is targeted at developmental outcomes. While these strategies differ in granularity, from country to country, they share a common goal of leveraging resource production and resource rents towards certain developmental goals.

From this point of view, a country's land rights regime is indicative of the national policy from where different land categories are situated within the continuum of open access (with no assignment), communal land, private land, and state land (Moritz et al., 2018; Feder & Feeny, 1991). The different categories of land rights regimes are not fixed opposites but constitute a continuum of land rights regimes in such a manner that the land phenomena can move from one category to the next depending on the circumstances and perceptions of what is considered to be legitimate, under different circumstances. The drivers of change in the land rights configurations could, among others, include a surge in population, government interventions or incorporation into the market underpinned by institutional rules.

In their analysis, Feder & Feeny (1991; also see Rudman, 2011) identify three different categories of institutions that inform the property regime (a Western biased construct): constitutional order, institutional arrangements and normative behavioural codes. They adopt a typical Western hierarchical conception by placing the constitutional order at the apex of the legal system. Nested in the constitutional order are specific laws, regulations and contract associations that shape the rights interests and obligations in land (property rights regime). This hierarchical conception assigns behavioural codes that are understood to refer to the cultural norms and values that either enable or hinder certain kinds of behaviour. The Eurocentric hierarchical conception implies that the lower levels in the hierarchical order could be trumped by higher levels. In their flawed argument that there is often misalignment between these three levels of institutions in the context of developing economies, Feder & Feeny (1999) erroneously conflate what they view as misalignment of a hierarchical order with the parallel co-existence of different legal systems that are interlocked with the history of colonialism in these countries. The

next section examines land governance in relation to land administration and management.

4.3.3 The Relationship Between Land Governance, Administration and Management

In a manner reflective of an atomistic Western epistemic paradigm, the notion of governance is rarely unleashed with reference to land in a holistic sense (Biitir et al., 2016), but in relation to elements of land (sectors) – as in water governance (Delgado-Serrano, 2020; WWAP, 2017, 2016), biodiversity governance (Stringer et al, 2018), environmental governance (Zelli, et al., 2012), governance of tenure (UN FAO, 2012) etc. While the nexus approach does start to establish links between clusters of sectors such as: the water and energy nexus; environment, pollution and climate change nexus etc., there is no single overarching framework that provides a 360^0 or holistic perspective on land (Tanrisever, 2017; Golam & Bikash, 2016). Making specific reference to environmental governance on a global scale, and without clarifying what it's key elements are nor it's ontology, Zelli et al., (2012 citing Overbeek, 2010; Brand, 2003) make reference to [land] governance as an overarching conceptual orientation, that is consistent withisolating, defining and finding solutions to problems at the highest level of abstraction, by removing abstract linearity, which makes the task of finding solutions that much more difficult (Rittel & Webber, 1973). On the one hand they isolate out the neo-marxist scholarship which views governance as a political elite project whose goal is to counterbalance the political and economic crisis emanating from the neoliberal socio-economic transformations. On the other hand they also identify scholarship that places a lot of emphasis on North-South power relations (South Centre, 1996).

Making specific reference to governance of oceans Ertör & Hadjimichael (2020:1) epitomises it as "creation of openings as well as (en)closures". Invoking the notion of land control, as opposed to land governance, Peluso & Lund (2011) identify concepts such as exclusion, alienation, social controls, extraction, production, accumulation, conservation, dispossession (inclusive of resources) and land histories, violence etc. as some of the concepts that are commonplace in land governance discourses. Peluso et al. define land control as a practices that fix or consolidate forms of access - through a combination of enclosures, norms and force

(or threat thereof). The practices and technologies of land control (governance) are typically sites of intense competition for control between multiple actors within and outside of the state. These forms of control are not always linear in direction but may be usurped in concert or in competition, as is demonstrated in the case of land grabs, which have become synonymous with new ways of gaining access to land (ss6.2.6) (Ribort & Peluso, 2003). Moving from a national scale perspective, Peluso et al. (2011) identify "de-agrarianisation, protected area establishment, urbanization, migration, land reform, resettlement, and re-peasantisation" among some of the contemporary processes which are not only transforming land use, but also the reconfigurations of people-land relationship. These processes give rise to new debates, with serious underlying implications for governance.

Albeit within the context of the management of natural resources, Stringer et al. (2018) regard [land] governance as a process or cycle with five interlinked stages: problem identification, policy formulation, decision-making, policy implementation and policy monitoring and evaluation. This process-oriented conception is useful, particularly in light of a broad conception of land that is inclusive of natural resources. In a similar vein, but slightly different trajectory, Tortajarda (2010; cited by Tanrisever, 2017:18) defines [land] governance as “a complex process that considers multi-level participation beyond the state, where decision-making includes not only public institutions but also the private sector, civil society and society in general”. Palmer et al., (2009) define [land] governance as the exercise of political, economic and administrative power in an endeavour to manage land affairs at different scales. Based on the premise that the exercise of political powerallocates to the state -- by default and though not exclusively -- a pivotal role in development of and assemblage of land institutions.. Some of the fundamental question arising from that —which are not addressed in this study -- Who has sway in the process of emergence and development of institutions?; Whose interests are advanced by the institutions?

Making specific reference to the transition into the Anthropocene and it’s attendant climate change phenomenon, Rindzevičiūtė (2018) draws on Moiseev’s philosophy which lays a solid foundation for a normative conceptual definition, by positioning the role of of land governance as one of mediation at the intersection between the co-evolution of humanity and the biosphere. The extent of human inscription on the

biosphere is so profound that it could not be left to chance, but should be governed, lest it threatens the very human existence.

The nexus between conceptual definitions of land governance and land administration is too glaring to disregard (Biitir et al., 2016; Palmer et al., 2009; Steudler et al., 2004). An interpretation of Figure 4.2 further suggests that looking at these concepts from a government perspective, land governance finds expression in high-level policy instruments such as the constitution and statutes (the domain of lawmakers), while land administration entails the management and the operational aspects of those laws (the domain of public service). Palmer et al. (2009:1; Fourie; 2002b; World Bank, 1991) also make use of the term "management" and "administration" as if they mean exactly the same thing, while they do not. Notwithstanding the diction variance, this is an unequivocal affirmation of the recognition of the inextricable link between land governance and land administration as two sides of the same coin, that are necessitated by the societal need for the achievement of specific social, economic and development goalsin any country (Ovens, 2014). Fourie's (2002b) suggestion that there isa positive correlation between land governance and land administration implies that they are theoretically headed in the same direction. However, Fourie's point is not without contention when one considers situation where there are good norms alongside poor execution or management, the intricate links between the two phrases remains strong and glaring (Steudler et al., 2004).

Figure 4.2 provides a useful model to conceptualise the relationship between land governance and land administration at different levels (Steudler et al., 2004). While inverting the triangle may illustrate the interrelationship correctly. It is worth highlighting that complex systems are not as neatly nested as the diagram may suggest, the diagram illustrates an intricate link land administration and land governance systems. For the purposes of this study, administration of land entails both management and operational aspects (Steudler et al., 2004:8) in a manner that is consistent with the elementary definitions provided earlier (ss4.2.3; 4.2.4.). Within the context of the state, Nichols' (1993) conception of land management is that of a process where available means are utilised to achieve specific objectives and goals, performed by a designated government official.

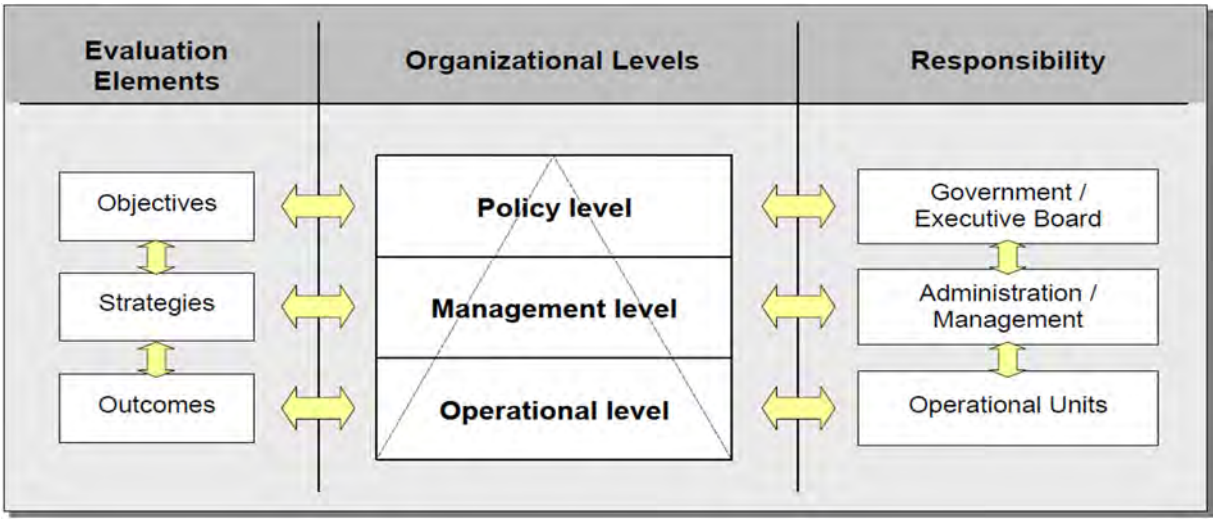

Figure 4-2: The relation between different elements and organisational levels of land administration (Steudler et al., 2004:8)

Tsheola et al. (2015:29) define [land] governance as “the interactions among structures, processes and traditions that determine how power and responsibilities are exercised, how decisions are taken, and how citizens or other stakeholders have their say”. This definition foregrounds institutions, structures and processes that shape sociopolitical exchanges that regulate, among others, access to natural resources in a manner that reflects state and non-state actor's vested interest.

The goal-oriented notion of governance is consistent with Benjaminsen, Cousins et al.’s (2002:39; Ostrom, 1998:1) definition of [resource] governance as a decision-making approach, whereby undesirable outcomes are incrementally replaced by desirable outcomes based on considerations for “efficiency, equitability and sustainability of resource access, management and use”. The resource anchorage of this particular definition does give it an inclusive outlook. Also anchored in a resource governance approach, Woodhouse (1997:540) defines [resource] governance as interactive “structures and processes of power and authority, cooperation and conflict, that govern decision making and dispute resolution concerning resource allocation and use” between individuals, organisations and social institutions. While both conceptual definitions are leaning towards micro-scale, the strength of both is in their applicability across multiple scales (micro and macro).

The position of land governance and administration in politics is contested and a subject of much debate, in a manner that is intricately bound upwith divergent conceptual ontologies of land. A typical example of this manifests in a view that classifies land governance and land administration as neutral concepts (Palmer et al., 2009; Williamson, 2000). Land and it’s resources, by their very nature, are inherently subjects of competing, or even conflicting interests and power relations among and between actors and scales. Any notion that governance and land administration are neutral instruments has a blind spot not only to the pervasive societal class interest, but also the inherently purposive nature of formulation and the enforcement of land laws. Jessop (1990) on the other hand highlights the state’s enforcement function in a manner that places the political and contentious nature of land governance and administration in the spotlight. Groenendijk et al.’s (2012) very notion of land administration playing a function of supporting land markets, and/or market economy, locates it at the centre stage of economic system

contradictions (UNECE, 2005; Dale & McLaughlin, 1999; UNECE, 1996). Williamson et al. (2010) evades this question by inadvertently positioning their stance as neutral by invoking the concept of land management in a manner that clearly avoids it's political positioning. These sorts of debates on the role of powerin supporting transitions to just and sustainable futures are not unfamiliar in disciplines such as political ecology (Healy & Martinez-Alier, 2015; Leff, 2012; Castree et al., 2010). Some of the debates in ecological economics have transcended academic boundaries by contributing to alternatives to a post-capitalist order and grassroots degrowth policies. . Lemmen et al. (2015:356) concurs that land administration is inherently political: "poverty eradication, gender equality, indigenous recognition, adequate housing, sustainable agriculture, food security, climate change response, and good governance, substantially relate to access to land, and to land-related opportunities". It is not just environmental decisions that are "created, constructed, regulated and contested, between, across and among scales", but it is land governance decisions (Di Gregorio et al., 2019:65). Scholarship in earth systems governance is gravitating towards a common understanding that argues that sustainability challenges are deeply political and sustainability transformations cannot be isolated from the political context (Burch et al., 2019; Scoones et al., 2015; Smith & Stirling, 2010). While this view is specifically from a global earth system's approach, national earth systems governance also fit snugly into this logic

Di Gregorio, Fatorelli, Paavola, et al. (2019) argue that the processes through which conflicts over [land] environmental resources are used are fundamentally political in nature, there are divergent perspectives iamong scholars with respect to which scale of politics is most influential. Some scholars locate the locus of power at the nation state scale, while others locate it at supranational scales (bodies) (Moravcsick, 1998). Di Gregorio et al's (2019) arguement that questions about which scale (global vs national) holds sway in governance matters, specifically with respect to landelicits context considerations in the sence that it overlooks power asymmetriesbetween developed and developing countries, given and multilevel environmental policy problems. In a nutshell, while the absence of a conceptual conherence on land administration and governance is glaring, the nexus between them is evident. This brings to the fore a need for a normative conceptual framework as a basis for what Zelli et al. (2012) term an overarching framework.

4.4 CONCLUSION

In pursuit of the conceptual ontology of land administration, this chapter started by deconstructing the concept of land administration into it's elementary building blocks, before reconstructing it and re-examining it from multiple angles. It starts off by unpacking the meaning of land, in an attempt to extricate the term 'land' fromthe dominant positivist paradigms which draw exclusively from the Western epistemic traditions (Mignolo et al., 2013; Grosfoguel, 2007). The chapter discussed traditional functionalist conceptions of land administration by furthermore breaking the concept down into components – juridical, regulatory, fiscal, data/information and enforcement functions (Kingwill, 2019). The chapter identifies five scholarly orientations or schools of thought which invoke the concept of land administration as an area of inquiry. The different streams do share some common ground in terms of the essence of land administration, but are differentiated on the basis of where they place their emphasis in their conception, and what purposes it serves. among others the various conceptions are critisised for their anchorage in the Western model (Fourie, 2002b) on one hand, and their preoccupation with micro-scale the exclusion of the macro scales, and reductionist approaches, on the other. In essence, the different schools of thought are founded on similar methodological starting points wherein parts of the system are confused with the actual system. In similar ways, the different scholarly orientations all share this common feature in that they each place a higher level of emphasis on different elements of the same system.

The chapter concludes by calling for a very broad normative conception of land administration that is embedded with land governance as level of abstraction that can mediate people-land relationship frictions, linked to the growing area of inquiry of land systems governance (Rindzevičiūtė, 2018; Zinzani, 2017; Biermann, 2016); For the purposes of this dessertation, land governance will henceforth be used with the presumption that it entails administrative (management and operational) components. The twinning of land governance and administration repositions the concepts in a manner that provide a lens for land in a manner that transcends traditional disciplinary boundaries.

The next chapter provides an overview of global governance achitectures and institutional arrangements, as part of the environment in which land governance is situated. The chapter goes on to explore the ‘sovereignty-state territorry triad’, post World War II techno-science driven delopmment paradigms before examining the nexus between land governance and economics, on a global scale, and finally providing an overview of geo-spatial data technologies as a growing trend in land governance from a global perspective.

CHAPTER FIVE : LAND GOVERNANCE INSTITUTIONAL ARRANGEMENTS SYSTEMS ON A GLOBAL SCALE

5.1 INTRODUCTION

The previous chapter explored the concept of land administration from multiple perspectives. After deconstruction of the concept into it's constituent elements, the chapter settled upon a holistic or inclusive meaning of land – that it is a phenomenon with multiple dimensions and multiple meanings. Having identified the limitations associated with the identified scholarship streams, the chapter made a call for a normative conceptual ontology of land administration. A key insight gained from the previous chapter is that land governance and administration are inextricably linked concepts – two sides of the same coin -- with the former steeped towards policy and the latter towards practice with application at multiple scales (global, continental, national and local).

This chapter provides an overview of global governance architectures and institutional arrangements, as part of the environment in which land governance is situated. The chapter goes on to explore some of the contradictions emanating from the 'sovereignty-state territorry triad' from a global perspective. The chapter proceeds to explore techno-science driven development paradigms which rose to dominance during the post World War II period. Largely on the basis of the nexus between global trade and land (or associated resources) – imperialism -- the chapter explores the nexus between global trade and land governance, as the defining feature in global North and South relations. The chapter finally examines the trends in geo-data technologies as a growing trend in land governance from a global perspective with a specific focus on how these impact on land administration policies and practices. The next section briefly provides a high-level scan of governance systems starting with governance institutional arrangements on a global scale.

5.2 AN OVERVIEW OF LAND GOVERNANCE ARCHITECTURES AND INSTITUTIONAL ARRANGEMENTS ON A GLOBAL SCALE

Historical world events such as the world wars and other events are important milestones that highlight the need for, and subsequent emergence and evolution of a global multilateral governance system. The first multilateral body of notable significance to be created at this scale was the League of Nations (LN), linked directly to World War I and later replaced by the United Nations (UN), which was established following the aftermath of World War II, and occasioned by a world purportedly in search of peace.[58] The UN is a massive machinery with multiple foci on different thematic governance domains, with land anachronistically in the background, across the four pillars of the global governance system: global regulation, which takes into account climate change, health, and intellectual property; human security; and national security (Drolet, 2010; Global Governance Watch, 2008).[59] Article 1(b) and (c) of the *Montevideo Convention on Rights and Duties of States 1933* is one of the anchor authorities that firmly positioned land governance on an international pedestal, dedicated to governance of statehood, territory and sovereignty intersection (Rudman, 2011:428)[60] or the "sovereignty-state-territory" triad (Tsheola et al., 2015). In the subsequent *Charter of the United Nations* of June 1945, the land theme which was the underlying institutional change driver remained overshadowed by other themes such as security or international relations, trade etc. – whether by design or default – despite it's obvious centrality and cross-cutting nature. Internationally, land governance and administration are broadly concerned with establishing rules of engagement and delineation of land use rights within and between states, with respect to land inclusive of sea and air environs (Aswani, Basurto, Ferse et al., 2018).

The United Nations (UN) General Assembly is one organ wherein all member states are represented with each having a single vote.[61] The UN appendages that have a direct bearing on land governance and administration include: the International Court

[58] https://www.un.org/en/about-un/ (Accessed 03 June 2019).
[59] Global Governance Watch, (http://www.globalgovernancewatch.org/about/).
[60] Montevideo Convention on the Rights and Duties of States (1933) 165 LNTS 19.
[61] https://www.un.org/en/ga/ (Accessed 09 July 2019).

of Justice (ICJ),[62] UN Habitat, UN Food and Agriculture Organization (UN-FAO), Universal Postal Union (UPU), International Maritime Organization (IMO), International Monetary Fund (IMF), and the World Bank (WB), all established in terms of the *Charter of the United Nations* in June 1945. The ICJ began functioning in April 1946, seating at The Hague, Netherlands. Among others, the ICJ has an adjudication function in respect of land resource and boundary disputes between states, such as in the Eritrea-Ethiopia boundary dispute and the 2002 decision the Cameroon-Nigeria boundary dispute (OSCE, 2011). Notwithstanding the political perceptions of the global institutions, the outsourcing of African boundary disputes to international bodies such as ICJ is not only a reflection of capacity constraints within the AU, but a reflection of a distotion in global power dynamics, which also goes against the grain of Africa taking primary responsibility for it's own matters (Geldenhuys, 2012). Under these circumstances, it is not surprising some of the decisions that emanate from the global scale are often tainted in serious political and economic interests in cases such as Sudan.

The UN Habitat has a mission of promoting socially and environmentally sustainable human settlement development and the achievement of adequate shelter for all. The UN-FAO serves as a forum for brokering agreements between developed and developing countries under the guise developing a resource of technical knowledge and information to aid development. The UPO is the primary international forum for cooperation between global postal sector players. The IMO is responsible for putting in place a comprehensive maritime regulatory framework by addressing environmental, technical cooperation and legal matters. The IMF and the World Bank play economic growth and infrastructure finance roles, with the latter focusing on poverty reduction, loans and grants, and both play a major role in the development and monitoring of international rules with respect to land governance and administration.

Throughout the history of traditional international bureaucracies, the source of legitimation has been long accountability chains of government representation, which has been a subject of growing critique in recent years (Biermann, 2007; Dingwerth, 2005; Dryzek, Scholte, 2002; Held, 1997). Amid the varying arguments, Drolet

[62] https://www.icj-cij.org/en/court (Accessed 02 June 2019).

(2010: 548; Ruggie, 2005) controversially argues that authority in global governance involves no formal relations of super-and-subordination relations, but remains largely horizontal in character – an argument that has an obvious blind spot to the skewed global power dynamics. Notwithstanding the formalised mandates, after the 1970s, both the World Bank and the IMF ventured into the role of driving the neocolonial agenda on how economies should develop, and what the best economic policies should be, for sovereign states (Steÿn, 2019). In the same vein, the political neutrality of many of the UN appendages has not escaped the broader debates about how global trans-national power dynamics should or should not be managed.

One of the key land governance policy design trajectories emanating from the global scale is that many UN treaties, declarations, charters and principles pertaining to land are framed as "soft law" rather than "hard law" – an approach that cascades to the continental scale by default – with specific reference to Africa (Home, 2020). From a land governance and administration perspective, the resultant consequence of the "soft law" policy approaches are the limitations it places for enforcement at an international scale. Soft law only starts to assume more legal weight largely arising from International Court of Justice (ICJ) judgements. Instead of addressing this policy challenge at a global scale, the policy approach taken by UN entities shifted the locus of rule of law to national constitutions as reflected in SDG 16 on the rule of law. The *UN General Assembly Outer Space Treaty of 1963*, which declared the international air space to be free for use and outside of the realm of national appropriation is just one example of such global norms.[63] Along similar lines as a governance of ocean environments, air spaces are also beset by multiple sets of similarly complex and porous international norms, such as norms around deployment use and regulation of geo-data technologies in international air space (s5.6) (Zevenbergen et al., 2015) and use of national and international airspaces, e.g. air traffic control measures (Rudman, 2011).

On the seascapes, the *United Nations Convention on the Law of the Sea*, an example of an institution that governs the use of oceans, which is founded on the understanding that the seas are intricately interconnected, which logically gives rise to a need for holistic governance and management. Based on this logic, the sea is

[63] https://www.britannica.com/topic/air-space-air-law (Accessed 03 July 2019).

split into national (internal) waters (i.e. rivers, lakes, canals and waterways of a country), territorial waters (historically known to sundry up to three nautical miles from the shores of a country) and international waters (Rampton, 2019; Rudman, 2011; Wallace & Martin-Ortega, 2009). The three nautical mile quantum originated from what are now outdated security considerations i.e. the longest distance a cannon could fire. Any point beyond this imaginary cut-off line from a country's shore is considered international waters. Steinberg (2001; Campling and Havice 2014 cited by Ertör et al., 2020) provides an account of historiography of regulation of use of the oceans -- institutionalisation of the *United Nations Convention on the Law of the Sea* (UNCLOS) which -- among others -- had the effect of extending the state's sovereignty/sovereign rights over ocean water from three nautical miles to 200 nautical miles, alongside the introduction of fisheries access regimes that are anchored in private property logics. The UNCLOS strategy identifies five key sectors, marine aquaculture, coastal (and marine) tourism, marine biotechnology, ocean energy, and seabed mining.

Not without it's land governance challenges, the high seas are considered to be nobody's land (*Terra nullius*) *or (Mare liberum)* ("free seas"), and in terms of international norms, they are free from any country's national sovereign powers (Rampton, 2019). One of the key governance policy challenges emanating from the *Mare liberum* legal principle relates to governance of activities such as fishing and deep-sea mining in high seas, which *de jure* falls outside the sovereignty of national states, is positioned in the open access resource domain. In recent times alongside increasing scientific understanding of the dynamics of underwater sea environments, there has been growing land governance concerns about activities within the oceans, partly emanating from environmental consequences that are spatially and temporally decoupled (Campbell, 2018; Ban *et al.*, 2014). Ertör, et al's (2020; Latouche, 2009 in Demaria et al. 2019) call for the decolonisation of the oceans governance imaginary - which is a sectoral land governance theme -- is anchored in fundamental trans-national land justice concerns. This imaginary of decolonisation of global commons can be achieved by bringing together various knowledges ranging from geopolitical perspectives to colonial power matrices, justice, inequality, colonial matrices, commons, etc. (s5.3; 5.4; 5.5; 5.6; ss6.2.3; 6.2.5; 6.2.6 & 6.2.7).

The idea that environmental effects transcend national administrative (political) boundaries precedes the growing international narratives on climate change, the latter only reinforced by pre-existing thinking of environmental connectedness as reiterated at various global environmental conventions, agreements, initiatives, and strategic objectives (Kress, 2019). Kress identifies some of the key milestone events that are buoys to the development of international land governance system including the UN Conference on the Human Environment (also known as the Stockholm Conference, 1972) and the UN Conference for Environment and Development (the Earth Summit) in Rio de Janeiro (1992) produced the Rio Declaration known as Agenda 21. Almost along a similar frame as national terrestrial conservation targets, the UN Convention on Biological Diversity (CBD) 1992 sets a target of 10% of the oceans to be protected by 2020 – bearing in mind that oceans constitute over 70% of the global surface (Shankar et al., 2018). In 2015 the adoption of the 2030 Agenda for Sustainable Development and it's 17 Sustainable Development Goals (SDGs) by the UN member states was yet another key global turning point. All of these international agreements, aspirational goals and protocols emanating from these events are an articulation in motion of an evolving global land governance regime, even when the land theme is overshadowed behind other themes i.e. environment. The next subsection explores the nexus between the sovereignty-state-territory triad as one of the institutions of global land governance.

5.3 THE "SOVEREIGNTY-STATE-TERRITORY" TRIAD

Menga et al.'s (2018; Swyngedouw, 2015) characterisation of the state as "an assemblage" and "a network of interests" as opposed to an entity is apt, in amnner which mounts a frontal challenge to the dominant conceptual paradigm of the state. Historiography suggests an intricate evolutionary relationship between state and bounded spatial units (territory) in a manner which corresponds to a specific management machinery as one permutation through which sociopolitical interactions pan out (Menga et al., 2018). A closer examination of that conception suggests that the genetic material of the state is inscribed in bounded territory The conceptual frames that cast a picture of the state as a unified coherent constellation by default mount justification of current state architectures, foreclosing any alternative structural arrangements. In real terms, the material existence of the state in it's multiplicity of

permutations is a figment of human imagination (s3.2.) (Damonte & Boelens, 2019; Bourdieu, 1998). From this perspective, the state's ability to exercise power is very much contingent upon internal and external forces, internal architecture, routines and the manner in which it balances the multiple scales that influence control and can only consolidate it's power through consistent performances and actions of delivery. In direct contrast to the frames that cast the state as an entity, the state can be equated to "multiple choreographies of power" that require some level of actualisation in order to justify it's existence. It is in governance and administration of land and natural resources that the fuzzy character of the state is manifest. Menga et al., (2018) argue that the various manifestations of land – landscapes, ecosystems, waterscapes, boundaries – are interdependent, coexist and are intricately intertwined to a network of interests.

The historical event of spatial expansion of bounded sovereign states or territories is a fairly recent development, largely extended to peripheries in the mid-20th century and rolled out in the past 100 years (Jones, 2012; Brubaker, 2002). The construct of national sovereignty is a global historical legacy, largely deployed in interstate and trans-national contexts or at the interface of the state with the wider environment of other states of which it is part of (Rudman, 2011; Manent, 1995). The construct of sovereignty is a complex overlay of ideological and legal permutation with it's origins traceable to John Locke in the 17th century and Montesquieu in 18th-century France. Along similar lines as the conceptual foundation of statehood in international law, sovereignty is reliant on a bounded territory and how the state should express it's authority over territory is usually entrenched in it's founding document – the Constitution.

The idea of state sovereignty is founded on a construct of bounded state territories (Jones, 2012; Scott, 2009; Murphy, 2005, 1996; Agnew and Corbridge, 1995) which was institutionalised in Europe in modern times and exported to the global South as an integral part of the colonial heritage. Depending on one's preferential perspective, the construct of sovereignty increasingly under severe erosion pressures which arise from the neoliberal mantra of individual freedoms, the global North-South economic power relations and from the mounting requirements to govern holistically (Geldenhuys, 2012). The manner in which it is constructed and

framed is an important one from a land governance and administration perspective, because it is an important source of authority.

While the idea of sovereignty is undoubtedly troubled from multiple angles, Krasner (2009) disentangles the notion of sovereignty into three constituent dimensions: international legal sovereignty, Westphalian/Vattelian sovereignty and domestic sovereignty. International legal sovereignty can simplistically be equated to 'international systemness', which is anchored in states giving mutual recognition to each other, and reflected in their participation in the international system with other sovereign states, in which statesenter into various international agreements. From this perspective, each state is free and all states are equal -- at least theoretically -- given that economic and military power also play a significant role in international relations (Tsheola, 2015; Krasner, 2009). The Westphalian/Vattelian notion of sovereignty places emphasis on the principle that states are juridically independent or autonomous and free from external authority. Articulated differently, the emphasis is on limitations that are placed on states from meddling or interfering in internal matters of other sovereign states. Domestic sovereignty places emphasis on the legitimated structure in tandem with it's inherent capacity to take effective control over a territory (Krasner, 2009; Tsheola, 2015). This dimension is highly controversial because the nature and form of legitimated structures varies widely in different governance regimes; from democratic, hereditary to autocratic, and that states also have varying capacities to control internally as well as across their own boundaries. Among a range of concrete examples of instruments that can be antithetical to the Westphalian notion of sovereignty include, military might, international sanctions, bilateral trade agreements, IMF and World Bank loan conditionalities and the African Peer Review Mechanism (APRM) etc.(Eriksen, 2011). It is out of realisation of som of these inherent contradictions that Tsheola et al. (2015; Massé & Lunstrum, 2015; Lunstrum, 2014, 2013; Devine, 2014; Duffy, 2014) characterise the notion of sovereignty as "an articulation-in-motion" subject to constant ebbs and flows in processes of consolidation of power inequities.

The original creation of international boundaries into bounded states and international commons is a phase in the process of development of capitalism and is consistent with Lefebvre's (1976) idea of capitalism surviving through production of space. Despite what are deceptively perfect and complete geo-maps as well as

claims of absolute control, many spaces are partially affected by state authority powers. Jones (2012) takes a view that scholarship holds the notion of state of exception so dear to the point of overstating the extent and homogeneity of state authority. The rollout of bounded national territorial spaces does not correspond to the expansion of poorly administered places where authority is seriously challenged. While countries theoretically have sovereignty (right to conduct own affairs without interference), they are simultaneously part of, and subject to, a system of international institutions with respect to international affairs, which in turn places the very construct of sovereignty into serious question of relativity often unleashed as part of power dynamics between states, to either advance or impede different political and/or economic interests (Eriksen, 2011). According to Krasner (2009) key state actors are embedded in well institutionalised arrangements that in turn define their interests and authority, which anachronistically creates a disincentive to engaging with a higher-order international system, in which power and interest do not have a perfect match with those of the nation state. Contrary to the notion of wall-to-wall administration of sovereign power, the one area where state authority and sovereignty is best played out, but seriously challenged, is along and around trans-national boundaries in a manner that is not only unnecessary but a reflection of the fragility, incompleteness, partiality, unevenness, and conflicted nature of sovereign powers (Jones, 2012).

The institutional origin of trans-national spatial boundaries is intricately bound to the emergence and evolution of the modern state alongside budding ideas of sovereignty, that were founded on the basis of the differentiation between the governor, the subjects and territorial space in order to locate people within the same bounded space (Mbebe, 2018; Kotef, 2015). Mbebe (2018) aptly explains the underlying idea behind the emergence and evolution of interests in the boundedness and governance of human mobilities -- through boundaries and borders --, as an intrisic part of the liberal notions of stability, security and risk aversion, elimination of ambiguity and uncertainty, exercise of authority, coupled with tax revenue considerations. Bond (2016) refers to Smith's book, *Imperialism in the 21st Century* (Smith, 2016), arguing that draconian institutions of international immigration controls constitute a systematic deprivation of labour, the right to mobility, which is an instrument for super-exploitation in a manner akin to South Africa's apartheid-era

system of pass laws. Rudman (2011:428) making direct reference to the *Montevideo Convention on Rights and Duties of States* that constitutes the foundational declaratory codification of statehood in international law, writes:

> The state as a person of international law should possess the following qualifications: a permanent population; a defined territory; a government; and capacity to enter into relations with the other states. [64]

According to Grosfoguel (2007:220) notions of 'national identity', 'national development', and 'national sovereignty' are part of the liberal conceptual arsenal (see Wallerstein, 1995,1991a, 1991b) which were created to inflate the illusion of 'independence', 'development', and 'progress'. Broto (2016; Collier, 2014; Lakoff & Collier, 2010; Elden, 2010) introduces the concept of political technologies as frameworks that are applied to create systematic worldviews, which are unleashed for the purposes of pursuing political projects that transform society and/or space. One example of such political technologies that Broto selects are territories that form the basis for nation states constituted through specific techniques of measuring physical spaces in order to exercise control. These territorial projects are often embedded in narratives that mount up justification of disruption and/or deprivation of vulnerable groups of livelihoods (Boelens et al., 2016; Crow et al., 2014; Vos & Boelens, 2014; Martínez-Alier, 2002) and perpetuation of social inequities (Roa-García, 2014; Harris & Roa-García, 2013; Latour, 1993). Environmental impact assessments are an integral part of this global arsenal and not neutral tools, they are portrayed to be (see 5.4 on dams built; ss6.2.3 on South Africa's boundary project & ss8.3.1). While some scholars continue to pivot around technocratic solutions that draw exclusively from natural sciences, there is also an increasing realisation in scholarly circles that land inclusive of natural resources such as water are "deeply embedded in social, political, and economic processes", resulting in a shift in attention to the appropriation of natural resources by powerful actors, away from weaker social actors (Menga et al., 2018:2; Sharp, 2017; Mehta et al., 2012; Molinga, 2008; Swyngedouw, 2006). The processes of appropriation of water and hydraulic infrastructures are intricately intertwined with assignment of power that supports display of hegemony and counter hegemony (Norman et al., 2015).

[64] https://www.britannica.com/event/Montevideo-Convention (Accessed 15 April 2020).

In theorising modern governance techniques, Hommes et al. (2016:12; Foucault, 2008:313) draws on Foucault's notion of "government according to sovereign power" or by constructing dominant mythical-religious representations termed "government according to truth". Through the dominant political discourse, it lubricates the subject into self-discipline of the ruling system (Feindt & Oels, 2005; Dean, 1999; Escobar, 1995; Foucault, 1991, 1975). They proceed by outlining that the technique involved in this process is "to govern [land] water-through-mentality and mentality-through-[land] water imaginaries, rather than [land] water as such". Through this process the subjects engage in a dynamic of self-government in accordance with ruling class [land] hydro-territorial imaginaries (Duarte-Abadía & Boelens, 2016; Ioris, 2016; Perramond, 2016; Swyngedouw & Williams, 2016; Melo Zurita et al., 2015). Some of the dangers of such government frames is their foreclosure of any space for further inquiry or policy options (Jasanoff & Wynne, 1998:5). From this perspective natural resource governance is effective without being necessarily visible (Boelens, 2009).

Another example of political technology is nationalism which is systematically deployed by governments in pursuit of socio-technical transitions in stemming the tide of immigration through developing trans-national boundary infrastructure, embedded in visions of modernity. Köhler et al. (2019; Broto Castán, 2016) notes the role of critical geography in the analysis of how the politics of geographic boundaries intertwine with the development of specific technologies. According to Broto (2016; Boyd, Ensor, Castán Broto, & Juhola, 2014; Frankensberg, 2014), political technologies are embedded in the processes of systematic rationalisation, providing frameworks for thinking practically about the world as a means to aligning practice with particular regimes of truth. Their political essence pivots around (re)configuration of a specific order and institutional regime/s. This framework provides a useful tool for understanding the multiplicity of norms, procedures and conventions that support a bounded state territory and inherently create institutions of exercise of political power (e.g. immigration laws, border formalities etc.).

The dynamics of global governance and administration of trans-national boundaries and borders is inherently intersectional in character, inevitably resulting in difficulties of drawing the institutional bounds between what falls within the national domain and what falls in the domain of external political actors. In order to institutionalise and synchronise policies between individual states there is a need for some basic

governance institutions, that should either constrain or enable human activities at different levels (local, national, regional, continental and global) (Macdonald, 2015; GCoIM, 2005). While challenges of calibration of institutions between states looms large, there are even bigger questions internationally with respect to which institutional infrastructures are best, in the light of different geographic and economic circumstances, and a multiplicity of political dynamics between individual and groups of states. This intersectional nature of governance and administration of trans-national boundaries results in difficulties of drawing the institutional bounds between what falls within the domain of external political actors versus that which falls within the national domain.

Central to the issue of the governance of trans-national boundaries and borders are fundamental issues of justice, whichMacdonald (2015) coins as “ethics of exclusion” which give rise to questions of what the best institutional arrangements should be. According to Macdonald (2015:441), the governance and management of land tends to be overshadowed by a number of factors: the exclusion of non-citizens from a range of political rights that are enjoyed by citizens from a territory through cumbersome administrative entry and exit restrictions; the principles applied to discriminate against prospective immigrants and for selecting candidates for admission and; the principles applied to resolve other kinds of exclusionary practices such as the detention of non-citizens. Trans-national boundaries are closely bound with politics of exclusion, which in turn give rise to issues of “morality of immigration” and the default mainstreaming of use of force in governance and management trans-national boundary regimes (Macdonald, 2015; Blake, 2014: 521; Miller, 2010). In this complex mosaic, some movements are configured as freedom while others are configured as improper and allocated a threat apparel – a contradiction which classical liberal states have maneuvered around through regulation of mobility (Kotef, 2015). It is within this context that Swilling et al. (2016) have argued for the need to reconsider “socio-technical” projects as “sociopolitical” regimes in the context of development studies.

Tsheola et al. (2015) argue that the very existence of sociopolitical trans-national bounds is a source of conflict among states and is closely tied to the extent that sociopolitical boundaries intertwine with landscape administration, ownership, natural resources access and human population habitation. Any analysis that limits conflict

to states that share boundaries is constricted because such conflict permeates the entire bounded system – those with direct and those with indirect bounds. In the case of South Africa for example, the conflict feature is not less prominent between South Africa and Nigeria than it is with Zimbabwe, on the grounds of distance. At multiple scales, boundary disputes within the context of a bounded national state system are a poisoned chalice in international relations (Tsheola et al., 2015; Mackleworth et al., 2013).

The governance of trans-national boundaries domain is riddled with it's own fair share of policy development challenges globally. Macdonald (2015; GCoIM, 2005) dispels any possibility of associating good or bad governance of boundaries and borders with the wealth standing of countries, making reference to the GCoIM's damning report to the United Nations Secretary-General in 2005 that reported serious policy formulation and implementation capacity challenges, a phenomenon that cuts across poor and prosperous regions. Largely based on the intersectionality of boundaries, the OSCE (2011) seminar is consistent with the UN Report and further identifies the challenge of determining, demarcating and managing of trans-national boundaries and borders as a global challenge rather than that of some countries. In terms of the governance and administration of trans-national boundaries, many states face internal challenges such as the calibration and distribution of roles among different functional entities (Macdonald, 2015; Fraser, 2014). Among the key national issues requiring alignment are "negotiating bodies, standard-setting bodies, regulatory agencies, monitoring offices, expert resources, conflict resolution arrangements, securitisation and regionalisation of governance, supervisory bodies and service providers" (Macdonald 2015: 414; Newland, 2010). It is at the national scale that some intersectional functions take priority, while others such as land management are relegated to the periphery by default. Notwithstanding the generality of the challenges, in real terms, there is a disjuncture between the legal rights of the state and the actual state institutional capacity for effective control, because wealthy states are capable of investing extensively on infrastructure, technologies and personnel, while poorer countries cannot. On one end of the spectrum, Macdonald (2015; Economist, 2013) indicates that a country such as the USA is capable of investing US$18 billion annually in a complex array of infrastructure such as predator drones, tower-mounted cameras, ground sensors a

cost that supersedes the entire combined annual federal criminal law budget. On the other end of the spectrum, a country such as Indonesia, an archipelago of over 17 000 islands, the scale of expenditure is unimaginable in comparison to the USA. The very fragmented spatial character of Indonesia predisposes it to a different management regime to a country such as the USA. The governance and administration of trans-national boundaries and borders domain is an issue that has largely fallen between the cracks of international governance with no consensus on what constitutes the norm or ideal (Macdonald, 2015).

According to Jones (2012; Blunt, 2007; Mitchel, 1997; Bhabha, 1994), the movement of peoples and goods across borders has attracted scholarly interest for a number of decades because boundary spaces represent the stage of regulation of what enters the territory. It is within the context of dominance of the neoliberal paradigm that the governance and management of trans-national boundaries and borders has been coupled with normative goals, such as facilitation of 'economic cooperation' and 'enhancing trade relations' between countries, while suppressing specific justice issues affecting local border populations (Mbebe, 2018). Jones (Mitchell, 1997; Brubacker, 2002) makes reference to Mitchell's critique of work that essentialises territorial categories instead of fuzzy and incomplete categories. Traditionally, social, economic and political or cultural identities constituted the basis of polity (Tsheola et al., 2015; Dallimer & Strage, 2015). The emergence of territorially defined polities is a product of modern state architecture, underpinned by new sets of priorities and interests on either side of the boundary line.

Globally, there is an abundance of scholarship that straddle along a continuum extreme policy design ends, of either strengthening (OSCE, 2011; Herbst, 1989) or disposing of trans-national boundaries (Mbebe, 2018; Kotef, 2015; Jones, 2012). Notwithstanding the entrenched securitisation veil, scholarship across the spectrum does not only lack a cogent position in respect of trans-national boundaries but also in respect of the scale at which policy should be calibrated. A consideration of scale is an important factor of analysis, because it has the potential to either expose or foreclose specific factors such as neocolonialism and imperialism. The OSCE (2011) global seminar on trans-national boundaries represent a rather conservative and technicist approach, which is predicated on perpetuating the dominant paradigm of trans-national boundaries by making them function better.

Albeit within a conservative stance that seeks to improve the status quo on international boundaries and borders, Macdonald (2015; Douglas and Schloenhardt, 2012) takes a bold step in driving the conversation within the conservative camp. He cautions on the challenge of calibrating what are often divergent goals between states, which are often embedded in national interests, requiring complex processes of extensive dialogue between them. Among others, issues that tend to increase complexities of trans-national boundary governance include national identity, diverse notions of national sovereignty, ideas of self-determination and issues of security that require taking different forms in different contexts. At a theoretical level, it can be argued that divergent national interests between states can be aligned by making them complementary or mutually supportive. However, the one major flaw with Macdonald's (2015) bottom-up incremental policy design processes is the extent to which it underplays the danger of domination by powerful political interests of the more powerful states. Similarly, multilateral policy design processes in transboundary governance are also not immune to this same danger, in the context of fluid goals between states.

Macdonald (2015; Evans, 2004) drawing from the more recent international doctrine of Responsibility to Protect (R2P), which entails the systematic hierarchical arrangement and codification of principles pertaining to the relative weight of human rights protections against the relative value of regulation through use of force by states. In terms of this doctrine, the protection of human rights is assigned the highest priority -- and should always supersede -- over and above the institution of sovereignty. However, Macdonald (2015) also cautions on the operational implications of the doctrine, with regard to how much weight is apportioned to human rights as opposed to political self-determination, and which one takes precedence for collective action within the context of trans-national boundary governance.

The first of three challenges to collective action that Macdonald (2015) identifies is in respect of calibration of the disagreement about the hierarchy of human rights. Different countries do not share common ideas on what the hierarchical arrangement of human rights should be among citizens and non-citizens. The second challenge for collective action, specifically in the context of classical liberal democracies, is the fluidity of national political goals that can be erosive to the stability of governance. The third challenge is the interdependence of means and ends within the context of

a complex set of causes and effects, of flows across borders. In his scheme Macdonald (2015) is overly optimistic on reliance on trade-offs between competing value systems and perceptions of threats, in a manner that has a blind spot to power relations between states. Macdonald stretches his idea to the point of suggesting formal codification of principles between states on the different elements of governance based on the agreed hierarchy of values. In his view, codification presents an opportunity to shift away from political focus towards a system of negative and positive reinforcement, such as favourable/unfavourable trade terms, to be used as tools to facilitate agreements in a manner that predisposes the system into a slippery slope of bilateral agreements. Macdonald also suggests incorporation of a multiple-level system that pivots around collective experimentation or inquiry-based problem solving regarding border governance institutions.

Also, firmly located within the liberal logics, Huber (2017) deploys Emmanuel Kant's philosophical idea of "right to be somewhere" as introduced in the *Doctrine of Right*, which is not mediated by property rights, generally known as cosmopolitanism. Notwithstanding the silence on institutional arrangements, Immanuel Kant's cosmopolitanism and idea of the right to be somewhere partially emanates from his concerns with European colonialism, at the time. In Kantian philosophy the right to be wherever nature and circumstances places one is considered to be a universal human right, arising from the nature of human existence, which should be given precedence over their relationship to other external things (Huber, 2017:4; DoR 6:267; Byrd 2009). His notion of "possession in common" (DoR 6:626) with all others places moral accountability on all who hold the right on the knowledge that the space one occupies at any point in time forecloses it being taken up by any other person. Kant's philosophy differentiates between "earth dwellers" and other forms of life. In his scheme humans are able to grasp the normative implications associated with inhabiting 'common' space on the earth. If anything looms large in Kant's cosmopolitan idea, it is a leaning towards policy design at a global scale.

Huber (2017; Byrd & Hurschka, 2010; Niesen, 2007; Benhabib, 2004) suggests that the increased yet differentiated attention given to the notion of cosmopolitan right in recent years, has brought about a different way of thinking about the meaning of trans-national boundaries, asylum seekers and refugees, and dealing with rights in respect of international trade as well as Kant's critique of colonial occupation.

Mbebe (2018; Kotef, 2015) highlights the extent to which liberal political thought has always been embedded in built-in contradictions with respect to the idea of a future borderless world, wherein the very idea of freedom of movement is considered as an interruption to order in which the state framed as a mediator in the relationship between movement on one hand and order, security and stability on the other hand.

At the other end of the continuum, Tsheola et al. (2015:30; Dallimer & Strange, 2015; Kark et al., 2015; Lunstrum, 2013, 2014; Moilanen & Arponen, 2011; Paasi, 2005; van Houtum & van Naerssen, 2002) argue that the very essence of international relations is fundamentally steeped towards reinforcement of "bordering, ordering and othering" of the global population. The creation of global sociopolitical "lines of separation" has created fragmentary administrative, ownership and management landscapes that are encumbered by a plethora of contradictory legal/institutional and social divisions. They argue that the hegemonic exercise of state power in the governance of human-landscape mobilities should be located within the context of inflexibilities of the "sovereignty-state-territory" triad. In a review of Hagar Kotef's (2015) *Movement and the ordering of freedom: On liberal governance of mobility*, Svirsky (2015:1) suggests that "looking into the liberal tradition in political theory, we might be able to explain the relation between the kind of beings we are and the kind of regimes of movement that characterise our potentialities", indicates that borders and boundaries are oppressive existential territories and fetters of movement.

There are also different ideas with regard to how national boundaries should be configured,. Sophisticated knowledge systems relating to river basin landscapes among the Chinese can be traced as far back as the 3rd century BC, later culminating in the groundbreaking 1674 scholarly works of French geographer Pierre Perrault the *De l'origine des fontaines* (On the Origin of Springs) fostered an understanding of river basin cycles (Molle, 2017). Philippe Buache in 1752 studied the interconnections between streams, rivers and mountains making sense of the structure of the earth; his theory was taken up by Gatterer in Germany, culminating in the theory of the division of the world/earth. Most importantly, this collection of scholarship converged in the river basin as the rational scale for planning and societal organisation (Molle, 2017). The first significance of this historical snippet is the idea that politically determined territories or nation states have not been without contestation. For instance, John Wesly Powel advocated for the notion of natural

“commonwealths”' that were aligned to the river basin as a “natural unit” (Molle 2017:2). In Powel’s scheme, the commonwealth would be anchored in a set of natural resource endowments, which are decoupled from both capitalism and bureaucrats. The second key significance of this development is not only the frontal challenge it posed to traditional administrative boundaries of the state, but the manner in which it foregrounded debates about where the locus of power and authority should be situated between different scales.

Notwiithstanding all the prowess, the historical trend that places emphasis on the hydrological basin as a primary unit of analysis has also not escaped scholarly criticism. Jacobs (2012:189) is critical of the historical trend that places emphasis on the hydrological basin as a primary unit of analysis, and instead advocates for “the transboundary river basin, not as a biophysical space but also as 'lived in' social space comprising of the sum of social practices and discourses that exist within the biophysical space”. In his understanding the transboundary river basin concept liberates research not to be constrained by territorial boundaries. Nevertheless institutions should be investigated at the level at which they prevail in relation to each other but not to the exclusion of others, because scales constitute an important part of a broader land governance framework. The next subsection explores post-World War II global development paradigms.

5.4 POST-WORLD WAR II GLOBAL DEVELOPMENT PARADIGMS

The pre-eminence of a consciousness about the planet that is premised on understanding the planet and symultaneously considering it’s futures, including that of humanity is neither a post-war period nor a 20th-century phenomenon, but precedes both (Locher, 2019). However, the post-war surge in techno-science signaled a period of expansion and deepening of globalisation and it’s consequent human impact on the planet. Central to this emerging planetary consciousness was it’s coupling with global threats that did not spare humankind, bei it the nuclear winter threats or damage to the thing called “environment” – a buzzword of the 1940s whichanimated the congregation of biotic and abiotic logical realities which had hitherto been considered independently, ushered in new challenges. The techno-science logic goes against the idea of infusion of values, ethics or philosophy into what ‘should be’ value-free sciences of understanding the world (e.g. economics,

physics, geology, soil science, etc.) which constitutes the fundamental conceptual flaw underpinning the overwhelming failure to systematically overcome or eradicate poverty (Max-Neef, 2005). To the extent that this argument foregrounds natural laws as determinants of natural processes, is fundamentally flawed, because of it's simultaneous foreclosure human action. Concerns for biodiversity, pollution, freshwater resource scarcity, etc. gave content to the looming threat to the human habitat (Locher, 2019). The various ideas about governance emanate from how the different resource frames are constructed alongside perceptions of dwindling natural resources, contrasted with notions of the ever-growing insatiable human need – resulting in a zero-sum logics of humanity that is on a self-distructive development pathway (Dawson et al., 2018; Le Billon, 2015). The next part focuses on governance of global water resources (hydro-politics) on a global scale as a key element of land governance.

The surge in the exploration and appropriation of the national and global commons by dominant national interests, driven by modernist ethos (techno-science), , found soft landing ground on numerous development arenas such as freshwater resources and seascapes. On the freshwater resource front, the post-World War II period witnessed a tenfold growth in hydraulic infrastructure in terms of the number of dams built and an increase in irrigations globally (Molle, 2017). Dating back to 2011, the International Commission on Large Dams registered a 50% growth (from 39 000 to 58 000 in dams with a height of 15 metres or more (Tanrisever et al., 2017; Bakis, 2007; Morris et al., 1997). This meteoric surge prevailed despite environmental concerns on the impact of such dams on the integrity of ecosystems. The tail-wind drive supporting the ideology revolved around dominion, conquest, harnessing and taming of nature, predicated on total human control over nature. This is a land governance paradigm that found expression not only in the water sector, but prevailed across multiple sectors such as industrial development, irrigation development, forestry development, manufacture of fertilisers, hydropower generation etc.. In the agricultural sector, this same period (1944-1956) also saw the global emergence and subsequent rise of the green revolution concept, which was underpinned bythe idea of spreading of technologies that already existed in industrialised countries by exported to developing nations, revolving around the use of chemical fertilizers, pesticides and herbicides, irrigation technologies and

mechanisation (Ameen, 2017). Stalin's Russia, with it's characteristically centralised planning and mechanisation systems, was not spared from the techno-science paradigm whichreolved around the idea of human dominion over nature (Tanrisever et al., 2017). The dominant ideas of industrialising rivers under the engineering drive for "high modernism" was well-received world over, including countries such as Sri Lanka, Afghanistan, Colombia, China and South Africa. The global hydraulic system was made more complicated by the proximity of the ever-increasing water infrastructures, multiple actors and climate change transitions.

This post-war modernist ethos and reconstruction efforts affected the seascapes too, starting off with the retooling of industrial shipping fleets, spearheaded by the United States of America (USA), Europe and Japan (Locher, 2019). The race for tropical tuna in the vicinities of Morocco, Mauritania and Senegal is just one small stint in a series of waves of aggressive global fishing drive, that is reflected in the threefold global weight increase from 16.7 to 58.1 million tonnes between 1950 and 1970. By the 1970s, the seascapes saw a boom in the extraction of polymetallic rock formations (nodules) which are rich in manganese, copper and cobalt from the sea beds. The first mining tests were carried out in 1970 off the Florida coast. These trends did not only spark concerns of overexploitation and stock collapses, but signified a new forms of exploration and colonial appropriation of the oceans by specific states. Some isolatetd voices of skkeptics against human plunder and control of the oceans made their voices heard, among others, Rachel Carson (1951) in her book *The Sea Around Us,* and the Club of Rome's report *Limits to growth* (1972) (Locher, 2019). The Apollo missions to the moon and pictures of the earth in the 1960s through to the 1970s were partly a revelation of the earth's fragility and finitude. Burgess, Clemence, McDermott, Costello & Gaines (2018:331) are among the latest voices calling for holism in the governance of "complex ocean socio-ecological systems".

In whatever guise these scarcity debates were clad, they are inherently about contestations over the governance of land and form the basis for policies that fostered exclusion and inequalities at multiple scales. The 20th-century Malthusian environmentalism which was largely concerned with reducing human population, and

Hardin's (1968) notion of 'tragedy of the commons',[65] are just some of permutations of debates of the period (Robertson, 2012). Mehta, Huff and Allouche (2018) highlight five key defining historical moments and mutually reinforcing processes that are critical to the analysis of scarcity:

- the 2007/08 triple crisis of food, fuel and finance gave rise to the scramble for land resources of 'grabs';
- the ascendance of the neoliberal order into a dominant position across different aspects of nature and society;
- the 2008 financial crisis, the subsequent recession and it's attendant austerity policies framed around the reproduction of scarcity;
- the growing tendency of coupling scarcity with particular concerns with security, equivalent to military response, and
- granularised analysis of the relationship between scarcity, sustainability and solutions pivoting around the epochal Anthropocene.

Configurations of how natural resources are terrritorialised and controlled at multiple scales are the fundamental drivers of governance complexity, ofaas the phenomenon is unleashed on a global scale and acted out on a local scale (Mehta, Huff & Alouche, 2018; Neves & Igoe, 2012; Peluso & Lund, 2011).

The unprecedented rate and scale of the impact of humans on the earth (Anthropocene) gives rise to new methods of representation and modelling at multiple scales, that are fundamental to understanding the earth's changes (Nielsen, Bremond, et al., 2019). The consequence of multiple actors at particular points and times are not only disruptive to ecosystems and environmental processes, but also throw linear explanations out of kilter, as externalities are dispersed far and wide both spatially and temporally (Molle, 2017). These combined transitions increasingly require data, not only on the natural environment but about human behaviour as well (ss9.2.1; ss9.2.3.5).

It is within this historical context that the [earth] land systems science (LSS) and earth systems governance emerged, pivoting around contradictions between the

[65] The key element of Hardin's theory is a call for regulation of the commons, to circumvent the tendency for individuals exploiting the shared resource to own advantage without limit (Ponce, 2010).

fragility and vulnerability of the earth and the concomitant human existential threat. At the centre of LSS is an understanding of the consequences of land use decisions made by humans at various scales (global, national and local) (Dong et al., 2019; Messerli, 2019; Nielsen et al., 2019; Verburg et al., 2015). LSS seeks to develop a deeper understanding of the status, trends, consequences, and transformations of climate change among other environmental matters. An understanding of transitions in respect of both the biophysical characteristics (e.g. land cover) and anthropogenic utilisation of land is crucial for sustainable governance. LSS is part of the process of producing transformational knowledge that could potentially form part of the toolkit for the development of policies and practices for sustainability trajectories.

A further transdisciplinary area of inquiry, the "earth systems governmentality" is another nascent body of scholarship that draws knowledge from science and technology, environmental history and international organisation, largely concerned with the investigation of sociopolitical consequences of the role of humanity as a geological force (Rindzevičiūtė, 2018; Zinzani, 2017). Biermann (2016; 2007) unwaveringly views the earth system governance not only as a growing empirical phenomenon, but as a 21st century political project. The discourses on earth system governance and global governance are inextricably linked and feed into each other (Bierman, 2007; Dingwerth and Pattberg, 2006; Overbeek, 2005; Kanie and Haas, 2004; Young, 1994, 1997; Smouts, 1998; South Centre, 1996; Commission on Global Governance, 1995; Rosenau, 1995). Some scholars are of the view that global governance should provide a set of strategies to deal with issues of modernity such as providing a counterbalancing the weight of globalisation. The project has received a fair share of criticism from developing countries as well as historical materialism, which is symptomatic of an area that is still lacking in theory.

Despite the land systems governmentality movement being inherently global in character, the very essence of the discipline has largely been dominated by Western thought paradigms partly along the lines of the Cold War binaries (Rindzevičiūtė, 2018). The Soviet perspective on earth systems governmentality has been infused as part of the east-west intellectual transfer, resulting in a revision of the liberal model of negative governance that was underpinned by authoritarian notions of people-land relationship. Reiterating Moiseev's theory, Rindzevičiūtė (2018) affirms that the role of humans in the biosphere was a significant geological force in which

organic and non-organic natural components were dialectically and intricately intertwined in complex ways to a point where any distinction between people and nature becomes redundant. In Moiseev's scheme the role of humankind is understood as responsible organisation, in a state where humanity has grown wiser to the extent that it manages planetary resource use, by retarding global changes that are induced by human activity, allowing for coevolution.

Despite the gloomy history, one of the most ambitious land governance proposals to emerge from the land systems scholarship is the idea of increasing total area under conservation from 17% to 50% to include both marine and terrestrial efforts (Ellis & Mehrabi, 2019; Baillie et al., 2018; Maron *et al*., 2018; Wilson, 2016; Dinerstein *et al*., 2017; Locke, 2013;). The idea is fanned by several formations under the Half Earth project and the Nature Needs Half coalition, and is considered inspirational by those who support it, and as a 2050 vision by those who do not support it. The global scale of the proposal is enough to attract diversity, not only in what it means but also in it's underlying values including the political, economic and other implications that are not yet obvious (Ellis & Mehrabi, 2019; Nielson *et al*.,' 2019; Ellis *et al*., 2019; Compagnaro *et al*., 2019; Mehrabi *et al*., 2018; Pimm *et al*., 2018; Buscher *et al*., 2016). In the midst of this raging discourse, a number of high-level land governance challenges associated with the prospects of scaling up biodiversity conservation are apparent. These include "basic questions of power, inequality, fairness, and stakeholder engagement in the ownership and governance of landscapes, both inside and outside protected areas" (Ellis & Mehrabi, 2019:27).

Resilience thinking, which broadly refers to the ability of societies and systems to cope through change, through either survival, adaptation or accommodation, has taken global scale centre-stage in a range of scholarly disciplines, such as environmental studies, resource governance, spatial planning, urban development management, land development, water resource management, albeit anchored in sectoral perspectives (Rodina, Baker, Galvin et al., 2017; Meerow & Newell, 2016; Falkenmark & Rockstrom, 2010; Holling & Chambers, 1973). Notwithstanding the divergent ongoing discourses around conceptual, normative and application dynamics, more recently resilience thinking is considered as an approach to complex adaptive systems dynamics and as learning opportunities within the context of complexity and uncertainty arising from land transitions. Much of the drive for the

surge gets a stimulus largely from trans-national bodies such as UNIDR and donor agencies such as the Rockerfeller Foundation, which are more inclined towards expert top-down approaches.

Notwithstanding the global footprint, especially with respect to Southern Africa the strategic positionality and influence of the resilience concept, Rodina et al. (2019) questions it's problematic nature and it's universal application. Land justice trajectories cannot be limited to material distribution of material goods, but should also entail non-material goods, such as safety considerations, participation in decision-making networks (Rodina et al., 2017). Viewed from this perspective Rodina et al. suggests that resilience should be conceptualised as a pathway -- a means to some desirable end, and as a critical reflection mirror along the way -- rather than as a goal. From that perspective resilience should be anchored in a imaginary of societies that are empowered to survive through the transitions, by equalising power relations from the perspectives of race, class and gender.

Rodina et al (2017) identifies a correlation between South Africa's income inequality -- which is among the highest in the world -- and the water Gini coefficient. They attribute much of these outcomes to a range of factors, inclusive of colonial legacy, powerful economic interests and to techno-centric conceptions and approaches to water resources and water use. The preponderance of adherence to techno-centric approaches does provide some account for the deepening inequalities, from a water perspective (Rodina et al., 2017). Logic then follows that resource governance should respond to the challenges of and confront the underlying justice and equity challenges. Within the context of Southern Africa any attempts at building resilience to water injustices would of necessity entail disruption of structural and economic impediments in order to make way for transformative forms of governance. In other words policy trajectories that are oriented towards equity constitute a pathway to achieving resilience, and not the other way round.

Similarly, land governance and concomitant administration systems cannot be understood outside of the global economic and political order in which they are embedded. The subject of land grabs or large-scale land acquisitions, irrespective of nomenclature, are a dimension of modern global trade and modern imperialism

underpinned by the extraction of land resources from the global South by global North drive.

5.5 INTERSECTION BETWEEN ECONOMICS AND LAND GOVERNANCE ON A GLOBAL SCALE

Biermann et al's. (2016; World Bank, 2008) characterisation of the 21st century world order as one where 20% of the world's population is consuming 77% of global goods and services, is a graphic reminder of global inequalities in production and consumption patterns. Along similar lines, Oxfam's (2017, cited in Menga, 2018) characterisation of the world economy as one in which eight individuals own wealth that is equivalent to that which is held by half of the global population says much about justice. The economic traits of the modern world have resulted in a global economic landscape where developing countries have been turned into industrial centres in the business of producing for a small fraction of population in the global North, points to the somewhat hidden nexus between economics and land governance. Notwithstanding the interconnectedness and interdependence of socio-ecological systems, the drivers of environmental change have in a sense been decoupled from the consequences because the spaces most impacted by environmental changes are different to consumer societies in the global North. Wanjala (2004) considers land as the most important factor of production, which development planners congregate their strategies around, and the most contentious issue in all pursuit for a just society. To the extent that most of the global trade requires land for either production or movement of goods, services and people, it is not a land use theme but is pivotal to land governance and administration (Fritz et al., 2007).

Central to the debates on global governance are deeply embedded and fundamental North-South economic interests that have given rise to scholarship that is calling for a re-examination of the intertwined 21st century ideas of nationalism, imperialism and internationalism (Giannakopoulos, 2018; Sylvest, 2009; Manela, 2007; Long & Schmid, 2005). The post-World War II decline of Great Britain as a colonial empire viewed alongside the meteoric rise of the United States of America (USA) as a major superpower, a counterbalancing force to the Soviet Union, resulted in divergence not only in scholarship but in the praxis of international power relations. Evidence from

the post-war wave of national independence, which played out through former colonial states, points to a general failure to erase the continuities of imperialism (ss6.2.5). Some concerns with notions of a “capable state”, which have become fashionable in international discourse, need to be understood within a specific context and along similar narratives that have largely been about the resuscitation or renovation of liberalism in the face of what was seen as a post-war gloomy outlook of *laissez-faire* approaches in the back end of the Great Depression (Quinn, 2018). Alongside neoliberalism being elevated to a dominant global paradigm, it is essentially anchored in neocolonialism or imperialism while pivoting around the theme of access to land and natural resources by developed countries from the developing world. This locates both phenomena of neocolonialism and imperialism at the center of the global land governance order. It is important to locate this development within it’s historical context.

The increasing uncertainty about the future of imperialism within a context of a fast-changing power balance in international relations juxtaposed with the flickering signs of reconfigured global governance arrangements, casts divergent paths to scholarship of varying persuasions (Giannakopoulos, 2018 Bryce, 2014: Sylvest, 2009). Giannakopoulos identifies one revisionist scholarly tendency that is preoccupied with developing deeper insights into international relations (2018; Ashworth, 2014; Bell, 2007; Keene, 2005; Brian and Schmidt, 1998; Curties, 1996; May, 1996). Some Oxford-based scholars had adopted a conservative liberal approach geared to making imperialism work better through political representation within a hierarchical pluralistic racially diverse commonwealth of nations. Giannakopoulos (2018) identifies a second tendency that places more attention on interstate relations, imperial and international affairs (Bourke, 2015; Armitage, 2013; Varouxkis, 2013; Whatmore, 2012; Owens, 2007; Said, 1993). The 9/11 attack and subsequent invasion of Iraq by the USA precipitated narratives of 'Global War on Terror’ within the context of a climate of waning political landscape between the USA and Britain. The imperialist pursuit of the USA, which manifested in Third World bashing, came under heavy intellectual criticism. This body of scholarship is unequivocal in drawing glaring parallels between the late 19th-century liberal imperialism and the modern behaviour of the USA.

The global-North rollout of bounded state is consistent with Lenin and Luxemburg's explanation of imperialism as "certain form of production of space" (Harvey, 2004:63). Among the internal contradictions of the capitalist system, the system creates surplus capital and labour alongside each other, which cannot be brought together profitably for any task. The phenomenon of spatio-temporal displacement of imperialism, a spatial component of the displacement happens through investment of excess capital into new capabilities, spaces or resources and the temporal component entails deferment of capital values into future circulation (Harvey, 2004). Under these circumstances either expansion or reconfiguration of geographic space becomes an option. According to Harvey (2004) this process of expansion and reconfiguration is intricately coupled up with the notion of 'temporal fixes' which involves deployment of investment capital in long-lived social infrastructures (road and rail networks, airport infrastructure, harbors, etc.) that have long-term economic yields from activities support. Capital is fixed in a literal sense for relatively long durations --it is also fixed in the sense being of being territorialised or rendered immobile. The post-World War capital investments in [hydro] social infrastructure within national commons of countries in the global South is consistent and the shift to fisheries in the global commons represent different forms of spatio-temporal displacement of imperialism representing spatial expansion and or increase of depth.

In Hegel's (1967) logic, the capitalist system creates an army of paupers while simultaneously producing an excess wealth that compels it to find solutions through imperial practices. Harvey (2004) cites Cecil John Rhodes' explanation of the phenomenon of colonialism and imperialism in the global South as the only way to avoid war in the global North. Contradictions within the bounded capitalist societies in the global North, in the form of social discontent with the consequences of capitalism were a push factor, in search of spatio-temporal fixes elsewhere. A significant part of the liberal frame to imperialism was coupled with an ideology that was propped up through a combination of progress-civilisation frames.

While debates rage on the role with regard to the IMF and WB, the role of economically powerful nation states cannot be underplayed. On the back-end to IMF and WB, successive US administrations have used own national statecraft to propel globalisation trajectories and neoliberal domestic policy transitions abroad, ensuring that US bank loans are secured through structural adjustment programmes and

other instruments (Harvey, 2004). Voluntary collaboration forums such as G7/G8 and G20 are particularly important for their watchdog role of neoliberal trajectories as extra power where markets fail in accomplishing specific predetermined goals (Harvey, 2004). The US which is a major player can use these structures to force specific governance agendas with the covert or overt military power threat. In the context of North-South economic relations, foreign direct investment (FDI) and global trade are synonymous with resource looting and oppression – standing on a sophisticated international loan system, a stern global economic legal system, a system of policies of spheres of interest, threats of or actual use of military coercion (ss6.2.4 & ss6.2.6) (Harvey, 2004; Luxemburg, 1968). Harvey (2004) is critical of dominant neoliberal arguments that frame free trade in commodities (natural resources) as opening up the world to free and open competition for their blind spot to monopoly and oligopoly (in production and or consumption).

Özsu (2019) draws an inextricable link between the international legal system and global neocolonial trajectories that are a manifestation of fundamental misconfigurations of institutions between different scales. There is insufficient legal convergence at different levels to make any bold authoritative determination to make an all-encompassing legal determination on the resource grabs. Within the context of unequal power relations between investment sending and investment receiving countries, it is inevitable that the global global North norms trump local global South, raising concerns about the foundations and frames of the international justice system. Notwithstanding that, the generally accepted standard, collectively known as the “international minimum standard of treatment”, had found it’s way into the United Nations General Assembly’s 1962 Resolution on Permanent Sovereignty over Natural Resources and the subsequent 1974 Charter of Economic Rights and Duties of States (Nikiema, 2013; UN, 1974). At an international level, the jury is still in session with respect to the exact meaning of the notion of appropriate compensation. Under customary international law, different sovereign states have expectations in relation to how each of the states can treat each other’s nationals and their property (Leon, 2018). One generally accepted principle in international law is that a country cannot avoid it’s international law obligations by using domestic legislation. In essence, foreign investors can always comfortably rely on the protections afforded

by the existing Bilateral Investment Treaties (BITs), regardless of the domestic constitution and/or legislation.

The emerging earth systems governance scholarship has given a lot of attention to issues of global trade as an area of inquiry, specifically focusing on multilateral environmental agreements and global trade agreements. Some literature in this growing field focuses on pertinent questions, while another is concerned with exploring options for reducing friction in the domains of trade and investment institutions, environmentally harmful subsidies (Tienhara, 2019; Van de Graaf & van Asselt, 2017; Campling & Havice, 2013), together with exploring alternatives that include climate-smart institutional arrangements (Mehling, van Asselt, Kasturi & Droege, 2018). Tienhara (2019; Dale et al., 2016; OECD, 2013; World Bank, 2012) points to narratives that foreground the importance of green growth bringing to the centre-stage development models that are palatable to the Organisation for Economic Co-operation and Development (OECD) and the World Bank around which there is unprecedented concern for environmental issues. Bond (2016) makes reference to a global system of unjust accumulation that is centrally pitted in the extraction of wealth from the global South in a manner that is intricately linked to the despoiling the world environment.

According to Tienhara (2019; Zelli et al., 2012) the past two and a half decades have witnessed a surge in scholarly inquiry on the relationship between international trade and environmental protection. The neoliberal economic mantra of “growth” that is entrenched in Western development frames is often inherently problematic; it is the mode and understanding control that needs to be reimagined (Rindzevičiūtė, 2018). It is also within this broader context that globalisation cannot be understood as an inevitable natural economic process, but rather a logical consequence of neoliberal order or a phase of imperialism (Drolet et al., 2018). Resource nationalism is one of the trends associated with the post-World War II period (ss4.3.2).

The concept is not new, having taken root in developing countries between 1950s and 1970s amid the resource economic boom in countries such as Venezuela, Canada, Russia, Nigeria, China, Bolivia and Kazakhstan. While the strategies of resource nationalism vary in granularity from country to country, it’s key elements entail ownership and/or operation of the resources by the state and capturing of rent

by the state (Mares, 2010; Ward, 2009; Walde, 2008). Globally resource nationalism has played a big role in building political fortunes – Saddam Husein in Iraq, Vladimir Putin in Russia and Venezuela's Hugo Chávez are just some of the examples. The rise of resource nationalism in the developing world has rendered reliance on diplomatic support from resource sending countries dubious (Moran, 1973).

The story of Singapore is a particularly important example making use of a combination of creative policy instruments or strategies such as the use of land value capture, an innovative public housing programme that is embedded in land redistribution and is marshalled by a capable state constituting their land rights regime (Phang, 2006). Central to this calibration are workings of a capable state, leadership, policy clarity and consistency, appropriate calibration of institutional arrangements and distribution of rights between the state and citizens.

Doebele (1987; Li, 2014) identifies the policy governing rights and interests in land as an international policy paradox that entails land as a public good, that is not only permanently limited in quantity, but is also immovable. The dichotomy and balancing between public versus private rights and interests is at the centre of Doebele's policy paradox: socialisation of some aspects of rights and interest could be a useful instrument to achieving equity, while unfettered private control can be an effective instrument to achieve efficiency of use – frictions of inequity may result. Within the context of international law, sovereignty is reliant on territory and the state's expression of it's authority over territory (land rights regime) is usually entrenched in the founding document (Rudman, 2011). Based on the notion of state sovereignty, the expression of control over territory is not necessarily limited to possession of territory but entails other forms of authority (s5.3). Doebele (1987) is highly critical of the track record of developing countries in managing this paradox and views it as generally poor. Debatable as the measures of success or failure may be, he cites the French, Mexican, Russian, Chinese, Cuban and Nicaraguan revolutions as examples of failure. Based on these experiences, he also argues strongly that various categories of land rights regimes are never an "either-or" situation in that every country in transition has to tread carefully between balancing private and public rights, interests and obligations. Regardless, there is a need for conscious policy choices to be made with respect to different categories of land, inclusive of natural resources.

Earlier Li (2014) made a somewhat simplistic but yet useful differentiation between inscription devices – those that require close physical proximity and those that function remotely (ss4.2.1). The next section explores the growing trends in geo-data technologies (inscription devices) at the intersection between global and nation land governance scales.

5.6 GEO-DATA TECHNOLOGIES: A GROWING TREND IN GLOBAL LAND GOVERNANCE SYSTEMS

Dong et al., (2019; Murray et al., 2019; Tian et al., 2019; Liu et al., 2018; Midekisa et al., 2017; Pekel et al., 2016; Hansen et al., 2013) identify a range technological advances made in the surveylance of a range of landscapes, including global forests, global surface water bodies, tidal flats, continental and urban lands as well as forecasting land conditions for agricultural planning decisions. These geo-data technologies are increasingly finding expression in multiple domains and when coupled together (e.g. remote sensing, GIS technologies) have a high capability to map and monitor land cover at medium to fine resolutions supported by hazard modelling and analysis and geographical information systems (GIS) (Zevenbergen et al., 2015). The growing spectrum of geo-data-sets is supported by an array of mutually supportive technological infrastructure including communication satellites, meteorological and earth observation satellites, satellite-based positioning technologies. Many of the technologies are a signal of the transitions into the Fourth Industrial Revolution (4IR) and a manifestation of technologies crossing paths or "blurring the lines between the physical, digital and biological", and transmission of disruptive waves permeating every industry and every sector imaginable (Schwab, 2016b:1). The pivotal role of geo-data systems as part of the process of producing transformational knowledge is an increasingly important thematic area with implications for production, land management and governance systems.

Integration of these technologies generates multiple data-sets that provide valuable insights into future climate activities from a distance together with other geo-data such as topographical data, different types of boundaries, geographical names, cadastral data, geomorphological data, city plans, zoning data enables risk reduction decision-making and approaches in disaster mitigation (Zevenbergen et al., 2015; Groot & McLaughlin, 2000; JB GIS & UNOOSA, 2010). While they present an

unequalled opportunity for mitigation of disaster, the products of geo-data technologies come at a huge price requiring high political will and supporting regulatory frameworks. The challenge that tends to slip between the cracks in such an analysis is the appropriate scales of regulation, emanating from the divergence of scales at which technologies are launched versus the scales at which they are capable of operating. Spatial Data Infrastructures (SDIs) provide an institutional framework for generation, storage and sharing of spatial data/information for multiple land administration functions including spatial planning, housing development, infrastructure development etc. (Further discussion on SDI's ss8.3.1, ss9.2.1, ss92.3.5 & ss10.2.4).

The importance of pre-existing close-to-real time spatial information (geo-data) in all three stages (before, during, after) of Disaster Risk Management (DRM) (Griffith-Charles et al., 2015), more especially with respect to how poor and vulnerable groups take a disproportionate share of these extreme activities (Zevenbergen et al., 2015; Stryker & Jones, 2009). On an international scale the institutional frameworks that support the generation of these data-sets, include bodies such as the International Charter on Space and Major Disasters (ICCMD) and other specialised non-profits (e.g. Map Action). The ICSMD was established in 2000 as a cooperation of space agencies of Europe, France and Canada inspired by the rapid onset of hydrological (floods), climatological events (hurricanes, typhoons, drought), geophysical disasters (earthquakes, landslides) and significant oil spills, except humanitarian disasters such as famine and civil unrest or technological disasters other than oil spills.

UN-FAO (2015) provide an analysis of the role of real time land spatial data in a preventive or mitigation response prior to disaster, the ability to respond to the emergency during the disaster, and reconstruction response after the disaster. During planning, such data is used for hazard and vulnerability modelling and mapping purposes. During the disaster activity, close-to-real time data is used to minimise disaster impact by curtailing loss of life (Zevenbergen et al., 2015). After the disaster, some of the geo-data is a critical tool in the course of monitoring and dismantling of temporary structures and the reconstruction processes (building of houses and services). In the three phases of disaster, real time geo-data is critical in enabling the making of informed backward and forward-looking decisions with

respect to three dimensions: geographic, socio-economic and institutional vulnerabilities. Without timely and accurate data that is as close as possible to real time, it is notinconceivable to imagine decision making such as evacuating people to more hazards. In the context of climate emergency response, there is an added requirement for a more accurate understanding, not only of the nature of the climate activity but also the extent and severity of the hazard in a manner tantamount to disaster intelligence (Zevernbergen et al., 2015). The currency of data is particularly imperative in a disaster situation due to the cross-cutting nature of disaster impact (e.g. damaged road infrastructure, electric power failure, disruption of services etc.). Effectively data is not only a decision-making tool, but also part of the response machinery. The technologies allow for an integration of perspectives and imagery that represents reality in the same way a human being would see space, as well as a combination of other parameters such as thermal sensors that detect heat signals, and radar data which is more suited to detecting structural information such as ground subsidence or vegetation health. These different data-sets are subject to planetary orbital limitations and are not always readily available for any particular area that has the potential to result in data delays. In the context of a disaster, decision making requires different scales of geo-data sets that include a wider coverage area and higher resolution precinct data (Zevernbergen et al., 2015).

Some of the data does present an unconventional, possibly cost effective, opportunity for mapping of land rights (Zevernbergen et al., 2015; Ernemark et al., 2014; Laaraker & Vries, 2011; Anderson, 2000). In addition to the mapping of land rights, these geo-data-sets are potentially an invaluable resource in land dispute adjudication procedures. The idea of geo-data centrality is consistent with the UN-FAO Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (the Voluntary Guidelines) which provides very broad guidelines on improving governance of tenure with specific focus on vulnerable people (Munro-Faure, 2015).

Remote sensing technologies are increasingly a powerful tool for a more systematic monitoring of the association between infectious diseases and their environmental drivers or impediments (Vanwambeke et al., 2019; Hay, Randolph, & Rogers & Rogers 2000; Rapport et al., 1998; Pavlovsky, 1966; May, 1952; Sorre, 1933). The very idea of infectious diseases being integral to ecological systems has a long

history in interdisciplinary scholarship involving geography, medicine and ecology. Based on work that offers insights into how landscape transitions either suppress or advance land cover transitions and pathogen (re)emergence, most scholars in this domain tend to gravitate towards advocating and furthering transdisciplinary research. Within the global context of a surge in environmental monitoring data, Vanwambeke (2019:34) cautions against simplistic use of data as an "imperfect representation of spatial processes that occur across multiple scales." By it's very nature, data on it's own does not reflect processes, providing an incomplete picture of a particular phenomenon, hence the value chains framework places emphasis on both (s3.4).[66] The resolution of data collected also places limits to what data segments can be captured and monitored in spatially and temporally.

In a manner suggestive of low uptake, Steudler & Rajabifard (2012) suggest that more work needs to be done on the demand side of geo-data in the move towards a spatially enabled government and society. Increasing the uptake of these technologies, based on public interest, is closely bound up with developing regulatory frameworks at multiple scales (Zevenbergen et al., 2015). Many of these technologies are in place already, with some of them located in the global commons out of reach to the human eye, but with capability of generating data on a granular scale. The scales at which the technologies are deployed, when juxtaposed with the granular scale at which they are capable of performing, throws different scales of regulatory frameworks against each other. Collection of data via a satellite as opposed to using a (in)visible drone gives rise to convoluted policy concerns, especially in liberal democracies, about privacy, public interest and safety boundaries.

In the 21st century world in which the combination of data/information and the internet are increasingly taking centre-stage in the relationships between people, companies, nations etc., the combinations of these technologies have far reaching land governance implications (Lyon, 2019). Geo-data technologies are only a small but crucial part of a bigger Internet Communication Technology (ICT) surveillance systems, in which the prominent players, none other than Google, Facebook, Amazon, Microsoft and Apple are key players. These technologies also represent

[66] Value chains frameworks discussed in chapter three.

new forms of capital accumulation, where traditional neoliberal supply and demand logics no longer limit boundaries. Some scholarship firmly locates the broader suite of surveillance technologies within a broader capitalist extraction frames (Boltanski & Chiapello 2018; Zuboff, 2015). Google's Street View is one example of these geo-data tools, characterised by unidirectional data extraction and no relationship between the data collector and the subject.

A narrow geography perspective in the understanding of the role of these geo-data technologies -- at multiple scales -- that is devoid of political and economic prism can only be narrow and naïve. These geo-data technologies are a key anchor of surveillance technologies that produce data which serves profiling and prediction of lifestyles on a micro scale to individuals and groups (Lyon, 2018). While such analysis has some traction, it's bias towards micro scale is problematic when the same the same profiling and prediction techniques are equally applicable at national and global scales. This is a challenge that has specific relevance for developing countries as they are playing a second fiddle in the bigger game. De Maria (2019:8; Baird 2015) identifies the rapid surge of these technologies and their systematic application in modern imperialist activities as a manifestation of fundamental discrepancies between micro and macro geographies. The interrelated questions relating to ownership of these technologies and their role in advancing global neocolonial imperatives have a direct bearing on land governance and administration of different geographic scales.

Data has different meanings to different actors under different circumstances (Iyamu et al., 2017). By implication, the thrust towards open access to data (available to the public) is potentially disruptive to one basic mantra of liberal democracies – the need for protection of the nebulous terrain of private information. How governments draw the line between private information and public information is also largely underpinned by deep-seated ideological and cultural underpinnings. While fully cognisant that this represents only one end of the spectrum, the manner in which Asian countries make extensive use of 4IR technologies coupled with open data, with detailed data on every known Covid-19 case such as location and connections to other cases, have been pivotal to their response to the pandemic (Patino, 2020). For example, when Hong Kong closed it's borders on 25 March 2020, it started distributing mandatory remote movement sensing bracelets linked to a cellphone app

as part of the surveillance for compliance to the mandatory 14-day quarantine period. From whichever way one looks at it, the combination of developmental and paternalistic states bound up in culture are pivotal to approaches of Asian countries. This approach would attract harsh criticism in Western liberal democracies as infringement of personal information and liberty, which is already compromised through subtle private surveillance techniques discussed above (s8.4) (Lyon, 2018).

Many organisations are dependent on data in their activities and elevate it's value as a resource equivalent to people and/or money (Beshears et al., 2015). This creates a fine line between what is private and what is public in different situations. Many of these epochal challenges such as cybercrime, cyber warfare, cyber espionage etc. that are embedded in online government praxis that transcend beyond government, but cascade to state agents (outsourced services) are not functions of OG/OGD (Sutherland, 2017).

The surge in geo-data technologies is a driver of key intersectionality collisions between and blurring of boundaries between disciplines. The invention and rise of the Geographical Positioning System (GPS) meant that town planners and land surveyors could undertake geodetic surveys in ways that had hitherto been impossible (Groenendijk, 2012). The surge of technological advances, such as the use of drones, is changing the praxis of what was historically the preserve of the geodetic profession. Similarly, the valuation profession is increasingly experiencing an encroachment from the quantity surveying profession that is astute in undertaking market valuations to land and property. The information and communication technology (ICT) has changed the landscape for access to information such that data on historical property values, on which the valuation profession depends, is now available at an insignificant cost via the internet. Blockchain technologies enable contracting parties to enter into an open cost-effective contracting with the participants in the system collectively keeping the ledger up-to-date, and making amendments according to strict rules and by general agreement (Wong, 2017). This capability addresses one of the biggest challenges of a typical property transaction recording the series of agreements taken by all parties in a manner that is permanent and secure, spelling disruption to what has hitherto been conveyancing. These technological developments have blurred the disciplinary boundaries in a manner that can be interpreted as either sedimentation or erosion of disciplines

(transdisciplinarity). These developments associated with blurring of disciplinary boundaries are consistent with the idea of transdisciplinarity that is mooted in Chapter Nine (ss 9.2.3.6).

5.7 CONCLUSION

This chapter draws a nexus between the World War I and II global events and the emergence of the League of Nations (LN), and the United Nations (UN) and it's machinery. It shows how the cross-cutting global land governance theme is often overshadowed by other themes such as security within the multi-lateral architectures. The chapter identified a set of complex global land governance inflexibilities emanating from the troubled "sovereignty-state-territory" triad in which evolution of the state, the notions of sovereignty and management of trans-national boundaries that were historically dependent on each other are also bound up in multi-directional institutional contradictions, as part of the context within which global land governance system is anchored in. The historical phenomenon of global expansion of bounded sovereign states or territories as a historical development that has largely been extended to peripheries in the mid-20th century and rolled out in the past 100 years (Jones, 2012; Brubaker, 2002) is intricately bound with and reliant on the bounded space (territory) and the construct of sovereignty – a complex overlay of ideological and legal constructs originating from 17th and 18th century philosophers.

The chapter identified the post-World war II rise of techno-science alongside the extending and deepening globalisation – manifesting in a spike in exploration and appropriation of national and global commons by powerful actors from the global North. Rittel & Webber (1973) finds dissonance between techno-science which is inherently anchored in Newtonian mechanistic physics, on the one hand, and contemporary conceptions of interacting open systems and contemporary equity thrusts, on the other. The combination of techno-science coupled with modernist frames, propelled by an ideology which revolved around total human control over nature became the dominant land governance paradigm. On the other hand, these global developments came alongside growing global concerns with threats not only to the environment but to the survival of humankind amid growing human populations, all intertwined with global North-South economic interests. The chapter was unequivocal in presenting land governance as stage on which both phenomena

of neocolonialism and imperialism are played out. The chapter identified resource nationalism as one scholarly tradition that grew between 1950s and 1970s as a counterbalancing force to effects of globalisation. It also identifies Land Systems Science (LSS) and Land Systems Governance (LSG) which are primarily concerned with developing knowledge of the anthropogenic transitions of biosphere, as emergent bodies of transdisciplinary areas of enquiry.

The chapter went on to identify a growing trend of 21st century geo-data technologies that are intricately linked to the 4IR finding an increasingly growing niche in land administration applications such as tracking a range of landscapes permeating every industry imaginable in ways that are disruptive to dividing lines between the physical, digital and biological (Dong et al., 2019; Schwab, 2016b:1). The coupling of the geo-data technologies with ICT technologies is also blurring the lines between people, companies and nations (Lyon, 2019). The speed at which these technologies are developing, the multiple scales at which they are developed and deployed, as well as at their performance capabilities outpaces regulation throwing different scales of regulatory frameworks against each other. These geo-data technologies are capable of producing surveillance data profiling and prediction of lifestyles on a micro scale and between firms and states.

The next chapter looks at land governance architectures and institutional arrangements on a continental scale with specific reference to Africa and the SADC. The formation of the OAU and it's vision is pivotal to this story. The chapter revisits the story of carving up of Africa into economically unsustainable multiple states was not only endorsed, but was subsequently maintained by African leaders in ways that served only neocolonial interests. The chapter further explored how the vision of economic is frustrated by trans-national power dynamics within SADC, complex hydro-politics in the continent, and the continuities of imperialism in the form of the new scramble for Africa.

CHAPTER SIX : LAND GOVERNANCE AND ADMINISTRATION ON A CONTINENTAL AND REGIONAL SCALES

6.1 INTRODUCTION

The previous chapter provided a brief outline of global governance architectures and institutional arrangements as part of the context in which land governance is located on a global scale. The chapter explored some of the inflexibilities and contradictions of the troubled "sovereignty-state-territory" triad as part of the context within which global land governance system is anchored. The chapter provided a brief analysis of the consequences of techno-science and globalisation which propelled development paradigms post-World War II. The chapter demonstrated how land governance on a global scale tends to be overshadowed by other themes such as global trade and security.

This chapter starts off by providing an overview of land governance architectures on the African scale, drawing from the OAU's original vision as a benchmark of the goals that Africa had set for itself, with a specific focus on the Southern Africa Development Community (SADC) region. The chapter goes on to explore a number of selected land governance themes on a continental scale, as part of the broader context within which South Africa is a part of: an overview of the history and legacy of Africa's trans-national boundaries; land rights regime policy trajectories; complexities of hydro-politics in Africa, with a specific reference to SADC; a brief analysis some of the complexities of regional integration and the new scramble for Africa; the dynamics of the new scramble for Africa as the latest manifestation of the neocolonial reconfiguration in Africa and; exploration of some of the discourses on indigenous knowledge systems and their role in future land governance policy designs.

6.2 AN OVERVIEW OF LAND GOVERNANCE AT A CONTINENTAL AND REGIONAL SCALES

6.2.1 Land Governance Institutional Arrangements at Continental and Regional Scales

With specific reference to Africa, there are multiple nested governance structures which operate at different scales. At the apex of these governance structures is the Organization of African Unity (OAU), which later became the African Union (AU), both of which were broadly modelled along the lines of a watered-down version of the United Nations (UN). The OAU was founded on a Pan-African aspirational ideal of a united Africa that can shape it's own development trajectory. Among the ideals articulated in the OAU Charter was the eradication of the vestiges of colonialism and the promotion of increased cooperation and integration of African economies in order to drive Africa's growth and economic development (ss6.2.5) (Tsheola et al., 2015). The AU was officially established in 2002, as a successor to the OAU, which operated between 1963 and 1999.[67] The African Commission on Human and People's Rights (ACHPR),[68] African Court on Human and People's Rights (AfCHPR), AU Commission on International Law (AUCIL) and the AU Advisory Board on Corruption (AUABC) are the organs of the AU that are mandated to handle judicial and legal matters with a bearing on land governance and administration. Work is underway towards the establishment of continental financial institutions (The African Central Bank, The African Investment Bank and the African Monetary Fund).

The OAU and AU do not only differ in respect to historical contexts, but also differ primarily on key foundational norms (Geldnnhuys, 2012). From it's inception, the OAU vision was deeply steeped in a modernist growth paradigms, which were devoid of conceptual resources that could guide transition debates, with serious implications for traditional communities whose existence was being eroded "through economic exploitation, ecological destruction, and loss of cultural as well as linguistic diversity." (see Ludwig & Mcnaghten et al., 2020:3). Firstly, the OAU was born within the global context of a cold war between the East and the West, coinciding

[67] https://au.int/en/overview (Accessed 03 June 1963).
[68] https://au.int/en/organs/cj (Accessed 03 July 2019).

with the wave of African pseudo-decolonisation, which brought about a growing number of nascent neocolonial states on the African continent. Secondly, the OAU recognised the rights of states to exist largely based on the narrow liberal "sovereignty construct", while the AU was built around a conception of "sovereignty as responsibility" that found expression in the responsibility to protect (R2P) principle (s5.3). This principle is a reflection of a significant historical and paradigm shift, which is partly a reflection of the evolution of the concept of sovereignty from a genetic make-up that was originally engendered on impunity, to one that has a human rights imprint and an ethos of protection of citizens. The birth of the AU was also a symbolic moment that purpotedly marked a change of rules within the game of politics in Africa, in terms of what happens within the internal boundaries of a sovereign states ceasing to be an exclusive internal business, but theoretically becoming everyone's business (Geldennhuys, 2012).

The AU is endowed with eight Regional Economic Communities (RECs) has wall-to-wall coverage across Africa, all with slight structural differences and individual organic histories that are disconnected from the AU, while sharing a common goal of economic integration under the coordination of the African Economic Community (AEC).[69] The Southern Africa Development Community (SADC), one of the RECs to which South Africa is a member, is more service oriented with a discernible informational focus and specific land governance themes, via: the Climate Services Centre;[70] the Regional Climate Data Processing Centre;[71] Regional Early Warning Centre;[72] Regional Poverty Observatory;[73] Regional Plant Genetic Resource Centre;[74] and El Nino Response Coordination.[75] Instead of developing new sub-regional level institutions, SADC plays a crucial informational role by way of

[69] https://au.int/en/organs/recs (Accessed 04 July 2019).

[70] https://www.sadc.int/sadc-secretariat/services-centres/climate-services-centre/ (Accessed 02 July 2019).

[71] https://www.sadc.int/sadc-secretariat/services-centres/regional-climate-data-processing-centre/ (Accessed 02 July 2019).

[72] https://www.sadc.int/sadc-secretariat/services-centres/regional-early-warning-centre/ (Accessed 02 July 2019).

[73] https://www.sadc.int/sadc-secretariat/services-centres/regional-poverty-observatory/ (Accessed 02 July 2019).

[74] https://www.sadc.int/sadc-secretariat/services-centres/spgrc/ (Accessed 02 July 2019)

[75] https://www.sadc.int/sadc-secretariat/services-centres/sadc-el-nino-response-coordination-centre/ (Accessed 02 July 2019).

collection, storage and dissemination of data that has a discernible bearing on land governance and administration at a regional scale. Out of the 11 thematic areas of SADC work, six work streams fall within the land administration ambit, and these are economic development, disaster risk management, infrastructure and food security, natural resources, meteorology and climate.

One other challenge facing land governance emanating from the global scale is that many UN declarations, charters and principles on land are framed as “soft law” rather than “hard law”, cascaded to the global (UN) scale (s5.2) (Home, 2020). The soft law policy design approaches are then replicated at the AU scale as manifested in recent unanimous adoption the New Urban Agenda (NUA) at the Habitat III Conference in 2016 (NUA, 2017). The global principle of Free Prior Informed Consent (FPIC) which is entrenched in UNDRIP (2007) and ILO (1989) is an important and promising global customary law development that is aimed at setting global standards and procedures for consultation of indigenous land rights holders in respect of land. Mitchel (2020) is cautiously optimistic that FPIC has a lot of potential as a vehicle to benchmark norms and standards for meaningful consultations in the managing power dynamic between indigenous peoples on a national scale and other powerful actors (i.e. governments, investors etc.). Despite the institutional lacuna at the continental scale, the African Court on Human and People's Rights made it’s first ruling in 2017, in respect of the forced removal of Ogiek people of Kenya from their ancestral lands, based on the FPIC principle. This is a rather belated trickle-down of international norm, but a positive development for customary land rights which had hitherto been vulnerable in Africa within the context of colonialism and neocolonialism (see Roesch, 2017). While there is general consensus that the norm is sedimentary to national scale in Africa, incongruence between policy and practice on the part of governments looms large (Mitchel & Yuzdepski, 2019). At one level, the NUA represents a cascade of the soft law approach, and partly a policy shift towards urban challenges. In addition, Article 22 of the African Charter on Human and Peoples’ Rights (ACHPR) deviated from the trajectory that is binding to the AU and the state into joint and separate action. Home (2020) is skeptical of this approach due to capacity limitations of multilateral bodies (AUC/ADB/UNECA coalition) and lack of action by individual states. Home

(2020; UN-FAO) concedes to issue-based land governance policy in Africa with a lot of effort having gone into rural agriculture and food security issues.

Notwithstanding the usual methodological flaw of equating land governance with land reform and or tenure, Mitchel (2020) makes reference to literature that pivots around land governance in Africa (e.g. Collins & Mitchell, 2018; Boone, 2014; Wily, 2011; Joireman, 2011; Peters 2009; Berry, 2002). The one fundamental challenge arising from many of these debates on land governance in Africa is their preoccupation with fiddling with micro-scale and 'narrow land reforms', much to the exclusion of other scales. Moving from the premise that land reform and the agrarian question are fundamental dimensions of the national question, Moyo (2007) argues that neoliberal land reform policy trajectories in Africa have had two implications for national development. They have resulted in the severing of the agiculture-land and industry land nexus, which in turn has resulted in the both agiculture and industry being entangled in global markets and delinked from national development trajectories.

The recent – "we are all indigenous" – articulations from African governments (Crawhall 2011:201; Hodgson, 2009), which alongside anti-immigrant sentiments (Bøås & Dunn, 2013; Geschiere 2009) are a manifestation of growing land governance policy contradictions between continental and national scales. Manning, (2003: 28) quoting UN Secretary-General Boutros Boutros-Ghali *Agenda for Peace*, defines peace-building as "comprehensive efforts to identify support structures that will tend to consolidate peace and advance a sense of confidence and well-being among people". While the statement sounds good at face value, it conceals any ideas about structures that should be disrupted or dismantled. Moyo (2007) explains the drivers of skewed land relations in Africa to be resulting from growing exclusionary concentration ownership patterns, rampant expansion of private property, externally oriented (export) agrarian capitalist relations. The next subsection examines the colonial legacy of trans-national boundaries as a small dimension of land governance, at the Africa scale.

6.2.2 The Legacy of African Trans-national Boundaries in Perspective

There are two critical milestones that punctuate the history of making Africa's national boundaries. The first is the Berlin-Congo Conference held in 1885,and the inaugural OAU meeting in Addis Ababa, Ethiopia, in 1963 being the second. The former was central to the creation of Africa's trans-national boundaries and the latter for giving them post-colonial political credence (Herbst, 1989). Even though the issue of carving up Africa found it's way into the deliberations, the Berlin-Congo Conference was primarily focused on the future of Congo and navigation along African rivers. The purpose was not centred on partitioning Africa, because the scramble for Africa was already at an advanced stage and any further deliberation could only be a consolidation strategy intended to avoid war between Great Britain, France, Belgium and Germany, especially within a context of uncertainty of colonial spoils (Herbst, 1989; *The Observer, 19 October 1984*). An essential ingredient in the process of avoiding conflict and war among European countries required some unambiguous policy and certainty on the extent of dominions. The stark feature of the process is that it was undertaken by Europeans for the sole purpose of consolidating and advancing their own colonial goals (Barbour, 1961). This institution of "state sovereignty" crept in as a source of authority on the burgeoning states (Jones, 2012; Ghosh, 2002). The bulk of the process of partitioning Africa was largely carried out between 1885 and 1904 and it was wrapped up around 1919 on the signing of the last set of treaties (O'Laughlin et al., 2013; Herbst, 1989; Harrison, 1956). A key consequence of designating people to bound states was part of a consolidation strategy by European countries aimed at strengthening the sovereign colonial state, which resulted in Africa being one of the most divided continents the world over (ss6.2.5).

The Berlin-Congo Conference made extensive strides in developing policies and regulatory frameworks that were primarily aimed at consolidating and distributing coverage between the colonial powers (Herbst, 1989; Keith, 1919; Alexandrowicz, undated). Among the agreements made was a mutual agreement to notify each other on any new conquests, creation of protectorates, and some basic ground rules relating to freedom of transit and trade. The protectorates performed basic administrative functions such as control of domestic matters and tax collection, with limited sovereignty to reduce administrative burden from the colonial countries.

In Africa pre-colonial political power was predominantly exercised over people rather than land (Herbst, 2012; Goody, 1971), partly because populations were distributed over vast areas and constantly moving, which does not necessarily translate to pre-colonial Africa not having it's own constructs of boundaries (Mbembe, 2018). Pre-colonial agricultural practices were characterised by extensive settlement and agriculture patterns, due to poor soils coupled with low technology (Herbst, 2012). The human population distribution factor was a considerable cost factor from the perspective of the European political administrations. Based on this rationale, ethnicity could not have been used as a criterion in the boundary-making process. The process of drawing African boundaries was not only arbitrary, but politically and technically flawed from multiple perspectives. The colonial powers effectively demolished political systems by superimposing colonial polities where they never existed thereby ignoring history, language, culture, economic and pre-existing political divides (Jones, 2012). Demography, ethnicity, and topography were instead combined arbitrarily by the European colonialist in a manner that did not bear any relation with ground truth (Herbst, 2012).

By the time of their independence, African countries found themselves inheriting the very same set of challenges originally faced by their colonial architects, partly because the underlying structural conditions had not changed (Herbst, 1989). From the early days of the OAU, the challenges of developing policy and establishing institutions to govern and manage Africa's trans-national boundaries was understood as being integral to the governance of national territories and closely intertwined with Africa's economic performance[76] and prospects (AU, 2017). From it's inception, the OAU never lost sight of the haphazardness and arbitrariness that underpinned the original boundary making process, but instead made a policy choice to maintain them (Herbst, 1989). At this point, the fragile political institutions in African countries juxtaposed with the typical war machineries that were inherited by the post-colonial states which were slightly more than glorified police forces meant that revisiting the boundaries was an unattractive option for the incoming African leadership (Herbst, 1989; Barrows, 1985). Within this context, the OAU Cairo Resolution 16(I) 1964 committed to the continued recognition of pre-existing (*de facto*) boundaries on

[76] Regional integration discussed in Chapter Five.

achievement of independence and to resolve disputes through peaceful means (OAU, 1964). Any ideas of disrupting national boundaries would inevitably have brought about corresponding threats to positions of the new political elite, who in Herbst's opinion, were a product of the very structural conditions that were specific to Africa. In essence, the decision to maintain African trans-national boundaries was, by default, a convergence of African states to the colonial model (Hagmann, 2010). In taking this position, the OAU partly relied on the support of the international community, against future rebel forces (Herbst, 1989). This decision signified a moment when African leaders turned into chief prefects to the maintenance of the neocolonial order was consistent with internalised post-World War II narratives of 'national sovereignty' and 'post-colonial order'. The moment when The conservative stance taken by the OAU remains diametrically antithetical to the very essence of liberation struggles when considered against the question of whose interests were being served by the pre-existing boundaries, invoking Paulo Freire's notion of perspectival transformation, which he saw as a necessary condition for liberation (Nichols, undated). The political and economic cost as well as the consequences of disrupting Africa's trans-national boundaries would have been more contentious, but far outweighed the consequences of leaving them intact (Jones, 2012). Through participation in the post-colonial colloidal medium, African leaders had opportunities to influence a change of international rules and ideologies, however, many of them simply used their new positions to support imperialist or neocolonial project (s3.2) (Erikson, 2011).

The OAU's foundational position of 'self-determination' which was pivotal to their struggle for independence suddenly resumed a new meaning at independence, specifically in relation to trans-national boundaries (Herbst, 1989; Naldi, 1987; Jackson, 1986). At best, the right to self-determination was limited to a sovereign equality of states much to the exclusion of the right to secession or territorial adjustment. A hypothetically different decision involving a review of Africa's boundaries would have in all probability resulted in a rearrangement of the African territorial puzzle with a possible obliteration of some states from the map. A major legal consequence of political decision making by the OAU is the international precedent set by the ICJ's ruling on the boundary dispute between Mali and Burkina

Faso. This ruling set a legal precedence of pre-eminence to the norm of sovereignty over self-determination.

Herbst (1989) adamantly establishes a link between boundary stability and political position of an emergent political elite, a phenomenon that is specific to Africa. The OAU's attitude towards trans-national boundaries partly explains the remarkable continued stability of post-independence Africa's trans-national boundaries. Notwithstanding the arbitrary nature of the boundaries, since the 1950s African borders largely correspond with those originally created by colonialists, with only a handful of exceptions. Some of the exception include Biafra and Tanzania as well as the more recent subdivision of Sudan into South and North. The Ibos of Nigeria, Katanga and Eritrea could have been separationist but these attempts were stillborn (Herbst (1989). Some 55 years after the inauguration of the AU --including the AU era -- the governance of Africa's trans-national boundaries continues to linger in the margins of the policy chopping block, while the continent is also littered with rebel movements.

According to the AU (2017), a direct consequence of the colonial legacy is that African boundaries continue to be characterised by data paucity, imprecision, confusion in treaties and legal instruments in the archives. Africa's 40 036km of coastline – inclusive of islands – with 109 international terrestrial boundaries, make up approximately 170 000km^2 of which approximately 35% are demarcated, represents a small but important window into Africa's state of land governance. When the reality of the enormity of borders and boundaries is juxtaposed with the disproportionate capacity (human and financial) between states, only one conclusion is discernible – one of poor governance and poor management. The direct result of poor governance and administration has kept the OAU and AU busy trying to settle cessationist contestations and rebel wars that have had a crippling effect on Africa's economic development. Notwithstanding the challenge of climate change, the AU (2017) is not only faced with challenges of terrorist networks, but irregular migration, human trafficking, a spread of pandemic diseases and piracy, among others, which are partly a reflection of other inherent challenges except the absence of robust boundary/border governance.

Largely based on existing norms of international behaviour, Herbst (1989) points to divergent perspectives of Africa's boundaries, with some predicting significant changes, while others predict stability at least in the foreseeable future. Evidently, the neocolonial or imperialist connections to Africa's boundaries raises questions as to whether political will to decolonise existed in the first instance, and what the content of such decolonisation entailed. Whatever the future holds, the intersection between environmental forces, economic pull and push factors and trans-national demographic movements in Africa (Otter et al., 2018), the discourse on the future of Africa's boundaries cannot escape the policy chopping block for much longer. From an Afrocentric perspective, the policy stance taken by OAU and AU hitherto (Herbst, 1989), is consistent with Howlet et al.'s (2013) notion of "conversion" policy trajectories, anchored in redeploying a pre-existing policy mix to a new set of goals. While this approach results in minimum disruption, it is a source of policy incongruence between the old colonial policy tools and the new goals of the African continent.

At one level the challenges facing the governance and administration of trans-national boundaries is a Africa-wide policy challenge across multiple scales. The systemness between African countries requires governance and administration systems, not only for regulating the movement of people and goods between countries, but to review the implications and meaning of boundaries. In this complex system some countries have direct relationships with each other, while others have indirect relationships, all of which require regulation (Behrens et al., 2007). Mbembe (2018) cautions on Africa's trans-national boundaries turning into "places of reinforcement, reproduction and intensification of vulnerability", suggesting breaking away from the dominant paradigms that have hitherto dominated policy processes. As an alternative Mbebe advocates for the utopian idea of a borderless Africa – a fundamental ingredient to the decolonisation project. Mbembe clearly draws a line between African pre-colonial paradigm of a borderless Africa and the classical liberal concept of open borders with a view to provide conceptual resource for grappling with the utopian project. In his proposed configuration, freedom of movement would be a universal human right accessible to the poor too and not the preserve of Europeans and Americans. In Mbembe's (2018: 1) configuration, the new continental trans-national boundary regime would have no visas, and people would

merely rove across the continent without any discrimination, allowing circulatory and pendular sets of migrations. Mbebe considers the constitutional right of abode which has found a place in the constitution of Ghana as a cornerstone to the conceptual (re)imagination of a borderless African spaces. Irrespective of the underlying meaning, the preamble of the constitution of the Republic of South Africa reads, "South Africa belongs to all who live in it, united in our diversity". This is a constitutional injunction with serious policy implications, contrary to practice.

In a compendium of essays on land reforms in Africa, considering the broader of socio-economic and politico-ecological challenges that the continent is facing, Ochieng (2020) finds it strange that the fundamental questions that have dominated human-land relations (progressive land tax systems; land expropriation, etc.) are quickly dismissed from the policy debates on the basis of viability and ideological arguments. Trans-national boundaries in Africa fit snugly in this list. The next part turns to specific boundary formalisation by South Africa, as one African example of policy trajectories.

In 2017 South Africa embarked on an infrastructure project on it's shared boundaries with Swaziland and Mozambique that encompasses planning, designing for maintenance and upgrading of patrol roads and fencing, spanning 524km (Royal Haskoning DHV, 2018). In line with the project plan the Department of Public Works (DPW) undertook two studies – the first being a Site Clearance: Risk Assessment (see DPW RSA, 2017) and the other being the Site Audit Report (see DPW RSA, 2018). The purposes of the Risk Assessment were to undertake an assessment of security risks along the earmarked boundary that was the subject of the upgrade, the purpose of the Site Audit Reports was to provide a decision support tool with respect to prioritisation of high risk localities. Other than the policy design and boundary governance regimes inherited from a colonial and apartheid past, the project is unfolding within a context in which there is lacuna with regard to a guiding policy framework, at global, continental and regional scales (Jacobs, 2012). South Africa's current approach to the trans-national boundary infrastructure upgrade and formalisation leans more towards the hard boundary/border regimes exemplified by US/Mexico, thus presenting potential inconsistencies with South Africa's's constitutional human rights ethos.

Notwithstanding the intersectional nature of trans-national boundaries, South Africa's risk assessment is firmly located in the "othering" of people and nature with South Africa framed as a victim and citizens of other countries as perpetrators (DPW RSA, 2018). Among some of the risk elements identified by the RSA government include the following: spread of animal disease across neighboring countries; animal poaching in the trans-national conservation areas and animal trafficking; cross-border crime and smuggling of stolen goods such as vehicles out of the country by well-organised syndicates; smuggling of goods such as drugs, weapons and other contraband into South Africa; the smuggling of goods into South Africa to avoid custom duties including luxury goods to evade customs; agricultural produce, animal products like rhino horn and ivory; illegal immigration (see Lunstrum, 2013; 2014). Other potential future risks identified include regional instability and situations of war between neighbouring countries or with extremist groups (such as Isis) that could be a threat via neighbouring territories. The manner in which these challenges are framed is a fundamental conceptual distortion. The extent to which broader land use management risks are fixed to trans-national boundary is strange because these risks originate elsewhere and prevail across other forms of boundaries such and between municipalities. The control of animal diseases is an inland dual responsibility land use management function, and not a function of the trans-national boundary.

The total 524 kilometers of boundary was subdivided into 31 segments based on 19 officially designated border crossing posts/points. A detailed analysis of lateral features along the 524 kilometer border (land ownership, unauthorised crossing points, designated crossing points, land use and topographic features) was conducted making use of high resolution satellite imagery from which approximately 239 unauthorised crossing points were identified, which translates to one crossing point for every 2.2 km. This state of affairs provides insight into any illusions of state power and capacity to manage transboundary mobilities between South Africa, Swaziland and Mozambique (Jacobs, 2012). The concentration of human settlements along the national boundary, a phenomenon that has admittedly been on the rise over many years (both within South Africa and externally), is given insufficient attention (DPW RSA, 2018). Closely associated with the surge of human settlements along the boundary, is the unequal availability of education, health and

retail services between the countries does create a diffusion effect. The size and proximity of settlements to the boundaries makes policing of mobilities that much more difficult. This one manifestation of the symptoms is lack of engagement between state and non-state actors and communities of interest in boundary/border management.

The infrastructure capital outlay cost for the current 524km project is estimated to be around R10 million per kilometre, excluding any maintenance and operating costs. Given South Africa's 3 200km of coastline boundaries and an estimated 2 800km of terrestrial boundaries which would require security, hardening of boundaries gives rise not only financial limitations, but also real practical monitoring limitations (DPW RSA, 2017). Notwithstanding South Africa embarking on the initiative unilaterally, the combination of cost and practicality of the nature of effort that is placed at the borders, makes the initiative a failure before it starts. This unilateral boundary hardening strategy is unsustainable purely economic reasons associated with maintenance, bofore one considers minimal chances of success without overt and active support of neighbouring states,.

The policy design approach of simplistically formalising and hardening existing trans-national boundaries has a blind spot to the underlying structural issues pertaining to the arbitrariness of the original boundaries. The history of arbitrary boundary making resulted in what Jacobs (2012) refers to as "communities" of interest in boundary management, clans and community groupings such as the Ngomezulu along the KwaZulu Natal (KZN)-Eswatini boundary and the Tembe along the KZN-Mozambique boundary – a situation requiring unique and innovative solutions to enable people to connect while ensuring risk activities are limited (consultant X[77]). A member of one of these communities of interest living along the boundaries indicated to consultant X that one would have to travel approximately 150km to the designated border post, and another 150km back, to visit relatives living 7km away. To think that this project had undertaken an EIA, suggests that the lives of the poor do not matter (Manyika et al., 2013). Collison (2018) mentions communities near the small town of Ressano Garcia near the country's busiest border, Lebombo border post, where school kids cross over the boundaries without any documentation to attend

[77] Identity of consultant X concealed for ethical considerations.

school in South Africa. The social justice and economic fate of subaltern communities living along the boundaries is seriously threatened by boundary hardening approach. These poor communities are victims of the hardening of the boundaries/borders, when in fact they should have been given a special dispensation.

The very conception of the project is anchored n Howlet et al.'s (2013; van der Heijden, 2010) conversion policy design of redeploying a pre-existing policy mix to a new set of goals. South Africa's strategy of hardening the trans-national boundaries leans more towards the hard boundary/border regimes exemplified by the US and Mexico on one hand and boundary approach between North and South Korea on the other hand. The project elicits fundamental land justice considerations in relation to the fate of subaltern 'communities' of interest that are living along the boundaries in a manner that is potentially inconsistent with the constitutional human rights ethos (Yennet, et al., 2016; Jacobs, 2012). South Africa's approach is underpinned by a (re)configuration of contested territories (Hommes et al., 2019; Swyngedouw & Boelens, 2018: 117). In the process of hardening and policing the boundary, contestation can only arise. Hommes et al. argue that transboundary territories are not fixed bounded spaces, but are imposition paradigms that are interwoven with power politics as they are a product of, and for the purposes of, exercising power – likely to manifest in protracted processes of competing worldviews or territorial order frames such as meanings of national boundary lines and culturally anchored practices and/or identities (Hommes et al., 2019; Escobar, 2001). South Africa's boundary project is deeply rooted in continuities of colonial matrices of power. The next subsection provides an analytical overview of one of AU's aspirational goals of regional integration, with specific reference to SADC.

6.2.3 Land Rights Regime Trajectories in Africa

Much of the work of the Global Land Tenure Network (GLTN),[78] an initiative of UN-Habitat in the African continent focuses on land tenure reforms, seeking to modernise land tenure on a local scale (ss4.3.3) (Royston & du Plessis, 2014; UN-

[78] The Global Land Tool Network (GLTN) is an alliance of global regional and national partners that develops and disseminates pro-poor and gender-sensitive land tools to contribute to improved land management and security of tenure (http://www.gltn.net).

Habitat, 2012;). The land transfer and or titling approaches have dominated policy trajectories, even though only three per cent of urban dwellers in sub-Saharan Africa earn enough to qualify for a mortgage (Edjabe *et al*, 2015). The GLTN and UN-Habitat developed the philosophy of the Continuum of Land Rights (see figure 6.1) which is gaining momentum as a dominant paradigm in international tenure discourse together with the UN FAO's Voluntary Guidelines on Governance of Tenure (VGGTs) (UN FAO, 2012). The concept of the continuum incorporates tenure rights that are both documented and undocumented, formal and informal, for individuals and groups, including pastoralists and residents of slums and other settlements, which may be legal or illegal.[79] The continuum of land rights metaphor is not without critique largely on account of the tendency to trace a one-way movement from "informal" to "formal" rights which does not take into account the strength of local and customary systems. In practical terms this translates to developing a range of adjudication, demarcation and surveying techniques. This also entails a range of data acquisition approaches that are cost effective and whch involve the people.

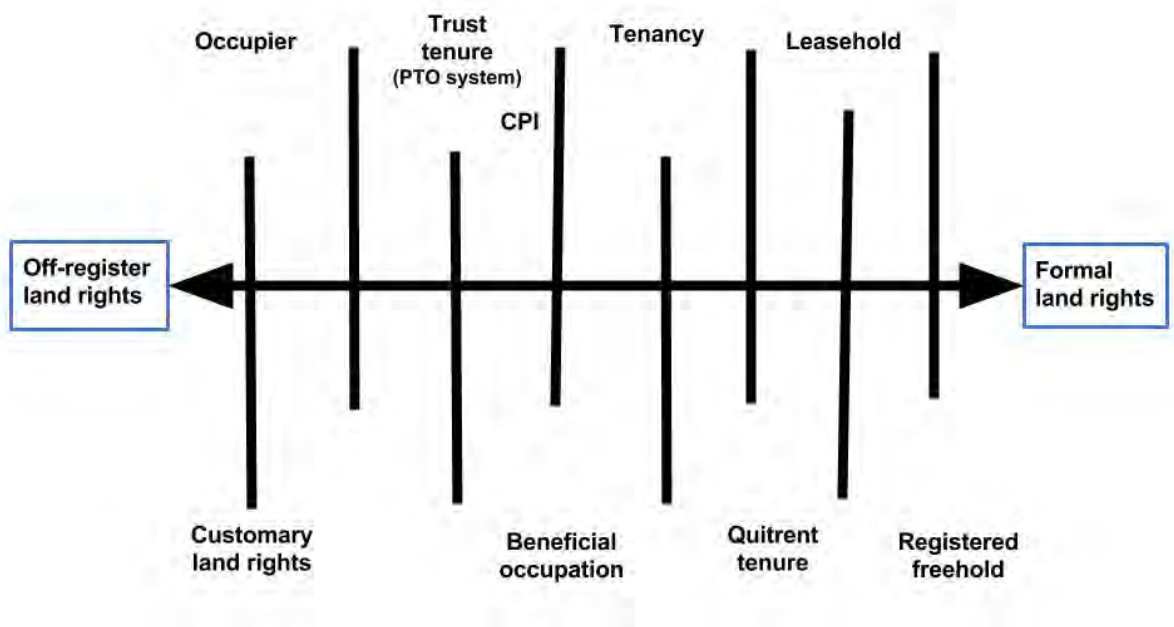

Figure 6-1: The continuum of land rights metaphor (adapted from Zevenbergen, et al., 2012)

The concept of "continuum of land rights" is pro-poor in that it entails recognition, protection and capturing social tenures of poor people including rural and customary

[79] http://www.gltn.net/index.php/land-tools/gltn-land-tools/continuum-of-land-rights.

rights that are excluded from formal recordal systems. This shift comes with changes in approaches and techniques, including participatory adjudication methods and accommodation of less accurate data-sets. At the heart of all the shifts are design approaches which are underpinned by principles of affordability, co-management and preventive justice (Zevenbergen *et al.,* 2012). As opposed to placing beacons, the use of high resolution imagery has been found to be effective in resolving landholding conflicts in Cambodia, Ethiopia, Kenya and Rwanda. The International Federation of Surveyors (FIG) advocates use of general boundaries as opposed to fixed boundaries that must be mathematically surveyed within centimeter precision, thus breaking away from the Western tradition of spatial precision. The main policy shortcoming of these initiatives and land tenure policy approaches is preoccupation with local scale, to the exclusion of other scales.

On the one hand the surge in urbanisation and land conversion requirements are often strangle held not only by prohibitive costs and complex institutional arrangements but also the attendant complexities of establishing a comprehensive national land information systems or spatial data infrastructures (SDI) (Kingwill, 2014; Hull,2012; Roy 2009; UN-Habitat, 2008). Lengoiboni et al. (2019) argues that the "Documentation of *de facto* tenures through piecemeal parcelisation is [inherently] biased towards individualisation of tenure rights rather than on capturing a full spectrum of legitimate overlapping arrangements." Largely based on a narrow conception of tenure security and land access argument, Fourie (2002a, 2001) advocates for a comprehensive land tenure administration system that accommodates diverse forms of tenures, that is also underpinned by appropriate spatial data infrastructures, according to Hendriks et al. (2019) should be a true reflection of *de facto* tenure arrangements and providing living laboratories for future legal-administrative innovations. While also questioning whose interests and benefit individualisation of tenure systems serve, Lengoiboni, Richter & Zevenbergen (2019) emphasise serious cost limitations to implementation of a comprehensive national land information system through public agencies. While embracing of land tenure information systems, van der Molen & Lemmen (2006; Deininger, 2003) also caution that issuing of titles is not a necessary condition for enhancing tenure security, in view of alternative simple land tenure recordal system that are inspired by the continuum of land rights model. For various reasons, software developers of

some of the alternative land tenure administration systems advocate for openness of land tenure information, for the purposes of supporting decision making in development planning by third parties, increasing transparency in the land sector activities, particularly with respect to the interests of the poor. One approach (Landmapp in Indonesia) entails use of general boundaries based on a continuum of accuracy (Enermark et al., 2016; Enermark et al., 2014). What this implies is that there is an need to explore option other methods of secure tenure without individualisation of tenure rights, such as use of an address (ss 8.3.1.1).

On the other hand, resource nationalism scholarship is also preoccupied with national scale to the exclusion of global commons and local scale (s4.3.3 & s5.5).[80] Adreasson (2015) identifies three of the prominent examples of resource nationalism in the energy and minerals sector, in sub-Saharan Africa, which include Nigeria a petro-state 60-70% of state revenue from oil rents (see Frynas, 2000); South Africa's mature mining, and Mozambique a newcomer in the natural gas production. The new dynamic is the increasing dominance of China among small and emerging economies. The next subsection explores the complex hydro-politics – as one land governance theme – in Africa with specific reference to SADC.

6.2.4 Complex Hydro-Politics in Africa and SADC

The water resources lens provides useful insights into water governance, as dimension of land governance (Jacobs et al., 2011; GWP, 2010), shedding light on three governance policy design challenges. If there is an area where regional integration dynamics congregate, it is in the management of complex hydro politics. Firstly, it highlights the importance of multiple scales; secondly, it highlights the misfit between sovereign and natural (river basin) boundaries and; thirdly, it highlights the need for trans-national land [resource] use management regime. Poor [land] hydrological data (quality of data that the models require) in Africa is just one of the many factors that undermine trans-boundary management structures and hydrological modeling approaches, which are crucial for future management (Molle, 2017). More importantly, the critical insight that this combination of land governance challenges reveals is that they cannot be solved by individual countries acting in

[80] Resource nationalism was introduced in Chapter Four Section 4.3.3 and Chapter Five, section 5.4.

isolation but could even be exacerbated by ‘fragmentariness’ or countries acting in isolation. What this implies is the need for strong trans-national resource governance arrangements (Rindzevičiūtė, 2018).

While the global water crisis has many dimensions, the UN World Water Development Reports (WWAP, 2017; 2016) identified poor resource governance as the primary driver of the global water crisis, as opposed to resource availability (Menga *et al*., 2018). In addition to the broader global [water] governance challenges, Africa is beset with peculiar intertwined hydrological complexities that have supra-national (continental and regional) governance implications. Within the globally dominant engineering paradigm that is peddled by 'high modernism' and an industrialisation of the rivers (Molle, 2017; Scott, 1998), Egypt and Ethiopia are on the brink of a war which stems from a 4 billion US dollar hydroelectric dam that Ethiopia is in the process of constructing (Amin, 2019). The main source of the conflict emanates from the geo-spatial location of the three countries in relation to the Nile River flows. Ethiopia gets it’s water from a tributary of the Nile which flows through Egypt, and through Sudan, sparking fears that it will distort the entire river flow. Along similar lines, Jacobs et al. (2012) gives the example of Malawi which is predominantly dependent on hydropower that is generated from the Shire River, an outlet of Lake Malawi, which feeds into the Zambezi River. Flooding of Zambezi River has knock-on impacts on the smaller Shire River, that negatively affects power generation capability. This challenge becomes even more pronounced when floodgates at Kariba Dam upstream are opened as a necessary flood control measure.

Figure 6-2: Geo-spatial location of Egypt, Ethiopia, Sudan and South Sudan (courtesy of Umhlaba Consulting, 2020)

Within this context, Jacobs et al, (2012; 2011) identifies a set of five intertwined and overlapping complexities, that prevail across different governance scales within the SADC region. The juxtaposition of Southern Africa's geological form, colonial history of political boundaries, economic and political power asymmetries between national states, modern day climate change dynamic, population growth and human migration trends, sheds some insights into some of the key land governance challenges faced by the SADC region. This is a glaring example of complex trans-national hydrological linkages which sheds insight into an aspect of land [water] governance challenges within the SADC region – with an endowment of 21 international river basins and a couple of riparian member states. Table 6.4 depicts the comparative percentage national geo-space and mean annual rainfall (MAR) between Lesotho, South Africa, Botswana and Namibia. This is a dynamic that complicates water resource decision making at the scale of the national state.

Further, the Gauteng province, which is South Africa's economic engine, predominantly depends on water transfers from Lesotho, while a country such as Namibia, with an arid perennial hydro-climate and high water stress, is (almost) entirely reliant on rivers from other countries (Jacobs, 2012).

Table 6-1: Percentage of catchment contribution and mean annual rainfall across the four countries

Item	Lesotho (%)	South Africa (%)	Botswana (%)	Namibia (%)
Area in basin (%)	3.4	64.2	7.9	24.5
MAR (%)	41	55	0	4

The second key landscape complexity confronting SADC is that the more economically developed states are water stressed in a manner that presents serious constraints to future economic development prospects (Jacobs, 2012;Turton, 2008; 2003; Ashton *et al*., 2008; Oberholster and Ashton, 2008; Turton & Ashton, 2008). The third complexity relates to spatial development patterns (spatial location) of cities, such as Johannesburg, Pretoria, Harare, Bulawayo, Francistown, Gaborone and Windhoek, that are built on watersheds and geological continental divides away from rivers and lakes, where they are disconnected from water resources, leading to a situation where they rely on water being pumped uphill, while sewage and other waste (e.g. acid mine drainage) gravitates downwardly into storage reservoirs downstream. The fourth complexity relates to divergent economic power differentials between states which directly corresponds with the ability or inability to mobilise resources (financial, human and technological) to deal with water challenges. The fifth challenge is in respect of social challenges such as disease outbreaks that arise from, or impact on, water use requirements, population growth, national and trans-national migration and climate change. The combination of these intertwined challenges exacerbates water stress challenges within the SADC region, with more severe consequences allocated to the poorer countries.

Southern Africa's Orange-Senqu River basin, a shared water resource between Lesotho, South Africa, Botswana and Namibia lies at the centre of these intertwined complexities. On a bilateral level between South Africa and Lesotho, hallmarks of a

resource grab are written in bold, and hard wired in hierachies of coloniality of power gives rise to fundamental sovereign land justice considerations which are characterised by the centre-periphery migrancy patterns power inequities (Damonte and Boelens, 2019; Yennet, et al., 2016; Vos & Hinojosa, 2016; Allan, 2003; Mashinini, 2010; Grofoguel, 2007). Anibal Quijano's 'coloniality of power' perspective does shed light on South Africa's relationship with it's neighbouring state Lesotho, as a continuity of the global colonial system as opposed to being a remnant thereof (Quijano, 2000, 1998, 1993).

Jacobs et al's (2012) analysis of the Orange-Senqu basin has an unfortunate blind spot on obvious power differentials between South Africa and Lesotho. Some strategies used in the process of facilitating extraction are through the manipulation (either exaggerated or curtailed) of the relativity of sovereignty construct and establishment of a political order that makes spaces controllable and exploitable (Hommes et al., 2016; Rodriguez-de-Francisco & Boelens, 2016; Büscher and Fletcher, 2014; Meehan and Moore, 2014). . Within the context of the Orange-Senqu River basin, Jacobs (2012: 188; Conca 2006, 2002; Conca et al., 2006; Conca and Dabelko 2002) alludes to the prevalence of a plethora of "normative codes of conduct in the form of global, regional and domestic norms, principles of best practice, and laws [that] have developed over time from the colonial/apartheid past, dictating appropriate behavior in the governance of Southern Africa's transboundary rivers." As a result, Jacobs identifies contradictions or contestations occurring between different scales of governance that were deployed and calibrated over time, leading to convergence and in the process eliminating areas that had the potential to precipitate into conflict (Jacobs et al., 2012). This case demonstrates the critical role of norm drivers (technical cooperation, personalised politics, trust and confidence) and institutional barriers (skills flight and absence of trust) in molding the legal and normative landscape.

One of the more recent initiatives within the SADC, that are arguably presented as 'good governance' – depending on one's perspective -- are the Trans Africa Water

Alliance (TaWA) a consortium[81] of civil engineers, Trans-Caledon Tunnel Authority, Development Bank of Southern Africa (DBSA), Department of Water and Sanitation (DWS), as well as the governments of Namibia, Zambia, Botswana, South Africa, including the Western Cape provincial government, have a 'hat trick' proposal to turn around SADC's water crisis (Stoddard, 2019:1). The hydro-social territorial project proposal is anchored in four gravity driven pipelines, "a new dam on the Orange River at Vioolsdrif to the Cape Town Metro; the line from Vioolsdrif to Swakopmund; a line from the Kunene River outside Windhoek; and a fourth line from the Zambezi River to Eastern Botswana and South Africa." Gravitation as the mode of conveyancing water is essential for the new hydro-social territorial narrative, which is partly reflective of a resurgence of resource augmentation policy trajectories that form part of the dominant paradigm (Molle, 2017; Boelens *et al*., 2016:2). The continuing perpetuation of such territorial projects is a reflection of the continuities of ideologies that pivot around the total human control over nature that is responsible for the current water crisis the world finds itself in, against all the environmental concerns pertaining to the impact of such dams on the integrity of ecosystems (Tanrisever *et al*., 2017; Bakis, 2007; Morris *et al*., 1997). The next subsection explores the notion of regional integration in Africa, with specific focus on SADC.

6.2.5 Regional Integration

Regional integration is just one of AU's aspirational goals that has remained on the longstanding wish list to some, and a poisoned chalice to others, and subject of much debate in academic circles. After the wave of independence from colonialism which started in the early 1960s African countries continued with the colonial economic model of natural resource extraction and export, with the new political elites taking an overinflated view of Africa's resource riches (Hundeyin, 2020). With colonial powers out of the way Africa had an opportunity to invest in itself and achieve 'development' – whatever that means. In the 1970s dependency theorist did throw their hat in the ring in trying to find explanations to Africa's underdevelopment - attributing it to processes of neocolonialism, imperialism, global

[81] https://www.pressportal.co.za/energy-and-environment/story/18955/solving-the-western-cape-s-water-crisis-and-others-in-southern-africa-through-gravity-driven-water-delivery-systems.html (Accessed 09 December 2019).

capitalism etc. (Ndlovu-Gatsheni, 2013; Amin, 1990; Rodney, 1973). Notwithstanding the explanatory power of these dependency theories, they could not escape criticism for their foreclosure of internal factors that also contributed to Africa's economic destiny. Pan-Africanists on the other hand put much of the emphasis on some ill-defined notion of continental integration (Nyerere, 1967; Nkrumah, 1965; Nkrumah, 1963). None of these debates addressed the fundamental question of decolonising the concept development, by default conceptualising it as a catch up with the Euro-American models of development (Gatsheni-Ndlovu, 2013).

According to Chakwizira *et al*., (2009) the SADC region has a human population of approximately 243 million, and a land area of approximately 2.3 million square meters. In an attempt to contextualise these figures, Chakwizira et al. compare the figures from a consumer and production base perspective to the USA and the European Union (EU); SADC's human population is approximately 82% of the USA and 79% of the EU. From a spatial perspective, SADC exceeds the USA by 2%, and is four times smaller than the EU (UNECA, 2006). A startling observation by Chakwizira et al. (2009; Fair, 2007; Stubbs, 2005; World Bank, 2005; DBSA, 1998) is that a combination of 48 sub-Saharan economies is comparable in global terms to the economy of Belgium. This observation does not only provide an explanation to the crux of economic development challenges within and between African states, but also raises fundamental questions about the economic sustainability of such fragmented national states.[82] The phenomenon of spatial inequalities duplicates itself both within as well as between SADC member states.

Chakwizira et al. (2009:7) identify three key development strategies that SADC is in pursuit of: "intra-territorial development, territorial maintenance, and territorial agglomeration", while simultaneously pointing out that in countries where the 'master planning' concept is dominant, these are often accompanied by rigidity and inflexibility, and cumbersome planning procedures that tend to be antithetical to investment promotion. Master planning approaches are integral part of the rigid form of spatial and engineering planning approaches, which gained international

[82] Herbst (1989; Harrison, 1956) alludes to Africa being the most carved up continent in Chapter Nine, Section 9.3.1.

dominance as part of post-World War II techno-science anchored paradigms which have been a driving force of Western modernity (in s5.4) (Mignolo et al., 2013; Todes et al., 2010). On the other hand, those countries where 'spatial frameworks' are dominant, these become guidelines for distribution of resources and decision making, whether they are actually followed or not. Among some of the reasons for persistence of master planning approaches in the post-colonial Africa is the dominance of modernist paradigms among politicians and officials. Spatial development frameworks (SDF), on the other hand, are considered to be contemporary flexible forms of spatial and engineering planning that which are predicated on providing a guide to decisions on land use management, investment, and to enable integration between sectors. SDFs are generally considered to accommodate innovation and to foster sectoral integration. A considerable number of regional economic woes experienced in SADC are partly attributable to silo planning approaches that emphasise agriculture, infrastructure, industrial projects as opposed to holistic planning approaches (Chakwizira et al., 2009).

Despite the intersectionality and centrality of water to regional development, the absence of river basin strategies in SADC's intra-territorial development strategies does result in transboundary relations that are characterised by inherent contradictions, and the coexistence of cooperation and conflict (Tanrisever et al.; Cascão & Zeitoun, 2010). Making specific reference to SADC's development strategies from a developmental perspective, Chakwizira et al., (2009:6) argue that "any form of intervention on space differentiates and polarises spaces, and people". Given the resultant conflict, no amount of pre-packaged technical solutions are able to totally eradicate contestations, but instead these require processes and institutions for the management of negative externalities.

Chakwizira et al., (2009; Chakwizira *et al*., 2008) identify lack of political will and absence of financial plans as key impediments to realising regional integration ideals. Among other technical challenges, a paucity of regional spatial data and inward-looking SADC member country philosophies are identified as an important impediment to regional integration. Largely based on their insights into poor spatial integration within SADC, Chakwizira et al. (2009) made a dual call for a spatial planning office and Southern African Spatial Development Perspective Protocol,

envisaging that such an office will act as a vehicle for spatial knowledge management and a driver for economic integration at multiple governance scales. Jacobs (2011) identifies economic disparities, operational factors (operation and maintenance of infrastructure), politics, poor policy convergence (regional trans-national and global trade) and social factors (mass immigration into South Africa) as some of the reasons that are seen as impediments to regional integration. Notwithstanding all the impediments to regional economic trade, South Africa's *Integrated Resource Plan* (Department of Energy, 2019) conveniently deflects attention away from the political drivers (trans-national power dynamics between states) by choosing to elect the lack of infrastructure as the main reason, rather than a consequence, for low energy trade among SADC states. While underplaying the question of who sets the development agenda within SADC, Chakwizira *et al*., (2009) does foreground the importance of regional knowledge management within SADC instead of the role played by Development Finance Institutions (DFIs) and the states. The overall collective role of international support agencies such as the World Bank (WB), the International Monetary Fund (IMF), United Nations Development Program (UNDP), as vehicles of political reconfigurations and the neoliberal trajectories of structural adjustment programmes (SAPs), deregulation, liberalisation, commodification and privatisation, cannot be ignored in the African continent (s5.2) (Zinzani, 2017; Molle *et al*., 2009; Molle, 2008; Biswas, 2008; Allan, 2003). Some of the narratives supporting SAPs are liberally underpinned by undertones of dismantling and disrupting existing authority structures, institutional restructuring and a reconfiguration of power relations dressed up in concepts of 'good governance', 'depoliticisation', 'sustainability' etc.

The hydro-political perspective foregrounds integrationist narratives (Tsheola *et al*., 2015; Jacobs et al., 2011; Granit & Classen, 2009) of economic integration, regional and sub-regional cooperation.[83] These integrationist narratives often find soft landing ground in political rhetoric, while they are simultaneously generally undermined by politics, poor policy convergence (regional, trans-national and global trade), social factors (natural and historic immigration into South Africa), economic disparities, and operational factors (operation and maintenance of infrastructure). The emerging

[83] This is linked to the discussion on regional integration in Chapter Five, subsection 5.2.1.3

trans-national integrative approaches to the governance of land and it's resources gives rise to fundamental questions about future configurations of politics and governance generally (Jacobs et al., 2011).

While the debates about regional integration are somewhat useful in going beyond the bounds of national states, the debates continue to be constrained by national frames which give little attention to Africa's interest and stake of the global commons (See Mehta, Huff & Alouche, 2018; Neves and Igoe, 2012; Peluso & Lund, 2011). The subject of global commons was addressed in Chapter Five, section 5.3. The absence of scholarship on territorialisation and control of global commons, coupled with AU's muted political voice on the exploration and exploitation of marine (sea) resources, outsources the governance of global commons to the global powers by default. Coming from a different angle, Ertör et al. 2020; UNECA, 2016) suggest that the blue economy is high on Africa's development agenda -- African Union's 'Agenda 2063' (African Union Commission 2015) -- fancifully described as 'the new frontier of African Renaissance', albeit on the tailwind of global trajectories.

In spite of research on fate of commons, which spans over forty years, policy confusion with respect to the how the commons should be positioned in relation to land reform agendas, and specifically the rights of local communities on these landscapes, continues to dominate the land governance policy debates world over, a tendency which is partly attributable to individual owned property rights and collateralisation frames (ss1.2.2) (Wily, 2008). Specifically arguing from a national perspective, Willy (2008) bemoans the neglect of commons in African land and agrarian reform policy practice. This is a worrisome trajectory, when juxtaposed with overwhelming evidence which suggests the high extent of dependence among the poor on the commons (see Mogaka et al., 2001). Lack of recognition of customary or community rights on commons - in terms of both immediate access or to the products (e.g. grazing, timber products, fuel wood) -- has a consequence of concealing the misappropriation of resource benefits accruing from the commons to government, as opposed to the communities that need the resources to help them exit the poverty traps. It is estimated that approximately 25% of Africa's total land base (740 million hectares) is some form of commonage. The figure excludes attrition which is a result of voluntary subdivisions of farmland into human settlements; lands that have been lost through less voluntary urban expansion

trends, in the past hundred years; and some categories of national commons such as forests and nature reserves that have largely been elevated from local jurisdiction to custodianship of the national state (Wily & Mbaya, 2001; FAO, 2005).

Part of the problem regarding commons has to do with divergent tenure frames between indigenous and foreign conceptions, that land such as pastures, woodlands, or land that is used for hunting and gathering, or land to which there are overlapping rights, does not have a perfect fit with the Western ownership models, and considered not to be owned (Willy, 2008). Closely linked to that are the underlying flawed Eurocentric conceptions, that such landscapes are often encumbered not only by individual ownership rights, but by nested sets of rights which span across families or households, lineage groups or clans, social groups etc., which somehow found their way into colonial and later post-colonial policies and statutes. Some of the overlapping rights on commons straddle across national boundaries, such as between Sudan and Afghanistan, which involves around 150 and 50 million hectares of forestry and pastures. According to Wily (2008: 44) "The understanding of commonage as *res nullius* has origins in especially colonial policies which, whether Anglophone, Francophone or Lusophone, preferred to locate indigenous land occupation as in no way equating to European understanding of private property." Such conceptions were convenient as part of building vast empires state held commons, more particularly where there were resource extraction opportunities, with ample concrete evidence from the forestry sector in 20 Sub-Saharan African countries provided by Wily & Mbaya (2001).

The pledge by African countries to the 2030 Agenda for Sustainable Development and Agenda 2063 places an enormous amount of quality and current data requirements on all individual states for the purposes of monitoring progress and making decisions based on hard evidence (Ochieng, 2016). The bi-annual Africa Data Revolution Report (2016) has a road-map for African countries targeted at national policy reforms and national data ecosystems. To propel African states towards these aspirational ideals and for them to stay on course by harnessing information for accelerated sustainable development is a tall order requiring political will, commitment and consistency. African countries need to put in place the "legal, technical, human and financial resource architecture and infrastructure to realise this aim" (Ochieng, 2016: 52) by joining the dots between the national development plans

and the accompanying continental vision. The next subsection explores the dynamic of the new scramble for Africa.

6.2.6 The New Scramble for Africa

Land/resource grabs dressed up in the form of foreign direct investment (FDI) is not an exclusively African phenomenon but a global phenomenon. Damonte & Boelens' (2019; Vos & Hinojosa, 2016; Allan, 2003) study of Peru's Ica coastal valley story provides extremely good insights into global nature of phenomenon of land/resource grabs and some of the consequences of intensification of water use and agricultural production in that country. The case study makes a compelling demonstration how land grabs are symultaneously coupled with water resource grabs arising from high water demand of the export crops of water, and how water becomes embedded in the exported produce in the form of 'virtual water'. The case study also highlights some of the consequences of land use transitions that are a feature of the capitalist mono-cropping practices with externalities of deepening territorial inequality between the wealthy and the poor (Hommes, Boelens, Harris, & Veldwisch, 2019; Marshal, 2014).

Notwithstanding that land/resource grabs being a global phenomenon, Africa is a major investment receiving continent in a manner that makes the phenomenon inextricably linked with broader imperialist imperatives, to which it is deeply embedded (Özsu, 2019). The phenomenon of resource grabs in it's multiple manifestations, is a single dimension of the neocolonial scramble for resources in the global South and Africa in particular. The resource grabs are just one manifestation of FDI, a modern animation of imperialism (neocolonialism) encompassing trans-national corporations bringing in foreign capital, acquiring rights in land, employing local workers, engaging in agricultural and other production and repatriation of produce to investor countries (6.2.4) (Choi, 2018). The very notion of 'land grabs' or 'large scale land acquisitions' inherently conceals the underlying imperialist essence of the phenomenon. The capacity and effectiveness of the state in Africa are central to the rise of the phenomenon of land resource grabs. Out of approximately sixteen countries on the pipeline for foreign investment in energy (oil, gas) reserves in the next few years, share three things: most of them are in Africa, poor and badly governed (Andreasson, 2015). Jackson & Rosenberg's (1982) characterisation of

African states as the persistently weakest world over – a phenomenon that is largely maintained by the international system of states. Contrary to the European experience of state emergence, where the state was a product of economic success, in Africa state capacity is increasingly viewed as a condition for economic success.

Appreciative of the changing world order in political economy, De Maria (2019; Anseeuw, 2012) makes a useful, but nevertheless crude distinction between high-income land-scarce countries and low-income land abundant countries. From that perspective, resource grabs represent a single manifestation of the second iteration of the scramble for Africa, that is unfolding, with China in the lead, in strategic pursuit of raw materials to feed it's growing energy requirements by importing largely coal, iron ore, copper and timber from Africa, and in return exporting a growing range of finished products (Ighobhor, 2013). The diminishing role of British imperialism is written large from the annual two-way Britain-Africa investment summit, where the British Prime Minister Boris Johnson threw in a pledge for a fairer immigration system as an incentive to African countries for FDI (Ridgewell, 2020). When put in a wider context, Britain's $46 billion annual investment is less than a quarter of China's, which is holding the top spot as the continent's single biggest trading partner. The China dynamic is not only a reflection of a change of economic players but also a reflection of a changing world order. A decade ago, China had investment footprint in energy resources in Algeria, Gabon, Angola, Nigeria, Republic of Congo (Brazzaville), Namibia, Ethiopia, Kenya, Sudan Chad, Mauritania, Niger and Equatorial Guinea (Obi, 2010). Home (2020) draws a direct link between the extreme forms of inequality and land relations across the 55 AU member states.

With specific reference to Zambia, Unjunwa et al. (2016:240) identify "investors from China, white South African farmers, white Zimbabwean farmers, European investors, and investors from Mauritius and Egypt" as the main push factor driving large-scale land acquisitions. The recent surge in land grabs in Zambia has ignited debates on the need for an enhancement of land tenure administration systems (Unjunwa, 2016; Oakland Institute, 2011a; Castel and Kamana, 2009). Some of the touted frames by local politicians pivot around the role of the agricultural sector as a stimulant to economic growth and development, FDI revenue, improved infrastructure, local job creation, food security. According to Choi (2018; FAO 2017; UNCTAD 2015; Schoneveld 2014; Schoneveld 2013; Tsikata and Yaro, 2011), the phenomenon of

land grabs has dominated the picture in Ghana since the late 2000s, with an estimated 1.2 million hectares or 13% of farmland. In the case of Ghana, the responses of affected communities are a mixed bag, ranging from endorsement to resistance. Ghana is the fourth biggest recipient of agricultural FDI; it was ranked the fifth largest recipient of FDI in sub-Saharan Africa in 2014, across a wide range of economic sectors which include fuels and minerals. Resource grabs are consistent with Harvey's (2004) spatio-temporal fix – the spatial component of land grabs is an investment of excess capital by an investment sending country into new capabilities, spaces or resources, and – the temporal component entails deferment of capital values into future circulation.

Within the context of weak regional integration in SADC, the post-apartheid South African state has increasingly played a somewhat puzzling role as an enabler to USA and European imperialism into the African continent (Martin, 2013; Bond, 2004:599). Scholarship is divided in this regard: one stream characterises the relationship as agency on the part of the state and it's corporations, who are both seen as imperialist (Lesufi, 2004), while another stream of (Bond, 2004) casts South Africa's role as sub-imperialist. The third stream of scholars consider imperialism and hegemony as an overstatement given South Africa's inability to take leadership at a continental level (Taylor 2011; Alden and Le Pere 2009). Whether this is fact or perception, South Africa's relational power cannot be taken out of the equation of political and economic dynamics between it and it's regional counterparts (Martin, 2013).

De Maria (2019) acknowledges the multiple sources of value of land, which are derived from the social, political, spiritual and cultural foundations. Despite fundamental underlying 'telecoupling' and 'translocality' implications (Radel et al., 2019) resource grabs within the land governance theme on both the global and national scales is overshadowed by global trade and economic development frames. As a consequence of that, there is a paucity of scholarship that is consistent in examining the distribution of beneficial and negative externalities, across multiple scales (individual, group, community, national, and beyond). Behind economic development frames, African governmental office-bearers (politicians and bureaucrats) are typically central in the facilitation, and sanctioning of resource grab deals (Will, 2011). The nature of participation of African countries in global trade, in

it's multiple guises of Foreign Direct Investment (FDI), does acrimoniously compromise them into collusion with neocolonialism, a dynamic in which they are losers. On the one hand, the demand for landed natural resources is not a simple market supply and demand issue, but it is also mediated by fierce competition for access on the part of investment sending countries (De Maria, 2019; Arnall, 2018; Dell'Angelo et al., 2017; Rulli, 2012; Vermeulen et al., 2010). On the other hand, and in direct contrast to their relatively organised Western counterparts, politically and economically fragmented African countries competing against each other for FDI from investment-sending countries eliminates possibilities of any meaningful negotiations in terms of global trade (Will, 2011). Moyo et al. (2017) argue that resistance to the negative externalities of imperialism can only be achieved through a mobilisation of collective strategies at sub-regional and continental levels (convergence), wherein African countries set minimum threshold conditions to all external investment relations. The proposal for drift towards multidisciplinary approaches in dealing with all manifestations of neocolonialism such as land [resource] grabs is attractive but challenging.

Amid serious concerns about the effect these land acquisitions are likely to have on increasing concentration of land, within countries where inequality is on the rise Home (2020) draws a direct link between extreme forms of inequality and land relations across the 55 AU member states. Concerns about the negative consequences that land grabs are likely to have on increasing skewed land ownership in African countries, where inequality is already at alarming levels, and the ultimate impact these will have on property rights and sustainable development goals, are not without merit (Will, 2011). Ultimately, these land acquisitions will impact property rights and the SDGs (Will, 2011). While the global dimension of the commodification of land has taken contemporary economists by surprise (De Maria, 2019), Karl Marx's notion of 'primitive accumulation', which may have been considered as obsolete, carries explanatory power as an analytical tool. Although this notion is largely anchored in historical analysis, it's power as a theoretical construct finds expression 'in the work of Rosa Luxemburg, who understood primitive accumulation' as a theory not simply of the origins of capitalism, but also of the permanent and continuous unfolding of ''ts assimilationist dynamic' (Özsu, 2019: 15). Özsu finds stark parallels between the 18th-century systematic clearing of the

commons through consolidation and parcelisation and the phenomenon of land resource grabs.

Part of the global response to the phenomenon of land grabs is the Voluntary Guidelines on Responsible Tenure of Land, Fisheries and Forests in the Context of National Food Security (UN-FAO, 2012; Hall, Matondi, et al., 2015) which set out parameters for governance of tenure in respect of both states and investors. On the continental scale the AU churned out the *Guiding Principles on Large-Scale Land-Based Investment* (2014), a regurgitation of the UN-FAO VGGTs. The ultimate consequence of the soft-law approach (Home, 2020) is that it inadvertently removes the institutional weight from the global and continental scale to national scale – where capacity is in doubt.

If African countries do not go beyond rhetoric and develop a common vision around basic issues such as economic integration and decolonisation, they may as well sell Africa to the highest bidder. From it's inception of the OAU, Africa's post-colonial colloidal medium has been available as a framework for policy engagement with international rules and ideologies as well as to grapple with conceptions of an ideal modern state (ss4.2.1) (Erikson, 2011). Whether the medium is conducive for policy changes is a totally different matter. This suggests that as important as national scale information policies may be, the regional and continental medium that they are part could even be aggravated by individual countries acting alone. Albeit with specific reference to poor hydrological data on trans-national boundaries throughout Africa and specifically the SADC region, both Molle (2017) and Chakwizira et al. (2009) are adamant on the role of land data as a critical success-failure factor for regional integration (ss6.2.4 & ss6.2.5). Furthermore, they both agree that advances in neocolonial or imperial interests have been to the detriment of Africans. The political rhetoric against colonial legacy in the Green Paper on Land Reform (DRDLR, 2011) is unmatched by any corresponding control over data. The next subsection touches on indigennous knowledge systems in Africa

6.2.7 Indigenous Knowledge Systems in Land Governance in Africa

Mitchel (2020) questions the very concept and meaning of indigeneity within the African context, as a frame that is misaligned with multiple scales and the resultant loss of insight into the nexus between the Pan-Africanist ideal and local scales. In

the current context of an independent Africa that is under a new colonial yoke (neocolonialism), it is not only the ontology of what constitutes 'indigeneity' that is troubled, but also the meanings of Pan-Africanism, nationality (nationhood), citizenship etc. The much-celebrated Pan-Africanist aspirational ideal has hitherto remained only at the level of political rhetoric and left for dead in policy practice, because unpacking and unveiling it's practical implications turns out to be antithetical to the dominant post-colonial paradigm. This is consistent with a point made earlier by Erikson, (2011) on the vagaries of analytical approaches that exclusively relies on concepts of Western origin despite the context differences between Western and non-Western states.

On the one end of the spectrum, a solid body of scholarship takes a rather optimistic outlook of indigenous knowledge systems, considering them as an important knowledge reservoir in the process of re-imagining people-land relationship (Ludwig & Macnaghten, 2019; Gadamus et al. 2015; Berkes 2012; Kimmerer 2011). On the other end of the spectrum another body of scholarship is opposed to what it considers to be tantamount to romantisisation of indigenous knowledge (Fernández-Llamazares et al. 2013; Hofmeijer et al. 2013; Wildcat 2013; Salick & Ross, 2009), embodied in Wildcat's (2010: 9) calling for 'indigenous realism'. Different streams of scholarship within the pessimistic fold advance slightly different arguments: Some argue that climate induced land transitions are outpacing the rate at which indigenous knowledge system are able to adapt (Fernández-Llamazares et al. 2013; Hofmeijer et al. 2013; Wildcat 2013; Salick & Ross 2009); Some scholars place attention on the extent as well as rate of adoption of non-indigenous languages and lifestyles and the combined role of those in undermining the integrity of IKS (McCarter et al. 2014; Benz et al. 2000); Another stream places emphasis on the extent of assimilation populations in modern market economies and the erosion of traditional practices that go with it (Saynes-Vásquez et al. 2016; Gómez-Baggethun & Reyes-García 2013; Shepherd 2006); Another stream places a lot of attention on the impact of human migration in decoupling knowledge systems from the context to which they originate form and to which they are embedded (Lasisi & Ekpenyong 2011; Pieroni & Vandebroek 2007; Nesheim, Dhillion, & Stølen 2006; Atran et al. 2002). Part of the underlying baggage that is embedded in the pessimistic body of scholarship is it's anchorage on cultural assimilationist paradigms - importing

European traditions predicated on the assumption that they would by default result in the same cause-effect symmetries as they did in Europe. Within the context of polemics emanating from the two ends of the perspectival spectrum –and the broader underlying land governance implications associated with either options -- arose yet another body of scholarship that recognises the dynamism of IKS (Furusawa 2016; McMillen, Ticktin, & Springer 2016; Murphy et al. 2016; Whyte 2016; Fernández-Llamazares et al. 2013; Ingold 2000). This body of scholarship is anchored in integrationist approaches, which would theoretically result in a blend of Western and IKS (in this context - African).

Sangha et al. (2019; Choi, 2018; Sangha & Russel-Smith, 2017) are critical of marginalisation of policy development processes which have low or no regard for people's well-being, as a result of which is the loss of connection between indigenous systems and [land] the rest-of-nature. Wildcat's (2010: 9) call for "Indigenous realism" is part of the response to global environmental challenges, is part of a scholarship trend that considers indigenous knowledge systems as an important knowledge reservoir among scholarship that is engaged in rethinking people-land relationship (Gadamus et al. 2015; Berkes, 2012; Kimmerer 2011). Albeit from a Australian context perspective, Sangha et al. (2019; Clarkson, et al., 1992) argue that the people-land nexus has physical, social as well as spiritual dimensions, which complicates public policy processes, which emanate not only from developing an understanding of indigenous values, but also how those can be mainstreamed into policy processes. While cognisant of the need for a fundamental paradigm shift, Noyoo (2007) argues that indigenous knowledge systems have a crucial role in the policy formulation processes in Southern Africa. There is however a general absence of appropriate frameworks and evaluation tools for "culturally appropriate and/or adequate public, sustainable development and welfare policies" (Sangha et al, 2019; Bockstael & Watene, 2016; Yap & Yu, 2016; Taylor, 2008; Grieves, 2007). Acccording to Sangha et al. (2019: 3) mainstreaming IKS addresses nine out of the 17 sustainable development goals: reducing poverty (SDG1); good health and well-being (SDG3); quality education (SDG4); decent work and economic growth (SDG8); reduced inequalities (SDG10); sustainable cities and communities (SDG11); climate action (SDG13); life on land (SDG15); and partnerships for the goals (SDG17) (UN, 2015).

Despite the optimism in IKS, the entire African experience of technological modernisation and economic growth has anachronistically turned out to be a driver, as opposed to a solution to the erosion and destruction of IKS (Ludwig et al., 2019).

While the idea of mainstreaming of IKS is purportedly intended to feed into [land] justice goals, Yanow (2018) is skeptical of it, arguing that it has a potential of circumventing the very social justice goals for which it is intended. The doctrine of mainstreaming which is premised on moving something from the margins of activity to the centre – such as tributaries and rivers. While the need to mainstream indigenous knowledges in policy decisions is gaining recognition on a global scale (Sangha et al., 2019), the very notion of mainstreaming is loaded with fundamental analytical contradictions with respect to some dimensions of IKS such as in recognition of customary law and legal pluralism. While recognition customary values and practices presents a counterbalancing force to ethnocentrism, it is particularly pivotal as part of 'inclusive' land governance policy trajectories (Sangha et al., 2019), in a manner that is consistent with Rawl's (1971) theory of redistributing towards the disadvantaged as a means of raising the floor for the subaltern, not without fundamental analytical contradictions (s2.1; ss7.2.4.2). It is particularly important to elaborate on these contradictions within the context of land governance.

The phenomenon of legal pluralism continues to be a fundamental policy conundrum for the post-colonial state with the states having a bias in favour of state law, pedalled behind 'nation building' and 'societal modernisation' narratives, covered up in aspirational goals of creating hybrid legal systems (Alinon, 2004). These policy trajectories are deeply embedded in ignorance to the piling up effects that arise from legal pluralism. Both the history of colonialism in Africa and the post-independence initiatives of the 1980s-1990s have thwarted the idea of removing one tenure norm and replacing it with another. This paradigm shift has brought about a perspectival change which signified a shift from viewing legal pluralism as a pathological nemesis that should be exterminated, but as a socio-political dynamic. Undertaking land policy and land governance within the context of unresolved legal pluralism dynamics is tantamount to "managing confusion" (Alinon, 2004:42: citing LeBris et al, 1991).

According to Tamanha (1993) notwithstanding that the concept of legal pluralism having come into existence as a precocious doctrine in legal anthropology around the 1970s, it is fast approaching a troubled maturity. While Moore (1986) acknowledges that there are different variants of legal pluralism. Sally Engle Merry defines legal pluralism as a situation in which more than one legal order coexist within the same social field (Merry, 1988). In this definition legal order is understood to be inclusive of both state structures i.e. law makers, courts, etc. and other non-state forms of legal ordering. Those who could be considered to be protagonists to the doctrine of legal pluralism (e.g. Merry, 1988; Griffiths, 1986) seem to be oblivious to the fragile foundations on which the concept is anchored. Tamanaha (1993) argues that the very unstable analytical foundation on which the concept of legal pluralism is anchored is also the source of it's demise. The basic tenets of concept do not have a perfect, to the extent that lack of imagination in it's reconstruction may well be the invitation for it's retirement. The first fatal flaw of the doctrine pivots around the inability of it's protagonists to find conceptual coherence around a cross-cultural definition of 'law' (Griffiths, 1986: 4-5) -- the idea that law "is a single, unified, and exclusive hierarchical normative ordering" – and that all legal domains such as that of the family, marriage, succession etc. are hierarchically subordinate to state law (Tamanaha, 1993). This is an extremely controversial assertion, and one which would vary between different normative orders and across different forms of states. While there is broad consensus among legal pluralists that there is a wide range of normative orders which also constitute law, which are detached from the state, implies that the state does not have hegemony over law. In many instances non-state legal norms actually play an important social control function, particularly in small social groups settings. The growing thrust towards centralisation and uniformisation of law is not only a contradiction but is also antithetical to the very notion of plurality of law (Sack, 1992). Anthropologists take a rather dim view -- as ethnocentrism - of the idea of coupling law to the state, because it would imply that stateless societies do not have law (Tamanaha, 1993).

Post-independence, many African countries have not been spared from the policy dilemmas emanating from the doctrine of legal pluralism, more specifically pertaining how to position customary law in relation to the budding 'modern' states and Western legal system (Juma & Maganga, 2005). Juma & Maganga's (2005) analysis of water

reforms in Tanzania suggests a policy thrust that is steeped towards a dual process of accommodation and formalisation of customary water rights, wherein mainstreaming of customary law implies recognition of customary law alongside it's absorption into state law. Among other challenges that African countries have faced with respect to policy trajectories with respect to customary law include, among others, the challenge of ascertainment, how to record customary law and how to manage conflict between different laws (in some cases Islamic) (Rubin & Cotran, 1971). In the post-independence Africa, natural resource governance policy trajectories remain locked in colonial matrices of state appropriation, access, control and extraction (Kabudi, 2005). Colonial practice entailed not only subordination of customary law to state law, but tolerance to it, in so far as it was not in conflict with state law. The natural resource policy trajectories which are steeped towards subjugation of customary law to state law -- going against the grain of legal pluralism -- are also replicated in Kenya (Mumma, 2005). Wily (2008: 46) argues that in order to realise customary land rights, inclusive of rights to the commons, does largely depend on existence of state laws to ensure that rights emanating therefrom are upheld as demonstrated in statutory direction "in Mozambique (1997), Uganda (1998) and Tanzania (1999)." This represents a paradigm shift away from dualism and more towards integration approaches. Given policy bankruptcy associated with neoliberal trajectories, Ndlovu-Gatsheni's (2013) notion of indigenisation -- understood as a necessary part of detachment of thought processes from the Eurocentered knowledge hegemonies – of development remains an idea that is available for testing, and conditional to a capable developmental state. The issues of how this is undertaken as a future research project for the whole of Africa at a practice level.

6.3 CONCLUSION

This chapter painted a picture of Africa's governance architectures and institutional arrangements which mimic the UN. The aspirational ideals of a united Africa, the eradication of the vestiges of colonialism and the promotion of increased cooperation and integration of African economies, to drive Africa's growth and economic development constituted the motivation for the formation of the OAU (now AU), anchored in pan-Africanism. The chapter draws a close link between OAU's very

notions of ‘development’ and the neocolonial mantra of growth, in a manner that portrays the extent to which Africa was playing a catch up game with the West – and the (Gatsheni-Ndlovu, 2013). From it’s inception, the original OAU vision was too deeply steeped in a modernist growth paradigm devoid of conceptual resources that would guide transition debates towards alternative development pathways, outside of the trajectory cast by the colonial history. The chapter goes on to show how the carving up of Africa into economically unsustainable multiple states – an act of consolidation of imperialism – was not only endorsed, but was subsequently maintained by African leaders, in ways which anachronistically continued to serve neocolonial interests.

The chapter goes on to explore land rights policy design trajectories and the complexities highlighting inward looking land rights and resource nationalism and their preoccupation with micro and national scale issues to the exclusion of global commons. AU’s muted political voice on the exploration and exploitation of marine (sea) resources, outsources the governance of global commons to the global powers by default and consistent with narrow national land reform programmes that are preoccupied with land transfers, to the exclusion of governance. The chapter goes on to explore hydro-politics in Africa, with a specific focus on SADC, as themes in land governance, reflecting on the misconfiguration between national boundaries and resource governance requirements.

The chapter draws attention to the failure/s of the ill-defined notion of regional integration in Africa, growing phenomenon of spatial inequalities within as well as between SADC member states among others, attributing to the colonial boundaries, to silo planning approaches, lack of political will, paucity of regional spatial data, inward-looking SADC member country philosophies. The chapter then goes on to explore some of the debates on indigenous knowledge systems in Africa as part of assessing their role in future land governance policy designs. The exclusionary and land justice implications of drawing exclusively from Western epistemological traditions, does not augur well for decolonisation. The new scramble for Africa in the form of land grabs, resource grabs and other FDI initiatives are further manifestations of reconfigurations of neocolonialism. The role of South Africa as a sub-imperialist does not reflect well for it’s land justice trajectories in the region.

The next chapter provides a brief historiography of South Africa's political transitions with using a land governance and administration perspective, focusing on the key political transitions from the pre-colonial to the apartheid era, and from apartheid to the post-apartheid era. In the same process the chapter also evaluates South Africa's land policy design transitions with specific focus on the transition from apartheid to the post-apartheid dispensation, using Howlett et al's (2013) evaluation framework. The chapter demonstrates how remnants of the colonial and apartheid past anachronistically found their way into the post-apartheid era.

CHAPTER SEVEN : LAND GOVERNANCE AND ADMINISTRATION AT A NATIONAL SCALE IN SOUTH AFRICA

7.1 INTRODUCTION

The previous chapter painted a picture of how Africa's continental governance structures, which are modelled along similar lines as thethe UN architecture, isolating out some of the land governance themes on a global scale. The chapter provided some analysis on both the history and legacies of Africa's colonial national boundaries and the extent to which these continue to serve the interests of imperialism. The chapter is critical of African countries development trajectories which were based of continued pursuit of the economic development model that is centred around natural source extraction and export of raw materials.While emphasising the need to manage land holistically, the chapter placed Africa's trans-national boundaries at the centre of impediments to the continent's economic prospects. Consistent with Harvey's phenomenon of spatio-temporal fixes or displacement of imperialism, the new scramble for Africa in the form of land grabs and resource grabs, and other Foreign Direct Investment (FDI) initiatives are further manifestations of reconfigurations of historical continuities.

This chapter provides a brief historiography of South Africa's political transitions from the pre-colonial to the apartheid era and from apartheid to the post-apartheid era. A historical perspective is deployed in analysing the unravelling of South Africa's governance and administration system, with specific focus on evaluation of the policy transition from apartheid into the post-apartheid dispensation. More importantly the historical perspective unveils how land governance institutions from the colonial-apartheid found their way into the post-apartheid policy design landscape. The chapter goes on to identify some of the key instruments of exclusion, which are embedded in the country's land governance system. The chapter wraps up by undertaking an assessment of South Africa's land governance system using Howlett et al's (2013) policy design evaluation framework. The next subsection provides a brief overview of key tenets of transitions from pre-colonial, colonial to apartheid era.

7.2 THE HISTORICAL DIAGNOSTIC OF SOUTH AFRICA'S LAND GOVERNANCE AND ADMINISTRATION

7.2.1 From Pre-Colonial, Colonial to Apartheid Era

According to Chakrabarty (2002) historicism is a mode of thinking that entails looking at a phenomenon as a "historically developing entity, that is, first, as an individual and unique whole -- as some kind of unity at least in potentia -- and second, as something that develops over time." Of particular importance to this mode of thinking is the recognition of the uniqueness and individuality of either the historical identity or event and the general trend. It is within the context of historicism that South Africa's key transition to the post-apartheid should be understood. Both the history and making of South Africa's land governance and administration system are punctuated by a complex combination of key global and national historical political transitions. The fundamental global economic milestone that impacted on the Global South and the rest of Africa, was a culmination of global economic transitions abroad; such as the invention of the steam engine and the industrial revolution (van Wyk, 2012). The industrial revolution of the 18th century in Britain culminated in a major urbanisation surge for over two centuries. For the purposes of this study, the periodisation of the political transitions is generally accepted to fit into four broad phases: transition from precolonial era to colonial era, which is represented by the period leading to 1652 which is marked by Dutch colonial penetration; transition from colonial era to apartheid. Within that timeline the period 1886 to 1902 , which is represented by the discovery and subsequent growth of the gold mining industry, crafted largely by British imperialism; represents the Apartheid era to the post-apartheid, which was crafted through imaginaries of Afrikaner nationalism and obsession with racial division and white supremacy (Guimarães, Duca, & Ndlovu, 2018); and the period 27 May 1994 onwards popularly tagged 'New South Africa'.; transition from apartheid to the post apartheid dispensation - the period 1948 to 1994 (van Wyk, 2012) . The transition to the post-apartheid dispensation is further broken down into two distinct phases: phase one (the pre-emptive phase) – from 1991 to 1994 which is a particularly important period under the stewardship of the apartheid government, and; phase two covers the period from 1994 onwards into the actual post-apartheid era, with a bias towards the earlier years of the transition. These

transitions need to be located and understood within a wider context of exercising power and the framework of sustainability transitions research.

According to Herbst (1989; Goody, 1971) the key features of pre-colonial African politics is that they were largely based on indigenous leadership systems in which political power was exercised primarily over people in relation to land that was within the use of groups at any particular point in time. Van Wyk (2012; See Rautenbach & Bekker, 2014) concurs, characterising South Africa's precolonial era by various forms of indigenous customary systems. When the phenomenon of colonialism came into contact with African shores, it came into pre-existing institutions of land governance institutions emanating from the precolonial era, a historical commonality that South Africa shares with the rest of Africa (Hammond-Tooke, 1974).

South Africa's colonial encounter that is personified by Jan van Riebeeck, and typically framed as part of a search for re-victualling station for the Dutch East India Company (DEIC) happened when the Dutch occupied the Cape of Good Hope in 1652 (Simpson et al., 1973). Britain's subsequent conquest of South Africa around 1795 constitutes a different colonial layer emanating from Britain's economic extraction and resource hunger push factors, supported by political dominion, and the local pull factors such as the availability of land and resources. Between 1652 and the 1920s, various elements of the Western land governance and administration traditions and technologies were systematically imported and implanted in their different guises into South Africa. These include, among others, the state template, land use planning and management systems, the cadastral system, land registry system, land valuation, land-based taxation system, etc. (van Wyk, 2012; Herbst, 1989). Cartright et al. (2017) identify the import and imposition of Roman-Dutch property law over indigenous customary law rights as one face of history that supported the exclusion of indigenous peoples from land ownership. The English conquest led to an overlay of their systems over those that originated from Holland (Dutch), resulting in hybridisation with customary systems (ss7.2.4.2). In a nutshell, control over land and the concomitant extraction of landed natural resources are pivotal to the historical phenomena of colonialism, and are intricately linked to the current continuities that characterise Africa's political and economic relations with the global North. With this hindsight it is evident that the search for land and natural resources was pivotal to the encounter and subsequent colonial conquest.

The period between 1945 and 1950 saw two key historical events within the local and international space. First, internationally, this period represents the aftermath of World War II, which ushered in a world in desperate need of peace and food. The same period in South Africa coincided with the introduction of apartheid policy in 1948, which brought apartheid planning and the notion of the apartheid city to the fore (El-Sioufi, Augustinus, Acoily & Krystof, 2020; Sietchiping et al., 2011). The philosophical outlook of the 'apartheid city' was anchored in two policy foundations: a racially based spatial planning, and separate development for one group at the expense of another (ss4.2.1; Fig. 4.1). The inequality and exclusionary nature of the system implied that one's residential location was matched to a predetermined level of access to infrastructure and services. Land was reserved for certain racial categories, which coincided with a reservation for specific class stratifications. More importantly, a distinct feature of land governance and administration during the colonial and apartheid era is that customary law, albeit in hybridised forms, was applied alongside the colonial imports, but subjugated to common law (ss6.2.7; 7.2.4.2) (Rautenbach et al., 2014). From a land governance perspective, the political transition from apartheid to the post-apartheid order is bridged by the pre-emptive era, which is approximately the window of transition between 1991 and 1994, presided over by the apartheid government with the view to pre-empt the post-apartheid transition.

7.2.2 The Pre-Emptive Era

The period from 1991 leading to the installation of the Government of National Unity[84] in 1994 is marked by a fairly extensive land governance institutional reform – presided over by the outgoing apartheid state – specifically intended to pre-empt the trajectory of the land reform policy trajectories(Steyn, 1994). This period saw the promulgation of a whole battery of land laws, including the Abolition of Racially Based Land Measures Act #108 of 1991, the Upgrading of Land Rights Act #112 of 1991 (ULTRA)[85], among others. The full suite of statutes passed and their key tenets

[84] The Government of National Unity (GNU) presided over the transition period, between 27 April 1994 and 3 February 1997, led by the ANC, provided for in terms of Clause 88 of the interim Constitution of South Africa.

[85] Section 2(1) of ULTRA has been a subject of judgement in *Mary Rahube // Hedsrine Rahube and Others* (Case No. 101250). According to Henk Smith, section 2 and 25(a) of ULTRA would also not

are outlined in Table 7.1. The significance of this battery of legislation is not only the number of laws passed and it's underlying intention, but the haste in parliamentary processes which took an unprecedented period of less than two weeks (Steyn, 1994).

Table 7-1: Some of the transitional land administration measures (Adapted from Steyn, 1994; DLA, 1996)

Legislation	Key tenets
Abolition of Racially Based Land Measures Act #110 of 1993	Enhances the status and powers of Advisory Commission on Land Allocation (ACLA), giving it powers to investigate and make decisions or recommendations on matters pertaining to state land.
Provision of Certain Land for Settlement Act #126 of 1993	Provides a mechanism through which the state acquires, plans, develops, improves and disposes of property and provides for financial assistance to land reform purposes.
General Law Second Amendment Act #108 of 1993	Provides for the amendment of a wide range of statutes on advice from the Advisory Committee on Non-racial Area Measures, thus far-reaching changes to land tenure in rural areas.
Land Titles Adjustment Act #111 of 1993	Provides a procedure for devolution of land rights in instances where there is more than one person laying a claim to land without title.
Rural Areas Amendment Act (House of Representatives) #112 of 1993	Provides for the phasing out of the South African Development Trust (SADT)
Regulation of Joint Executive Action regarding Certain Land Act #109 of 1993	Provides for joint administration over land outside homeland in a manner that lead to incorporation of land into homelands.
Revocation and Assignment of Powers of Self Governing Territories Act #107 of 1993	The legislation allocates the president extensive authority over self-governing territories.

stand a constitutional test (email from Henk Smith dated 29 May 2020). The act was being amended at the time of writing.

Joint Administration of Certain Matters Act # 99 of 1993	Provides for the administration of matters that were previously administered separately by a single department.
Regional and Land General Affairs Amendment Act #89 of 1993	Provides for the winding down and phasing out of the South African Development Trust (SADT).
Shortened Registration Procedures of Land Amendment Act #76 of 1993	Provides for shortened and cheaper transfer of land by amending the Housing Development Act.
Kwazulu-Natal Ingonyama Trust Act # 3KZ of 1994, which was the last law passed in the eve of the elections (later amended).	Provides for the Ingonyama Trust the custodianship of land that had previously been administered by the KwaZulu-Natal government, comprising approximately 29.67% of the province's land base (Mailovich, 2019).

Without going into the detail on the different pieces of legislation, Steyn (1994) identifies three themes from the specific package of legislation that was passed in 1993 by the outgoing apartheid government. The first theme entails the 'privatisation' of different categories of land, specifically targeting communal, trust and state land. The privatisation theme is underpinned by a paradigm that is predicated on a (re)configuration of land tenure rights in a hierarchical order, in which freehold tenure is located at the apex, with other land rights assigned a lower status. The second theme relates to 'transferring the control and administration of specific categories of state land and South African Development Trust (SADT) land (Steyn, 1994). The third theme entailed 'building up of bureaucratic land allocation procedures' in ways that would have the effect of appropriation of control by the state and divesting communities of real control. Of even higher significance aboutabout the actions of the apartheid government was the systematic approach in pre-empting future land governance. The land statutes passed during the pre-emptive period constituted another distinctive layer (on top of precolonial, colonial, apartheid) of land governance and administration institutions which later somehow found their way into the new post-apartheid order (van Wyk, 2012). The anomalous Kwazulu-Natal Ingonyama Trust Act # 3KZ of 1994 (later amended) was a latecomer to the suite; it was passed into law precisely on the eve of the elections (Mailovich, 2019). The bulk of these pre-emptive legislative measures did not only survive the 1994 and

1996 transition period, but many of them are still law, two and half decades post 1994. The dynamic behind the policy mix for the new political order is consistent with Howlet et al. (2013) 'conversion' policy trajectories. The mix of institutional reform did not only represent a particular land governance pathway but it represented holistic socio-technical thinking and a form of exercise of power (Swilling et al., 2016). The next subsection explores land policy design trajectories after the official end of apartheid, the so called 'democratic' dispensation.

7.2.3 The Unravelling of the Post-Apartheid Era

The interim Constitution took effect on 27 April 1994 could be understood for both it's disruptive as well as it's reinforcing effects on the architecture of the South African state and the institutional framework (Constitution RSA, 1996; DLA, 1996b). The complexity that resulted from the contradictions of the transition from apartheid to the post-apartheid dispensation cannot be underestimated in terms of the extent to which it bars both elements of disruption and a reorganisation which was largely directed at the old arrangements, while also calibrating configurations that would fit into the new order, which was under construction (Köhler et al., 2019). One of the biggest policy challenges characterising this earlier transition period was the lack of clarity and bureaucratic disagreements about which statutes apply at different scales, aggravated by complex delegations and assignments (of largely pre-existing land laws) to various provinces (DLA, 1996b). On one hand, this was partly a function of mistrust between the old guard – whose tenure in government was increasingly insecure – and the new guard (incoming government officials). On the other hand, this was also a function of complexity, which was arising from the poor match between old order administrative boundaries (four provinces and former self-governing states) and the new order administrative boundaries of nine provinces and scrapped homeland. To reduce the complexity to dynamics between old guard and new guard is an oversimplification, because there were fundamental power dynamics at play.

Insights into the power dynamics at play at the time is an incisive perspectival frame for understanding of political transitions. Köhler et al., (2019) make a distinction between different forms of power; 'relational power', 'dispositional power' and 'structural power'. Relational power emanates from niches while 'dispositional

power' is associated with the regime and 'structural power' corresponds to a landscape. Avelino's (2017) framework for understanding power makes a distinction between 'reinforcive power' (where the status quo norms are revived), 'innovative power' (where new resources are unleashed) and 'transformative power' (where norms are in transition). All three forms of Avelino's notions of power were at play during South Africa's transition from apartheid to the post-apartheid dispensatio, variance in terms of how these were put to use. The transition process was inherently pitted in politics and power to the extent that the key actors had divergent perspectives on the desirable trajectories and the most appropriate ways of steering processes (Köhler et al., 2019; Kern, 2015; Scoones et al., 2015; Smith & Stirling, 2010). The incoming ANC-led government could, for argument's sake, be broadly seen as advocates for alternative socio-technical configurations, which were heavily reliant on certain public majoritarian support thresholds. Equally so, there were also countervailing vested interests to be protected, to the extent that every intervention could be equated to a move in a complex game of chess (Köhler et al., 2019; Smith & Stirling, 2018). Any analysis which reduces unfolding of South Africa's land policy trajectoriess to monolithic forces – either for or against change is overly simplistic because it underestimates the fragmentary nature and distribution of power within and across key actors (Avelino, 2017).

In 1994, South Africa inherited various provincial administrations, including the so-called independent states or bantustans (Transkei, Bophuthatswana, Venda, Ciskei [TBVC states]), the State Land Law Task Team (SLLTT) was constituted and mandated to deal with issues of assignment and delegation of legislation, under the auspices of the Department of Land Affairs (DLA, 1996:1). This body was replaced by the Ministerial Land Administration Reform Committee (LARC), which was appointed on 28 March 1995, with the following brief;

1. Identify remaining and related legislation in the former TBVC states and self-governing territories.

2. Have the identified legislation assigned to the Minister of Land Affairs.

3. Delegate sections of legislation to the premiers of respective provinces in terms of the Land Administration Act, after reaching consensus with relevant

Members of Executive Councils (MECs) of the nine provinces responsible for land matters.

4. Implement the delegation process mentioned in sub-paragraphs (3) above with responsible provinces.

5. Compile progress reports with regard to sub-paragraphs (1) to (4) above to the Minister of Land Affairs, and to do the accompanying reporting thereon to meetings of the Minister and the nine provincial MEC's responsible for land reform and rural development.

Among others, the SLLTT Committee reported on 54 pieces of land-related legislation for which various provinces had requested either assignment or delegation to province. The SLLTT referred some of the specific land laws to relevant government departments for decision, which contributed to further deepening of institutional fragmentation. There was no single cross-cutting institutional structure that provided a holistic oversight to the wider system of land administration, but instead issues such as water, environment, minerals, land use planning were relegated into parallel silos by default (positivist fragmentarariness). In 1997 a Land Policy Review Commission (LPRC) was established to investigate and review land tenure and what was coined as 'land administration' (Adams *et al.*, 1999). The bulk of the policy design processlargely unfolded within parallel silo departmental processes, with no mechanism for coherence. Biermann, Pattberg, van Asselt, & Zelli (2009; Zelli et al. 2013) conception of fragmentation - adapted from a global scale and applied on a national scale - recognise that different policy domains are constituted by a multiplicity of institutions of varied character, with different constituencies, scope and subject content. While acknowledging the relative nature of the concept, institutional or structural fragmentation or both, the latter drives the former.

One of South Africa's predominant transition management challenges during the first five years was the multiplicity of statutes that applied to land held by South African Development Trust (SADT) and land that belonged to the various homelands (bantustans) (DLA, 1996b). By design or omission, the overriding approach that was adopted by the incoming government was underpinned by Howletts' (20013) 'conversion' design approaches, a drive to make use of existing statutes and

structures, which was inherently fraught with contradictions much to the detriment of disruption. The fundamental inherent contradiction embedded in the approach arises from the 1994 and subsequent 1996 Constitutions which dismantled the old state architecture and the introduced new government architecture (van Wyk, 2012). Among the fundamental transitions in state architecture was the start of a transition to wall-to-wall municipal system, which had the effect of incorporating traditional areas under municipal jurisdiction, which had hitherto been excluded. One of the key contradictions characterising this period is one where old structures were phased out, while the new structures had not yet fully established.

Largely motivated by a desire to undermine apartheid fragmentation, the complex transition process was also underpinned by a 'uniformity thrust' was largely predicated on the idea of undoing apartheid fragmentation (DLA, 1996b). The thrust towards the desired uniformity was supposedly to be achieved through cosmetic processes: the first process entailed repealing and effecting amendments to statutes that were previously applicable to former "black" areas; the second process entailed expanding the scope of statutes that were previously inapplicable to former "black" areas such as the State Land Disposal Act #48 of 1961; the third theme entailed rationalising former homeland legislation. For instance, these principles were applied in the state's disposal statutes of former TBVC states, where self-governing territories were repealed and replaced by expanding the scope of the State Land Disposal Act #48 of 1961 (DLA, 1996b) to cover former homeland areas. For some reason that is not stated in the report (DLA, 1996b), as statutes previously applicable to KwaZulu were not included in this process. In the process, the principle or goal of uniformity was undermined, in light of the diversity of contexts across South Africa, juxtaposed with new reality of new provincial demarcations.

A range of colonial and apartheid land statutes that originally had a national reach were retained *en masse* by the national government, while those that had a bantustan/homeland footprint were delegated to provinces through the Land Administration Act #2 of 1995 (DLA, 1997; also see Coleman et al., 2013). Howlet *et al*'s (2013) notion of 'conversion' policy trajectories does provide some explanation of the process which entailed the redeployment of a pre-existing policy mix towards a new set of goals, as embodied in the new constitution. Among them are the Deeds registries Act 47 of 1937, the Removal of Restrictions Act #84 of 1967, the

Expropriation Act #63 of 1975 the National Building Regulations and Building Standards Act #103 of 1977 etc.[86] It is worth noting that a number of the old order land statutes, particularly those that had homeland footprint had become moribund, as a result of a fundamentally altered state architecture and the new boundaries (Manona *et al.*, 2019; van Wyk, 2012). Part of the challenge associated with old order statutes was, and remains, that they could not be simplistically subjected to wholesale repeal process because it would have resulted in a governance and administration vacuum, as some of these statutes had a direct bearing on land rights. In essence, most of these old order statutes would ordinarily require a systematic and careful policy review, with a view to repeal some elements and to carry forward others into new legislation. It was not possible to subject a huge battery of statutes to a policy review in the absence of an overaching land governance framework or policy (see Zelli et al., 2012). In instances where laws were repealed, such as Native Trust and Land Act #18 of 1936, which was repealed in 1991, it's foundational thrust remained embedded in the post-apartheid fabric (Winkler, 2019).

The intersection between local government and traditional leadership is a collision spot between the old and what is 'supposedly' new land governance instruments in respect of some spatial categories – e.g. former homelands -- across different scales and governmental silos. Spatial Planning and Land Use Management Act #16 of 2014 (SPLUMA) derives it's recognition of the Traditional Council boundaries from the Bantu Authorities Act #68 of 1951, via the Traditional Leadership Framework Act #41 of 2003, resulting in a situation where traditional council boundaries are not coterminous with municipal boundaries (Winkler, 2019). This misalignment of traditional council boundaries constituted by approximately 800 l areas of jurisdiction alongside approximately 257 municipal areas, amidst much policy ambiguity with respect of powers and functions of the former, is a driver of contention between the two, especially where municipal budget and service delivery alignment leakages and impediments are concerned. In provinces that had inherited a homeland footprint, a single municipal ward councilor had no option but to navigate across multiple

[86] The list is too long to include here.

traditional leadership jurisdictions over service delivery deliberations as a result of the misalignment.

During the transition period some of laws were taken through the Law Reform Commission (LRC), which was originally established in terms of the South African Law Reform Commission Act #19 of 1973 (as amended), where statutes were subjected to cosmetic amendments, by removing reference to race and gender as opposed to a comprehensive constitutionality test. At the time of writing, this Commission was still in existence in a rather low key manner. The appointment of the High Level Panel Report on the Assessment of Key Legislation and the Acceleration of Fundamental Change (HLP) either attests to the narrow scope of this Commission or a vote of no confidence to the structure. Notwithstanding the pre-1994 political rhetoric of dismantling homelands or bantustans, save for a removal from statute books, their landscapes continue to constitute a controvecial portion of the post-apartheid spatial map (Winkler, 2019; Branson, 2016; Oomen, 2005). It is estimated that at least 22.8 million (constituting 38.8% of total population) South Africans live in the former homeland areas, carrying approximately 13% of the national economy (Geyer, Ngidi & Mans, 2018).[87]

Within the broader land sector, in addition to the bulk conversion policy approach alluded to earlier, the post-apartheid government elected Howlett et al.,'s (2013) notion of 'patching' policies, underpinned by promulgating a series of individual land administration laws on a piecemeal basis. At face value, many of these new order statutes had some elements of transformation embedded in them albeit still locked in silo frames with poor coherence.. Table 7.1 broadly depicts the unfolding land administration during from 1991 (pre-emptive period) onwards over an extended period till 2014. The full suite of statues (in Table 7.1) that were passed during the pre-emptive period also anachronistically found their way into the new order. There are several other laws, beside those in Figure 7.1, which at face value may not be clearly seen as land governance/administration statutes which are not included in the illustration. These include laws pertaining to the institution of traditional leadership, with some already proclaimed, such as the Traditional Leadership and Governance

[87] http://www.statssa.gov.za/?p=12362#:~:text=The%20estimated%20population%20of%20South,year%20population%20estimates%20(MYPE) (Accessed 09 Oct 2020).

Framework Amendment Act #23 of 2009 and the Traditional and Khoi-San Leadership Act #3 of 2019.

The unfolding land policy transitions from apartheid to the post-apartheid era is characterised by a complex mosaic of policy design approaches and multiple instruments from different historical eras. The land governance policy transitions fail all three of Howlett et al.'s (2013) constituent elements of "consistency", "coherence" and "congruence", simply because of an absence of choreography between old and new instruments as well as new goals. The transition process would also fail an "integration" test, which is a measure that establishes a link between goals and means while ensuring that these are mutually reinforcing.

Table 7-2: A selection of some of the land administration statutes proclaimed

Land Titles Adjustment Act No. 111 of 1993 (LTAA)	National Water Act No 36 of 1998 (NWA)
Upgrading of Land Tenure Rights Act No. 112 of 1993 (ULTRA)	Prevention of Illegal Eviction from and Unlawful Occupation of Land Act 19 of 1998 (PIE Act)
Development Facilitation Act No. 67 of 1995 (DFA)	National Heritage Resources Act 25 of 1999 (NHRA)
Land Reform Labor Tenants Act 3 of 1996 (LRLTA)	Promotion of Administrative Justice Act 3 of 2000 (PoAJA)
Communal Property Associations Act 28 of 1996 (CPA)	Mineral and Petroleum Resources Development Act 28 of 2002 (MPRDA)
Interim Protection of Informal Rights Act 31 of 1996 (IPILRA)	Local Government Municipal Systems Act 32 of 2000 (MSA)
Extension of Tenure Security Act 36 62 0f 1997 (ESTA)	Spatial Planning and Land Use Management Act 16 of 2014 (SPLUMA)
National Housing Act 107 of 1997 (NHA)	Local Government: Municipal Property

	Rates Act 6 of 2004 (MSA)
Water services Act 108 of 1997 (WSA)	Land Reform Property Valuations Act 17 of 2004 (LRPVA)

Albeit poorly choreographed, a number of these new order land laws were relatively interrelated with other pre-existing layers and among themselves. Within the land tenure ambit, the new laws categorised rights according to defined tenure contexts and relationships, which provided statutory protection for different categories of land rights through the Land Reform (Labor Tenants) Act 3 of 1996 (LTA) for labor tenants, the Interim Protection of Informal Land Rights Act (IPILRA) Act 31 of 1996 for those in communal areas, the Extension of Security of Tenure Act 62 of 1997 (ESTA) for farm workers, and the Prevention of Illegal Eviction from and Unlawful Occupation of Land Act 19 of 1998 (PIE) for people in informal settlements. All these laws were crafted in with a clear intent of national coverage. Either than jurisdictional coverage changes some of the new order statutes such as the Municipal Property Rates Act No. 6 of 2004 continued to be framed more or less along the same lines as the old order statutes they were replacing.

Poor integration and coordination have become a chorus in government in both political rhetoric and policy jargon far beyond the land sector (Melefe & Nkhahle, 2019). If anything, the Reconstruction and Development Programme (RDP) White Paper which introduced the idea of “transformation plans” that were envisaged to marshal resources and efficiency in support of the RDP (Oranje et al., 2019). The then proposed National Reconstruction and Development Act was envisaged to detail the procedures government and it’s agencies would follow in implementing and reporting procedures within the context of the reconstruction and development project (ANC, 1994: 140; RSA, 1994b: 17). When the RDP was abandoned, the idea of a National Reconstruction and Development Act also left for dead. The recent calls for a review of some aspects of the National Development Plan (NDP) are underpinned by a need for coordination and integration processes and implementation measures, which are subject to multiple interpretations within th state machinery (Oranje et al., 2019).

Deploying Howlet et al's (2013) policy design evaluation criteria, this chapter demonstrates how the post-apartheid state's land governance policy design arbitrarily drew from multiple policy design approaches including "conversion", "layering" and "drifting" (Howlett et al., 2013). The wholesale import of old-order statutes resulted in old order statutes acrimoniously finding their way into the post-apartheid era (van Wyk, 2012) can be understood as "conversion" policy trajectories predicated on redeploying a pre-existing policy mix to new goals (Howlett et al., 2013). While this approach may have minimised disruption, it heightened the risk of incongruence between the old tools and the new goals. From this perspective, the post-apartheid land governance policy transition was inevitably characterised by poor integration, or poor link between goals and means with different sets of land governance institutions that lack complementarity and which were not mutually reinforcing. Wanjala (2004) also alludes the tragic consequences wholesale adoption of land legal system in Kenya as well.

The subsequent policy transition processes of developing individual land laws from silos conform to Howlett et al.'s (2013) notion of "layering", which was tantamount to putting a layer on an existing regime with minimum disruption, resulting in inevitable consequences of policy incoherence and inconsistencies. The resulting set of land governance institutions became an assortment of policy instruments that lacked "coherence" and "congruence" – the extent of unidirectionality between mutually supportive policy tools. Despite the omnipresent and abundant "degrees of freedom" to introduce policy change, was often undermined by a lack of clear goals and poor "maximisation of complementary effects" within the policy toolkit and state boundary silos. An analogy that best explains the resultant post-apartheid land governance system is that of a dam that appears clear from above, but is laden with sediment, debris and wreckage below the surface. The extent of fragmentation and policy and institutional incoherence makes a perfect case for repurposing South Africa's land governance and administration system. The next section broadly presents an outline of the making of South Africa's land administration system aimed at deepening the understanding of some the basic underlying issues with specific reference to the resultant policy and institutional complexities.

7.2.4 Instruments of Exclusion in Land Governance

South Africa did not happen to find itself in this position but has consistently over a period of 25 years compounded it's social and human challenges through a combination of policy norms and instruments, some inherited from it's colonial-apartheid past combined with a mix of post-apartheid policies. The administration of land tenure, customary law and land tax are just some of the policy tools that have been used or not used by the state to exclude the majority of poor South Africans.

7.2.4.1 The land rights landscape

Land tenure reform on both micro and macro scales in the post-apartheid South Africa is a contentious issue and has long been a source of policy paradox in South Africa (Winkler, 2019; Bouillon, 2000). Much of the debates also tend to ignore multiple scales consideration, placing emphasis on one scale at the expense of other scales. On a micro scale, Section 25(6) of South Africa's constitution addresses land rights regime on a micro scale, it reads:

> A person or community whose tenure of land is legally insecure as a result of past racially discriminatory laws or practices is entitled, to the extent provided by an Act of Parliament, either to tenure which is legally secure or to comparable redress.

Furthermore, section 25(9) directs parliament to enact the requisite statue in emanating from subsection 25 (6). Despite high expectations, the post-apartheid state has hitherto failed to give effect to both Constitutional imperatives for land security of land rights for all South Africans. Hornby et al., (2017) estimate that more than 60% of South Africans' rights in land are not recorded, which is indicative of a trend of exclusion that goes along with policy trajectories in which the state seeks to upgrade all land tenure to freehold. Table 7.3 depicts cumulative backlogs of approximately 254 240 in issuing title deeds by the state between 2014 and 2018.

Table 7-3: Title deeds backlog between 2014/15 and 2017/18 (Adapted from Pretorius 2019)

Financial year	No. of title deeds outstanding
2014/15	26 279
2015/16	14 266
2016/17	135 878
2017/18	41 841
April to September 2018	(preliminary) 35 976
Total	**254 240**

Kingwill (2016) suggests that the country needs new legal paradigms that are more compatible with African concepts of property rights. These concepts involve how rights are distributed between individuals who belong to a property holding social unit and how they are passed on intergenerationally. The recognition of customary law by the drafters of the Constitution, originally intended to include the majority of South Africans who were previously excluded, is beset in policy contradiction.

Notwithstanding the persistent racially skewed land ownership patterns that South Africa has inherited from it's apartheid past, the country's land rights regime could be broadly characterised as a mixed one, with private ownership, communal, state ownership coupled with wall-to-wall state (line function departments and municipalities) custodianship (Fig. 1.2 in ss1.2.2). Despite some clear constitutional paradigm shifts, the land rights logics have not necessarily been accompanied by equivalent shifts at the policy/legal front and at the level of praxis. Given the outlined history, the land governance disjuncture as reflected in the Constitution and the mix of policy tools, can be characterised as lacking Howlett's (2009) notion of unidirectionality. Where the different parts of the system moved, they did not do so in the same pace or in the same direction.

One area where some policy shifts continue to unfold has been in South Africa's courts of law, which have been very bold in upholding fundamental constitutional principles in respect of land rights. One milestone ruling demonstrating this shift is the *Port Elizabeth Municipality*[88] ruling emanating from section 6 of the Prevention of Illegal Eviction from Unlawful Occupation of Land Act 19 of 1998 (PIE) – a statute that was intended to give effect to section 6(3) of the Constitution. This ruling makes a bold distinction between apartheid-style state-authorised and state-sponsored evictions that were the cornerstones of the apartheid regime.[89] This ruling further emboldened views that registered or vested ownership rights no longer abstractly outweigh the right of unlawful occupiers, as was the case under apartheid, requiring context-specific solutions, as opposed to abstract logics (van der Walt, 2011). The court went to great lengths in explaining the new constitutionally entrenched logic, that entails a careful consideration for historical, social and political context in which the new set of rights that were previously unrecognised by common law, had to be dealt with.

In it's custodianship capacity, the state has an elevated duty of care, that is generally predicated on the assumption that the state has the desire, interest and/or capacity of managing land and it's resources for the sake of future generations. This could simplistically be viewed as an abolition of private rights "without compensation" (Dube, 2019; Van der Walt, 2011:429). The notion of the state being the custodian of land (or land resources) is not new in South Africa as is seen across multiple tenure systems in the form of a continuation from the past in certain areas and in expanded or enhanced forms in others, but has been expanded in the post-apartheid dispensation (Wilson, 2015; Stevens, Kooroshy, Lahn, & Lee, 2013; Stevens et al., 2013; Mares, 2010; Bremmer & Johnston, 2009; Vivoda, 2009).

On a national scale the post-apartheid state opted for state custodianship of land resources, as a specific version of resource nationalism, by the extending state custodianship to new sectors. While used loosely and in different ways by politicians, the concept of state custodianship in law has a very specific meaning conferring regulatory functions in respect of land use for sustainable development

[88] *Port Elizabeth Municipality v Various Occupiers* 2005 (1) SA 217 (CC).
[89] Port Elizabeth Municipality v Various Occupiers 2005 (1) SA 217 (CC) para 8-23.

purposes with powers of the owner or right holder curtailed by statute (Dube, 2019; Wilson, 2015; Stevens, Kooroshy, Lahn, & Lee, 2013). The notion of the state being the custodian of land and/or resources is not new in South Africa, even though it may have been expanded or reconfigured in some respects, post 1994. The regulation of land or landed resources by the state is a common feature in both market and in socialist countries. Free-marketeers do tend to embrace a somewhat misplaced idea that one can do almost anything with the property or land that one owns (Dube & du Plessis, 2017). In fact, there is no such thing as unfettered property rights anywhere across political systems (Friedman, 2018).

Some of the specific sub-sectors where the phenomenon is prominent in South Africa include statutory areas such as water, minerals, and land use management, environment and heritage resources. Within the water sector, the National Water Services Act #108 of 1997 and the National Water Act #36 of 1998 replaced old-order private rights with new-order rights with the state being the custodian. In the mining sector, the National Petroleum Resources Development Act #28 (NPRDA) of 2002 had a similar effect of completely removing mineral rights from the sphere of private property for public interest. This matter was later ventilated in the case of *Agri South Africa v Minister for Minerals and Energy*.[90] With respect to the minerals and water situations, the post-apartheid state exercised it's power to outlaw old order private property rights, which inevitably resulted in varying levels of rights deprivation in favour of the public interest (van der Walt, 2011). To the extent that Spatial Planning and Land Use Management 16 of 2013 (SPLUMA) gives municipalities wide-ranging land use management powers, as part of the wall-to-wall municipal system which was set up in in terms of Local Government Municipal Structures Act #117 of 1998.

Another instance of the state's custodianship of land relates to environmental resources and national heritage resources in terms of the National Environmental Management Act #107 of 1998 (NEMA) and the National Heritage Resources Act #25 of 1999, respectively. Other more recent initiatives include the custodianship of

[90] *Agri South Africa v Minister for Minerals and Energy (CCT 51/12) [2013] ZACC 9; 2013 (4) SA 1 (CC); 2013 (7) BCLR 727 (CC)* (18 April 2013).

agricultural land,[91] which is in the parliamentary legislative pipeline as prospective replacement for as Subdivision of Agricultural Land Act #70 of 1970. The multiple statutes reflect a fragmented land custodianship model with multiple state entities having administrative powers on different aspects of the same phenomenon, which implies that each silo entity develops it's own administrative system for the aspect of custodianship within it's functional area and ''ts own enforcement functions

While public interest considerations are typically placed at the centre of arguments in favour of state being custodian of land, it is not a *fait accompli* that the resources will be used either in the public interest or in the interest of the poor, and South Africa is no exception to the rule. South Africa's skewed water resource distribution and use is a case in point. Table 7.1 presents a breakdown of South Africa's water use distribution across sectors (DWS, 2018) with 61% of freshwater used by agriculture – the question of whose interests are served or not served with such skewed water use patterns.

[91] https://cer.org.za/virtual-library/legislation/national/land-use-and-planning/draft-preservation-and-development-of-agricultural-land-bill (Accessed 01 January 2019).

Table 7-4: South Africa's national water resource use breakdown (DWS, 2018) 7-5

Water resource use	% Share
Agriculture irrigation	61%
Municipal domestic	27% (24% urban; 3% rural)
Livestock watering and nature conservation	2%
Afforestation	3%
Mining	2%
Power generation	2%
Industrial	3%

Dube (2019) strongly argues that the state custodianship model requires a high degree of trust between the state and public, which is in deficit in South Africa. The public-state trust relationship is a function of the dual constitutional imperatives of transparency and accountability. In the South African context, the praxis contradictions of the land custodianship concept come to the fore particularly when the state's administrative powers coincide with land to which the poor have rights or interest. The *Baleni and Others*[92] and *Maledu and Others*[93] judgements delivered by Gauteng High Court on Xolobeni in the Eastern Cape and North West's platinum belt respectively, are recent legal milestones involving mining interests that highlight the impracticalities of this contradiction (Coleman, 2018a). A brief summary of both cases juxtaposes the state's interests in mineral rights and the underlying customary

[92] *Baleni and Others v Minister of Mineral Resources and Others* (73768/2016) [2018] ZAGPPHC 829; [2019] 1 All SA 358 (GP); 2019 (2) SA 453 (GP) (22 November 2018).
[93] *Maledu and Others v Itireleng Bakgatla Mineral Resources (Pty) Limited and Another* [2018] ZACC 41 2019 (1) BCLR 53 (CC); 2019 (2) SA 1 (CC) (25 October 2018).

rights under the legal principle of free informed prior consent (FIPC) before mining proceeds with community's informal land rights that are protected by the Interim Protection of Informal Land Rights Act #31 of 1996 (IPILRA) on the other. Upholding the community's rights against the state, Justice Petse began his ruling by quoting Frantz Fanon's *The Wretched of the Earth*:[94]

> [f]or a colonised people the most essential value, because the most concrete, is first and foremost the land: the land which will bring them bread and, above all, dignity. Thus, strip someone of their source of livelihood, and you strip them of their dignity too.[95]

This is not only an apt summation of the key issues in the case, but a reflection of how South Africa's supposedly Werstern-centric judiciary has a pro-poor interpretation of the Constitution against neoliberal state policy trajectories. This is a phenomenon which is emerging in other cases as well.

For the first time in South Africa's history of planning, the North Gauteng High Court ruled that the mineral resources minister is barred from granting mining rights without the full, informed consent of the people who hold informal land rights to the land (Feni, 2018). In a nutshell, the consent of the Xolobeni community is essential before mining can proceed. Not only was this a lost legal battle for the Department of Minerals and Energy (DME) and Australian mining company Transworld Energy and Mineral Resources (TEM), but the ruling is also indicative of a changing land rights regime. Ultimately, the effect of the ruling is that the decision-making power of whether mining is permissible constitutionally vests with the community that has customary rights to the land (Venter, 2018). One other area where there are serious governance challenges is in sand mining, where there deep rooted construction industry interests.

The challenges in respect of of sand mining from rivers, estuaries and the coastal belt is just one policy space that is indicative of some of the broader national land governance disputes (Chevallier, 2014). Chevallier (2014) points to a recent surge

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[94] Frantz Fanon, *The Wretched of the Earth* (Grove Press, New York 1963) (Translated: Fanon Les Damnés de la Terre (Éditions Maspero, 1961) at 43.

[95] *Maledu and Others v Itireleng Bakgatla Mineral Resources (Pty) Limited and Another* [2018] ZACC 41.

in uncontrolled and unauthorised sand mining activities throughout the country. The governance institutional frameworks for small-scale mining are disproportionately under resourced from a financial and human resource perspective in relation to the challenges of the irreversible breakdown and alteration of riverbeds and associated riparian habitats. Enforcement measures are in total disarray, fragmented and incoherent partly as a direct consequence of fragmented institutional and structural arrangements (Chevallier, 2014). From a land administration point of view, sand mining activity is identified as a concurrent legislative competence that straddles all three spheres of government. Green (2012) identifies a set of three main regulatory frameworks for sand mining: mineral regulation, environmental regulation and land use planning regulation. From a minerals perspective, mining activity requires authorisation from the (DME) in terms of MPRDA, which is a national government competency. However, from a land use management perspective, sand mining is a land use activity that requires authorisation from local government in terms of Spatial Planning and Land Use Management Act #13 of 2013 (SPLUMA). The court in *Swartland Municipality v Louw NO*[96] emphatically ruled that mining activity is also equally subject to municipal bylaws and it should be appropriately zoned. From an environmental perspective, sand mining activity requires environmental authorisation in terms of the National Environmental Management (Environmental Laws Amendment) Act #14 of 2009 (NEMA), a concurrent provincial and national government function. Furthermore, the ruling in the *City of Cape Town v Maccsand*[97] stipulated that in the event that mining triggers a listed activity, it must comply with the requirements of the NEMA. Upon appeal in both cases, the Supreme Court of Appeal affirmed and upheld the decision of the lower courts, subjecting mining activity to both mineral and land use regulation equally (Green, 2012).

Green's three regulatory frameworks erroneously excludes water regulation because to the extent that sand mining affects water flows and courses the activity requires authorisation from the Department of Water and Sanitation (DWS) in terms of the

[96] *Swartland Municipality v Louw NO and Others* (13703/09) [2009] ZAWCHC 203; 2010 (5) SA 314 (WCC) (21 December 2009).
[97] *City of Cape Town v Maccsand (Pty) Ltd and Others* (4217/2009, 5932/2009) [2010] ZAWCHC 144; 2010 (6) SA 63 (WCC); [2011] 1 All SA 506 (WCC) (20 August 2010).

National Water Act #36 of 1998, which is also a national government competency. At another level, probably arising from the context of a case study, Green's postulation is blind to land rights regime regulation and the peculiar rights complexities in instances of land held under communal tenure and/or land to which there are pre-existing customary law rights and rental benefit flows from the resource.

From multiple angles South Africa's particular form of resource nationalism (state custodianship) is marred by debilitating state capacity, a critical element to good governance (see Chitonge, 2020; Chauveau et al. 2006).

7.2.4.2 Customary law

As a result of section 211(3) of the Constitution of 1996,[98] for the first time after colonial penetration, which by default also introduced the phenomenon of legal pluralism – a major policy departure from the apartheid past (Rautenbach et al., 2014; Constitution RSA, 1996). This constitutional injunction effectively repositioned customary law as an independent source of law, only subject to the Constitution, and inadvertently giving rise to a land governance policy paradox, that remains unresolved.[99]

Based on research undertaken in the Andes, Boelens et al. (2007; Boelens, 2006) are highly skeptical of policy designs that are simply predicated on inclusion or incorporation of customary rights as a bundle of rights within national policy designs, largely due the power relations dynamics that underpin both state and customary rights systems at different scales. They suggest that customary rights should be dealt with through a meaningful communication, within a pluralist system rather than in a hierarchical relationship. The conceptual basis for recognition – the essence of official recognition and effectiveness of statute – should be oriented towards problem solving. Despite the permissive constitution, South Africa has done very little by way of taking practical policy measures to actualise the constitutional recognition of

[98] Unless specified, all references to the constitution of RSA are to the 1996 version.

[99] As Langa DCJ said in *Bhe's* case par 109, "the difficulty lies not so much in the acceptance of the notion of living customary law… but in determining it's content and testing it, as the court should, against the provisions of the Bill of Rights". Cited in *Mayelane v Ngwenyama (Women's Legal Centre Trust as amici curiae)* 2013 (4) SA 415 (CC) par 25.

customary law. The policy as well as practical implications of legal pluralism, specifically for land governance and administration, is a spectacle that is still unfolding in South Africa's courts, a development requiring full comprehension in ways which go beyond the scope of this dissertation.[100] Some of the case law on intestate succession includes *Mthembu v Letsela,*[101] *Zondi v President of the Republic of South Africa*,[102] *Moseneke v The Master*,[103] *Shibi v Sithole.*[104] The *Gongqoshe and Others*[105] judgement straddles across natural resource, land use management and planning law. Attesting to the new status of customary law, Langa DCJ said in *Bhe v Magistrate's*[106] case (para 109), "the difficulty lies not so much in the acceptance of the notion of living customary law… but in determining it's content and testing it, as the court should, against the provisions of the Bill of Rights".

Directly related to that, the critical challenge -- regarding the legal recognition of customary law -- is the prevalence of diverse bodies and layers of customary law, while there are no systems for ascertainment and determination of the divisions between different subsystems (Rautenbach et al., 2016). Simply put, the notion of "ascertainment" implies authoritative elimination of doubt. In a more specialised legal sense, the term is used to imply a systematic information gathering process underpinned by some rigorous method – an innovation added to the proposed adjudication process, to use the process for purposes of ascertainment of living customary law. Contrary to Rautenbach et al.'s (2016) narrow approach that limits the challenges of ascertainment and dispute resolution to courts of law,

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[100] Cited in *Mayelane v Ngwenyama (Women's Legal Centre Trust as amici curiae)* 2013 (4) SA 415 (CC) par 25.

[101] *Mthembu v Letsela* 1997 (2) SA 936 (T) and 1998 (2) SA 675 (T) and 2000 (3) SA 867 (SCA).

[102] *Zondi v MEC for Traditional and Local Government Affairs* (CCT 73/03) [2004] ZACC 19; 2005 (3) SA 589 (CC); 2005 (4) BCLR 347 (CC) (15 October 2004).

[103] *Moseneke and Others v Master of the High Court* (CCT51/00) [2000] ZACC 27; 2001 (2) BCLR 103; 2001 (2) SA 18 (6 December 2000).

[104] *Shibi v Sithole and Others* (CCT 50/03, CCT 69/03, CCT 49/03) [2004] ZACC 18; 2005 (1) SA 580 (CC); 2005 (1) BCLR 1 (CC) (15 October 2004).

[105] *Gongqose and Others v S; Gongqose and Others v Minister of Agriculture, Forestry and Fisheries and Others* (CA&R26/13) [2016] ZAECMHC 1; [2016] 2 All SA 130 (ECM); 2016 (1) SACR 556 (ECM) (18 February 2016).

[106] *Bhe and Others v Khayelitsha Magistrate and Others* (CCT 49/03) [2004] ZACC 17; 2005 (1) SA 580 (CC); 2005 (1) BCLR 1 (CC) (15 October 2004)

ascertainment of customary law gives rise to a peculiar set of complex policy paradoxes that are way beyond the hierarchy of the courts. In the backdrop of unresolved institutional and policy choreographies, the very nature and scope of customary law lies is unable to escape from the courts of law that are anchored in the Western tradition, in a manner which ssimultaneously subverts it's new constitutional status.

The new constitutional injunction of legal pluralism anachronistically pits customary law against a system of law that is predominantly anchored in Western paradigms, as well as fundamental conceptions relating to access to natural resources, property rights, marriage, inheritance or succession with a direct bearing on land administration institutions. The landmark judgement of *Gongqoshe and Others v Minister*[107] pertaining to statutory regulation of access to natural resources and fishing in a conservation area pitted against customary law rights of local communities has far-reaching implications across a range of natural resources such as water, mineral resources, fauna and flora.

The state-law version of customary law is a conglomeration of Western components comprising common law, legislation, judicial precedent and customary law which evolved within the context of a Roman-Dutch/English law framework[108] (Rautenbach et al., 2016). Besides this, a version of customary law that has not found it's way into legislation, or judicial decision making, is normally referred to as 'living customary law' and understood to be the version of law that is observed by the communities. Rautenbach et al. wrongly suggest that the state law category of customary is readily ascertainable with sufficient certainty in terms of the prescripts of section 211(3) of the Constitution[109] and section 1(1) of the Law of Evidence 45 of 1988. Given the possibility that the state version of customary law may be misaligned with living customary law, ascertainment of what version prevails remains an unresolved policy lacuna. This is a particularly difficult task because the living

[107] *Gongqose and Others v S; Gongqose and Others v Minister of Agriculture, Forestry and Fisheries and Others* (CA&R26/13) [2016] ZAECMHC 1; [2016] 2 All SA 130 (ECM); 2016 (1) SACR 556 (ECM) (18 February 2016).

[108] These are often distorted in Eurocentric frames.

[109] The courts must apply customary law when that law is applicable, subject to the Constitution and any legislation that specifically deals with customary law.

customary law versions are contaminated with various other versions and legal systems. The notion of legal pluralism becomes complicated when making a determination on what legal system to apply to which place, group or individual, whether by a court of law or outside of it (Rautenbach et al., 2016).

Given the communal land context, and to the extent that the subject land is nominally held by the state, the Department of Rural Development and Land Reform (DRDLR) has a role to play in facilitating community resolutions authorising land use change in terms of the Interim Protection of Informal Land Rights Act #31 of 1996 (IPILRA). IPILRA provides for the temporary protection of certain rights to, and interests in, land that are not otherwise adequately protected by law.[110] The judgement in *Baleni and Others v Minister of Mineral Resources* clearly highlights the tension between the consultation requirements of the MPRDA and the consent requirement of IPILRA.[111] These contradictions arising from and between Western forms of laws, which are positioned differently in relation to customary law.

Notwithstanding these developments, the current situation regarding customary law of succession and inheritance also remains fuzzy and unsatisfactory, primarily because there is no responsive legislation in place, while there might be millions of black people who prefer this choice of law (Schoeman-Malan, 2007). What essentially means that the idea of elevation of the status of customary law that was most probably entrenched in the Constitution with good intent of supporting justice and inclusion, remains only as an idea with exclusionary consequencess for the majority of South Africans who might prefer this form of law. The next subsection outlines continuities in South Africa's land tax policy design.

7.2.4.3. Regulatory instruments with specific reference to Land Value Capture

South Africa's recorded tax history draws the bulk of it's genetic material from 1854, with the introduction of income first taxes that were introduced by the Cape colonial government (Lieberman, 2003). The next major historical fiscal policy transition is marked by the introduction of general income tax in 1914 by General Jan Smuts who was Finance Minister at the time, which subsequently went through a number of

[110] *Baleni and others v Minister of Mineral Resources and Others* (73768/2016) [2018] ZAGPPHC 829; [2019] 1 All SA 358 (GP); 2019 (2) SA 453 (GP) (22 November 2018); See para 75.
[111] *Baleni and Others v Minister* para 39

revisions. In the late 1980s the Margo Commission introduced the value-added tax, based on recommendations of the Commission of Inquiry into the Tax Structure of the Republic of South Africa (Margo Commission, 1987). In 1995 the First Interim Katz Commission Report made cosmetic proposals which were intended to align fiscal policy with the new constitution, with a specific focus on removal of discrimination that is based on gender and marital status from the tax system. In the new dispensation the bulk of tax administration under the oversight of the South African Revenue Services (SARS) empowered by the South African Revenue Service Act #34 of 1997, together with the Tax Administration Act #28 of 2011 – (Guimarães, et al., 2018), with the key revenue source, income tax, guided by the Income Tax Act, 1962. The Customs and Excise Act #91 of 1964 regulated customs and excise long before South Africa's new constitutional dispensation came into existence in 1994.

While taxation is viewed from multiple and varying analytical and theoretical lenses there is broad consensus on the need to raise revenue in order to finance state expenditure (Guimarães, Duca, & Ndlovu, 2018; Marx (1852); Smith (1776); Locke (1690); Hobbes (1651). Burges & Stern (1993) view taxation as a redistributive mechanism and smoothing of market imperfections. For example, while some scholars on the subject emphasise economic development and economic structures (Di John, 2006), others place emphasis on political and institutional processes (Burgess & Stern, 1993). The tax system is particularly important topic within the developing country context, which is typically characterised by high number of poor people in relation to a small number of rich people (Tanzi & Lee, 2000). While the broader topic on taxation and state expenditure on services is fundamental and relevant to development, it has a direct bearing on land governance and administration, bearing in mind that for the purposes of this study, the focus is limited to land-based taxation with specific reference to land Value Capture (LVC).

Part of the rationale for the choice of LVC is motivated by South Africa's land tax system that is fatally flawed, characterised by government aversion to optimal use of fiscal and regulatory instrumentsfor the enhancement of the common good (Bhana et al., 2011; Brown-Luthango, 2006). In line with the view that land is a public good and a finite resource, public expenditure in infrastructure development results in a significant surge in unearned property values, and this increment should be

appropriately recaptured by the state for the wider benefit of society. The government's approach to a land-based tax system is underpinned by a reluctance to intervene in land and property markets; the result of which is a system that is not supportive to the planning and design of sustainable human settlements. South Africa's Local Government: Municipal Property Rates Act #6 of 2004 (MSA) is a key piece of statute in South Africa's land tax system municipal land tax system, a major revenue stream for local government is under criticism from various angles. Bhana et al. (2011) are highly critical of South Africa's land tax system for penalising building improvements, which effectively is a disincentive for intensive land use while encouraging land speculation. One more of the disastrous consequences of this policy thrust includes it's promotion of urban sprawl and inefficient cities and the exclusion of the poor from participation in land and property markets. A concealed but yet important dimension of this policy conundrum is the extent to which this is a function of the skewed power dynamics in the choice of financial instruments that are tilted in favour of Department of National Treasury as opposed to the municipalities, within a system of spheres of government that theoretically have equal status.[112] Under the circumstances municipalities are policy takers rather than policy makers. The pervasiveness of the market-driven development paradigms which result in the entrenchment of historical spatial and socio-economic inequalities and the protracted exclusion and marginalisation of the urban and rural poor (Bhana et al., 2011). In terms of current policy, the increased land values that primarily emanate from extraneous factors accrue to the owner, rather than the society. In a nutshell, the financial instruments are locked in historical path dependencies in a manner that would require protracted political, legal and structural changes to transform (Bhana et al., 2011).

Siba et al. (2017) considers the Land value capture (LVC) as a viable alternative policy instrument for financing urbanisation by recovering part of or the whole of value increment, which arises from investment on public infrastructure. Eglin (2010) provides a useful explanation of how land values increase. The first driver of land values is government or private investment in infrastructure or land (e.g. a new road or railway) that has a heightening effect on the desirability of the precinct/corridor,

[112] Municipal Finance Management Act #56 of 2003.

which has the effect of pushing up the land market values. The second driver entails changes in planning regimes or land use regulations (e.g. zoning) that would increase market value because of more enhanced productive land uses. The third driver relates to the demographic changes, particularly population increases, which would ordinarily lead to higher demand and higher land prices (Eglin, 2010). The fourth factor, economic development, arises from increased productive use and the positive effect on land values.

LVC is not just a green-field opportunity for South Africa's local government, but it is also an instrument for raising much-needed funding for development (Brown-Luthango, 2011). The ability of African countries to capitalise on LVC is limited by inadequate land administration institutions which undermine certainty (Siba et al., 2017). Siba et al., (2017) view South Africa's robust and sophisticated tax collection institutions as a huge opportunity, particularly with respect to the bigger cities such as Johannesburg and Cape Town. Some of the critical success-failure factors for LVC include a conducive policy environment, national government support, strong local government, an established financial sector and existing public-private partnerships (Siba et al., 2017).

South Africa's policy aversion to LVC is not only misaligned with global trends and trajectories but to globalclimate change imperatives as well. Dunning & Lord (2019) acknowledge not only the global reach of LVC policies (Muñoz, Gielen & van der Krabben, 2019; Goodfellow, 2017; Nguyen, van der Krabben & Spencer, 2017), but also the vast body of research which focuses on "on how to value might be extracted through the real estate development process in order to provide infrastructure, public goods and affordable housing" (e.g. Mcallister, Shepherd, & Wyatt, 2018). They further argue that LVC can also be used as part of a broader suite of climate change mitigation instruments. Making use of pollution-induced climate change from the rural perspective -- how it impacts on productivity of agricultural land -- has knock-on impacts on relative land values of land (Gbetibouo & Hassan, 2005; Mendelsohn et al., 1996).

While they have application in other cases LVC policies have been used in other parts of the world as part of the land administration toolkit for managing urbanisation and mitigation of climate change impacts. Dunning et al., (2020) argue that while

cities constitute a key driver to climate change as a result of their contribution to increasing emissions, they are also high-end risk areas for some of the worst effects of climate change, some of the low-lying coastal cities of the global South being examples include. Such areas make a strong case for enhanced investment in climate adaptation and resilience strategies. Conversely high-lying cities which are less susceptible to floofing are in all probability likely to be attractive in the longer term (While & Whitehead, 2013). These two scenarios demonstrate the nexus between climate change and real estate markets, as well as possibilities of using LVC to manage the underlying dynamics.

The 2019 wildfires in California and those of Australia in 2020 are just some of the grotesquely crisp early examples of the importance of consideration of viability of human settlements in the medium to long term and the need for investment in urban resilience (Dunning et al, 2020). While there is no doubt of the role of LVC policy instruments as a means of extracting some of the gains arising from real estate and diverting those to wider community or social benefit, lack of transparency and accountability around how LVC revenues are spent in relation to environmental sustainability of human settlements, remains blurred.

At the centre of the World Bank's *Doing Business* rationale is the requirement for certainty and ease of acquiring, using and disposing of rights in land, rather than a requirement for a specific set of institutions. What the World Bank perspective neglects is that formal regulatory framework institutions such as the cadastral and deeds registry systems are under increasing pressure of volumes despite their exclusionary and anti-poor orientations (Siba et al., 2017; Berrisford & Kihato, 2006). In the African context, the correct orientation supported by robust land administration institutions is critical. One of the glaring consequences of South Africa's land governance and administration system is spatial inequality, which constitutes a critical element of the bigger inequality landscape.

7.2.4.4 Spatial inequality path dependencies

Despite a plethora of ambitious social engineering programmes, South Africa's ascendance to the top of global inequality charts (Hosken, 2019) is an indicator of a failing set of land governance policy instruments. A glaring feature of South Africa's extreme inequality landscape is the concentration of approximately half of the

country's wealth in approximately 1% of the population (Huchzermeyer et al. 2019; Orthopher, 2016). A detailed analysis on the persistence of apartheid's spatial structure is long and beyond this study. There was an unrealistic expectation that by removing apartheid legal restrictions, the rural-urban migration would somewhat self-correct the artificial spatial distortions, which was a trend going against migration theories and normalisation theses (Todes, 2001). While urban migration trends did increase, they were somewhat watered down by migration to decaying economic centres. In explaining the persistence of apartheid spatial planning, Hall (2010) mentions a history of processes of coercive dispossession, use of force, treaties, cattle theft, forced sales and tax systems. Since the 1970s, the agricultural farming sector has been shedding jobs well into the democratic dispensation, largely driven by factors such as mechanisation, pressures of deregulation, casualisation and externalisation of farm labour (Carthright et al, 2017). Premised on 2 million farm evictions between 1994 and 2003, with 940 000 being forced evictions, Hall (2014) suggests that legislation – Land Reform Labour Tenants Act #3 of 1996 and the Extension of Security of Tenure Act #62 of 1997 – that was primarily designed to secure land rights in the agricultural countryside *has* failed to achieve what it was set to do.

While history has undoubtedly had a huge impact in shaping apartheid spatial geographies and racial inequalities across urban and rural spaces, between former homelands and the old South Africa, the manner in which town and regional planning instruments have been used in the post-apartheid dispensation has played a big role in driving continuities (see Carthright, et al, 2017). Development approaches that are embedded in high modernist approaches – whether engineering, town and regional planning – are fundamental current drivers of spatial inequality (Huchzermeyer, et al., 2019). Among some more recent tools of exclusion is the phenomena of 'gated communities', 'eco-estates', 'townhouse developments', 'nodal oriented commercial and retail developments', 'closed commercial centres' etc., which have contributed to the systematic privatisation of public administration and service delivery (Pieterse, 2009).

Within the urban development discourse, explanationson the unfettered continuation of the 'apartheid spatial inequality' – also explained as a consequence of challenges in accessing well-located land for housing (Kwenda et al., 2020; NPC, RSA 2010).

One strategy for addressing this form of inequality within the urban context would entail the redistribution of strategically located land along transit corridors, around development nodes (Huchzermeyer, et al., 2019). Notwithstanding that, to think that a deep-seated policy challenge can be addressed through a single strategy would be myopic. The post-apartheid state's approaches to informal settlements and low-income housing development cannot be disregarded. These low-income housing programmes are located on the peripheries and far from economic opportunities resulting in replication of the apartheid spatial patterns (Carthright, et al, 2017). Huchzemeyer's comparative review (2004 cited by Levenson, 2012) of South Africa and Brazil's approaches to informal settlements is quite telling. Brazil's approach pivots around a recognition of the *favelas* as a permanent feature of the urban landscape and forms the basis of engaging urbanisation. In direct contrast, South Africa's notion of "informal settlements" is a lens that frames them as a temporary feature that would be eradicated at some point.

Several cross-cutting land administration studies were conducted during the 1990s to the early 2000s, diagnosing gaps and disjunctures in South Africa's land administration system.[113] The approximate period 2005 to 2015 reflects a shift in focus from broader issues of land administration to a narrow view on administra of land tenure, with a specific attention on communal areas (MXA, 2003 a, b & c; MXA, 1998). The transdisciplinary nature of the subject relegated the subject off government departmental silos. The High Level Panel on the Assessment of Key Legislation and the Acceleration of Fundamental Change is the most recent evaluative initiative that made proposals for major changes to a plethora of post-apartheid land statutes (Parliament, RSA, 2017). Due to it's narrow terms of reference, this state-led initiative was fixated on evaluating individual statutes instead of evaluating the land administration system. Notwithstanding the narrow terms of reference of the HLP, the extent of the proposed institutional reforms points to a need for fundamental reconfiguration of the land administration system.

The academic community has made calls for a range of institutional reforms in land administration (Oranje et al., 2019; Winkler, 2019). Winkler's (2019) criticism of fragmented land management and control across multiple authorities is clearly

[113] Notes by Rosalie Kingwill (undated).

targeted at land administration systems. Winkler is also unreservedly critical of the preoccupation of land policy with the idea of absolute ownership or legal bias towards Western titling approaches, which among other statutes, finds expression in SPLUMA. With specific reference to human settlement development challenges and an appreciation of the broader chaos in South Africa's land governance and administration statute books, Oranje et al., (2019: 113) suggest "a fundamental redraft of development and spatial planning acts, and policies produced post-1994", while pinning hope on the Infrastructure Development Act 23 of 2014 (RSA, 2014a) for having a potential role in creating conditions for the development of sustainable human settlements. Many of these proposals are locked in narrow disciplinary frames as opposed to a holistic land governance approach.

7.3 AN EVALUATION OF POLICY DESIGN TRANSITIONS

Howlett et al (2013)'s framework for evaluating policy design provides a useful analytical tool for understanding the design logics underpinning the land governance transitions leading to the post-apartheid dispensation. Policy design is the craft of differentiating, packaging and calibrating bundles of alternative policy means and tools in a manner that would deliver predetermined or desired outcomes (Howlett et al., 2013; Gero & Smith, 2009; Doremus, 2003; May, 2003; McLaughlin & Gero, 1989). As in the art of building, non-differentiation and packaging is what differentiates a good from a bad design. Poor differentiation is antithetical to Howlett et al.,'s (2013; Del Río, Silvosa, Iglesias, 2011; Howlett, 2011; Boonekamp, 2006; Grabosky, 1995) "maximisation of complementary effects" of policy toolkit, and "goodness of fit" between the policy mix and governance context. If this brief historical diagnostic of the political transition from apartheid to the new dispensation is anything to go by, using a land governance prism, it is a policy transition that all the hallmarks of low levels of differentiation and packaging. The historical diagnostic illuminates how issues of social equity and justice which are at the centre of South Africa's transition fell between the cracks of land governance institutions (Fitzgibbons, 2019).

Using a building construction analogy within the land governance policy design, the building (end product) is not good enough unless it serves some predetermined end. The combination of stability of goals and leadership is quintessential in the process

of managing the policy transition from a perceived state to the desired goal has been extremely tricky (Chitonge, 2020; Chauveau et al. 2006). An even trickier set of challenges arises when one considers questions such as who makes the goal determination and whose interests are served by the end goal. For the purposes of this dissertation, the execution commissions and omissions of the state are not only policy design choices, but also constitute a critical success-failure factor and a reflection of state capacity. The indiscriminate import of land governance policy instruments into the post-apartheid order is antithetical to the very notion of differentiation which is the essence of design and providing sufficient fodder to explain continuities based on Howlett's (2013) criteria. The historical diagnostic sheds light into concealed transition management dynamicsin a way that potentially assists in reimagining decolonisation (Safransky, 2018). Through the process of colonial and apartheid continuities into the post-apartheid dispensation, the entangled power hierarchies that are embedded in the institutions -- i.e. capitalism/European/patriachal/white -- also come along (Grosfoguel, 2007). It is somewhat not suprising that the he organising principle for land relations (including opportunities) continues to be underpinned by gender, race and class hierachies and disparities -- hence spatial inequalities and the associated economic inequalities.

Howlet et al. (2013; Howlett & Cashore, 2009; Cashore & Howlett, 2007; Hall, 1993) make a differentiation between three interconnected layers of policy that could be deployed in policy design evaluation, which include abstract goals, a set of objectives, programmes and operational aspects. As stated from the outset, the Constitution is not subjected to any critical analysis, but is considered to constitute an embodiment of a new set of abstract goals for the post-apartheid dispensation. On at least two specific abstract goals discussed, the one relating to extending security of tenure security to all South Africans – section 25(6) and (9) – and the other elevating the status of customary law – section 211(3) – the state performance in respect of the constitutionally entrenched abstract goals at both programme and operational levels is dismally poor.

Among the criteria for evaluation include "consistency" between mutually reinforcing multiple instruments; "coherence" relating to the logical co-existence of multiple policy tools; "congruence" referring to the extent of unidirectionality between mutually supportive policy tools; and "integration" which establishes the link between goals

and means ensuring that these are mutually reinforcing (see Kern & Howlett, 2009; Briassoulis, 2005; Meijers & Stead, 2004;; Meijers, 2004).

At one level of abstraction, Howlett et al. (2013) differentiates between two policy design approaches of 'patching' and 'packaging', for the purposes of enhancing coherence, consistency, congruence and complementarity of system elements. The concept of patching is borrowed from operating system (software) designers who release software patches which are used for the purposes of fixing identified glitches. On a slightly more detailed level of abstraction, Howlett et al. (2013; Béland, 2007; Hacker, 2004; Thelen, 2004; Thelen, 2003) advance three policy design approaches that include "layering", "drifting" and "conversion". Layering policy trajectories can be equated with putting a layer over an incumbent regime with minimum disruption to the pre-existing regime, with possible consequences of policy incoherence and inconsistencies. Drifting approaches entail a slight positional shift in the policy mix and are typically adopted by instrument constituencies that are opposed to a new mix but lacking sufficient strength to bend the new mix in their favour (Hacker, 2005). Within the South African context land administration instrument constituencies are made up of academic disciplines, proffesional bodies (e.g. land surveying, town and regional planning, conveyancing, etc.), and their respective representative proffesional bodies, who are constantly lobbying for particular instruments.[114] International bodies such as the World Bank and some global North country representatives also play an important role as instrument constituencies.[115] Conversion policy approaches, on the other hand, are characterised by a redeployment of pre-existing policy mixes to new set of goals, predicated on minimising disruption (van der Heijden, 2010) while heightening the risk of incongruence between old instrumentss and new goals (Howlett et al. 2013; van der Heijden, 2010). The extent to which the combination of these frameworks have been deployed in South Africa's transition to the post-apartheid dispensation does provide

[114] PLAAS-PARI 2nd Land Administration workshop - Making off-register rights visible. Webinar held on 17 February 2021.

[115] Fourth Virtual Seminar organised by the Project "Technical Dialogue on Agricultural Finance associated with Land Management", Land Bank and LandNNES, held on 9 December 2020.

useful insights into the essence of the land governance system (Howlett et al., 2013; Hongtao, 2012; Howlett, 2011; Eliadis, Hill & Howlett, 2005).

Kingwill & Manona (2019) characterise the land administration system as a hodgepodge of four layers of old-order statues; transitional systems that spanned the evolution from apartheid to democratic rule; old statutes from the former homelands; new order statutes; and a range of extra-legal hybrid systems. It is not farfetched to draw on the England and Wales' example of two decades ago, quoting a senior judiciary's response "the exceedingly complex network of tribunals in [land, housing and property etc.] being a source of confusion" to astute legal minds, as well as to the layman (Home, 2020:132). The experience of England, does somewhat shed light into the legal complexities that form the basis of South Africa's land governance system. The legal complexities arising from lack of a coherent land governance in land governance institutions have partly provide explanation of history continuities. A critical defining feature of de-colonial thinking entails uncoupling thought processes and praxis from the colonial matrix of power (Mignolo et al., 2013; Gordon, 2004). What this implies is that while homogenisation and rationalisation of the statute book is pivotal, it needs to be underpinned by a deeper coherence around 'repurposing' transitions that are anchored de-colonial thinking -- as a political imaginary that is intended to set South Africa's system on a more just and sustainable trajectory (Healy, Martinez-Alier et al, 2015). For now, it is sufficient to tag such a process 'repurposing of land administration, to which more more content is developed in Chapter Nine.

A research report undertaken by the Public Affairs Research Institute (PARI) some explanatory analysis into public administration scholarship trajectories (research and teaching) during the transition into the new political dispensation, in a manner which sheds some light into how the combination of South Africa's peculiar history, the transition into the 'new South Africa' was managed has congregate to in shaping the fortunes of government state capacity challenges (Chipkin & Meny-Gilbert, 2011). Largely from an institutional perspective and drawing from an overview of journal articles in the period 1994 and 2006 (*Journal of Public Administration* and *Administratio Publica*), Cameron & Milne (2009; Chipkin et al., 2011) makes two damning conclusions about public administration scholarship in South Africa, one being a weakness in the development of theory and the other poor testing of validity

and causality. They are highly critical of the bias towards techniques and skills training, the consequence of which is the foreclosure of research, which they attribute to the entanglement of research and consulting interests among scholars. Among others, research is merely descriptive and devoid of analysis, little attention is paid to analysis leadership, historical emergence and evolution of public administration institutions and informal norms (Chipkin et al., 2011). The danger of this trend has far reaching implications for developing countries that are in pursuit of new policy trajectories that are anchored in justice. Animating the transition from the colonial-apartheid to a post-colonial state, Crawford (2004: 2) invokes the biology analogy of metamorphosis, illustrating how "the caterpillar becomes a butterfly without losing it's inner essences". Picards (2005) had also made a similar point, that there are path dependency continuities in both the government structures as well as processes from the apartheid era. Despite the 'independence' from the colonial entity, the structures and routines constitute the hidden governance hand.

7.4 CONCLUSION

This chapter focused on the convoluted history of key political transitions from pre-colonial to colonial, colonial to apartheid and apartheid to post-apartheid transitions, with specific attention given to how the new dispensation has managed land governance policy design transitions. Notwithstanding continuities from the colonial era, the chapter revealed how the apartheid state – in it's last days in power – successfully pre-empted the post-apartheid land governance trajectories in a manner that created path dependency for the post-apartheid state. This chapter concludes that South Africa's land governance system continues to be anchored in coloniality which is at odds with the country's social equity and justice goals. That elicits the question on whether the goals are or have become rhetorical. South Africa's land governance policy design transition from apartheid to the post-apartheid dispensation fails on all four of Howlett's (2013) evaluation criterial of consistency, coherence, congruence and integration as a result of the process being dominated by conversion policy design approaches. Even beyond the political transition land governance policy design is locked in complex institutional silos. With respect to water and mineral resources, the two areas where the post-apartheid state did

expand on the state custodianship land resources is undermined by administrative paralysisand trust deficit between the state and the public.

Moving from the premise that the 1996 Constitution sets out new goals for the country, most of them aspirational, the chapter showed the post-apartheid state has hitherto such as providing universal security of tenure and in mainstreaming customary law as an independent source of law. Despite a plethora of ambitious social engineering programmes, South Africa's ascendance to the top of global inequality charts can be partly explained as a result of the mix of land governance policy instruments deployed during the poast-apartheid dispensation. The rhetorical apportionment of causality of continuities of apartheid spatial geographies and racial inequalities within urban and rural spaces between homelands and the old South Africa no longer holds. While history has contributed in shaping the spatial geography, the mix of land governance instruments have been used in the post-apartheid dispensation have played a big role in driving continuities (see Carthright et al, 2017). South Africa's failure to acknowledge "informal settlements" as a growing and permanent feature of urban landscapes undermines appropriate policy responses to the challenge. The neoliberal stance of reluctance to intervene in the markets implies that a viable alternative policy instrument for financing urbanisation by recovering part or the whole of value increment that arises from investment on public infrastructure, such as Land Value Capture (LVC). The post-apartheid state's approaches to informal settlements and low-income housing development cannot be disregarded.

The next chapter is diagnostic in orientation undertaking an assessment of South Africa's land data ecosystem as a cross-cutting land administration domain deploying the ecosystems theoretical framework. It focuses on selected government actors within the land sector. The chapter makes some damning findings of South Africa's land data ecosystem deploying two diagnostic tools: Cairns et al. (1993) groupings of five indicators and and 'the three indicators of Zhang et al. (2015)..

CHAPTER EIGHT : A DIAGNOSIC OF SOUTH AFRICA'S LAND DATA ECOSYSTEM

8.1 INTRODUCTION

Land data in the context of land governance and administration has been a common thread throughout this study, constantly (re)emerging across different chapters and thematic areas. The first chapter introduced the concepts of Open Government (OG) and Open Government Data (OGD) as two long-standing, closely related global political movements.[116] Chapter Four identified land data as a cross-cutting domain in land administration providing information on the state of the land administration system.[117] The theme of data/information within a specific context of natural disasters emerged in Chapter Five as part of an overview of global trends of geo-data technologies such as communication satellites, meteorological and earth observation satellites, satellite-based positioning technologies, geographical information systems (GIS) applications land governance such as hazard modelling and analysis. In Chapter Six the challenges of poor [land] hydrological data (quality of data that the models require) were identified as a key success/failure factor in transboundary hydrological modeling approaches and an impediment to management structures, management of future scenarios and regional integration (Molle, 2017). In the same chapter Chakwizira et al. (2009) identified challenges of data paucity, imprecision, confusion in treaties and legal instruments in the archives as a direct consequences of Africa's colonial legacy, finding expression in the governance of trans-national boundaries. The previous chapter provided a brief historiography of South Africa's land governance and administration system specifically focusing on the convoluted history of key political transitions.

This chapter is primarily diagnostic in orientation, providing an assessment of South Africa's land data/information ecosystem as a cross-cutting domain in land governance and administration deploying the ecosystems theoretical framework

[116] See Chapter One.
[117] See Chapter Four.

(s3.4). The chapter sets the scene by providing a high-level overview of South Africa's national information policy trajectories within a broader global information policy environment which it is an integral part of.

The chapter then delves into an exploration of South Africa's land data/information ecosystem as a domain of land administration, focusing on selected government actors within the land sector. It proceeds to provide a brief overview of South Africa's national address system and offers insights into South Africa's Deeds Registry (DR), Surveyor General (SG) duo systems and the national archival system as important elementss of the land data/information ecosystem as a prism to providing broader insights and extrapolations on the wider land data domain. The chapter closes off with a diagnosic synopsis of the ecosystem health emanating from the study, making use of two diagnostic tools: Cairns, McCormick & Niederlehner (1993) groupings of five indicators and Lu, Wang & Zhang's (2015) three indicators.

8.2 SOUTH AFRICA'S HIGH-LEVEL INFORMATION POLICY ENVIRONMENT AND TRAJECTORIES

The drafters of the South African Constitution made a clear distinction between a commitment to OG and OGD as different albeit closely intertwined, constitutional imperatives. The preamble of the Constitution of the Republic of South Africa aspirationally refers to South Africa as a "open and democratic society" committed to the values of "open government" (OG), repeatedly making reference to South Africa as an "open society", specifically in Sections 36(1), s39(1)(a), s59(2), 72(2) and s118(2). Section 32(1) of the Constitution goes on to elaborate on the OG imperative and access to information imperative. It reads:

> Every person has the right of access; [and or] to all information held by the state or any of it's organs in any sphere of government so far as that information is required for the exercise or protection of any of their rights (Constitution RSA, 1996).

Chapter 10 of the Constitution, which largely deals with matters of public administration, commits to a public administration that is underpinned by minimum basic values of accountability, in Section 195(1)(f) and transparency in Section 195

(1)(g) translated into reality by providing the public with timely, accessible and accurate information.

The manner in which these two closely intertwined – and often confused -- constitutional imperatives of accountability and transparency get translated into reality, particularly with respect to land, is fraught with challenges. Notwithstanding that the Constitution provides broad but fairly clear directives on the two principles, the South African government took a policy design approach not to promulgate an overarching guiding framework for these important constitutional principles, leaving them open to multiple interpretations on a case-by-case basis, and refinement by courts of law. This results not only in a lack of clarity on what these concepts mean but creates the absence of minimum norms and standards. Following the same trend, downstream legislations in local government also falls short: the primary founding statutes for local government makes reference to vague notions of transparency and accountability imperatives without providing succint norms and standards within the context of local government in the post-apartheid dispensation.[118] By omitting to promulgate a framework statute on one hand, and omitting norms and standards in subsequent statutes on the other, South Africa by default adopted a step-down policy design approach by framing statutes below the constitutionally entrenched benchmark. Howlet (2013:171) refers to "the 'degrees of freedom' or room to maneuver which policy designers have in developing their designs and the ideas". A step-down policy design approach falls shortof how much policy space is available, by pegging policy design lower than the set benchmark. Step-down policy design approaches arise at different policy scales: at the interface between the Constitution and statute, between the statute or policy and programme, and at the interface between programme and actual practice. The access to information imperative and PAIA is a demonstration of disjuncture between all these levels. This results in policy incoherence that has serious implications for the post-apartheid land administration transitions.[119] This consequences of this phenomenon do not only result in policy incoherence, but the justice imperatives fall between the cracks at any of the different scales.

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[118] *Local Government: Municipal Structures Act, # 117 of 1998* and the *Local Government: Municipal Systems Act No. 32 of 2000.*

[119] Policy design trajectories articulated in Chapter Seven.

In a direct response to section 32 of the Constitution but with an obvious blind spot to section 195(1) (f) of the constitution, the Promotion of Access to Information Act #2 of 2000 (PAIA) – purportedly designed to actualise one of the constitutional imperatives of the right of access to information that is held by the state or by a private person – was passed into law.[120] While PAIA represents a clear break from the closed information regime that is associated with the colonial and apartheid past, it still places a requirement for one to request the information, by formally submitting an application in order to gain access to information, rather than making data/information available by default, which is below the threshold principle of OGD. To the extent that this falls below the OGD threshold of making data open by default, it is yet another step-down policy design trajectory. An explicit policy contradiction emerges in the subsequent National Development Plan, which explicitly calls for "open data" to be made available without request (NPC RSA, 2011). At the level of praxis, the NDP takes a rather dim view of public service conduct with respect to PAIA, by conceding to the endemic compliance challenges within the public administration system, where requests for information are routinely ignored in contravention of the PAIA. For this reason, PAIA , while representing some degree of progress, it also represents legislation that is pegged below the constitutional benchmark that is set by the Constitution, specifically section 195(1) (g) of the Constitution.

For some reason South Africa did not promulgate a framework law for the purposes of adherence to the requirements of section 195 (1) (g) of the Constitution, which would have resulted in a cross-cutting effect on the entire post-apartheid land administration system, it also did not decode the meaning of accountability and transparency, leaving them intangible and relative. A review sample of a sample of 18 pieces (see Table 7.2) of land legislation proclaimed since 1993 in South Africa were put to test for compliance with the provisions of section 195 (1)(f) and (g).[121] While many of these laws debatably pass the section 195 (1) (g) principle test of accountability, all of these laws fail the section 195 (1)(f) test of transparency of the Constitution. This is yet another demonstration of a policy step-down in post-

[120] The PAIA applies beyond the three spheres of government in scope, and enjoins state owned enterprises such as Transnet, Eskom etc. to comply with the provisions of the Act.

[121] This could have been done in one of two ways, either finding articulation in a cross-cutting framework statute, or alternatively building it into every post constitutional statute.

apartheid South Africa's land information policy landscape. The Restitution of Land Rights Act #22 of 1994, is another living example of step-down policy trajectory, of which section 36 reads:

> In order to facilitate the work of the Commission and the Court, the Minister may take all necessary steps to compile a register of public land, which register shall be open to inspection by claimants and prospective claimants.

Notwithstanding the original constitutional imperatives of transparency and accountability, the statute is crafted in a manner that is pegged below the constitutional directive for "currency" of data/information. At the level of statute implementation, South Africa has hitherto been unable to compile a credible register of public land as per directive of the Act – a further step-down at the interface between policy and practice.

A brief history, and the global origins, of the OG and OGD was briefly outlined in Chapter One. The configuration of OG and OGD between the different scales of information policy is a praxis challenge not only for South Africa, but for the rest of the African continent as well. Notwithstanding that OG and OGD have found a niche in South Africa's Constitution, the various versions of OGD data principles, which emanate from the international scale, are not without fault within the context of a developing country, partly as a result of the inherently relative nature of some of the principles.

In line with Jacobs's (2012) point regarding configurations between global and national norms, Tauberer (2014) sounds caution on the national context considerations when applying OG and OGD principles in a manner that has relevance for South Africa. Firstly, Tauberer (2014) cautions on the potential for subjective consideration in the evaluation of the "quality of data", because it is impossible to do so without context considerations and a specific purpose in mind. Secondly, any suggestion of an international standard on what constitutes an "appropriate fee for access" to, or reuse of, government data is problematic as this can only be determined based on context considerations.

Thirdly, what constitutes timely or "currency of data" depends on the type of data and the particular circumstantial purposes for which data is required (Tauberer, 2014).

For example, in the context of a global pandemic such as Covid-19, currency of data (e.g. test results) might be within the range of 24 hours for certain categories of day-to-day management purposes, while two weeks or more is an appropriate currency scale for other higher-level policy decisions. Yet a three-to-five year accuracy would be considered sufficient currency with respect to satellite imagery or aerial photography mapping data that is to be used for planning a powerline alignment. Navigating one's way around this dilemma, by framing it in such a manner that invokes the notion of quick availability of data, such that the value of data is preserved does not eliminate the dilemma, because it elicits a further question of "whose value" matters under different circumstances.

Fourthly, when considered through the data ecosystem value chains framework, the very notion of what constitutes primary data is not without complexity. Tauberer (2014) defines primary data as data that is collected at source with the finest level of granularity without segregation or modifications. What these various dilemmas point to is the requirement to customise these international principles of OGD to the specific contexts. These are all questions that require local, national and regional policy (re)alignments as opposed to the current trajectory towards blanket universalisation which emanates from the North. The next part briefly examines South Africa's national information policy landscape, as part of contextualisation.

South Africa's broader national information policy landscape is an important consideration, as part of the environment in which the land data ecosystem is located in. Rens' (2013) concern with various sets of complicated layers of information statutes that are often contradictory and that have direct implications for the OGD policy trajectories in South Africa. The various policy and legal instruments create complexity and uncertainty for government officials and policy makers. Acknowledging that the confusion that arises from the unintended consequence of poor institutional change management, which results from elements of the old-order statutes finding their way into new order information regime, is both a policy design choice and an accident of omission. Making reference to old-order laws that have not been repealed using the constitutional lens inevitably results in legal and policy blind spots for government officials. Some practical information policy challenges that Rens (2013:1) notes give rise to more questions than answers: the Copyright

Act #98 of 1978 is an older statute predating both the Constitution and the rise of big data. As a result of this outdated policy, it raises questions such as:

- Which aspects of data are subject to copyright?
- Under what circumstances does copyright over data vest in the State?
- Is the 1979 delegation of control of state copyright to the Government Printer permissible under the 1996 Constitution, especially the provisions governing the powers of provinces and municipalities?
- How does the legal duty of cooperative governance, including information sharing, affect the duty of government offices to share data?
- Are databases subject to the State Information Technology Agency Act 88 of 1998? Should the Ministerial Interoperability Standards specify data formats?

Weighing in on some of these questions is beyond the scope of this dissertation, but the important point that these questions highlight is the built-in contradiction and deficiencies of the broader national information policy regime. This brings us to the intersection between subsector information policies, the point of interface between the thrust towards protection of private information (POPI), state secrets and open data, all constitutional imperatives in South Africa.

The *National Internet Communication and Technology (ICT) Policy White Paper* (DTPS, 2016) promises access to the benefits of the digital society. One of the policy objectives embedded in the National ICT White Paper is a commitment to the provision of a framework for implementing government's OG and OGD imperatives through rollout of the national broadband infrastructure as an essential though not sufficient element of the process. Figure 8.1 is a picture taken by the researcher in East London, Cambridge,, South Africa, showing the rollout of optic fibre network. Largely due to poor transparency, provide a reasonable measure progress of this project with any reasonable level of accuracy, because that data is not published. This roll out of optic fibre that that iscurrently underway partly addresses elements of the technical and infrastructure requirements (see Fig. 8.1). The important point is

that there is definitely no knowledge paucity in realising the importance and role of broadband as an enabling infrastructure.[122]

Figure 8-1: Installation of optic fiber, Cambridge, East London, South Africa (Nov 2019)

The principle of interoperability was identified earlier as fundamental to OGD (ss1.4.2).[123] Within the context of government, South Africa's ICT interoperability is governed by a set of statutes or policy directives which lack coherence (DPSA, 2011).[124] For example, the Minimum Interoperability Standards (MIOS) does not only provide guidelines, but it also compels ICT leaders in government to collaborate on e-Government initiatives by sharing scarce resources and set out ICT standards that would facilitate electronic sharing of information across traditional government structure boundaries for the enhancement of public service delivery. In spite of the intent, the overt objectives of lowering of cost and increased productivity by government, which is expected to arise from interoperability (DPSA, 2011), lived experiences reflect poor harmonisation and/or poor convergence of government processes. For some unspecified reason, the MIOS is underpinned by one of the

[122] https://www.dtps.gov.za/index.php?option=com_content&view=article&id=134:overview-broadband-policy&catid=25:programmes&Itemid=108 (Accessed on 11 February 2019) As of 11 February 2019 the Website of the Department of Telecommunications and Posts was still showing intent of submitting a revised National Broadband Policy and Broadband Strategy for the country before the end of 2013/14 financial year, implying that it had surely not been updated for four year plus.

[123] See Chapter One.

[124] Public Service Act #38 of 1994 (as amended by Act #30 of 2007) sections 3(1)(f) and 3(1)(g) (DPSA, 2011) standards and norms, and the Service Regulations 2001 (as amended 2001 to 2010) Chapter 5, Part I and Part III, and the State Information Technology Agency Act (Act #88 of 1998 as amended by Act #38 of 2002) sections 7(6)(a)(i) and 7(6)(b) in terms of interoperability and certification and the Minimum Interoperability Standard (MIOS) for Government Information Systems version 5.0 which is part of e-Government programme.

most debilitating policy fissures, in that it "is prescriptive, and compliance is mandatory to heads of National and Provincial departments and associated agencies/entities as listed in the Schedules to the Public Service Act #30 of 2007 – it is descriptive and compliance is not mandatory to heads of Local Government" (DPSA, 2011:10). The local government's primary founding legislation seeks to regulate internal systems of local government while also seeking to establish

> a framework for support, monitoring and standard setting by other spheres of government in order to progressively build local government into an efficient frontline development agency that is capable of integrating the activities of all spheres of government for the overall social and economic upliftment of communities in harmony with their local natural environment. [125]

The policy goals of making local government a point of convergence for the entire government machinery are circumvented by the exclusion of municipalities from MIOS by default, thus defeating the entire purpose of standardisation that MIOS is anchored in (Ntlatlapa, 2016).

Largely predicated on the assumption that ICTs are most cost effective in implementing OG and OGD, the United Nations Economic Commission for Africa (UNECA) has among other work developed guidelines that advocate for the correct legal, technical and infrastructural environment to be progressively put in place by African countries in order to achieve OG and OGD objectives (Williams-Elegbe et al., 2017). This suggests that it is pointless to put in place appropriate technical infrastructure unless it is not supported by an overarching legislative environment. According to Williams-Elegbe et al., (2017:7), the suite of technical requirements for ICT-enabled OG and OGD as provided by UNESCA include:

- Portal development
- Storage capabilities allowing for big data transfer and storage
- Machine readability
- Information infrastructure
- Interoperability of systems

[125] Local Government: Municipal Structures Act #117 of 1998 read in conjunction with the Local Government: Municipal Systems Act #32 of 2000.

- Security and data protection
- Data quality and validity.

These ecosystem architecture requirements should be anchored in a coherent and holistic policy design. The absence of benchmarks or standards for transparency and accountability, is a fundamental policy lacuna within South Africa's national information policy (Scott & Rajabifard, 2017). In a nutshell, this implies that to roll out OG and OGD in South Africa, the inconsistencies at the intersection of the wider constitutional imperatives for information and ICT policy requires extensive reconfiguration.

From a technological perspective, South Africa's land data ecosystem has slowly but steadily embraced "advances in ICT and data sharing cultures, which do not only enable integration but also make aggregation and disaggregation of land data/information possible" (Bennett et al., 2012). One of the biggest challenges is not just about the coordination of land governance activities across the different traditional government silos, but how to converge them towards an integrated data infrastructure in support of land governance and administration (Penuel, 2019). A clear demonstration of this disjuncture is the absence of an integrated data system between the national Department of Water and Sanitation (DWS), which is responsible for national water policy and regulation of the country's water resources, and municipalities which are responsible for water services. On the other hand the DWS does not publish water quality and quantity data-sets, as part of SDI. The exclusion of hydrogeological mapping, water and environmental data is not only a reflection of fragmented departmental boundaries (silos) but a reflection of fragmented knowledge systems. The next section provides an overview of the state of South Africa's land data ecosystem, based on a sample of 12 state entities, 34 data categories and 72 data-sets.

8.3 AN OVERVIEW OF SOUTH AFRICA'S LAND DATA ECOSYSTEM

8.3.1 The Multiple Players in South Africa's Land Data Ecosystem

The notion of a land data domain is rather misleading, creating an impression of a unitary entity, when the domain is constituted by multiple elements or parts. The data domain is a cross-cutting domain of land administration wherein policies and

systems for collection, storage and dissemination, inclusive of data on other domains, are undertaken. In the broader societal and economic domain, there has been a surge in the requirements for, and dependency on, land data (Nichols, 1993; see Diebolt, 1985). This is evident in the volumes of data required, the diversity and the manner in which the data is collected, processed, stored and transmitted, coupled with a need to manage it as a resource in it's own right. In other words, changes in the land data domain of land administration involves internal and external (environment) system changes. Depending on where an entity is positioned in the data value chain, the different state entities do not only generate different aspects, but also consume other aspects of land data giving rise to what turns out to be enormous and complex systems of data harvesting, storage and sharing (s3.4).

Notwithstanding that data generation and consumption is not an exclusive province of government, for the purposes of this study, the main focus of the assessment was primarily on government actors[126] in South Africa's land administration that is constituted by by a plethora multiple elements or parts, which are arranged along the lines of state architacture -- inclusive of: 226 local municipalities; 44 district municipalities; eight metropolitan municipalities;[127] approximately 40 national government departments (inclusive of the presidency); approximately 82 provincial government departments (inclusive of the premiers' offices) and; approximately 70 state-owned entities.[128] Each one of these multiple state entities have varying extents of interlocking constitutionally prescribed mandates, which are in some instances exclusively differentiated and in others shared or overlapping between spheres and across line function departments on different aspects of land. In addition to the Constitution, multiple statutes are used to assign or delegate functions. For example, a department such as the Department of Sports, Recreation Arts and Culture (DSRAC) in South Africa may seem remotely related to land, whereas on a closer examination, the department is *de jure* a custodian of at least three land data functions. Firstly, DSRAC together with it's provincial counterparts

[126] This is consistent with the OGD theme of the study.

[127] https://www.gov.za/about-government/government-system/local-government (Accessed 25 February 2020).

[128] https://municipalities.co.za/ (Accessed 27 January 2020).

administers the management and preservation of national and provincial archives.[129] Secondly, the Department also presides over a statutory function of allocating geographical names.[130] Thirdly, DSRAC presides over the statutory function of identifying, recording, assessing and managing national heritage resources, a single manifestation of the extent of fragmentarines on land functions.[131]

The different state actors in South Africa's land data ecosystem are not only situated on different fragments in the web of land data value chains, but are also attached to diverse ontologies of what constitutes land data (Li, 2014), and also have varied consumption data cnsumption preferences. The consumption differences of three consumers (grazers) within grassland biome analogy, i.e. sheep, goats and cattle with inherently varied grazing preferences, demonstrates the point. The various plant species (grasses, shrubs, trees, etc.) within the grasslands are the primary producers, and by transforming energy from the sun they generate plant biomass. The sheep are considered low strata grazers with preference for very short grass; goats are considered multi-strata grazers with a preference for slightly longer grass and shrubs, while cattle are normally classified as deep-strata grazers having a preference for much longer grass (up to 300mm) (Bezuidenhout, 2012). This analogy helps in differentiating between different consumers and highlights important factors to be considered when assessing the ecosystem such as the availability and spread of desirable plant species, spread of undesirable species (such as unpalatable invader species), bare patches and signs of soil erosion. Applying the same analogy to state entities suggests that as much as there are multiple state actors in the ecosystemi.e. land use management, local planning, revenue collection and service delivery themes.

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In their expressed requirement for a land information system, the South African Local Government Association (SALGA) requirement is primarily informed by the constitutional mandate of local government, the land use management and land

[129] National archives Act 43 of 1996 as amended together with it's provincial versions i.e. Provincial Archive Services Act 5 of 2001.
[130] South African Geographical Names Council Act 118 of 1998.
[131] Administration of the National Heritage Resources Act of 1999.

revenue rationalities (Molefe & Nkhahle, 2019). In a similar vein, the informational interests and requirements of a state actor such as the Department of Environmental Affairs and Tourism (DEAT) for an informational system will in all probability be underpinned by the rationalities of managing the environment (biodiversity) and associated climate change rationalities. Based on these different departmental perspectives on what constitutes land data and which data sets are important, sometimes overlaps and sometimes varies, between actors, a characteristic which replicates itself throughout the ecosystem.

The idea of an "integrated" land information system (LIS) has been bandied around long enough dating back to the early days of the transition to the post-apartheid dispensation (DLA, 1997; see also Molefe & Nkhahle, 2019; Atkinson, 2017). The early 2000s represent a new conception of integrated land information, a move towards national approaches and national data infrastructure, which have been closely linked to the global surge in the prominence of Spatial Data Infrastructures (SDIs) (Bennett et al., 2012; Williamson, 2000; 2001). Albeit in relation to the then proposed Land Management Commission, a World Bank inspired study, Adlington et al., (2011*)* identified the need for good reliable information about the land such as who occupies it and how it is used.[132] Back then, the National Geospatial Information (NGI) had resumed an interdepartmental process of a National Spatial Data Infrastructure (NSDI) as envisaged in the National Spatial Data Infrastructure Act #54 of 2003 (ss8.3.1.2). Among the proposals made, the NSDI was for some unstated reason identified as a possible basis for a future inclusive national land information system, which has hitherto not materialised. Practice from the developed world is that SDIs are typically used as a platform for national data systems, although they are, in most cases, underutilised and misunderstood, including being locked in silo frames or isolated from other information systems and producing standardised thematic mapping data. South Africa's NSDI process is also somehow also locked in the global policy lacuna, or absence of guidance, on how geospatial data should be implemented, leaving room for each country to navigate

[132] The narrow scope of land information to the cadaster, land use and tenure is antithetical to the broad meaning of land advocated in this study.

it's own path (Scott & Rajabifard, 2017). The common denominator between the various development data-sets – demography, earth observations, environmental and other societal data such as health – is that they all share geographical location and can be somehow linked to the SDI (mapped). This is a technical capability that is grossly underutilised in South Africa.[133] One specif example is the lack of use the NSDI in the monitoring of the geographic spread and concentration points in the surveilance of Covid-19 pendamic.

Emanating from the global scale, the Integrated Geospatial Information Framework (IGIF) that is proposed by the UN Committee of Experts for Global Geospatial Information Management was formed in consultation with more than 120 countries, many of them developing countries. At it's tenth session Committee adopted the Implementation Guide of the IGIF, subject to further refinement and finalisation, as a means of strengthening national geospatial information management arrangements within and across member states at the institutional level by supporting the implementation of the Sustainable Development Goals, especially in developing countries. The IGIF comprises an intergovernmental blueprint with three components; an overarching strategy, implementation guidance, and action plans at the country level. More importantly, the IGIF does not contemplate building new infrastructure, but instead fundamentally recognises, builds substantially upon, and augments previous investments and achievements in planning and implementation of NSDIs. This is definitely an important global initiative, but it's specific impact on South Africa's NSDIs constitutes fodder for future research.

From it's 2016 National Conference, SALGA expressly identified a requirement for "a structured, comprehensive and integrated land [information] administration system" (Molefe & Nkhahle, 2019). Embedded in SALGA's proposed land information system was a vaguely expressed idea of live-streaming (synchronisation/automated updates) of land data from multiple spatial data (geo-data) sources. Similar requirementss have also come from the Operation Phakisa Lab for Agriculture, Land

[133] Informant X^1 via a telephone interview hel on 6 August 2020.

Reform and Rural Development,[134] a programme modelled along the Malaysian Big Fast Results methodology, which is a multi-stakeholder initiative that is led by the DEAT, which among others made proposals for a land data knowledge hub (Atkinson, 2017). Currently, there is plenty of discussion and work within the DRDLR which pivots around notions of integrated land information system,[135] even though it is it's conceptualisation remains unclear, resulting in lack of clarity on where it will ultimately congregate. In very simple terms, these calls are an indication of a growing realisation for the importance of "knowing where people and things are and their relationship to each other… for informed decision-making", as well as the reliance of development agendas on data (Scott & Rajabifard, 2017:66; UN, 2015a). Notwithstanding these seemingly convergent ideas, it would be presumptuous to assume that state actors reflect a shared idea in their expression for some form of an integrated land information system by state actors.

Under the pretext of 'transparency' and 'accountability', South Africa is littered with a plethora of multiple disjointed land data portals or websites of variable functionality and currency (Constitution RSA, 1996). Yu & Robinson (2012) sound caution on the modern practice of publishing data on a website being equated with transparency by default in a manner that would result in accountability -- attributing this conceptual blurring to an increasing over-inflation of the role of technology in OG and OGD. In addition to political posturing, the type of information typically found on the websites of municipalities is often basic and dated having been harvested from Statistics South Africa (StatsSA). This is predominantly information on tenders, manicured annual plans and reports, etc. With a few exceptions, similar patterns repeat themselves within provincial government departments with each of the nine provinces having it's own provincial government website, a premier's office website and multiple provincial government departmental websites. The same phenomenon is prevalent at a national level and for each of the state-owned entities belonging to provincial and national governments too. What is most glaring in these websites/portals is not only varying standards with respect to the publication of data,

[134] http://www.thepresidency.gov.za/press-statements/president-zuma-launch-operation-phakisa-agriculture,-land-reform-and-rural (Accessed 27 January 2019).
[135] A report by Donna Hornby presented at a LandNNES workshop held on 24 and 25 February 2020, Benoni, Johannesburg.

but the spectrum of data that is not publicised relative to what is publicised. Zuiderwijk et al. (2014; Jaeger, 2007) emphasise the importance of examining the types of data that is not publicised when benchmarking open data policies. Further complexity arises because there is not enough to examine high-level strategic open data policy frameworks because these only typically depict a stage of development in the implementation of OGD. .

While it is part of a network of data value chains, the South African National Space Agency[136] (SANSA) is also a source of primary data to multiple state and non-state entities that may or may not add value to the original data, such as the Environmental Geographic Information System (EGIS), South African Weather Services (SAWS), National Geo-Spatial Information (NGI) etc. The SANSA Earth observation carries easily discoverable and accessible satellite imagery data products, dating back to 1972, inclusive of data from Landsat 2-5, 7 and 8, SPOT 1-7, SumbandilaSAT, CBERS-2B and 4 (MUX, WFI, P5M and P10), SAC-C; ERS-1 and RadarSAT2 satellites. SANSA carries an extensive online map earth observation viewer with applications in multiple land management activities, different satellite imagery sets with application in monitoring of settlements, urban and rural development planning, primary data such as normalised difference vegetation index (NDVI), Leaf Area Indices (LAI) and forest cover densities with application in land management and estimation of crop yields, hydrological monitoring for assessing water quality, the history of specific fire scars, space weather monitoring with application in disaster monitoring. SANSA is the primary source of data for an archive that forms the part of the Earth Observation Data Centre (EODC) of the Department of Science and Technology (DST).[137] The SANSA portal claims to have some free data, but it largely recovers much of it's costs by selling data to it's clients (state and private sector).[138]

At a national level starting with the Presidency, all national government departments and state-owned entities that belong to the national government each have their own websites; some are used for data sharing and others are not open. The feature of

[136] https://www.sansa.org.za/products-services/ (Accessed 19 April 2020).
[137] http://catalogue.sansa.org.za/ (Accessed 22 April 2020).
[138] Either that the explanatory web pages, the portal with data was not accessed due to log-in registration requirements.

ecosystem fragmentation also prevails in entities that are supposed to be umbilically related. Under the human settlement sector, there exists a plethora of poorly integrated websites and land databases. The Department of Human Settlements (DHS) and the Housing Development Agency (HDA)[139] both operate separate (not linked) websites with HDA operating multiple databases such as Lapsis, National Social Housing Organizations,[140] HDA Census,[141] and the National Upgrading Support Programme[142] (NUSP). An evaluation of Lapsis against Manyika et al.'s (2013) four 'open' criteria ticks all boxes in that everyone has access, data is machine readable, comes at no cost, and rights of reuse and distribution are subject to license. However, the National Housing Organizations, the HDA Census and National Upgrading Programme portals could not be accessed. The absence of basic data on the core mandate of the department, which is to develop human settlements, gives rise to serious questions about the constitutional imperatives of transparency and accountability.

The Department of Environmental Affairs and Tourism (DEAT), in addition to it's own departmental website, also has the Environmental Geographic Information System (EGIS)[143] which is Open, broadly carrying baseline geospatial data on a national scale, plus a Protected Areas Register (PAR) that maps out protected areas nationally in terms of the National Environmental Management: Protected Areas Act #57 of 2003. The South African Weather Services (SAWS), a statutory entity[144] owned by the DEAT provides national weather and climate-related data including a range of historical, current and forecast data. The EGIS, PAR and SAWS portals meet all four 'open' criteria (Manyika et al.'s, 2013) in that everyone has access, data is machine readable and comes at no cost while the rights of reuse and distribution

[139]The HDA is an entity of the DHS. http://www.thehda.co.za/ (Accessed 04 February 2020).

[140] According to the website, the database carries important property and statistical information on all existing, developing and future pipeline social housing projects.

[141] Population statistics disaggregated down to the ward level, drawing data/information from 2011 Statistics http://www.citysolve.co.za/hda/ (Accessed 22 February 2020).

[142] NUSP was designed to support the Department of Human Settlements (NDHS) in it's implementation of the Upgrading of Informal Settlements Programme (UISP). http://www.upgradingsupport.org/ (Accessed 22 February 2020).

[143] https://egis.environment.gov.za/ (Accessed 04 February 2020).

[144] Governed in terms of the South African Weather Service Act 8 of 2001.

are subject to license. The very reason for the establishment of the GreenAlert,[145] is indicative of vital data that is not published by DEAT. This is a non-governmental portal by Oxpeckers Center for Investigative Environmental Journalism, which purportedly carries data on which Environmental Impact Assessments (EIAs) are taking place on a range of projects such as mines, dams, power stations, roads and landfill sites.

The Department of Agriculture, Rural Development and Land Reform (DARDLR), in addition to the Deeds Registry (DR) and Surveyor General (SG) dual systems[146], drives processes related to work undertaken in terms of the Spatial Data Infrastructure Act 2003 (Act #54 of 2003) (NSDIA) which feed into the National Geo-Spatial Information (NGI)[147] and the emerging National Spatial Planning Data Repository (NSPDR)[148] initiative. The NGI largely carries digital topographic mapping and other geo-spatial mapping on a national scale, including aerial photography dating as far back as 1926. An evaluation of the data portals (DR, SG and NGI) under the then DARDLR against Manyika et al's (2013) four 'open' criteria pass all four. While there is a cost to the property reports or data on Windeed, the cost is relatively low. However, the glaring absence of basic data on the core constitutional mandate of land reform of the department looms large. A typical example of the lack of internal data integration within the DARDLR is the material exclusion of data on the status of each land item as it goes through the internal administrative value chains. There is no internal uniformity with the DARDLR with respect to OGD, with some land data published and accessible to all (e.g. aerial photography and cadastral data) while other data-sets such as land claims, land redistribution details, Expropriation Act processes etc. are not published.

The Department of Minerals and Energy[149] has own portal, the South African Mineral Resources Administration System (SAMRAD Online), which was intended to provide information to the general public on the location of various sorts of mineral

[145]https://greenalert.oxpeckers.org/map#!/bounds=-38.6511983322995,-12.216796875,-15.072123545811683,61.61132812500001. The last time the author visited the site it had been last updated in three years – was last updated 24 January 2017. (Accessed 14 March 2020).
[146] Both are dealt with in more detail in subsection 11.4.2
[147] http://www.ngi.gov.za/ (Accessed 05 February 2020).
[148] http://nspdr.info/index.html (Accessed 28 January 2020).
[149] https://www.dmr.gov.za/samrad-online-system (Accessed 04 February 2020)

authorisation applications, which are submitted in terms of the Mineral and Petroleum Resources Development Act #28 of 2002, while also allowing for electronic application processes. The Council for GeoScience (CGS),[150] an entity that is owned by the Department of Minerals and Energy, operates a different unlinked portal. This portal does not meet Manyika et al's (2013) criteria in that not everyone has access to process data. Because of this inaccessibility, it is impossible to evaluate this portal on the other three criteria. The researcher could not access the data SAMRAD Online, which purports to provide data location of mining applications, mining rights and permits made to the general public or held in terms of the MPRDA.[151] . According to Stoddard (2021: 1) the Mineral Resources and Energy Minister Gwede Mantashe told the 2021 Platinum Group Metals (PGMs) Industry Day conference that "South Africa lacks a publicly accessible online mining cadastre, which typically provides information on things such as existing mining rights and geological data." In the same speech the Minister made an unflattering contrast of South Africa with the Democratic Republic of Congo (DRC), which is not considered highly in respect of transparency in its resource sector, for having an open online mining cadastre. While issues of state capacity are behind the Department of Mineral Resources and Energy (DMRE) reporting to Parliament in February 2021, a backlog of 5,326 applications (mining rights, mining permits, renewal and sale of rights applications). Even more worrisome is that some of the rights are granted on ecologically sensitive ecosystems – a reflection of fragmented institutions structures and data. Other than providing geoscience mapping, the Council for Geoscience portal grants access to a range of scientific reports on engineering and geo-hazards, environmental and water, and minerals development.

From a data value chain framework perspective, municipalities in South Africa are bulk producers of land data as well as being widespread land data consumers with respect to municipal planning and service delivery mandates. From this perspective, municipalities are the first point of approval for land transfers, land subdivision, land consolidation, zoning approvals, approval of building plans, removal of restrictive title conditions, approval of township establishments, etc. (van Wyk, 2012). The

[150] http://www.geoscience.org.za/ (Accessed 02 February 2020)
[151] The process data side could not be evaluated.

Municipal Barometer,[152] a land portal allegedly established as a result of limited availability of local level data/information, was conceived by SALGA in partnership with the Centre for Municipal Research and Advice (CMRA), the Development Bank of Southern Africa (DBSA), South African Cities Network (SACN), Statistics South Africa (StatsSA) and the Municipal Demarcation Board (MDB) (MDB covered in s3.4). The portal was established in response to challenges of "limited availability of local level data... limited access to data that is currently available; various institutions provide data, however, their activities are often fragmented and uncoordinated; huge costs that municipalities pay to get data/information." in the land data value chains in South Africa, for municipalities to view themselves as victims of land data poverty is symptomatic of a bigger ecosystem malady. The municipal-centric nature of the Municipal Barometer initiative is blind to the broader land data requirements of other state entities or consumers. While the rationale for Open Data is evident, this web portal did not carry any current land data as originally envisaged, but instead focused on comparative benchmarking of municipalities, with no data beyond 2015 and 2016. It is inconceivable how the portal addresses the original land data/information requirement which inspired it's establishment.

The metropolitan City of Cape Town's Open Data Portal is an exception within the wider context of municipalities in South Africa, with potentially important lessons for the rest of the country. At face value, the portal is not only kept up-to-date, but provides an index and description of the data-sets it carries as well as broad categorisation of the data-sets.[153] The Department of Information (DI) and Geographic Information Systems (GIS) is the primary implementing department for the City of Cape Town's Portal, and the policy applies across all line departments (City of Cape Town, 2016). Their policy is a reflection of their recognition of the changing role and the value of data in the wider economy and society.

The findings on the selected set of governmental websites reflects stark variations within and between departments, which does not reflect favorable for OGD policy trajectories.(Scott & Rajabifard (2017), with stark variations between departments and within departments. Where data is published and accessible, it is fragmented

[152] http://www.cmra.org.za/content/salga-municipal-barometer (Accessed 17 March 2020)
[153] https://web1.capetown.gov.za/web1/opendataportal/AllData-sets (Accessed 21 April 2020).

and stored in different portals. Within the DARDLR, land data is scattered throughout multiple sources such as NGI, cadastral data, deeds registry, etc. Similarly, DEAT's EGIS is not integrated with the Protected Areas Register.

The DARDLR is in the process of designing a special purpose data portal in support of municipal planning processes (SPLUMA). The Deeds Registry Act #19 of 2019 is also conceptualised along similar lines of electronic filing and monitoring of deeds. The DME has a similar special purpose online data portal in support of various mining applications. Whether this is a new trend going forward to be applied for all land laws is too early to tell. The Expropriation Bill, which is in the parliamentary queue, is still anchored in manual processes. More interestingly all three electronic processes are still locked in silos, in spite of the integration rhetoric.

In-between the different spheres of government, private sector consultants (town planners, land surveyors, conveyancers, land valuers, environmentalists etc.) play an integral role in the land data value chains not only as data generators, but also as infomediaries who make the system work. Unlike many of the state entities, these consultants characteristically understand the value of data as a resource. While the data and information generated from consultancy assignments is for all intent and purposes paid for by and belongs to the state, private companies store the data they collect and generate as a resource.

Before making overarching evaluative statements about the state of South Africa's ecosystem, it is necessary to begin looking at the ecosystem from a different angle through three specific sub-domains of the land data ecosystem: the national address system, the Deeds Registry and Surveyor General dual system and the national archival system. The next subsection provides an overview and an assessment of the national address system as a sub-domain where the roles of the state and private sector vendors provide important insights into the state of the land data ecosystem.

8.3.1.1 South Africa's national address system

A country's national address system is an important part of the country's Spatial Data Infrastructure (SDI) (ss6.2.3; 8.3.1 & ss10.2.4) (Coetzee, Cooper, & Kutamba, 2020; Coetzee et al., 2007a; 2007b). South Africa's national address system

constitutes a very small, yet important part of the country's land data ecosystem and provides a particularly useful lens into the overall state of the land data ecosystem. Addresses are more than just places, they play wider social, economic, governance and administrative functions. In South Africa, an address gives credence to the institution of citizenship and associated affordances such as having an identity document (ID) and a registration on the voters' roll, both of which are address reliant.[154] Coetzee et al., 2020; 2007a&b) further elaborate by linking both the ID and the address to one's capacity to participate in the wider formal economy. The functions of addresses are applicable across a wide range of spaces including open spaces such as parks, public open spaces etc.

Coetzee et al. (2020, 2007a) strongly argue that South Africa is littered with multiple, fragmented and incomplete address databases in a manner that is reflective of paucity in the broader regulatory framework and interoperability standards. There is a plethora of institutions that collect and maintain address databases such as StatsSA, the Independent Electoral Commission (IEC), spatial data vendors such as AfriGIS and Knowledge Factory, GIS departments within municipalities, property valuation rolls within municipalities, South African Post Office (SAPO), Telkom,[155] Eskom,[156] consulting town planners and private companies. Based on that, fragments of adress data are dispersed between some state owned entities and private companies. Accessing address data that is already in the hand of entities of the state state is a rather simple exercise. A mechannism to acquire addres data that is in custody of private entities would require some carefull thought.

The multiple uncoordinated and unregulated entities that hold portions of the what would be a national address database is literred with duplications, gaps and ambiguities of addresses, arising from the capturing and maintenance stages. Coetzee et al. (2007b) attribute some of the urban ambiguities to multiple points of origination such as place names, grey boundaries and marketing drives by property developers who sell estate properties using their own preferred names and sometimes without a discernible place boundary. Notwithstanding the MIOS

[154] In South Africa the voter' roll is regulated in terms of the Electoral Act #73 of 1998.
[155] South Africa's state-owned Telecommunications Company.
[156] South Africa's state-owned power utility.

directive, all these multiple databases vary in their spatial coverage and use different formats and infrastructures for capturing and storage of addresses because the various actors have different reasons for storing the databases (s8.2) (DPSA, 2011).

Notwithstanding the current state of affairs of the address system, an exclusive focus on technical issues in explaining the chaotic state in South Africa's address databases without focusing overarching institutional national framework is bound to conflate and obfuscate causes and effects. A significant part of South Africa's national address challenges also emanates from ill-conceived institutional configurations, with the address system directives located in different unrelated statutes. The South African Geographical Names Council (SAGNC) was established, and envisaged, to take responsibility for transforming and standardising geographical names (SAGNC, 2002), much to the exclusion of the address system. A parallel legal instrument with a direct bearing on the national address system was the Financial Intelligence Centre Act #38 of 2001 (FICA), which came into effect on 1 July 2003, with intent to combat financial crimes, such as money laundering, tax evasion, and terrorist financing activities etc. Alongside that the Electoral Act #73 of 1998 also has embedded address requirements which also throw the national address landscape into more disarray arising from fragmented institutional arrangements. Emanating from this statute, the Mhlophe court ruling ordered the IEC to harvest national addresses for the purposes of a voter's roll from a non-existent address database.

In 2004 the Standards South Africa, a unit within the South African Bureau of Standards (SABS), started an initiative that was intended to develop a South African National Standard (SANS) for "a standard framework for South African addresses", subsequently code named SANS 1883 (Coetzee et al., 2007b). Central to this project was the idea of enabling interoperability in address data-sets and geographical information systems (GIS), as a stepping stone towards developing a national address database. The SAGNC had a somewhat truncated mandate in this process – that of standardising place names – and has delegated some of it's functions to municipalities that inadvertently have little, if any, control over developers' selection of place names. Street names and unit numbers in security estates are primarily determined by property developers. Alongside that SAPO had also started a process of allocating addresses in line with SANS 1883-1 for rural

(communal) areas that had not been geocoded by 2007 (Coetzee et al., 2007b). While the process was important in closing some of the address gaps and duplications (particularly in respect of rural areas), the process was never concluded and failed to deliver a national database outcome. The embedded justice issues arising from the exclusionary nature and legacy of the national address system is not a simple technical matter.

In spite of all these different initiatives congregating around address system, South Africa does not have a single, inclusive address system, almost three decades following the demise of the apartheid state. This can also be explained as yet another demonstration of fragmented and incoherent institutional arrangements, wherein there is a multiplicity of decision making entities spanning across spheres of government, state owned entities and private sector players – all with limited prerogative -- that lack an overarching institutional framework (ss7.2.4.1) (Chevallier, 2014; Aligica & Tarko, 2012). From this perspective, South Africa's national address system dynamics do not only provide a lens into the poor policy design in land governance in the post apartheid South Africa, but it is a fundamental land justice concern (s2.1) (Yennet et al., 2016; Howlett et al., 2013).

In response to the chaotic address system, Sebake et al.'s (2012) advance a proposal for the state to encourage data sharing initiatives, which is a rather conservative one, because of the manner in which it forecloses the core responsibility of a developmental state or decisive state intervention by placing the entire process on the whims of individual organisations, when the state has police power to expropriate the data at it's disposal. The trickle-down approach proposed by Sebake et al. is also inconsistent with global trends that are characterised by a general tendency against sharing data between organisations (Sebake et al., 2012; Bhudhathoki & Nedovic-Budic, 2007). The state could simply invoke it's police power and simply expropriate all adress data that is in custody of private entities.

Among others, one of the opportunities that arise from the idea of a national address system in South Africa is it's potential role as a common layer of data across the entire country/population, is the extent to which it could serve as one anchor in

recording of land rights on national scale.[157] Manona argues that there is already a high coverage of address data, which can be incrementally implemented on a national scale as a useful starting point, and can be acquired from various sources through expropriation and some cleansing and synchroniation of statutes. Manona argues that address data already exists – albeit dispersed – and is compatible with the cadaster but independent of it. This proposal requires further research, in the light of failure of trickle-down data sharing approaches. The next subsection shifts to another sub-domain of land administration, the Deeds Registry and Surveyor General system, a remnant of South Africa's colonial legacy.

8.3.1.2 Deeds Registry and Surveyor General Sub-domain

Schaeffer et al. (1988) highlight the importance of understanding the history and the age of an ecosystem that is subject to a health assessment. The very effort of casting eyes to colonial history is a critical part of that process. The Deeds Registry (DR) and Surveyor General (SG) duo is just one colonial import that forms a key part of administration of land tenure that was superimposed over indigenous systems (Cotula et al., 2004). Almost a decade ago, the World Bank made what could be considered to constitute a mixed bag of findings on South Africa's DR and SG systems. On the one hand, it sends a complimentary mesage for reliability, while on the other condemns the unacceptable and fundamentally problematic dualism and it's continued exclusion of the majority of the population (Adlington et al., 2011). The World Bank report raised major concerns over the high cost of the system, it's complexity and absence at a local level. Other than some reference to distant history (Simpson et al., 1973), the drafters of the World Bank report displayed poor familiarity with mechanics of the DR and SG systems, and the African context in particular. While the South Africa DR and SG system may have received accolades in the past, there is also growing recognition of increasing discrepancies between the two systems (the SG and DR data-sets).[158] This is partly that the DR and SG dual

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[157] Power Point presentation by Manona S. presented at the 2nd Virtual seminar: Land administration workshop - Making off-register rights visible, held on 17 February 2021. Manona made this call at this seminar.

[158] Statement made by an official of the Department of Rural Development and Land Reform at Colloquium convened by the Advisory Panel on Land Reform held on 7 and 8 December 2018, Birchwood Hotel Benoni.

system were slipping into disarray, with record duplications and discrepancies leading to the introduction of the NSDI (ss8.3.1; s8.4; ss9.2.1) (Walch, 2017; Lewis, 2017). Among the reasons that underpin the discrepancies, simple administrative errors, fraud and corruption, property owners failing to register transfers, property owners ignoring the system, conscious avoidance of tax implications on the part of property owners, technical reasons such as amendments not concluded because of failure to comply with conditions. Notwithstanding that, it is extremely difficult to quantify the extent of the breakdown of the two systems largely due to the short supply of transparency and accountability on the part of the state in this regard. The challenges of conflicting and erroneous records faced by the DR and SG systems are not peculiar to South Africa but are also a growing feature in other developing economies (Graglia et al., 2018). Sietchiping et al. (2009) takes a reductionist approach and attributes the inability to organise land information in a manner that is underpinned by sustainability and good governance considerations as the underlying reason for the challenges of dysfunctional land information facing many developing countries.

South Africa is at a crossroads with the challenges that arise from it's own dual land information structures even though the policy response does not stand the land justice test. South Africa's e-cadastre Project Vulindlela, has been a subject of investigation by the Special Investigating Unit, for instances involving theft, fraud and corruption in the processes of lodging and processing of deeds (Cokayne, 2014; van Zwieten, 2014). Project Vulindlela was intended to modernise land rights register records, through automation and enhancement of organisational performance of the Cadastral Surveys Management (CSM) and Deeds Registration branches of the DRDLR. Notwithstanding that, South Africa later forged ahead with the promulgation of the Electronic Deeds Registration Systems Act 19 of 2019 (EDRSA), which is currently under construction, South Africa is set on a trajectory of migrating from a paper-based registry to a digital and automated registry system. The merits of migration to an automated system without addressing the exclusionary nature of the system is a rather dubious policy choice (Adlington et al., 2011). It is still early days to make any evaluative comments on the EDRSA. Notwithstanding that the SIU had handed over the report containing it's findings to the Presidency in 2018, the findings had not been released to the public (Mabasa & Mabasa, 2021). The next subsection

briefly explores South Africa's national archives system, a critical sub-domain of South Africa's land data ecosystem, providing useful insights into the wider land administration system. The next subsection explores the national archives system.

8.3.1.3 National archival system (third sub-domain)

Notwithstanding that the main thrust of this dissertation is primarily on current data, historical data cannot be disregarded within the South African context, because historical records constitute a particularly important source of knowledge on land, and probably the only written source for a significant part or our colonial history. South Africa's national archival system,[159] has until recently been largely rooted in the past from both a policy and praxis perspective -- anchored in a paper-based government devoid of modern-day ICT technologies. Yu et al. (2012: 207) is skeptical of "offline data for it's characteristic physical and psychological weight under the encumbrance of brick and mortar logistics, gathering dust in filing cabinets, often disorganised and disregarded. It is available in principle … tucked away in rooms with limited opening hours. Offline data is inert." Morrow et al. (2005) allude to serious challenges of historical government data and information resources, which are also compounded by the complexities of administrative rationalisation processes associated with a divided past. A part of the transition from apartheid to post-apartheid was marked by an "orgy of paper-shredding" resulting in records that were consciously destroyed as part of broader attempts to remove certain historical records and information from the public eye (Frankel, 2001: 248).

Notwithstanding the specific history of South Africa's archives, Morrow et al. (2005:316) argue:

> Archives are an incomplete, partial, and often deliberately or unintentionally misleading records of this history, always reflecting the limitations of the environment in which they were accumulated. ... Archival collections … are in themselves, constructions of systems of power, never neutral, always contested, and sometimes tendentious.

[159] See the National Archives Act #43 of 1996 as amended and it's provincial components, e.g. Provincial Archive Services Act #5 of 2001 collectively provide for management and preservation of national and provincial archives respectively.

This means that these records should not be considered to constitute full and sole source of historical facts. Unless the government takes steps to protect these land records, the only records that present evidence to black people's land rights stand to be destroyed.

Notwithstanding the digitisation trajectory, the logic underpinning the National Archives of South Africa (NASA) continues to be anchored in an ethos of secrecy and opening data up after a period stipulated by law[160] that is buried beneath statute, which is contrary to the philosophy of currency of data and OGD. While one acknowledges and appreciates the value of archives, the whole system needs to be reconfigured because it is out of step with South Africa's constitutional ethos and the digital age as well. Having taken a close look at South Africa's land data ecosystem from multiple dimensions, the next section undertakes an overall diagnosis of the state of South Africa's land data/information ecosystem.

8.4 DIAGNOSIS OF THE SOUTH AFRICAN LAND DATA ECOSYSTEM HEALTH

A total of 12 state enties sampled were assessed agains a selected set of criteria, with the first criteria making a determination availability of an index. In respect of the first assessment criteria, only two of the 12 entities in the sample had an index in their website/portal that depicted what data and data categories they carried, those being the City of Cape Town and SANSA (See Annexure 2 for detail). All other nine entities in the sample failed this core mandate test. The City of Cape Town's portal was an outlier in a number of respects -- when compared to any other metros or government departments. Only the City of Cape Town's portal had a detailed index, while SANSA had had a qualified affirmation, because it had a nested index. A nested index does not provide an upfront view of what data is available and what is not. Out of the sample, only the MDB and SANSA carried data which passed the entity core mandate test.

The second criteria used assessed was whether the entity had a Open Data (OD) plan, depicting what data the entity was planning to publish – that was previously

[160] Stipulated period is 20 years.

unpublished -- in any particular planning cycle. All 12 entities in the sample did not have an OD plans which shows what data they were planning to make open in future. At one level this implies that the constitutional imperatives of transparency and accountability were not only falling between the cracks, but were not actualised from a planning perspective.

The third criteria that the researcher examined entailed a determination of whether data that is published had a direct fit with the core mandate of each entity. In order to make such an assessment the researcher preselected a mandate that relates to land. The City of Cape Town was allocated a qualified affirmation in this regard, carrying the wide spectrum of land data but falling below the core mandate of a municipality. In direct contrast the only data that Ethekwini Metro published on it's web site was the blue flag status of it's beaches, while Nelson Mandela published no land data. The vast differences between the metros was a reflection of absence of standards and norms among municipalities and absence of a guide on the part of SALGA. In addition to the aforementioned criterial South Africa's data ecosystem was subjected to another two diagnostic tools: Cairns et al. (1993) groupings of five indicators and Lu et al. (2015) three indicators i.e. resilience, equilibrium and equity (s8.4).

For the purposes of assessment of South Africa's data ecosystem, imported Cairns et al. (1993) proposed five indicators, which focus on:

1. an assessment of the current environmental condition from an adequacy perspective;
2. an assessment of trends in the condition over time, i.e., degradation or rehabilitation;
3. an anticipation of potential hazardous conditions which lie in the unknown future from a resilience perspective (in order to prevent damage);
4. an identification of causal relationships for the purposes of identification of appropriate management action;

The challenges relating to the health of land data ecosystems are not only a reflection of the status quo, but also provide a glimpse into how challenges are understood or misunderstood, such as keeping tabs with the earth systems transitions as part of understanding the climate change existential crisis, which are

beyond the capability of fragmented local structures, while also outside of the view range of central leadership (Di Gregorio et al., 2019). While learning is considered to be one of the key benefits of multi-level governance approaches, there are slightly divergent approaches to this dilemma. On the one hand, Underdal (2010) points towards a combination of decentralised adaptive governance approaches that are embedded in multiple scale configurations. On the other Piattoni (2009: cited by Di Gregorio, 2019: 64) advocates for; "1. devolution of power from central to local government; 2. increase sharing of power between the state and civil society, and; 3. reduction of state sovereignty through joining of international coordination mechanisms." Di Gregorio et al. (2019 citing Bierman et al., 2016; Ostrom & Jansen, 2005) are also skeptical about oversimplification of dealing with complexities that lie at the human-land interface.

South Africa's data ecosystem fails four of Cairns et al.'s (1993) indicators. Firstly, the current condition of South Africa's land data ecosystem does not meet the adequacy test. On the face of it, South Africa has many information portals; yet it is a cumbersome creating a debilitating quest for land data in the state machinery. The reasons for the origination of SALGA's Municipal Barometer[161] is indicative of severe land data availability impediment, specifically within the municipal sphere of government – it is not a manufactured need. The purpose for which the Municipal Barometer portal was established is inconsistent with the data that the portal actually offers that is municipal performance benchmarking. The array of land audits undertaken by national government departments (see DRDLR, 2013; DRDLR, 2017; HDA, 2017) private sector (see AgriSA, 2017) and those carried out by individual municipalities (NLM, 2017; FBDM, 2016) in the past two decades also suggests that data starvation is not just an isolated problem, but it is indicative of the poor handling of existing land data as a resource.[162] Without belabouring the challenges associated with national land audits, for the state to admit that a land audit conducted over such a long time and at such great expense, reveals nothing new is an indication of a fundamental ecosystem malady (Erasmus, 2018). The unintended consequences of the state's inability to authoritatively know what land it owns impact

[161] http://www.cmra.org.za/content/salga-municipal-barometer (Accessed 8 January 2020).
[162] This is qualitatively totally different from finding one made by Napier, Rosevenfeldt et al. (2020) study findings.

the system's ability to provide the required information in support of programmes such as land reform and human settlement. The inability of land data ecosystem to provide ecosystems services casts serious aspersions on the condition of the ecosystem and it's potential to support responses to the eminent 21st century existential crisis of climate change. Path dependencies from the apartheid (continuities), alongside institutional and structural fragmentation partly explain the resilience of this ethos. Secondly, South Africa's land data ecosystem fails Cairn's et al. second indicator of "condition over a period of time", as these ecosystems could not be rehabilitated over nearly three decades following the demise of apartheid.

Thirdly, Bennett et al. (2012) identify at least six ecosystem services that could potentially arise from a national land data infrastructure: adherence to international standards by national government; enhancement of central governance functions; improvements in intergovernmental relations; economies of scale for local government; opportunities for cost saving by business; and social inclusion of citizens. Given that the state is the largest single owner of land in South Africa, failure to identify and release strategically located state-owned land to the human settlement sector is a reflection of the failure of the ecosystem to supply requisite ecosystem services (Molefe & Nkhahle, 2019; SALGA, 2017). Lastly, and related to the previous point, the high degree of fragmentation[163] and weak polycentricity within the land data ecosystem are an impediment to drawing cause-effect relationships in order to take appropriate action (Stringer et al., 2018; see Aligica et al., 2012; Galaz et al., 2012). Further examination of South Africa's land data ecosystem using an alternative assessment tool to Lu et al., 2015) is considered to be worthy. An examination of South Africa's land data ecosystem using Lu et al.'s (2015) three indicators, i.e. resilience, equilibrium and equity,[164] was largely inspired by scholarly perceptions on the limitations of single-indicator approaches and gravitation towards integrated indicator approaches. The land data ecosystem's failure to transition from

[163] Structural and institutional

[164] Ecosystem resilience refers to the ecosystem's capacity and time lag to bounce back structurally and functionally post perturbation. Ecosystem equilibrium refers to a relative state to maintain a balance while evolving. Equity is represented by the degree of sharing and openness and change in the ecosystem, with spatial (intra-generational) and temporal (intergenerational) dimensions.

apartheid to the democratic order in more than two decades is sufficient reason for land data ecosystem tofail the resilience test.

Van Schalkwyk (2016; Manyika et al., 2013), an open data advocate within the context of university governance, unleashes an analogy of a liquid that unlocks value as it flows from governments to firms through to research institutions, entrepreneurs and citizens, while undergoing the processes of adaptation and value add as it moves within the context of neoliberal democracies. The analogy ends with two equally possible scenarios: that of a virtuous cycle that results in a stable but dynamic ecosystem and another where data despite being open becomes inert and flows either too slowly or not at all resulting in conditions of viscosity which is detrimental to the healthy evolution of the ecosystem. The analogy is a powerful ecosystem health test. In instances where land data is open, it is stagnant or flows too slowly, and unable to move through the system to unlock value, and therefore has limited capacity to contribute to the evolution of the ecosystem. The flow chorus of demand for integrated land information system is a symptom of flow stagnation is a function of stagnation and fragmentation, resulting in the ecosystem failing the equilibrium test. The exclusionary nature of South Africa's DR and SG systems and national address system not only give rise to serious justice concerns but are part of the fodder that causes the system to fail the equity test (ss7.2.5 & 8.3.1.2) (Lu et al., 2015). In a nutshell, South Africa's data/information ecosystem fails all three of Lu et al. indicators.

Furthermore, lack of standardisation is a feature that characterises the handling of land data by the South African state. According to Ntlatlapa (2016) standards apply in multiple domains of our lives such as health care, transport, energy etc. regardless of our awareness thereof. The absence of standards on a vast array of ICT land data sharing portals is a reflection of a serious malady in the ecosystem. The Land Portal report concurs on the importance of standards, does allude to the ongoing work that has been reportedly underway in the past two decades by ISO/TC211 Geographic Information, which have been adopted by the Committee for Spatial Information (CSI) (Napier, Rosevenfeldt et al., 2020).[165] One example of an area that

[165] The important decisions of this committee, pertaining to standardisation, are not published on the departmental website.

definitely needs standardisation is land governance vocabulary, specifically the standardisation of classification of geographical or topical coverage data. Given that NSDIA is a legally authorised process, it is not only symptomatic but strange that committee processes and decisions are not published, which defeats the whole thrust of standardisation within the sector. Given that standardisation of classification and categorisation of land data-sets and concepts is beyond the functions of a single government department the non-publication is a reflection of a scale disjunctures and contradiction between internal departmental process and a wider national standardisation process. South Africa's ambitious post-apartheid political transformation keeps tripping over it's own attitude to data.

Fragmentation of data was a general problem, both within the entities and between entities. For example, data on forestry, fisheries and mineral rights is typically collected and stored by national government departments, but not seamlessly shared in real time with municipalities which have an overarching land use management function. Similarly data on water resources, which is a national function of the DWS is collected and stored on a national scale is neither published and not seamlessly shared in real time with municipalities, which have a water services core function. Conversely, municipalities which generate land use (zoning) data, do not have a platform for real time storage and sharing of the data with other state entities. The process of identification of land that is suitable for human settlement development is not a simple straightforward exercise, but entails overlapping land use authorisation processes, which overflows governmental structure silos e.g environmental authorisations. The Intergovernmental Relations Framework Act #13 of 2005 -- which has hitherto been the primary statute that is specifically aimed at getting the machinery to work as a unit -- is not only ineffective mechanism, but it is also lacking in carrots and sticks, due to absence of a single source of truth.

The policy misconfiguration between international information policy trajectories and a 'confused' national policy agenda has been clearly and sufficiently dealt with earlier in this chapter. In addition, the collisions found at the intersection of the

constitutional imperatives of transparency and accountability, private information[166] and state security[167] are indicative of the malaise within the ecosystem emanating from a national information policy lacuna. In a nutshell the path dependencies from South Africa's colonial-apartheid past continue to prevail over the new constitutional ethos of transparency and accountability in the land sector. Systemic policy maladies somehow permeated through legislation and found their way into state machinery administrative processes of data management. A probe of South Africa's data ecosystem in relation to it's land data policy domain fails Howlett et al's (2013; Briassoulis, 2005; Meijers, 2004) integration policy evaluation criteria which establish the link between policy goals and means while ensuring these are mutually reinforcing.

A recent study by the Land Portal correctly claims to be the most comprehensive assessment of South Africa's land data ecosystem and a first of it's kind covering a scope spanning across governmental and research institutions, national civil society formations, and international players (Napier, Rosevenfeldt et al., 2020). Given that the study has paid attention to issue of the availability and accessibility, South Africa's land data ecosystem was allocated a score of 60/105, based on land information resources identified with two important caveats: an acknowledgment that the score is only a representative view of what data was available due to limitations of insights into what was unavailable. Largely based on similar studies carried out in Kenya, Tanzania, Uganda and South Sudan, the Land Portal study places South Africa's land data ecosystem on relatively better footing compared to it's counterparts.[168]

The primary objective of this particular study was to "provide a basis to substantiate, refute or nuance the often-repeated rhetoric that there is a lack of land data" in South Africa (Napier, Rosevenfeldt et al., 2020:7). In the final analysis, the Land Portal study partially refutes this popular allegation, suggesting that 67% of key land data resources are available. The manner in which the report disposed of perception is rather questionable, given the importance of perceptions of system users – which

[166] Protection of Personal Information Act #4 of 2013 (POPIA)
[167] Protection of State Information Act #41 of 2013 (PSIA)
[168] These are the countries where the Land Portal has conducted similar data ecosystem evaluations.

are based on fact -- as opposed to scientific peers (Schaefer et al., 1988). Partly emanating from it's heavy leanings towards quantitative methods, the study identified 104 land data-sets from a total of 59 sources but it's shortcoming emanates from the study's failure to use it's finding to offer an explanation for the prevailing idea of the unavailability of land data in South Africa. The findings of the Land Portal study are inconsistent with the findings of this dissertation as it leans more toward qualitative methods from multiple angles. A detailed analysis of government land data studies attributes the negative perceptions of the system to the fragmented nature of the data ecosystem.

8.5 CONCLUSION

Premised on the understanding that land data domain is a cross-cutting part of a broader land administration system, this chapter used the ecosystems theoretical framework, to provide an assessment of the state of South Africa's land data ecosystem. This chapter began by exploring South Africa's high-level information policy environment, revealing serious disjunctures between the constitutional imperatives, policy and praxis. An analysis of the intersection between data regimes and ICT was undertaken, as part of the broader policy context which points to poorly articulated national information policy lack of coherence and lack of unidirectionality. On the one hand, South Africa is grappling with aligning it's national policy norms with those that emanate from the global environment, while also grappling with norm disjunctures emanating from old-order institutions and practices that have anachronistically found their way into the post-apartheid land information policy landscape. These multiple, and often contradictory, policy thrusts result in a fractured and fragmented national land data ecosystem with multiple institutions that are lacking in coherence impeding to state capability. Furthermore, a brief assessment of three important sub-domains of South Africa's national data ecosystem was undertaken with a view to use them as a lens for providing broader insights and extrapolation on the wider system. These sub-domains are: South Africa's national address system, the Deeds Registry and Surveyor General system, and the national archives system. Based on justice considerations, the chapter takes a rather dim view to the continued exclusionary consequences associated with the absence of a national address database. The chapter is also uncharitable to the

contradictory policy logics underpinning South Africa's archives that are stuck between apartheid continuities and the new constitutional ethos of transparency and accountability.

South Africa's land data ecosystem failed two diagnostic tools: on four (of Cairns et al. (1993) groupings of five indicators and all three of Lu et al's (2015) indicators, which is totally inconsistent with a study by Land Portal. Based on the findings in Chapters Seven and Eight, the next chapter is a theorisation of the idea of repurposing, casting a broad high-level scalable aspirationalgoal by allocating meaning and by unpacking what it's essential elements should be. Before providing an outline of some of the principles underpinning repurposing the chapter makes a case for the election of data domain as a leverage point for repurposing of land administration (ss 3.3.3).

CHAPTER NINE : REPURPOSING LAND ADMINISTRATION

9.1 INTRODUCTION

The previous chapter was largely diagnostic, providing an assessment of the state of South Africa's land data ecosystem as a cross-cutting domain of land administration, deploying an assemblage of data value chains and ecosystems theoretical frameworks. It began by exploring South Africa's high-level policy environment at the intersection of the data regime and Information Communication Technology (ICT), before providing a brief overview of South Africa's national address system, the Deeds Registry (DR) and Surveyor General (SG) duo system, and the national archival system, as specific sub-domains within the land data ecosystem, including selected land data sources across all three spheres of government with a view to provide deeper evaluative insights into aspects of the ecosystem. In assessing South Africa's land data ecosystem, the chapter fails South Africa's ecosystem health, using two diagnostic tools -- fails on four out of five of Cairns et al. (1993) indicators, and; it also fails all three of Lu et al's (2015) indicators, which is totally inconsistent with a study by Land Portal.

Based on the findings of Chapters Seven and Eight, this Chapter assembles and articulates the concept of repurposing of land administration, as part of making a case for it. It starts off by attaching some meaning to the concept of repurposing of land administration, casting a high-level, broad scalable goal , what the concept should entail (it's essential elements) repurposing. The Chapter makes a case for the election of data domain as a leverage point for repurposing of land administration.[169] The Chapter proceeds on to set out some of the basic principles that should underpin concept. The next subsection unpacks the notion of repurposing of land administration.

[169] The notion of a leverage points was introduced and explained in Chapter Three.

9.2 THE REPURPOSING IMAGINARY AT A GLANCE

9.2.1 Unpacking the Repurposing Imaginary

Alternative development visions are possible, as demonstrated by a recent [2017] global initiative - WE-ALL -- initiated by governments of New Zealand, Costa Rica, Scotland and Slovenia, which pivots around 'well-being' policy making, in which 'well-being' constitutes the goal of development, as opposed to the dominant development paradigm (Sangha, Russel-Smith & Costanza, 2019; Costanza, et al. 2018). This initiative is a clear demonstration that alternative development imaginaries are also emerging.

Stringer et al. (2018; Duit et al., 2008) reminds us that while prevalent governance arrangements may have ushered society to the current point, it would be naïve to think that the same instruments that have ushered society to the current point, are the best are the best tools to catapult society into a sustainable futures. It is within this context that the notion of repurposing of land administration provides a political imaginary through which existing land governance and administration system can be transformed to serve societal goals. Ehrensperger et al. (2019) identify three global challenges that require land-based solutions – that is, providing food to the growing population, mitigating climate change and bringing to a halt biodiversity loss. Land or space is a common factor between competing societal needs and sustainable development. Nicolescu (2014) in line with transdisciplinary approach argues that, the very concept of sustainability, which is a modern buzz-word in development discourse, has to be anchored in a unified theory of reality. On a global scale there is a growing realisation that both the global and national development agendas are increasingly reliant on data. The idea of repurposing land governance and administration should be goal oriented, which Scott & Rajabifard (2017:66; see UN, 2015a) articulate in very simple terms – as the importance of "knowing where people and things are and their relationship to each other is essential for informed decision-making". One of the biggest land governance coordination challenges across traditional, governmental and disciplinary streams is the very act of coordination to make land governance and administration work (Penuel, 2019). This coordination across a complex mosaic entails mediating and calibration of different moving parts of the system to work in concert.

The 1996 Constitution was supposed to be a historical turning point in South Africa's landnational as well as sovereign land relations, which theoretically placed the country on a new policy trajectory that was underpinned by the new ethos of transparency and accountability.[170] From this perspective, the Constitution of South Africa became an embodiment of new goals (s8.2). It is in light of these policy goals that the notion of repurposing of governance and land administration arises. Within this context, the notion of repurposing should be understood as a dual process encompassing two intricately linked processes: one being a technical (re)design primarily targeted at the data domain of land administration as a leverage point, targeted at making data visible as a forerunner to institutional (re)design interventions which pivot "new" policy goals (Howlett et al., 2013). Phrased differently, the proposed repurposing imaginary[171] is aimed at a higher goal of bringing about wider transitions to the broader land governance and administration system – institutional reform -- through a leverage point, premised on Meadows (1999) idea that we have only indirect influence over the 'state of the system'.

Following an assessment of land administration and the data ecosystem, it is evident that the depth and scope of the degeneration, warrants a focused urgent response in a manner that sets South Africa's land governance and administration system on a more just and sustainable trajectory (s7.3) (Healy, Martinez-Alier et al., 2015). In it's bare essence, the 'repurposing' imaginary entails a process of re-examination and careful selection and assemblage of ideas some of which may have been lying around (not exclusively), and re-tooling them toservice a new purposes that are anchored on land justice pathways. In a video titled "Coronavirus Capitalism"[172] (2020), Naomi Klein makes a case for transformative change, with specific reference to the context arising from the Covid-19 pandemic and argues for opportunities for real change emanating from the crisis context. She argues that policy actions that are taken up largely depend on a mix of pre-existing ideas. In addressing the question of "whose ideas?", she makes a rather binary distinction between one set of predatory ideas that can only leave the poor and vulnerable more exposed, and

[170] See Constitution RSA s195 (1) (f) and (g).

[171] Own concept.

[172] https://www.youtube.com/watch?v=IFqNAEx1lm4. (Accessed 17 August 2020)

another set of sensible and fair ideas that are essentially designed to enhance the welfare of the majority and the poor. The repurposing of land governance and land administration -- as a political imaginary -- removes the need for perfection, because in the final analysis it is the struggles that drive it that will determine it's course and pace, as opposed to a perfect and rigid plan (Mignolo et al. 2013; Gordon, 2004).

It is important to note that data originates from multiple layers of depth, and an understanding of how individuals, groups or societies interact with multiple ecosystems or what and how government is exercising it's regulatory powers requires an increasingly deeper understanding of motivations that underpinhuman behaviours (Grove, Pickett et al., 2019; Meyfroidt, Chowdhury et al., 2018). Land systems transitions are typically characterised by complex multiple sets of causes and which emanate from the interdependent parts at multiple scales. Land systems science should address the simultaneity of land systems, notwithstanding the diversity of perspectives and values. In the context of land governance challenges, there are intervention opportunities available that provide effective stepping stones to the desired outcomes, which can be achieved through strategic and evidence-based decision-making processes (See Fig. 9.3). Grove et al. (2019) advance an argument for a need for 'durable platforms' as a means of solving complex land systems challenges, which require extensive changes over long durations. They identify the time dimension between projects and platforms, projects typically gravitating towards shorter durations of no longer than two to five years, while platforms may endure for decades. The two key elements of transdisciplinary land systems science – construction and maintenance, both of which require a long-term outlook – allow for an evolution from the intersection between ideas and experience. A platform of this magnitude does not only require a reconfiguration of politics, but it also requires effective leadership and a set of stable goals as an essential ingredient for good governance (Chitonge, 2020; Chauveau et al. 2006).

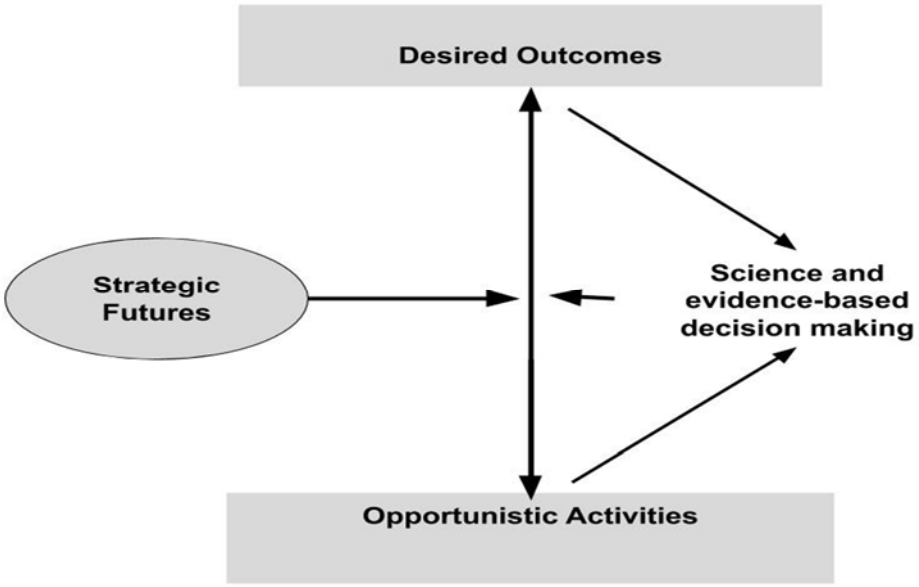

Figure 9-1: Transitioning between short-term opportunistic projects while remaining on long-term platforms (Adapted from Grove et al., 2019).

Albeit within different temporal contexts, the ideas of re-engineering of land administration as mooted by Williamson (2001; 2000), and moving towards a national approach and national data infrastructures (Bennett et al. 2012) are not new. The impetus of earlier calls for land administration reform' was closely intertwined with the rise into prominence of the National Spatial Data Infrastructures (NSDI) globally and a manifestation of conflation of land administration with land tenure administration. South Africa's NSDI process, being caught up in the global policy lacuna with respect to how geospatial data should be implemented, presents an opportunity to innovate and set the precedence (Scott & Rajabifard, 2017). Notwithstanding the idea of data being open by default, a crucial part of that policy consensus would entail what data is progressively publicised across sectors (Zuiderwijk et al., 2014). Publication of the NSDIA committee processes would not augur well for transparency but would support the standardisation thrust within the sector across multiple scales.

This study is an additional voice to these initial ideas, while making a fundamental progression from these earlier calls in at least two respects. While it breaks ranks with the fragmented meanings of land towards a holistic one, and symutaneously nominates land data domain being a leverage point in pursuit of re-purposing the broader system of land governance and administration. For the purposes of this

study, Williamson's (2001; 2000) notion of (re)engineering of land data entails a technical intervention that should be conceptually understood as a subset of, and intricately intertwined with, multiple layers of institutional interventions. Williamson (2000) identifies a number of global drivers for re-engineering of land data domain – urbanisation, globalisation, technology, sustainable development imperatives and micro-economic reform imperatives - glaringly omitting the 21st Century existential crisis emanating from climate change (Fig. 9.2). In his schema the rengineering of the data domain should be driven by a vision of humankind-land relationship (Williamson, 2000).

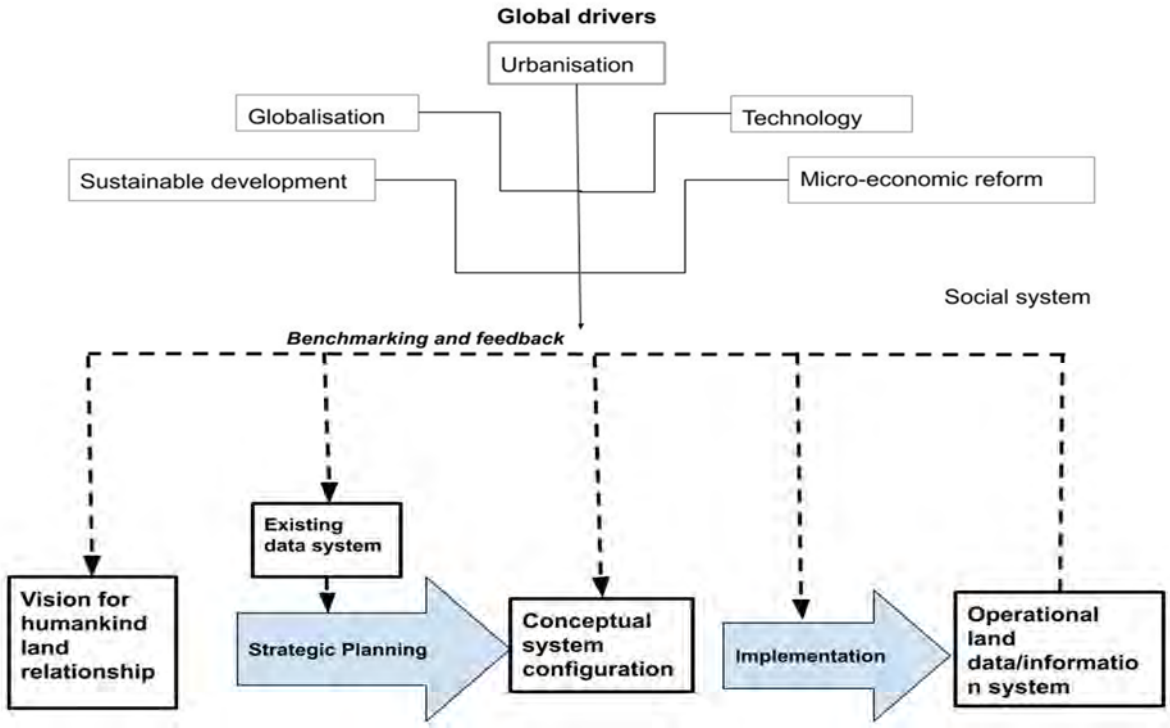

Figure 9-2: Framework for (re)engineering land data/information systems (Adapted from Williamson, 2000: 19)

While advocating for (re)engineering, Williamson (2000) is also mindful of the broader institutional requirements that are associated with (re)engineering the land data domain of land administration, specifically within the context of developing countries. He further cautions and offers two important preconditions on the need for considering efficiency from a time and cost perspective and independence from political interference of the land data infrastructures. Williamson's idea of (re)engineering land data was a global call that has not only been targeted at

developing countries. . In the land administration repurposing imaginary the land data domain is considered to be a leverage point, towards overhauling the entire system, rather than the main and only focus area. The next subsection makes a case for the land data domain of land administration as a leverage point for repurposing.

9.2.2 Data Domain as a Leverage Point

Ehrlichman (2018:1), using systems thinking, characterises leverage points as "places where a finely tuned, strategic intervention is capable of creating a lasting change, with positive ripple effects that spread far and wide" (ss3.3.3). In other words, to effectively decide on which points of a system require intervention, one needs to zoom out to gain perspective of the big picture. The repurposing imaginary must aim at effecting change onto the whole system by addressing the root causes of a problem (institutional and structural). Sinnamon (2018) acknowledges that systems are inherently resistant to change in the manner they behave, and the harder one pushes for change, the harder the system pushes back. It is therefore imperative to ensure that the leverage point is determined with a high degree of certainty.

Jay Forrester's (cited by Meadows, 1999) characterisation of leverage points as counterintuitive established the boundary between intuition and science (ss3.3.3). It comes as a directive that leverage points cannot be identified by intuition and even when identified, one needs to know which way to turn the lever and by how much. The sheer number of policy discourses emanating from government circles in South Africa is suggestive of broad consensus that the land data domain of land administration is a leverage point (Meadows, 1999). Notwithstanding what may seem like broad policy consensus in academic (Bennett et al., 2012; Williamson, 2000) and government circles (DLA, 1997; Molefe & Nkhahle, 2019), there is simply little value in policy interventions in the absence of sufficient consensus among multiple actors on what constitutes aleverage point.

Meadows' (1999:3) original list of places to intervene in a system, in ascending order, are:

1. The power to transcend paradigms.

2. The mindset or paradigm out of the system – it's goals, structure, rules, delays, parameters.
3. The goals of the system.
4. The power to add, change, evolve, or self-organise system structure.
5. The rules of the system such as incentives, punishments, constraints.
6. The structure of information flows (i.e. access rights to different types of information)
7. The gain around driving positive feedback loops.
8. The strength of negative feedback loops, relative to the impacts they are trying to correct against.
9. The lengths of delays, relative to the rate of system change.
10. The structure of material stocks and flows such as transport networks, population age structures.
11. The size of buffers and other stabilising stocks, relative to their flows.
12. Constants, parameters, numbers such as subsidies, taxes, standards.

The original list of 12 intervention points in a system, as drawn up by Meadows (1999), was rearranged into four broad thematic areas of intervention in a system by Ehrlichman (2018). These incluude; changing mindsets, information flows, organising principles, and system infrastructure.

Some of the more generic characteristics of OGD, especially it's purported benefits, were explained ealier in the study (ss1.4.2). Regardless of scale, governance that is anchored in accurate, complete and current data is pitted not only on informed decision making but also appropriate decisions and resources allocation (van Schalkwyk et al., 2016). Under the information flows theme, Ehrlichman (2018) makes two propositions: the modification of information feedback loops by expanding real-time high-quality data on land matters and expanding the communication system by incrementally and systematically bringing into the public arena new data-sets on land. It is for this reason that OGD can be viewed as a instrument (prism) to shed light on both the institutional and structural change requirements of the system. The proposed repurposing imaginary of land administration is premised on being goal driven, but also underpinned by a set of principles that are delineated in the next section.

On the one hand this study is predicated on a basic premise that data constitutes the basic building blocks for the development of concepts and generation of knowledge – both of which are never neutral (Wijsman et al., 2019; Foucault, 1980) – and the idea that OGD is not a sufficient condition for changing world views. What becomes crucial is an assessment of how the concepts and the process of knowledge formation facilitates the deepening of understanding of the world, in a manner that either strengthens appetite for just transitions or reinforces pre-existing orders (Tuana, 2013; Tschakert, 2012; Jasanoff, 2004). On the other hand, this study is broadly predicated on another set of layered assumptions; that genuine democracy involves some level of participation of citizens in governance matters; citizens need the right information in order to participate in governance matters, and that; OGD regime creates conditions for access to data or information and vice versa (Williams-Elegbe et al., 2018); and infrastructuring; and the emergence of publics (Dantec et al., 2013). The notion of emergence of publics alongside John Dewey's (1954) notion of infrastructuring are both central to these assumptions on which this dissertation is predicated. Dantec et al (2013: 242; Marres, 2007; Latour, 2004) broadly conceptualises infrastructuring as the process of creation of "social and material dependencies and commitments of the people involved" -- a socio-technical mechanism for creating and supporting the emergence of the publics (Dantec et al., 2011; Björgvinsson et al., 2010; Ehn, 2008; Star and Bowker, 2002). These are discussed further in the next subsection individually.

9.2.3 Key Principles Underpinning the Repurposing Imaginary

9.2.3.1 Placing people at the centre of technology

According to Schudson (2010) all technological revolutions hitherto have relied on dual anchors -- technology and people -- such that in the process of the deployment and mainstreaming of the technologies, the worth of people is also recognised. In demonstrating the point, Schudson draws on the example of a telegraph that had been in existence for almost 2000 years before it revolutionised mass media. In a similar vein, Tauberer (2014) cautions against the over-inflation of the role of technology, more especially in trying to resolve governance issues that are fundamentally social problems rather than technological problems. In a similar vein, Ehrlichman (2018) and Meadows (1999) further argue that the changing of mindsets

or beliefs that underpin human behaviour are fundamental to identifying a leverage point. This implies getting support from politicians and senior bureaucrats on the need to repurpose land administration. The second aspect to changing mindsets entails increasing the system's ability to transcend paradigms, through the creation of tangible opportunities for people (be it academics or bureaucrats) to relinquish their preconceived ideas by assisting them to critically assess and evaluate their paradigms in order to create real opportunities for new facts and knowledge. The very notion of integrating previously fragmented elements is inherently disruptive to pre-existing paradigms that are anchored in compartmentalised knowledge hirachies, which inherently create an impediment to decision making.

9.2.3.2 Gravitation towards a national approach

A move towards a national approach as proposed by Bennett et al. (2012) is reliant on two critical elements: infrastructure and standardisation (standardisation is coveredd in ss 9.2.3.2). In the past two decades, alongside all the various experiments with land information management systems, there has been a growing global phenomenon of open data portals, with an increase in land data portals (land observatories) specifically in Africa. The surge in the number of land observatories or structures that had an interest in monitoring developments relating to land in Africa arises on the back of major land reform initiatives in different countries such as the phenomenon of large-scale land acquisitions, state-led land reform engineering programmes and the 2008-2009 financial and fuel/energy crisis (Grislain et al, 2018). The idea of land observatory is an innovative idea, going forward and central to th repurposing imaginary, while presenting an opportunity for a new form of information infrastructure in line with Bennett et al.'s (2012) national approach. The Land Matrix, an international NPC that supports a decentralisation dynamic of land observatories at the national level in partnership with CIRAD and ILC, undertook a study on land observatories in Africa, Latin America and Asia. At the heart of all these studies was the overarching objective of understanding the factors that have resulted in the emergence of these structures, how these structures are anchored institutionally in different contexts and the success-failure factors including the role they played in different country contexts (Grislain et al., 2018). In the period preceding the study on land observatories in Africa, the Land Matrix had identified 34 land observatories in Asia, eight in Latin America and the Caribbean and 22 in Africa. Based on a non-

exhaustive original list of 22 land observatories, the Land Matrix initiated a comparative study of nine land observatories in Africa: Burkina Faso, Cameron, Madagascar, Mali (1994/1998), Senegal (two), Chad, Uganda and South Africa (South African Land Observatory [SALO]). Most importantly, land observatories have evolved in slightly divergent genealogical pathways: some are primarily civil society structures while othersare dominated by the state and other developed along partnership arrangements .

The idea of a national land observatory presents the infrastructural as well as a point of congregation for providing a solution to multiple fragmented and incoherent structures that are collecting and storing land data, without significant disruption to existing state architectures (Williamson, 2001; Bennett et al., 2012). This technical proposal is not equivalent to OG and OGD but is a necessary stepping stone in that direction.

GIS technologies are an enabler that can make integration of data possible through the standardisation of data collection, storage and sharing methodologies withinin fragmented state architecture (Stephenson et al., 2015). Based on an assignment in the Matzikama municipal area, Stephenson et al. (2015) highlight the importance and need for unique data collection methodologies for the purposes of multiple dimensions of land including spatial data collection. GIS mapping technologies create new possibilities for overlaying and linking of multiple land data sets such as land tenure data, property valuation rolls, establishing the status of infrastructure such as access to roads and routes, current land uses, land use control measures, mapping areas of interest etc.

9.2.3.3 Gravitation towards standardisation

The South African Constitution unequivocally sets transparency and accountability as the new ethos, requiring a corresponding institutionalised, bottom-line benchmarking of standards on policy, legal and technical fronts. A national approach is inconceivable without a considerable amount of standardisation in the country's land data ecosystem (Ntlatlapa, 2016). Drawing from the diagnosis, South Africa's Minimum Interoperability Standards (MIOS) would, at the very least, need to be applicable to all spheres of government alongside rationalisation and standardisation of bureaucratic land data value chains (s8.2 & ss8.3.1.1).

The Land Portal report attests to the importance of standards by alluding to the ongoing work of the past two decades by ISO/TC211 Geographic Information which is being adopted by the Committee for Spatial Information (CSI) (Napier et al., 2020). Consistent with Penuel's (2019) idea of research and practice being guided by contours of problems and selecting opportunistic projects, there are a number of potential short term opportunistic project that have come up in the course of this study; the South African Geographical Names Council (SAGNC) standardisation of geographical names (SAGNC, 2002) alongside South African Bureau of Standards (SABS) framework for South African addresses, etc. Among other more specific issues requiring consideration from the standards perspective is a need for the convergence of land governance vocabulary and the classification of geographical or topical coverage data .

9.2.3.4 Infrastructuring

Penuel's (2019) notion of "infrastructuring" entails a set of activities that are collectively targeted at (re)designing parts of the system, relationships and routines in a manner that is intended to influence what takes place within organisations, which is crucial for the repurposing imaginary. In the context of the repurposing of land governance and administration, change efforts should be targeted at a multiple layered state architecture that is made up of municipalities, provincial and national government departments and institutions. In this process, teams should be involved in processes that include research and practice, guided by contours of problems, with eyes on introducing innovations while zooming in-and-out between long-term platform and opportunistic short-term projects. Some of the more concrete opportunistic projects could potentially include areas where there is no dispute over policy, such as developing an national address system.

Penuel (2019; Hopkins & Woulfin, 2015; Star & Ruhleder, 1996) highlights the term re-design in infrastructuring efforts as part of grappling with a system that is already in place, a product of design that is temporally located somewhere in the past encumbered by it's own path dependencies. This notion is closely intertwined with a systemic re-design, which entails the homogenisation of new infrastructures with the existing infrastructure. Penuel cautions against infrastructure serving as a fixed scaffolding or support system, but rather one that should be continuously under

construction and repair in support of land governance and administration. According to Penuel (2019; Forman, Stosich, & Bocala, 2017; Bryk, Gomez, Grunow & LeMahieu, 2015; Hopkins & Woulfin, 2015; Hopkins et al., 2013) crucial components of the redesign process include building the capacity of people and organisations that constitute the system as well as the system in it's entirety for the purposes of supporting coherence, synchronising policy and local practice. One such is opening data by default as enshrined in the Constitution and elaborated on by the National Development Plan (NPC RSA, 2010). On the land data infrastructure front, one example of a logical opportunistic project is the work that is currently undertaken in terms of the Spatial Data Infrastructure Act #54 of 2003 (NSDIA) and Planning Data Repository (NSPDR) and conceptualisation of national land observatory. The current NSPDR initiative that is currently under incubation within the DARDLR, which focuses on the automation of SPLUMA land development applications could be expanded to include other workflow procedures such as environmental impact assessment applications, expropriation processes, building plans application approval, etc.

9.2.3.5 Holistic approach and multiple dimensional approach to land

Knowledge silos are a worldwide phenomenon in the land sector manifesting in multiple technical, legal, political and other specialties circumscribing their own content areas (Antonio, 2012). The question of what the system boundaries are can be addressed in two ways. Firstly, from a multiple scales perspective, and secondly, from a content perspective. For the purpose of this study, the primary focal point should be on bringing together federated systems across jurisdictions (traditional departmental silos) into one system (land observatory). This implies an integration of land data across traditional disciplinary boundaries, inclusive of water, minerals, agriculture, forestry, etc. Figure 9.5 locates data within a wider context planning scales from a local detailed scale to a national and global scale.

Integration as a goal and as a guiding principle has a long history, albeit with different conceptual footing such as the Integrated Natural Resource Management (INRM) and Integrated Water Resource Management (IWRM), the Building Block Methodology (BBM), the Holistic Approach, the Expert Panel Assessment Method originating from Australia, and the Downstream Response to Improved Flow

Transition (DRIFT), emanating from South Africa (Jacobs & Nienaber, 2011; King and Brown, 2006; King et al., 2003; Penning de Vries et al., 2002; GWP-TAC, 2000; Arthington, 1998; Görgens et al., 1998; Swales & Harris, 1995; Arthington et al., 1992). While varying in areas of emphasis, the common thread across these concepts is essentially the integrated management of biotic and abiotic elements of ecosystems. Notwithstanding the marginal role of social sciences in most of these concepts, a common thread is their congregation at national and catchment scales with the trans-national application of DRIFT in the Lesotho Highlands Water Project being an exception. The marginalisation of social sciences goes against global trends where a range of scholarly disciplines (political ecologist, human geography) have increasingly been drawing links between the state, sociopolitical power and policies of development actors in an endeavour to analyse and theorise the complex land-society dynamics within the context of a surge in concerns regarding globalisation and climate change (Zinzani, 2017; see Linton, 2011).

According to Williams-Elegbe et al., (2017) for any technical requirements, OG and OGD need a data ecosystem architecture that is founded on a coherent and holistic design. Bennett, Rajabifard et al. (2012: see Dale & MacLaughlin, 1999) are concerned about the issues of centralisation and decentralisation which arise from the multiple scales approach even though these are theoretically resolved by contemporary advances in ICT.

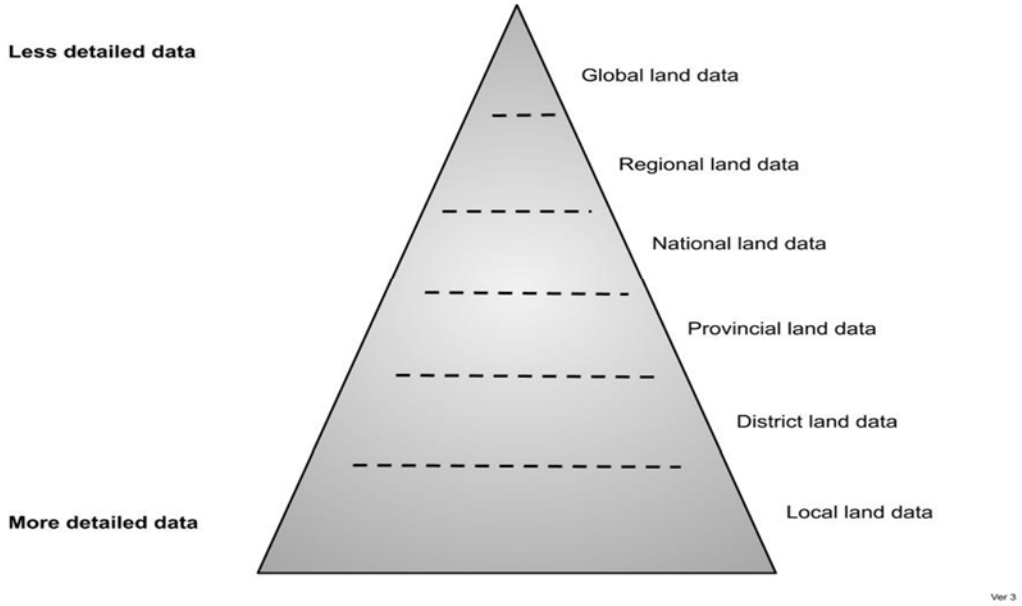

Figure 9-3: Hierarchy of multiple scales of land data

In the midst of the growing global embrace of the notion of sustainable development, Scott and Rajabifard (2017; Shao, Li & Tang, 2011; Adams, 2009) acknowledge the conceptual ambiguities and the prevalence of multiple meanings to the concept. What geospatial data presents is a science for temporal monitoring of global economic and environmental challenges by providing tools for mapping, analysing and modelling. According to Scott & Rajabifard (2017), the two concepts of geospatial information and sustainable development share a common evolutionary approximate timeframe of around 50 years.

Notwithstanding the spike in data technologies and associated architectures (i.e. National Spatial Data Infrastructures) and the data-rich and technology-driven global environment, a recognition and appreciation of the pivotal role of the causal link between geospatial data and sustainable development has been underwhelming (Scott & Rajabifard, 2017). The authors strongly argue that this presents a rare opportunity for the geospatial data community to integrate land data in a holistic manner using geospatial information agencies as the anchor. The Covid-19 pandemic is a case in point for South Africa, highlighting the pivotal role geography and geographic data can play in surveillance and monitoring activities. Like any other pathogens, the coronavirus prevails primarily in space, thus requiring surveillance from a spatial perspective, magnifying the nexus between quality

geospatial data and the understanding of the virus data. The manner in which South Africa has been monitoring and carrying out surveillance of the spread of Covid-19 at different scales (national, province and local) highlights a major disjuncture between geospatial data and wider national information systems (s8.2; ss8.3.1 & s8.4) (Scott & Rajabifard, 2017). There is sufficient reason for South Africa to transition beyond the traditional spatial data infrastructures (SDIs) by migrating towards an integrated land data system that breaks traditional knowledge silos including all elements of land (environment, water, minerals, etc). The fundamental distinguishing features of the NSDI of the future relies on their being underpinned by high-quality data, currency of data and reliability linked to sustainable development outcomes (Scott & Rajabifard, 2017). It is exactly for this reason that integration or the ability to link these multiple data-sets requires collaborative approaches across disciplines and state structures. The future evolution of NSDIs as an integrative framework requires a high degree of agility and collaborative approaches, both of which have been in short supply in the South African context.

The compound eye analogy,[173] illustrated in Figure 9.3, is an import from biological sciences (insect biology) and a frame with explanatory powers in land governance and administration (Manona & Kingwill, 2019) and the notion of repurposing. The compound eye vision is a single vision that is achieved through a combination of multiple receptors that individually constitute independent eyes, but collectively produce a single vision by transmitting to the centre of the nervous system of insects. The advantage of such a vision is that it results in a wider perspective than is possible in a singular vision. Making use of the compound eye analogy (in Fig. 9.3) as a point of departure for the generation of ideas for repurposing theoretically suggests a federated or decentralised collection of data and centralised processing and storage, resulting in an integrated system of data.

Theoretically, the vision would remain intact and holistic, even when a few of the receptors (ommatidial facets) and/or transmitters (retina) are dysfunctional. From a land governance and administration perspective, the deployment of this analogy implies that data domain theoretically represents a single repository of land data

[173] Presentation by Dr R. Kingwill, 12 February 2019 at the roundtable convened by DRDLR offices, Pretoria, 12 February 2019.

from which all other domains can harvest and feed into decision making processes, rendering the ideal of managing land for sustainable development possible. Viewed from this perspective, the land data domain represents the information nerve centre for all other domains of land administration, thus providing a basis for evidence-based decision making and land policy formulation (ss4.3.4) (Kingwill, 2019; Stringer et al., 2018; FIG Publication No 21, *The Bathurst Declaration for Sustainable Development*).

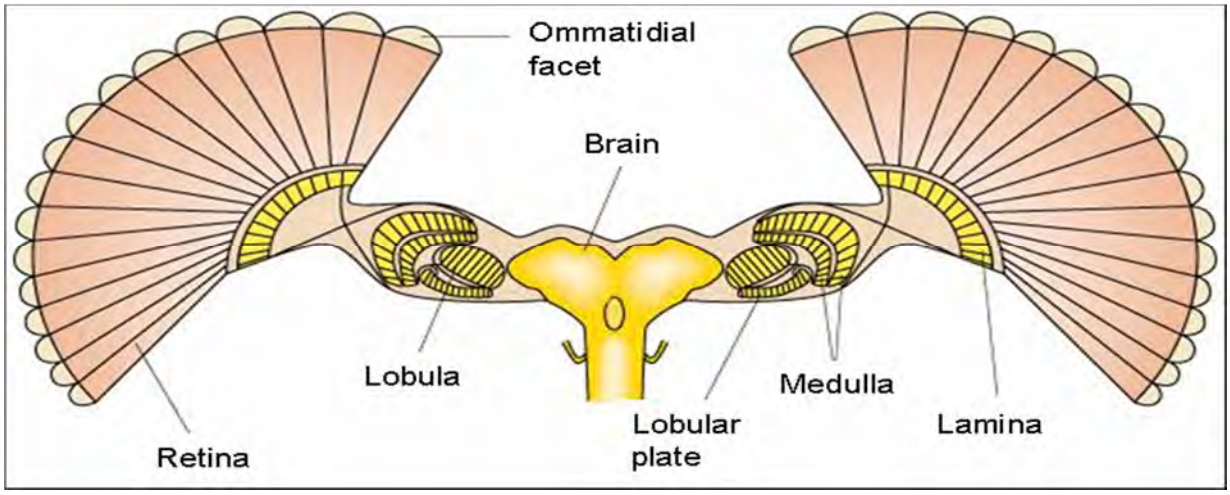

Figure 9-4: The compound eye analogy (Weckstrom, in Scholarpedia, 2014)[174]

Closely linked to the compound eye metaphor is the principle or goal of a "single source of truth" (SSOT) -- alternatively called 'the golden record' -- at multiple scales (local, provincial and national), which is an import from 4IR (industry 4.0),[175] predicated on data pertaining to all processes from both ends of the value chain being "filed once in a structured form", resting on the principle of ensuring that everyone within the defined organisational boundary accesses and uses the same data in the course of making decisions at any particular point in time. The computer network models in Figure 9.4 depicts a system of networked computers within an organisational context with the one model mediated by a cloud storage and the other mediated by a hardware storage system, with both based on the OGD principle of interoperability (Tauberer, 2014).[176] Each computer in the system is programmed to intermittently synchronise with the central storage system, which would in turn

[174] http://www.scholarpedia.org/article/Function_of_compound_eye (Accessed 06 January 2019).
[175] A subset of the 4IR concerned with industry.
[176] Open Knowledge International- http://opendefinition.org/od/2.1/en/ (Accessed 30 December 2019); also see https://okfn.org/ (Accessed 30 December 2019)

also synchronise with the rest of the computers in the system. Stored data is synchronised and aggregated (virtually) with other networked computers making use of data federation software in a manner that prevents duplicate versions or values. Such a SSOT always carries the most current data while historical records are also stored virtually (Rouse, 2017). Within a hypothetical example of a municipality, it would mean that land data generated by one department would become available in real time to other departments within the organisational boundary of the municipality. For example, a pipeline alignment design planned by the engineering department would be accessible to the spatial planning department and community services departments within the organisational boundaries in real time. The very same concept of SSOT can be applied across multiple municipalities, provincial and national departments.

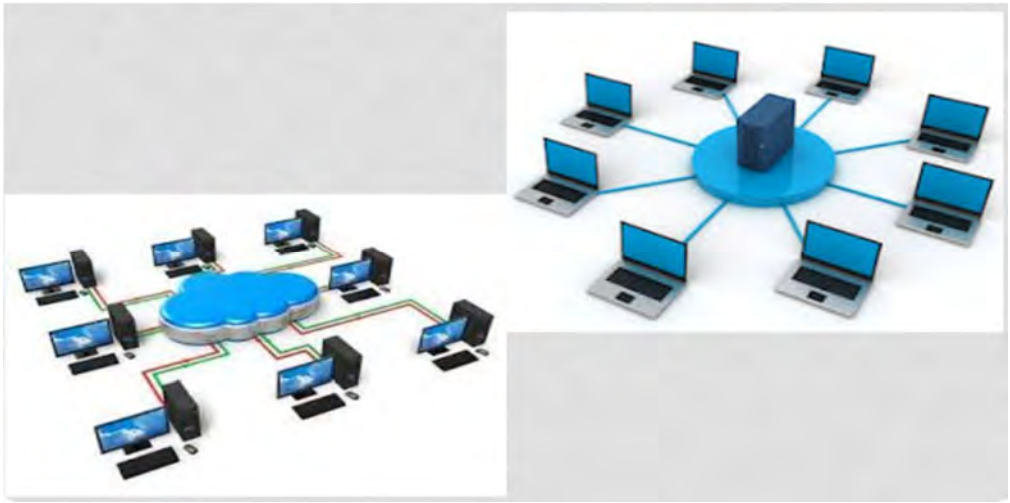

Figure 9-5: Model demonstrating interoperability and computer networking[177]

The SSOT is a critical stepping stone towards demobilisation of intra- and inter-organisational silos. In practical terms, data is captured and stored in an information storage and retrieval system of record (SOR) and becomes available for updating (Rouse, 2017). This concept is a crucial import to land governance and administration, providing an aspirational ideal of a holistic view of land data at multiple scales (local, provincial and national) (Baum, 2016:29). In the context of

[177] https://www.google.com/search?q=picture+of+computers+networking&tbm=isch&source=iu&ictx=1&fir=MgY3a6jOmCM0gM%253A%252CAd5tlQWn9x6f8M%252C_&usg=AI4_-kQqSStL6iHktjjO_VU5_5_b5tiMPw&sa=X&ved=2ahUKEwjqsqyd0tHgAhXAURUIHXtGBqkQ9QEwAXoECAQQBg&biw=1522&bih=738#imgrc=MgY3a6jOmCM0gM: (Accessed 11 June 2019)

land data, the notion of a single source of truth does not necessarily foreclose differences of meanings but should provide acommodation for them (Aligica et al., 2012). The same set of facts could elicit different interpretations and analysis from different actors implying that the notion of a SSOT should also not preclude the coexistence of different truths within the same system.

9.2.3.6 Polycentricity and transdisciplinarity

Polycentricity as both a goal and as a principle is a concept that is considered to be the brainchild of Michael Polanyi (Aligica & Tarko, 2012; Horowitz, 1977; Chayes, 1976; Polanyi, 1951), even though there is an acknowledgement that it was subsequently developed by Elinor and Vincent Ostrom (Ostrom & Ostrom, 1965). In essence, the concept refers to numerous decision-making points with limited prerogative all of which operate under an overarching institutional framework, while having constrained individual autonomous prerogative within the context of the system. The concept has over time overflowninto law studies, urban planning studies (Davoidi, 2002; Hague & Kirk, 2003) and governance studies (Aligica and Boettke, 2009), is an import to the repurposing imaginary. Aligica and Tarko (2012) identify three basic ingredients of polycentricity: multiplicity of decision-making centres, overarching institutional or cultural framework of rules and spontaneous order (evolutionary competition). Each step in the value chain requires the skills of highly competent persons in transdisciplinary teams and transdisciplinary individuals.

Jacobs and Nienaber (2011) differentiate between three broad types of land data: empirical (what exists), pragmatic (what is possible) and normative (what is ideal). These can be differentiated into further sub-categories based on the source of data and the form the data takes. They caution against positivist knowledge silos and take a pragmatic view that the sectors do exist, both in the mind and in reality, hence the need for an inclusive coherent transdisciplinarity. Grove *et al*. (2019) emphasise the importance of a shared recognition in the need to enhance collective capacity across traditional sectoral boundary silos as paramount.

Jacobs (2011) has no doubt that transdisciplinarity is an essential ingredient to the need to govern land holistically, which goes against the grain of positivist sectoral approaches and conceptual constructs to land, as a dynamic that should be harnessed to enhance the processes of knowledge production and finding solutions

(Jacobs, 2011; Jacobs & Nienaber, 2011; Funke et al., 2011; Luks & Siebenhuner, 2007; Max-Neef, 2005). The surge in the body scholarship on transdisciplinarity (Nowotny, 2013; Pohl, 2011; Gibbons et al. 1994; Nicolescu, 1985; Piaget, 1972) culminated in the adoption of the Charter of Transdisciplinarity (1994) at the First World Congress of Trans-disciplinarily in Portugal. The very notion of disciplinary boundaries is not clear-cut, in that, "Most disciplines are not mathematically formalised and… their boundaries are fluctuating in time. In spite of this fluctuation, there is a boundary defined as the limit of the totality of fluctuating boundaries of a respective discipline" (Nicolescu, 2014: 189). As opposed to multidisciplinarity, which simply amalgamates, transdisciplinarity synthesises and engages with complexity across sectors and between different scales, while taking advantage of positionality of sectors. Transdisciplinarity should also be understood as a method through which transdisciplinary work can be undertaken by systematically finding solutions to complex dynamic problems as opposed to a demolition of sectors.

Transdisciplinarity and disciplinarity represent different levels of abstraction in the endeavor to developing an understand reality, which should be understood as complementary rather than as exclusionary approaches (Max-Neef, 2005). In other words, instead of transdisciplinarity constituting a new super-discipline, it constitutes a new systematic and holistic way of looking at the world. One somewhat paradoxic characteristic between these concepts is that, while disciplinarity recognises disciplinary boundaries, transdisciplinarity knows no boundaries, while it recognises different incomplete levels and dimensions of reality. The transitions between these different levels of abstraction, on the one hand, and between levels of organisation, on the other, epitomises the difference between strong and weak trans-disciplinarily respectively, generating insights into the reciprocal understanding of complexity and unity of knowledge. Multidisciplinarity, on the other hand, refers to the simultaneous or sequential application of knowledge from different disciplines or cooperation between disciplines, in a manner that is reinforce of each other, without the linkages between them lacking coordination. For example one may be competent in geodesy, GIS, sociology, and politics, without appreciating the nexus between the different disciplines. Interdisciplinarity also overflows disciplinary boundaries, but is largely concerned with interchange of methods between disciplines (Nicolescu, 2014).

Nicolescu (2014: 192) coming from a transdisciplinarity approach perspective, argues that "no level of reality constitutes a privileged place from which one is able to understand all the other levels [dimensions] of reality." Contrary to hierarchical orders, transdisciplinary approaches gravitate towards some coherence (unity in diversity) between the multiple dimensions and levels, instead of allowing one dimension or level to allocate unto itself the supremacy of ontology (Husserl, 1966). Borrowing from Freire's (1968) *Pedagogy of the Oppressed*, Nicolescu (2014) further argues that when our perspective on the world changes, the world changes. The notion of multiple levels and dimensions of reality which is pivotal to the trans-disciplinary approach to nature and knowledge is consistent with multiple meanings of land. Nicolescu (2014) argues that contrary to reality being a social construct, it has both the pragmatic element to it as well as meaning element -- with experimental data having a potential to subvert established theoretical frameworks. Even within the dimension that asserts itself as fundamental, discoveries continue to unfold, with more lying in different horizons of the future.

Camus et al. (1998; Nicolescu, 2014) notes the radical difference between levels of and or dimensions of reality, on the one hand, and levels and or dimensions of organisation as defined in systemic approaches. From an organisational perspective, the emphasis on different levels and dimensions of reality accommodates horizontal, vertical and or transversal (across different levels of organisation) dimensions of complexity (Nicolescu, 2005). For example, structures of universities (or government) are typically devoid of trans-disciplinarily, with most effort limited to inter-disciplinarity that is not necessarily wired into the institutional structures. Moving from a normative premise that is underpinned by transdisciplinarity, the very ideal of structural change to the university (or government) is inherently pitted against insurmountable resistance, largely due to the push and pull forces around which the academic enterprise and prestige (government position) is constructed on. From this perspective transdisciplinarity acknowledges interdependence and interconnectedness of various parts of the system. The multiplicity of interwoven levels and dimensions of reality, make the world both knowable and unknowable simultaneously. The next section explores options for institutional anchoring of a repurposing platform.

9.2.3.7 Innovation

Alongside existing ideas, innovation is central to the proposed repurposing imaginary, drawing from a broad body of innovation literature that goes beyond Europe as conceptual resource to innovation (Doezema et al. 2019; De Campos et al. 2017; Monteiro & Rajão 2017; Vasen 2017; Fisher 2016; De Hoop, Pols, & Romijn, 2016; Wong, 2016; Macnaghten et al., 2014). While acknowledging divergent meanings that are attached to innovation, one common ground is alignment to, or the contribution of transitions with social goals (e.g. Pansera & Martinez 2017; Betts, Bloom & Omata 2012; UNICEF, 2010). The minimum requirement is that neither economic growth nor modernisation are necessary for innovative change. In the same vein, Pansera & Owen (2016) argues that transitions that advance social goals are realisable through 'innovation for degrowth'. As can be demonstrated through growth strategies associated with enhancement of access to health care or nutrition, innovation is not necessarily incompatible with economic growth -- while it should equally not be considered a constitutive element. While driven by innovation, the repurposing imaginary is also an assemblage of concepts and principles imported from different disciplines, fully cognisant of the risks associated with importing Western grown framework into a culturally diverse global-South context -- bearing in mind the assumptions and political baggage that is often associated with Northern brewed frameworks come along with (see ss6.2.7 indigenous knowledge systems) (Ludwig & Macnaghten et al. 2019). One of the key challenges to the repurposing imaginary entails adaptation requirements to European innovation models, which should be dealt with frontally, rather than be swept under the carpet.

An import from Stilgoe, Owen & Macnaghten's (2013) AIRR widely adopted framework for responsible governance, of (A) anticipation, (I) inclusion, (R) reflexivity, and (R) responsiveness, adds value to the repurposing imaginary. Guston (2014) cautions that any trial at anticipation of results of innovation is typically fraught with epistemic challenges. Employing narrow risk parameters -- which is not uncommon -- severely limits possible permutations that could arise from the innovation. Reflexivity in responsible innovation "means holding a mirror up to one's own activities, commitments and assumptions, being aware of the limits of different knowledges while also mindful that a particular framing of an issue may not

be universally held" (Stilgoe, Owen & Macnaghten 2013: 1571). In practical terms anticipation and reflexivity are not soft landing ground, as they are both fundamentally embedded in unique epistemic challenges, and that deep reflexivity should be accommodative of diverse methodologies, ontologies and values (Ludwig, 2016; Smith, 2013; Cajete, 2000). While the proposed imaginary of repurposing of 'land administration' presupposes a transition. Ludwig et al. (2019) cautions that, to the extent that innovations have historically been embedded with economic growth and modernisation paradigms, not all transitions are innovative -- giving rise to a need for alternative visions of transitions, 'inclusive innovation' (Chataway, Hanlin, and Kaplinsky 2014; Heeks, Foster, and Nugroho 2014; Foster and Heeks 2013), 'responsible innovation' (Stilgoe, Owen, and Macnaghten 2013; Von Schomberg 2013) and 'social innovation' (Datta 2012; Nicholls and Murdock 2012; Tapsell and Woods 2008). The combination of pluralism, complementarity and competing articulations of change turn the very concept of innovation into a contested concept (Krause, 2013).

While acknowledging divergent meanings that are typically attached to innovation, one common ground is alignment to or the contribution of transitions with social goals (e.g. Pansera and Martinez 2017; Betts, Bloom, and Omata 2012; UNICEF, 2010). This minimum requirement implies that neither economic growth nor modernisation are necessary for innovative change. In the same vein, Pansera & Owen (2016) argues that transitions that advance social goals are realisable through 'innovation for degrowth'. The next section explores options for institutional anchoring of the repurposing imaginary.

9.3 INSTITUTIONAL ANCHORING OF THE REPURPOSING IMAGINARY

The repurposing of land administration imaginary is inherently embedded in politics and power, which implies the inevitability of protecting vested interests and resisting change among diverse actors with divergent perspectives in respect to desirable trajectories and the most appropriate ways of steering processes (Köhler et al., 2019; Kern, 2015; Scoones et al., 2015; Smith & Stirling, 2010). Drawing from Scoones et al. (2015 cited by Temper et al., 2018:748),) suggests four transformations pathway options: technocratic, marketised, state-led and citizen-led, provides sufficient, which provide some degree of conceptual fodder for how the

repurposing imaginary could be driven. Citizen-led transformations, which are central to the repurposing platform, are embedded in resistance as a source of power and are consistent with notion of publics requiring a multiplicity of identities and cultures (See s2.2.6 on emergence of publics). Scoones (2015 cited by Temper et al, 2018) notions of "unruly politics", "diverse knowledges" and "multiple actors" are central to his theory of social change in a manner that is poised on a resistance mode, posing immense challenges in both the status quo (system) and to incumbent structures because it embodies elements of unknown methods and outcomes. This is inconsistent with transition processes being managed exclusively through incumbent structures. Based on this perspective, the repurposing imaginary inherently requires diverse actors and notion of publics as advanced by Dantec et al's (2013). Equally so, the advocates for alternative socio-technical configurations rely heavily on certain sufficient public support thresholds. Every intervention can be equated to a move in a game of chess game, ultimately boiling down to "who gets what, when and how" or who is the winner and the loser (Köhler et al., 2019: 6; See Smith & Stirling, 2018).

Köhler et al., (2019) identified well-established bodies of scholarship that span over theoretical and empirical aspects of transitions of power and politics within the theme of sustainable development research (Smith & Stirling, 2018; Ahlborg, 2017; Avelino et al., 2016; Lockwood et al., 2016). They arguably make a distinction between macro and micro scale sustainability transitions research such as the relationship between nature and earth, on the one hand and individual life choices, on the other. It is inconceivable how the nature of the macro global capitalist system that is embedded in extractionism and micro individual behavioural motivations can be extricated from sustainability considerations. While Köhler et al. (2019) are on point about the multidimensional multiplicity of actors and processes being beyond single theories and single disciplines, it is enough for the land administration repurposing imaginary to be embedded in sustainability considerations focusing on issues that emanate from specific contexts and multiple scales. Given that the South African repurposing imaginary could potentially be a new site of struggle it is hard to imagine how it could symultaneously be removed from party political interference (Williamson, 2000). The interactive process should be underpinned by clarification

of responsibilities between state and non-state actors and a consistent calibration of shared goals of the system.

Regardless of the point of departure, the authors of the then Department of Rural Development and Land Reform Land Audit report, a very small aspect of land administration, made an unqualified proposal for a land administration commission (DRDLR, 2017). Coming from a different premise, the Parliamentary High Level Panel also proposed a special purpose vehicle with adequate life span similar to the Law Reform Commission, entrusted with an overarching rationalisation or calibration of land law (see Parliament RSA, 2017: 58; 455; 555-6) in respect of reorganising land governance and administration systems. Both proposals converge at some notion of a special purpose vehicle in a manner that is oblivious to the underlying divergent interests. Borrowing from Temper et al. (2018:751; Pelling et al., 2015), the notion of transformation or system reconfiguration entails "radical shifts, directional turns or step changes in normative and technical aspects of culture, development and risk management". This might just be the moment to refurbish what Mao Zedong's statement uttered in Peking in 1957 that by "letting a hundred flowers blossom and a hundred schools of thought contend", as a guiding principle for institutional anchoring when repurposing of land administration.

Within the African context, any thought of the repurposing imaginary that is exclusively framed on a national scale, to the exclusion of the regional and continental scales, is beset with limitations. South Africa's prospects of success in it's land information policy trajectories are in part nested in, and reliant on using it's positionality in regional and continental multilateral bodies to advocate and actively promote the idea of the importance of data as a resource, pivoting on sustainable development goals.

Having made the broad outline of proposals, it is equally important to raise pointers towards a starting point. UNESCA recommends that prior to embarking on a OG and OGD trajectory, a country readiness assessment must be conducted, together with political and sustained financial commitments, public service readiness, existing legal, policy and public sector institutional frameworks (William-Elegbe et al., 2017). The proposed country scale state of readiness studies should be wide ranging and cover areas such as national data infrastructure assessments or diagnoses such as

broadband, storage, ILIMS, data security, interoperability standards; change management consideration with specific reference to the management of transitioning from paper to digital systems; assessment of national legislation and policy; and system conceptual and technical design.

9.3 CONCLUSION

While originating in the specific context of South Africa, the theorisation of the repurposing imaginary is crafted in such a manner that it can be applicable and adaptable to other similar African contexts. The need for repurposing land administration arises out of the findings of the two previous chapters, intended to support the process of aligning policy goals and policy instruments. This chapter achieved that by focusing on a set of normative goals that are scalable and underpinned by a set of principles that can be equally applied across different national contexts at different scales. The chapter starts off by importing Ehrensperger, et al's (2019) three global challenges that require land-based solutions: providing food to a growing population, mitigating climate change and halting biodiversity loss and adopts them as the normative goal upon which repurposing of land administration should pivot. A case was made for electing the data domain as a leverage point for repurposing land administration as part of a bigger transformational platform. While the repurposing imaginary is designed with main purpose of developing a solution for the South African problem, it could be equally applicable in other African contexts and could also be applied at regional and continental scales.

Having found the basis for what would constitute normative goals for the repurposing of land administration, the chapter identified institutional reform as the main repurposing platform, underpinned by a set of interrelated principles: placing people at the centre of technology; gravitation towards a national approach and standardisation; infrastructuring; multi-dimensional integration; holistic approach to land, polycentricity and transdisciplinarity. The chapter explored different institutional anchoring pathways advocating for Scoones et al.'s (2015 notion of citizen-led pathway. The next chapter analyses themes that have emerged from the study in terms of a review of policies, literature and empirical evidence. The chapter serves a shortened version of what the dissertation sought to do, how it went about the task.

CHAPTER TEN : DISCUSSION AND CONCLUSION

10.1 INTRODUCTION

The aim of the study was to explore the potential role of Open Government Data (OGD) in the repurposing of the land administration system within the context of the post-apartheid South Africa. The notion of repurposing was sktched out in Chapter Nine, predicated on the idea that the land administration system in post-apartheid South Africa is incoherent and incongruent and fragmented hence the need for an overhaul (Kingwill et al., 2019; Kern et al., 2009). To achieve this goal, the study was guided by the following objectives: to explore the ontology and the state of land governance and administration in the context of the post-apartheid South Africa (See Chapter Five and Chapter Seven); to undertake an evaluation or assessment of South Africa's land data ecosystem (See Chapter Eight); and to explore the potential role of OGD in repurposing land administration system in the post-apartheid of South Africa (See Chapters One, Seven and Nine).

To the extent of what was possible, the study has, in the researcher's opinion, adequately responded to all three objectives, with some caveats. Although the study was primarily pitched on a national scale – the combination of the general systems and multiple scales approaches – evidence from the study of land governance and administration on the one hand, and OGD on the other hand, point to some solutions which lie beyond national scale, at regional and continental scales. One glaring example of land governance complexities that dislodges solutions beyond national scale arises from the intersectional nature of trans-national boundaries (s5.3). On a different theme, clearly demonstrates how the complex hydro-politics across Africa and within the SADC region, could even be exacerbated by single states acting individually, and the need for to strengthen trans-national institutional arrangements (ss6.2.4) (Jacobs, 2011). Molle (2017) identifies paucity of [land] hydrological data -- inclusive of quality of data that the models require -- as a major impediment undermining trans-boundary management structures and hydrological modeling approaches, which are pivotal to management and coevolution into the future (ss6.2.4 – ss10.2.4). With respect to the data theme, section 5.4, clearly exposes how the combination of ICT and geo-data technologies are part of a complex global

information system that straddles states and companies (ss10.2.4). Discussion highlighted the vastly different scales at which these technologies can be deployed and the granularity at which they operate, something that does dislodge regulation beyond the purview of a single national state (s5.6). As the study was predicated on an ideal of repurposing land administration in South Africa, the logic of repurposing land administration is a long-term platform,[178] and one that needs to conceptualised, embraced and rolled out at regional and continental scales. There is a definite role for OGD in repurposing of land administration in South Africa, but it cannot wait for the whole of the SADC region and Africa before it fixes it's own institutional and structural challenges. From that perspective, South Africa could be the trail-blazer, taking a lead to the entire continent, while spontaneously drawing lessons from the continent (ss10.2.4). While the need for homogenisation and rationalisation of colonial apartheid and post-apartheid institutions is deemed necessary, institutional and structural reform is reliant on open government data policy trajectories taking root.

This study takes a very broad view of land governance and land administration as a very broad subject of inquiry with multiple sub-domains and dimensions, underpinned by a holistic conceptual ontology of land. For practicality purposes, the researcher elected two specific themes of trans-national boundaries and water resources as the entry point into the land administration component of the study. On the one hand, the theme of trans-national boundaries is selected for it's specific history and legacy in Africa and fixed nature of boundaries. The theme on trans-national boundaries was discussed on a global scale (ss5.3), and on a continental and national scale (ss6.2.2). On the other hand, the water resource theme is selected for it's transient nature and it's mismatch with bounded-state administrative boundaries discussed from a policy perspective (ss6.2.4 ;6.2.5). Chapter Seven provided an assessment of South Africa's land administrations system. For the purposes of assessing South Africa's land data ecosystem, as a domain of land administration, the study examined South Africa's high-level information policy environment and went on to examine three land administration sub-domains: the national address system (s8.2); ss 8.3.1.1), the national the Deeds Registry (DR)

[178] The notion of a long-term platform is used here as a means of solving complex land system challenges requiring extensive changes that occur over long durations (Grove et al., 2019).

and Surveyor General (SG) (ss8.3.1.2) and the national archives system (ss 8.3.1.3). Throughout the study, the 21st century existential crisis (climate change) and sustainable development emerge constantly as pertinent to land governance bringing along with them completely new sets of land reform requirements to post-colonial contexts, which may often be at odds with the narrow land reform programmes that are exclusively anchored in redistribution imperatives. As an overarching framework, land governance/administration framework provides the conceptual resource for alignment of multiple layers of meanings.

As discussed, the study draws heavily from primary and secondary literature, in it's various guises, i.e. scholarly, literature, government policies and reports, websites etc. (ss2.3) (Curtis & Curtis, 2017; Neuman, 2014), on both themes under study (land governance and OGD). All these three layers, were deployed as critical part of exploration of the terrains, distinguishing between high lying and low-lying areas and finding gaps, where they exist, following the contour lines or going against the literature where warranted, underpinned by an endeavor to develop clarity of what is currently known in the two areas of inquiry. While different layers of literature review did cast some useful insights into what has gone on before, it is noted that much of the international literature on both subjects is heavily tainted with the Western biases experiences and perspectives, which are often not sufficiently nuanced or reflective of the African context. As discussed in subsection 2.3.2, the researcher deployed an assemblage of observational methods, including direct observation drawing from a network of key informants who are in the different professional practitioners in land administration (Leedy et al., 2014). Notwithstanding that, the researcher tried to navigate through these vagaries, cautiously drawing what is relevant and what is useful to the specific context under study. With respect to the data/information component of the study, the researcher paid special attention to philosophical and technical underpinnings of Open Government (OG) and Open Government Data (OGD), without losing sight of technology divide between Western and African country contexts as well as contextual factors which inform policies in these specific situations (Zuiderwijk et al., 2014).

This concluding chapter identifies several issues relating to either the research or policy that emerged during the literature review and policy analysis. Among some of

the key cross-cutting themes that emerged are the ontology of land, land governance and state capacity, sovereignty-state-territory triad, and data (open data and data technologies); these are dealt with individually and where necessary, i are grouped. Key findings that respond to the first and second objective are in subsection 10.2.2.1 and those that respond directly to the third objective in subsection 10.2.4. A consolidated list of implications for research, policy and practice are in section 10.2.5.

10.2 CROSS-CUTTING THEMES

10.2.1 Ontology of Land

As discussed in subsection 4.2.1, numerous scholars problematise the somewhat mundane English word 'land' largely to remove it from some of the colonial anchorage and the cultural baggage it carries (Safransky, 2018; Bridge, 2014; Li, 2014; Krausse, 2013; Barad, 2007; Grosfoguel, 2007). Li (2014) introduces the analytic of 'assemblage' of materialities of land as a resource that encompass relations, technologies and narratives that are distributed or aligned between diverse actors including villagers, scientists, investors, legal experts, government officials, etc. The diverse groups of actors also have distinct subjective ideas of the meaning of land, the affordances of land use and how humans should interact with it, either as individuals or as groups. Along similar lines Bridge (2014) also argues that [land] natural resources tend to be intricately embedded in different forms of common sense, which pivot around positionalities of self and others, giving rise to fundamental challengesto both the conceptual understanding as well as to controlling the resource. Goldman et al. (2018), coming from an ecological perspective, reminds us how multiple actors know the world (and thus climatic changes) is closely bound up with what the world is for them, the types of worlds they all participate in creating, and how this is constantly changing. Li's (2014) notion of assemblage of ontologies alongside Goldman et al's (2018) notion of overlaying ontologies highlights the importance of appreciating the different rationalities of multiple actors. The inclusive and multidimensional ontology of land is consistent with Zelli et al.'s (2012) reference to [land] governance as an overarching conceptual orientation that should provide a lens into all land use decisions.

The inclusive conceptual ontology of land has far-reaching implications beyond the obvious fields of research, policy and practice. Firstly, the holistic conceptualisation counterbalances the positivist tradition of artificial silos between what are essentially intertwined elements of land: water, energy, agriculture, forestry, environment, minerals sectors etc. which Jacobs et al. (2011) caution on, This conceptualisation is potentially disruptive to established disciplinary boundaries, established government architectures and logics.. Secondly, in a manner that is consistent with decolonial epistemology's requirement to decolonise concepts it is disruptive on a number of established double-barrel constructs such as land governance, land administration, land data, land reform etc. (Grosfoguel, 2007). For example, the conceptualisation infuses a new meaning to what constitutes land data, to include include data on water, air quality, biodiversity, people, etc. which have traditionally been fragmented. Thirdly, it has implications for government architecture as well as how logics, which has far reaching implications for how policy is formulated and overseen. Lastly, the inclusive conceptualisation is catastrophic to established theories, necessitating that they are brought to the review table. The next section addresses the interface between state capacity and land governance.

10.2.2 State Capacity - Land Governance Interface

10.2.2.1 State capacity

While the bigger picture of state capacity remains important, this study is primarily concerned with a specific dimension of state capacity – 'land governance' and or 'land administration', discussed in subsection 10.2.2. From the onset, the study's point of departure was a negative outlook on the effectiveness of South Africa's broader state machinery, as articulated by Andrew Borraine and Bernie Fanaroff's hard-hitting presentation to the South Africa cabinet which characterised the state machinery as "disorganised, disabling and distant", saddled with a set of overly ambitious and complex policies which require execution from a limited skills and financial resources base (Makhanya, 2019:4).

The gravitation towards the centre-stage of academic discourse on state capacity in international discourse cannot be read in isolation from narratives that are primarily

concerned with a resuscitation or renovation of liberalism which unfolded at the back end of World War II and the Great Depression that followed (Quinn, 2018). As discussed the global surge in state capacity concerns is directly linked to increasing uncertainties about the future of imperialism within the context of of varying persuasions in divergent paths (s5.4 and 5.5) (Giannakopoulos, 2018; Bryce, 2014: Sylvest, 2009). Among the four identified scholarship bodies that emerged from this context, despite the background positionality of the land theme, is their common interest in global North-South economic relations (Bourke, 2015; Ashworth, 2014).

Parallel discourses on state-capacity and state-building also mushroomed within the development fraternity; African scholarship went in different directions focusing at various elements of the bigger African development challenge – all in search of explanations to the rising/looming state capacity challenges embroiling African states (Tanrisever et al., 2017; Erikson, 2011). While each one of these analytical approaches hold influential explanatory power, however, their poor ability to articulate with each other and to present a comprehensive analysis of the underlying policy design fundamentals -- in a manner that filters symptoms from root causes – is an obvious weakness. Such approaches only detract attention from the original policy design considerations which were the cornerstone of carving up of Africa's trans-national boundaries and resultant statehood. Any search for African state capacity is a search for a phenomenon that was never factored into the original policy design in the original state formation. In direct contrast to the European experience of state emergence where the state was a product of economic success, in Africa state capacity is increasingly viewed as a condition for economic success (Andreasson, 2015).

The expanding and deepening imperialist trajectories in Africa – be it land resource grabs (Özsu, 2019; Choi, 2018; Hall, Matondi et al., 2015) or the new scramble for Africa which makes African countries the top foreign investment destination, out of 16 countries that are on the pipeline for energy reserves extraction (oil, gas resource grabs) in the next few years – pays little attention to concerns for environmental consequences and sustainability consideration (ss6.2.4 and 6.2.6) (Andreasson, 2015; Barry, 2012; Collier, 2010). The African context does assist in throwing some light into the environment in which South Africa's state capacity challenges are situated.

Contrary to the dominant paradigm that conceptualises the state as an entity, conception as ‘an assemblage’ and ‘a network of interests’ (s5.3) has far-reaching implications for discourses on state capacity (Menga et al’s, 2018; Swyngedouw, 2015). This conceptualisation adds the dimension of introducing an intervention to balance of forces between competing state interests as opposed to technicist notions of state capacity building. By implication – and with specific reference to South Africa – state building is an intervention that should be targeted at the preponderance of political economy factors such as patrimonial norms, corruption and jostling for power (politics) which constitute fundamental impediments to the very essence of good governance and administration (Fritz et al., 2007). It is at the strength of this argument that the specific form of state building that is advocated in this study comes with built-in caveats. Firstly, while this study had a specific bias towards the role of the state with respect to land governance and land administration, there is general recognition within the development scholarship fraternity that governance is not exclusively a government function (Menga et al., 2018; Zelliet al., 2012; Lund, 2006; Agamben, 2005). The view that governance goes beyond government has specific particularities within African post-colonial land governance contexts, where land governance and administration systems are a blend that combines elements of indigenous systems and Western imports (Sietchiping et al., 2011; Eriksen, 2011). Secondly, in appreciation of the South African context, the very idea of building state capacity is one which is inextricably intertwined with building Dantec et al’s (2013) notion of publics – a capable active citizenry – as a necessary but insufficient condition to finding solutions to managing the country's land resources effectively and efficiently. The notion of publics is consistent with Temper et al.’s (2018; Scoones, 2016) theory of social change which is poised on a resistance mode, notions of 'unruly politics', ‘diverse knowledges’ and ‘multiple actors’ mounting a challenge to the status quo (system) and incumbent structures, in a manner that embodies elements of unknown methods and outcomes. Social movement theory also places bottom-up processes and pressure at the centre of in policy transitions (Köhler et al., 2019; North, 2011; Sine & Lee, 2009). As discussed in section 9.3 the proposed repurposing political imaginary also draws from Scoones et al’s. (2015) notion of citizen-led transformation pathways. The third caveat is that OGD is considered to be a necessary but insufficient condition as a fluid to unlock the

energies of publics and to the ideal of repurposing land administration that is mooted in this study (see Van Schalkwyk, 2016; Manyika et al., 2013).

An assessment of South Africa's land administration system – synonymous with an examination of a specific dimension of state capacity – provided a brief historic diagnostic of South Africa's land governance and administration system, specifically focusing on the convoluted history of key political transitions – from a pre-colonial to colonial era, colonial to apartheid, and apartheid to the post-apartheid era -- made rather damning findings (s7.2 & 7.3). Largely based on the understanding of policy design as the craft of differentiating, packaging and calibrating bundles of alternative policy means and tools in a manner that would deliver specific predetermined or desired outcomes, South Africa's land administration historic diagnostic identifies poor policy differentiation and packaging as dominant feature of the transition management to the post-apartheid dispensation.characterised by poor policy differentiation and packaging (Howlett et al., 2013; Gero & Smith, 2009). The indiscriminate carrying over which dominated the transition from apartheid to post-apartheid dispensation was antithetical to Howlett et al's (2013; Del Río, Silvosa, Iglesias, 2011) 'maximisation of complementary effects' of policy toolkit, and 'goodness of fit' between the policy mix and governance context. The predominance of 'conversion' 'layering', 'drifting' policy design approaches in the transition from apartheid into the post-apartheid dispensation – predicated on minimum disruption – resulted in a policy mix that was lacking in unidirectionality and coherence (see (Howlett et al., 2013; Kern & Howlett, 2009). These findings were not only a negative on the poor management of the land governance policy transitions, but were in essence a reflection of state capacity. These findings also shed some light into the deepening spatial inequalities, poor land reform outcomes and growing poverty.

South Africa's boundary upgrade elicits fundamental land justice considerations in relation to the fate of subaltern 'communities' of interest that are living along the boundaries (the Ngomezulu along the KwaZulu Natal (KZN)-Eswatini boundary and the Tembe along the KZN-Mozambique boundary) in a manner that is potentially inconsistent with the constitutional human rights ethos (ss6.2.2) (Yennet, et al., 2016; Jacobs, 2012). South Africa's land governance policy trajectories are also further demonstrated not only in internal land relations, but also in it's sovereign

relations with neighbouring states, a reflection of a system that is hard-wired in colonial and apartheid power (ss6.2.4) (Grosfoguel, 2007; Quijano, 2000, 1998, 1993). South Africa's characterisation as a sub-imperialist power in Southern Africa does not augur well for sovereign justice trajectories (ss6.2.5) (Bond, 2004).

Notwithstanding the entrenched constitutional imperatives, South Africa's land governance policy trajectories fail the justice test. The inability of the state to implement Section 25 (9) of the constitution is just one omission perpetuating exclusionary trajectories (ss7.2.4.1) (Winkler, 2019; Bouillon, 2000). Further, South Africa's water use distribution remains skewed in patterns that are not much different from the apartheid past, almost three decades into the post-apartheid era (ss7.2.4.1). The omission to mainstream constitutionally entrenched status customary law is not only exclusionary, but it has the effect of foreclosing indigenous people's ways of knowing (ss7.2.4.2). The reluctance of the state to intervene in land markets through land value capture tax, is not only limiting the state's capacity to finance urbanisation, but an exclusionary policy trajectory which is a reflection of contradiction between goals and tools deployed (ss7.2.4.3) (Siba et al., 2017; Bhana et al., 2011). A further exclusionary policy trajectory discussed in subsection 8.3.1.1 -- South Africa not having a single credible national address database that is supported by the state -- is yet another example of system failure and short supply of justice (Coetzee et al., 2020). All of these negative findings constitute the basis for a proposal for the repurposing of land administration – as new political imaginary -- as a measure that is intended to overhaul the system (ss7.2.3.3 to 7.2.3.5).

The transitions that underpin the proposed notion of repurposing of land administration are by their very nature inherently an intervention that is aimed at the balance of forces in politics and power, making use of OGD trajectories (Köhler et al., 2019; Smith and Stirling, 2018; Kern, 2015; Scoones et al., 2015; Smith & Stirling, 2010), in a manner that ultimately will boil down to "who gets what, when and how" or who is the winner and the loser (Köhler et al., 2019: 6). This is consistent with Grove, Picket et al.'s (2019) notion of a long-term platform as a means to solving complex land systems challenges – an intervention which should be targeted at disrupting spatial inequality trajectories while supporting sustainable development (ss9.2.1). The next subsection explores land governance and administration as a theme that is interwoven with state capacity.

10.2.2.2 Land governance/administration

In the process of examining the ontology of land administration, the study identified five streams of scholarship trajectories which congregate around the concept of land administration (see section 4.2.4. Chapter Four). While not internally monolithic, these five scholarship streams share two commonalities, which according to Fourie (2002b; Li, 2014) would amount anchorage on the Western model and their adherence to a reductionist methodology manifesting in their preoccupation with micro scale to the exclusion of the macro scales (Rindzevičiūtė's, 2018; Oatley, 2011; Gaddis, 2002; Murphy, 1998; Ayala, 1974). While reductionism is considered a legitimate approach in academic inquiry, it's consequences of false sedimentation of categories or tendency to reduce parts into the whole, constitute it's major faultline (Walby, 2007) resulting in highly suspect conclusions (s4.2). After deconstructing, assembling and (re)examining the concepts of 'land administration' and 'land governance' in relation to each other, this study breaks ranks with the five bodies of scholarship towards a conclusion that land administration and land governance are two sides of the same coin or points in a continuum – land administration steeped towards praxis while land governance is steeped towards policy (ss4.2.3; 4.2.4; 4.3.4) (Rindzevičiūtė, 2018; Stringer et al., 2018; Biitir et al., 2016; Steudler et al., 2004; Benjaminsen et al., 2002; Ostrom, 1998; Woodhouse,1997). The study aligns with Zelli et al.'s (2012) conceptualisation of land governance as an overarching framework.

In a manner reflective of limitations that emanate from the narrow ontologies of land , the notion of 'governance' is typically unleashed in relation to elements of land (sectors) rather than to land in a holistic sense – as in water governance, environmental governance etc.(s4.3.4; ss10.2.1). For example, despite the wider multiple land dimensions to the challenge, the UN World Water Development Reports identified poor governance of water resources as the primary driver of the global water crisis, instead of resource availability (Menga et al., 2018; WWAP, 2017, 2016). It is inconceivable how governance of water resources can be understood outside of the land context ofwhich they are a part. to the distinction between water governance (Menga et al., 2018) and underground water resource governance (Delgado-Serrano, 2020) is aa reflection of multiple levels levels of abstraction in the governance of water governance,. Similarly, references to

environmental governance (Zelli, et al. 2012), biodiversity governance (Stringer et al, 2018) and natural resource governance (Benjaminsen et al., 2002) also represent different levels of sectoral abstraction within the broader environmental sector. Similarly, references to governance of tenure as envisaged in Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGTs) (UN FAO, 2012) represents a sub-sectoral perspective (Levy, 2020; Hall et al., 2017). The conceptual flaw arises where land governance is conflated with land reform, especially when the latter is in actual fact a small part of the former, which also goes against the grain of Zelli et al's (2012) overarching framework conceptualisation (see Mitchel, 2020).

Despite the increasing usage of governance in sectors, which represents acceptable levels of abstraction, the absence of a conceptual coherence around land governance is problematic in that it opens up opportunities for manipulation by different actors with self-serving interests (Ertör et al., 2019). The sectoral usage to the exclusion of a holistic conception of landis inconsistent with Zelli et al's. (2012) characterisation of [land] governance as an overarching framework. The absence of a normative conceptual coherence partly sheds light into the policy lacuna on 'land governance at multiple scales'. This calls for clarity not only on the scope, but also on the goals as well as whose interests are served by the 'land governance/administration edifice at multiple scales'. Notwithstanding that, the notion of land governance and administration cannot be considered a panacea to analysis without critique, even though both land governance and administration provide an opportunity for a multidimensional overarching framework that straddles across, and draws from, multiple disciplinary territories (Hadjimichael, 2018; Kallis 2011). Considered as two sides of the same coin, the two concepts constitute catch-all phrasesets with the potential to unify a wide range of disciplines and discourses around a variety of topics – land justice, spatial inequality, colonial matrices, commons, etc. – all pivoting around land. In recent times there is growing trans-national land governance concerns about extraction activities in the oceans environments, taking place alongsidethe increasing scientific understanding of the dynamics of underwater sea environments, environmental consequences that are spatially and temporally decoupled (s5.2) (Campbell, 2018; Ban et al., 2014). These governance concerns are not limited to oceans, but span into use of international air

space which are beset by multiple sets of complex and porous international norms, such as norms around deployment use and regulation of geo-data technologies in international air space and use of national and international airspaces (Zevenbergen et al., 2015). South Africa and the rest of the African preoccupation with internal land reforms, to the exclusion of global commons, is tantamount to foreclosure of Africa's rightsin the global commons, by default. Ertör, et al (2020; Latouche, 2009 in Demaria et al. 2019) call for the decolonisation of the oceans governance imaginary is anchored in trans-national land justice concerns.

As discussed in section 5.2 the lack of conceptual coherence around land governance has other consequences. Despite it's obvious centrality and cross-cutting nature on a global scale, land governance as a theme remains invisible somewhere in the backstage, overshadowed by other governance sub-themes (Zuiderwijk et al., 2014). Despite global debates and Africa's second fiddle role with respect to data and data technologies, the study did not lose sight of the opportunities and impediments to the African data revolution as well as the recognition of role of quality data towards the realisation of the 2030 *Agenda for Sustainable Development and Agenda 2063* and Africa Data Consensus (Ochieng, 2016; UN, 2015). Moving from the basic premise that data constitutes the basic building blocks for the development of concepts and generation of knowledge – both of which are never neutral (Wijsman et al., 2019; Foucault, 1980) – this study concludes that OGD is necessary, but not a sufficient condition for changing worldviews. What becomes crucial is an assessment of how the concepts and the process of knowledge formation facilitates the deepening of understanding of the world, in a manner that either strengthens appetite for just transitions or reinforces pre-existing orders (s9.2.2) (Tuana, 2013; Tschakert, 2012; Jasanoff, 2004).

10.2.3 'Sovereignty-State-Territory' Triad

On a global scale, the institutional origins and the evolution of the bounded (trans-national boundaries) nation state and budding ideas of sovereignty – the 'sovereignty-state-territory' triad – are intricately linked to the rise and evolution of capitalism (Mbebe, 2018; Dallimer & Strange, 2015; Tsheola et al., 2015). The socio-political subdivision of global space created a fragmented system of governance, administration and ownership of the earth (Tsheola et al., 2015;

Dallimer & Strange, 2015; Kark et al., 2015). Interests in boundedness are embedded with governance of mobilities of resources, goods and people in ways that are interwoven with liberal notions of stability, security and risk aversion, elimination of ambiguity and uncertainty, exercise of authority, coupled with tax revenue considerations (Mbebe, 2018). The 'lines of separation' transcend the physical division of barriers but are encumbered by a stack of legal/institutional and social divisions (Tsheola et al, 2015; Dallimer & Strange, 2015: 132). According to Grosfoguel (2007: 220; Wallerstein, 1991a; 1991b; 1995), notions of 'national identity', 'national development', and 'national sovereignty' are part of the liberal conceptual arsenal which was created to inflate the illusions of 'independence', 'development', and 'progress'.

At a continental scale, with specific reference to Africa, the potency of contradictions of the 'sovereignty-state-territory' triad are pervasive to the point of having a blinding effect. The administrative/political boundaries of the traditional nation state have been a subject of much attention and criticism, among others, from geographers who were more in favour of a river basin as a natural scale of social organisation (Molle, 2017). Within the African context, and with specific reference to the SADC region, Zelli, et al.'s (2012) characterisation of land governance as an overarching framework provides a conceptual resource, firstly for reimagining land data collection, storage and sharing cultures that are not bound by territorial boundaries, as a policy imaginary.

The idea of sovereignty and it's three constituent dimensions – domestic sovereignty, Westphalian/Vattelian sovereignty and international legal sovereignty – is heavily embedded with internal contradictions between it's own constituent elements, while it is also simultaneously positioned anachronistically in relation to other institutions which are part of the environment in which it is situated (Krasner, 2009). For example, while countries theoretically have domestic sovereignty (right to conduct own affairs without interference), they are simultaneously a part of, and subject to, a system of international institutions with respect to internal conduct and international affairs placing the essence of the construct of sovereignty into serious question of relativity (Eriksen, 2011). Tsheola et al.'s (2015; Lunstrum, 2013, 2014; Massé & Lunstrum, 2015) characterisation of the notion of sovereignty as 'an articulation-in-motion', that is subject to constant ebbs and flows in processes of

consolidation and reconfigurations of power inequities between states, is borne out of a realisation of these inherent contradictions. Some of the strategies used in the process of lubricating extraction include a manipulation (exaggeration and curtailment) of sovereignty and the establishment of a political order that renders spaces controllable and exploitable (Hommes et al., 2016; Rodriguez-de-Francisco & Boelens, 2016; Büscher & Fletcher, 2014; Meehan & Moore, 2014;).

Globally, the domain of national boundaries is characterised by poorly developed institutions and competing priorities between national and trans-national scales (Fraser, 2014). Politics of exclusion trigger issues of 'morality of immigration' (Blake, 2014: 521); the use of force in controlling mobilities is mainstreamed by default into governance and management regimes (Miller, 2010; Abizadeh, 2008). The intersection between environmental forces, economic pull-and-push factors and trans-national demographic movements in Africa (Ochieng (2020; Otter et al., 2018) as well as discourses on the future of Africa's trans-national boundaries cannot escape the policy chopping block for much longer.

The policy stance originally adopted by the OAU in maintaining Africa's trans-national boundaries (Herbst, 1989), which was anchored in redeploying a pre-existing colonial policy mix onto a new set of pan-Africanist goals, is not only contradictory, but consistent with Howlet et al.'s (2013) notion of 'conversion' policy trajectories. While this approach had minimum disruption, it is a major source of policy incongruence between the old colonial policy tools and the new goals of the African continent as originally set by the OAU.

10.2.4 Open Government Data Geo-Data Technologies in the Context of Land Governance

As discussed in section 5.6, the increased realisation of data as a resource is paralleled by a global surge in technological advances in geo-data that permeate every nook and cranny of land governance and provides a window into the growing importance of data in the 21st century (Dong et al., 2019; Tian et al., 2019; Murray et al., 2019; Liu et al., 2018; Midekisa et al., 2017). Nonetheless, these geo-data technologies also present new opportunities for developing countries to bring about solutions to long-standing land management challenges such as unconventional

mapping of land rights and address systems (Zevernbergen *et al*., 2015; Ernemark *et al*., 2014; Laaraker and Vries, 2011; McLaren, 2011; Anderson, 2000). On the other hand, the variance in scales at which these technologies are launched versus the vastly different scales at which they perform, gives rise to an array of regulation complexities across multiple scales – a challenge that has specific implications for developing countries that are on the periphery of the bigger game of these technologies (Lyon, 2018). The regulatory complexities arising from these technologies straddle across scales and nation state giving rise not only to challenges but also new opportunities beyond OGD philosophies.

African scholarship is making it's voice heard in the embrace of the notion of data revolution, linking it directly to sustainable development goals (Fourie, 2015; Kiregyera, 2015). The notion of data revolution is understood as the explosion of data in terms of volume, production and dissemination speeds, and the range of tools deployed (Ochieng, 2016; UN, 2014). According to Ochieng (2016) political economies underpinned by institutional, technological, financial and human capacity are some of the impediments for a data revolution in Africa. Among the African data revolution principles identified by the Africa Data Consensus is the need for governance – governance of the production, storage and sharing cultures (UN, 2015) and coordination of data ecosystems. The rights that are inscribed in most policy and legal frameworks include 'the right to privacy and ownership of personal data' (see Chapter Five) (Ochieng, 2016). The two policy thrusts towards governance of data ecosystems include an entrenchment right to privacy and ownership of personal data are among the key policy contradictions that are yet to be confronted by African governments.

As discussed in subsection 6.2.4 the intricately intertwined hydro politics across Africa are underpinned by debilitating hydrological data paucity, which undermines trans-boundary management structures and hydrological modeling approaches (Molle, 2017; Jacobs et al., 2011; GWP, 2010). Paucity of regional spatial data within SADC was identified as just one of the impediments to regional integration (Chakwizira et al., 2009; Chakwizira *et al*., 2008) (subsection 6.2.5, Chapter Six). Trans-national boundary dynamics are a hindrance to regional knowledge management in Africa. Nearly 50 years after the initial wave of national

'independence' from colonial rule, African transitional boundaries – of which approximately 35% are demarcated – continue to be characterised by data paucity, imprecision, confusion in treaties and legal instruments in the archives (AU, 2017) (ss6.2.2). When the reality of the enormity of borders and boundaries is juxtaposed with the disproportionate capacity (human and financial) between states, only one conclusion is discernible – one of poor governance and poor management. Moyo et al. (2017) argue that resistance to the negative externalities of imperialism can only be achieved through a mobilisation of collective strategies at sub-regional and continental levels (convergence) through which African countries could set minimum threshold conditions to all external investment relations. Availability of and data sharing cultures are pivotal to any such endeavour by African countries.

As discussed in subsection 1.4.2, the idea of OGD is a fundamental departure from the various notions of land information system (LIS) that get bandied around on the grounds of it's philosophical and political underpinnings and it's anchorage on ICT tools to provide access to government held data (Molefe & Nkhahle, 2019; Atkinson, 2017; Williams-Elegbe et al., 2017; DLA, 1997). Further discussed in 8.3.1 the notion of OGD while broader and inclusive of National Spatial Data Infrastructures, goes beyond it as an overarching policy trajectory (Bennett et al., 2012; Williamson, 2001; 2000), which are typically locked in standardised silo mapping frames that are isolated from other information systems and are furthermore under-utilised and misunderstood (Scott & Rajabifard, 2017). While South Africa has gravitated towards a contemporary practice of publishing data on websites, this has neither been a transparent trajectory nor shown accountability (Yu & Robinson, 2012) and equally marred by challenges of data that is not publicised when benchmarking Open Data policies (Zuiderwijk et al., 2014; Jaeger, 2007). A common thread to the different data management regimes revolves around "knowing where people and things are and their relationship to each other… for informed decision-making" (Scott & Rajabifard, 2017:66; UN, 2015a). When land data is considered as building blocks in what Foucault (1980: 102) refers to as the "power-knowledge dynamic", it constitutes the power elite's building blocks for frames of truth and knowledge through use of instruments of control.

Within the government context, the notion of OGD presents a conceptual and practical framework and intersection between contemporary ICT tools (Harrison et al., 2012; Fung, Graham & Wiel, 2007) and the entrenched constitutional goal of OG (Constitution, 1996: s36(1), s39(1)(a), s59(2), 72(2) and s118(2) as well as constitutional principles of transparency and accountability (Constitution, 1996: s195(1)(f), s195 (1)(g). The proliferation of government websites harvesting and republishing data from StatsSA which collects sensus data on 10 year intervals, neither meets the transparency principle nor results in accountability (Yu & Robinson, 2012). Zuiderwijk et al. (2014; Jaeger, 2007) emphasise the importance of benchmarking Open Data policies by examining the types of data that is not publicised as opposed to what is published. This phenomenon results in a culture that is dominated by deception and political posturing by disseminating dated data, which is inconsistent with OGD principles.

South Africa's NSDI process is also locked-in in the global policy lacuna, or absence of guidance, on how geospatial data should be implemented, leaving room for each country to navigate it's own path (Scott & Rajabifard, 2017). From a governance perspective, the problem is the policy lacuna and blurred boundaries between what should be open data, personal information and state secrets, a reflection of a broader national information policy lacuna in South Africa . Notwithstanding that, it is generally accepted that the government data should be open by default and be classified when there are reasons (Gurin et al. 2015).

While the initial findings in Chapter Seven were sufficient to warrant 'repurposing imaginary' on their own, a further detailed assessment of South Africa's land data ecosystem -- a domain of land administration --- was undertaken in Chapter Eight. An assessment of the health of South Africa's land data ecosystem, was undertaken on a granular scale, deploying the ecosystems approachNotwithstanding that OGD has not percolated into a national consciousness, the study affirms OGD as a constitutional imperative the RSA underpinned by the pillars of accountability and transparency (RSA Constitution, 1996) section (s8.2). The National Development Plan made this constitutional imperativea more explicit call for 'open data' to be made available by default and without a need to request (NPC RSA, 2011). Weak links in the OGD trajectories in RSA were attributed to poor legislation and poor

policy implementation – a reflection of state capacity. In section 8.4 South Africa's data ecosystem was subjected to two separate diagnostic tools (assessments) – it failed four out of five of Cairns et al. (1993)'s indicators, and failed all three of Lu et al's (2015) indicators. These findings were inconsistent with the findings of a recent study by Land Portal, which gave RSA a scores of 60/105, claiming to be the most comprehensive assessment of South Africa's land data ecosystem and a first of it's kind, different methods used provide an explanation of the variance (Napier *et al*., 2020). The Land Portal study leaned towards quantitative methods, whereas this study was largely steeped towards qualitative methods. A further set of negative findings on South Africa's land data ecosystem, a key domain of the land administration system, lending more weight to the idea of 'repurposing' of land administration system. The proposed idea of repurposing of land administration was mooted – predicated on building state capacity – as a practical solution to the land administration maladies identified in the assessment.

Chapter Nine addressed the notion of 'repurposing of land administration -- unpacking what the essential elements of the concept should be, allocating some meaning, setting broad parameters for normative goals and setting out an initial set of basic principles that would underpin concept. As discussed in subsection 9.2.1, locating the repurposing platform within de-colonial thinking -- as a political imaginary – removes the need for it being perfect, because in the final analysis it is the struggles that propel it that would, determine it's course and pace, as opposed to a perfect plan (Mignolo et al. 2013; Gordon, 2004). The critical defining feature of de-colonial thinking, in this instance, would entail uncoupling thought processes and praxis from the colonial matrix of power (Mignolo et al., 2013). Subsection 9.2.1 started lifting an initial set of ideas that could support the formulation of goals for repurposing of land governance and administration on a national scale, which would be equally applicable at other scales, setting South Africa's land administration system on a more just and sustainable trajectory by placing the plight of the poor and vulnerable at the centre of new trajectories (Klein, 2020; Healy, Martinez-Alier et al., 2015). Those goals would include providing food to the growing population, mitigating climate change, bringing to a halt biodiversity loss and sustainable development enjoined by a common denominator of "knowing where people and things are and their relationship to each other" in decision- (Ehrensperger, et al.

2019; Scott, Rajabifard, 2017:66; UN-GGIM, 2015). On that premise, subsection makes 9.2.2 makes a case for the selection of land data domain of land administration as the leverage point. As discussed in subsection 9.2.1, the repurposing platform is constructed as an assemblage of concepts and principles that are imported from different disciplines, underpinned by innovation that is linked to social goals (Doezema et al. 2019; Ludwig & Macnaghten et al. 2019).

Chapter Nine sets out a set of seven intertwined principles. The principles include – placing people at the centre of technology; gravitation towards a national approach; gravitation towards standardisation; (Penuel, 2019; Hopkins and Woulfin, 2015; Star & Ruhleder, 1996); holistic approach and multi-dimensional approach to land, which draws from various pre-existing integration approaches, doubling up as a goal as well as a principle -- inclusive of Integrated Natural Resource Management (INRM), Integrated Water Resource Management (IWRM), the Building Block Methodology (BBM), the Holistic Approach, the Expert Panel Assessment Method originating from Australia, and the Downstream Response to Improved Flow Transition (DRIFT), emanating from South Africa (Jacobs & Nienaber, 2011; King & Brown, 2006) innovation, policentricity and transdisciplinarity.

The study concludes that there is a definite role for OGD in the repurposing of land administration in South Africa – specifically with respect to supporting institutional reform, which this is a long-term platform. Nothwithstanding that, the study also cautions that the homogenisation and rationalistion of colonial, apartheid and post-apartheid institutions (on a national scale) is insufficient for transforming the colonial situation which is in essence intertwined with the global system (s7.3) (Grosfoguel, 2007). As implied in section 8.2, OGD policy trajectories are pivotal to the actualisation of transparency and accountability – section 195(1)(f) and 195 (1)(g) of the constitution, but also a cornerstone to evidence-based policy formulation (ss4.3.4) (Stringer et al., 2018). As argued in subsection 9.2.2, irrespective of scale, governance that is anchored in accurate, complete and current data is pitted not only on informed decision making but also appropriate decisions on resources allocation (van Schalkwyk et al., 2016).

The decentralised collection of data and centralised processing and storage of land data rested on the compound eye analogy (See Fig. 9.4) resulting in an integrated

system (Manona et al., 2019) together with the 4IR import of 'single source of truth' (SSOT) at multiple scales (organisational, government and national) (Rouse, 2017). The combination of the compound eye metaphor and the notion of SSOT is critical in demobilising intra- and inter-organisational knowledge silos. The integration of data across sectors goes a long way towards resolving debates on centralisation and decentralisation which arise from the multiple scales approach as a consequence of new data sharing cultures (Bennett, Rajabifard et al., 2012; Dale & MacLaughlin, 1999). In the light of the 'data-rich and technology-driven global environment' Scott & Rajabifard (2017) cautions on the poor appreciation of the nexus between geospatial data and sustainable development – strongly making an argument for the geospatial data community to integrate land data in a holistic manner using geospatial information agencies as the anchor. Within the context of the proposed repurposing, South Africa has a rare opportunity to transition beyond the traditional spatial data infrastructures (SDIs) by migrating towards an integrated land data system which breaks traditional knowledge silos (Stringer, 2018; Jacobs et al's., 2011). The growing phenomenon of land observatories in Africa presents a window of opportunity as an institutional and infrastructural vehicle to advance OGD trajectories both in South Africa and the rest of Africa (s9.2.3.2) (Grislain et al., 2018).

Grove, Pickett et al. (2019) emphasise the importance of a shared recognition in the need to enhance collective capacity across traditional sectoral boundary silos is paramount in a manner that leads to polycentricity and transdisciplinarity. Polycentricity, as both a goal and as a principle, is a concept that refers to multiple decision-making points that operate under an overarching institutional framework that constrains an individual autonomous prerogative within the context of the system (Aligica & Tarko, 2012; Polanyi, 1951). Transdisciplinarity synthesises and engages with complexity across sectors and between different scales (Funke et al., 2011; Jacobs et al, 2011; Jacobs & Nienaber, 2011; Luks& Siebenhuner, 2007).

The growing phenomenon of land observatories in Africa (Grislain et al., 2018) presents a window of opportunity from an infrastructure perspective for the roll out of OGD in South Africa and the rest of Africa. An OGD national infrastructure presents an opportunity to enhance both internal government functioning and policy

formulation processes and to facililate transdisciplinarity. The next subsection outlines implications of the outcomes of this study for research, policy and practice.

10.2.5 Implications for Research, Policy and Practice

During the course of the study a number of issues that have implications for future research, policy and practice arose at different points in the course of the study. These are summarised as follows.

- The inclusive conceptual ontology of 'land' has far-reaching implications beyond what was possible to contemplate and explore in this study, creates an obvious area for future research as part of decolonisation of concepts and development of new theories (see ss4.2.1 and 10.2.1). When juxtaposed with the proposed concept of SSOT which mooted as a solution to multiple fragmented and incoherent structures that are collecting, storing and disseminating land data, more thought (ss9.2.3).
- While the proposed notion of 'repurposing of land administration' promises opportunities for some efficiencies, it's wider financial implications constitutes an opportunity for further research.
- The unprecedented growth and resultant quagmire of regulatory complexities, arising from a range of geo-data technologies, is a challenge that straddles across nation state scale, is a fast-developing dynamic potential for future research (See section 5.6 and ss10.2.2.2).
- The study is generally supportive of overall thrust of the various versions of OGD principles, however also identifies the need to customise or domestication as a research subject that is worthy of consideration going forward (see section 8.2). The study identifies this as a research gap not exclusively as a South African project, but one that spans the African continent.
- There is a need for a discourse and research on the future scenarios for Africa's trans-national boundaries from a land governance perspective.
- The new legal status of customary law in South Africa calls for research policy and practice of mainstreaming of customary law (see ss7.2.4.2). This is a

challenge not only for South Africa, but for the SADC region and the greater African continent.

- Section 8.2 identified the absence of an overarching national information policy as a policy lacuna in South Africa, which boundaries between copyright law, private information, state secretes and OGD. This is an area of inquiry and high level policy requiring further attention.
- The challenges emanating from the appropriation of global commons by dominant national business interests give rise to fundamental justice concerns, which in turn has serious implications for governance of these resources (section 5.4,). Section 5.5 highlights spatio-temporal fixes that are linked to global commons, while consequences telecoupling of climate change consequences. Subsection 6.2.5 highlights Africa muted in the governance of these resources.

10.3 CONCLUSION

This study concludes that land does not only have multiple dimensions, but it also has multiple meanings, in a manner that calls for an ontological shift away the epistemic tradition which exclusively draws from the Western knowlede-base as the sole source of universality (Grosfoguel, 2007). Based on a holistic ontology of land, the study points to the need to decolonise the concept 'land', which in turn gives rise to fundamental questions of conceptual foundations of South Africa's 'land form' and policy, practical and organisational implications. It goes further and concludes that land administration and land governance are two sides of the same coin that constitute an overarching conceptual framework which are concerned with land use decisions made by humans at various scales (Dong et al., 2019; Zelli et al.'s (2012). While the study raises concerns about the absence of a common definition and conceptual coherence land governance and land administration, it goes on to argue that this concept-duplex has a potential to bring together a wide range of disciplines and discourses around a variety of topics pivoting around land – at multiple scales-- as opposed to it's constituent elements and dimensions (Ertör et al., 2019). The study concludes that while colonial and apartheid path dependencies are crucial in understanding growing poverty and inequality, the post-apartheid conceptual foundations of 'development' and 'land reform' are pepertuating. South Africa's

vision of 'development' that is oriented towards a catch-up with or moving the same direction as Western countries -- as in being industrialised and modern – does not present a viable solution to the deep rooted poverty and land injustices (Ndlovu-Gatsheni, 2013). The study makes a proposals for repurposing of land governance and land adminnistration – as a political imaginary -- aimed at derailing land policy transitions from thecolonial hierachies (Grosfoguel, 2007). Finally thhis study concludes that OGD is necessary, but not a sufficient condition in the repurposing of land governance and administration.

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ANNEXURE 1

List of state entities from which land data was searched

Entity	Index	OGD Plan	Core mandate data	Data Categories	Data sets	Open Access	Machine readable	Right of reuse	No/low cost
City of Cape Town Metro	Y	N	Yq	15	24	Y	Y	Y	Y
Ethekwini Metro	N	N	N	3	3	N	?	?	?
Nelson Mandela Metro	N	N	N	1	0	N	?	?	?
South African Local Government Association	N	N	N	0	0	N	?	?	?
Municipal Demarcation Board (MDB)	N	N	Y	1	1	Y	Y	Y	Y
Department of Environmental Affairs & Tourism	N	N	N	5	23	Y	Y	Y	Y
Department of Human Settlements	N	N	N	4	1	N	?	?	?
Department of Agriculture Rural Development & Land Reform (DARDLR)	N	N	N	3	9	Nq	?	?	?
Department of Minerals & Energy (DME)	N	N	N	2	1	Nq	?	?	?
Department of Water & Sanitation	N	N	N	0		N	?	?	?
South African National Space Agency (SANSA)	Yq	N	Y		10	Yq	?	?	Nq
Department of Sports Arts & Culture	N	N	N	0	0	N	?	?	?
				34	72				

ANNEXURE 2

Date	Event name and venue	Convener	Participants
8-9 Nov 2018	Assessment seminar of the outcomes of the study on land observatories in Africa l'Hôtel Jardin Savana, Dakar, Senegal.Conference 8 -9	Land Matrix	Country representatives - Burnod Perrine Marie Annick ; Andrianirina

	November 2018, Hotel Jardin Savana Dakar, Land Matrix,IPAR, Cirad, International Land Coalition;		Ratsialonana Rivo; Wangusa Daniel Joseph Muruye; Iyebi Mandjek Olivier; Fredy Mbendia;. Ganou Issifou; Ouédraogo Moussa; Soule Achamou Moudachirou; Basserie Vincent Nicolas; Koudougou Saydou; Dagou Paboung; Lemoisson Philippe Jacques André; Tonneau Jean-Philippe
7-8 Dec 18	National land reform colloquium held at Birchwood Hotel, Kempton Park, Johannesburg.	Presidential advisory panel on agriculture and land reform	Excess of 300 participants - leading group discussion
23-25 Jan 19	Eastern Cape Land Dialogue held at International Convention Centre, East London (ICC).	Eastern Cape Department of Agriculture Rural Development and Agrarian Reform (DRDAR) and Institute for Development Assistance Management (IDAM)	Eastern Cape provincial government departments, parastatals, NGOs, Universities.

12 Feb 19	Land Administration roundtable, held at the Holiday Inn, Benoni, Johannesburg	Presidential advisory panel on agriculture and land reform	Approximately 45 participants - a cross spectrum of stakeholders government and civil society
23-25	EC Land Dialogue EAST London International Convention Centre, 2 Marine Park Complex, 22 Esplanade St, Quigney Beach, East London, 5201, South Africa	DRDAR and Institute for Development Assistance Management (IDAM)	In excess of 300 participants from government, state owned entities and civil society formations.
20-21 Feb 19	Tshintsha Amakhaya National Indaba held at Salt Rock Hotel, Durban. S Manona facilitated discussion on land tenure and people on farms.	Tshintsha Amakhaya	Approximately 30 participants. NGO support staff, farm dwellers/workers, labour tenants and reps from communal areas.
22-23 Feb 19	National land reform colloquium held at St Georges Hotel, Irene, Pretoria.	Presidential advisory panel on agriculture and land reform.	More than 200 participants - presentation on land administration
27 March 19	People and Parks Steering Committee	Department of Environmental Affairs and Tourism	
15 March 19	Presenter at a seminar: An overview of South Africa's Data Ecosystem: A stepping stone to repurposing land administration in South Africa	University of Fort Hare Seminar Series	A combination of academics and students and NGOs and some local activists from around

			East London.
17 Apr 19	Roundtable on Land Administration, a PLAAS_PARI partnership. Presentation by Siyabulela Manona	A PLAAS University of the Western Cape - PARI Wits University partnership	Open Society Foundation: Nkateko Chauke & Martha Hungwe; PARI Tracey Ledger and Mbongiseni Buthelezi; Phuhlisani: David Mayson and Richard de Satgé; PLAAS Benjamin Cousins and Andries du Toit; PLAAS-AFRA Donna Hornby; SERI/AFRA Lauren Royston
26 April 19	Does Land still matter? Gender and land in South Africa.	University of Fort Hare Department of Sociology and Anthropology in partnership with Friedrich-Ebert-Stiftung South Africa (FES)	A combination of academics and students and NGOs and some local activists from around East London. Presenter Lyn Ossome University of Makerere, Uganda.
11 July 2019	Presentation of research findings - focus of the meeting will be to explore if and how such a pattern language could be used to guide spatial	ECSEC Boardroom, Gloster Street, East London	Dr Tony Williams; Michael Coleman; Ronald Eglin; Nik Matebese;

	planning and land use management in Mooiplaas within the context of SPLUMA		
17 July 2019	Presentation of proposal and progress to a Seminar convened by Rhodes Department of Geography.	Department of Geography Rhodes University	Departmental staff, post-grad and undergraduate students (+- 40 participants).
6-7 Aug 2019	Attendance as participant of a LandNNESS Workshop.	LandNNES workshop held at Kopanong Hotel & Conference Center, Benoni, Johannesburg	LandNNES workshop held at Kopanong Hotel & Conference Center, Benoni, and Johannesburg.
16 Aug 2019	Attendance as participant of University of Fort Hare Friday Seminar Series. The Land Question: It's about meaning. Sithandiwe Yeni; Monene Mogoshoa; Dineo Skosana	University of Fort Hare Department of Sociology and Anthropology in partnership with Friedrich-Ebert-Stiftung South Africa (FES)	
3 Sep 2019	Meeting Dutsch Embassy representatives	Dutch Embassy, Pretoria.	6 participants 3 representatives of the Embassy
4 Sept 2019	Meeting Prof Matshete re SALO	University of Pretoria, Pretoria.	5 participants inclusive of 2 UP staff.

4 Oct 2019	University of Fort Hare Friday Seminar Series	University of Fort Hare Department of Sociology and Anthropology in partnership with Friedrich-Ebert-Stiftung South Africa (FES)	
8 Oct 2019	Global Land Governance Index (LandEx Training Workshop Jhb 8-9)	aha Kopanong Hotel & Conference Centre, 243 Glen Gory Rd, Norton's Home Estates, Benoni	Anglophone countries
9 Oct 2019	Global Land Governance Index (LandEx Training Workshop Jhb 8-9)	aha Kopanong Hotel & Conference Centre, 243 Glen Gory Rd, Norton's Home Estates, Benoni	Training for SA stakeholders (civil society, government) with 27 participants.
28-29 Nov 2019	Land and Tenure Management Services Inhouse workshop for Ingonyama Trust Board staff	Milla SA	Training for 11 Ingonyama Trust Board administrative and middle management staff.
5-6 Dec 2019	Land and Tenure Management Services Inhouse workshop	Milla SA	Training for 11 senior Ingonyama Trust Board staff
15-17 Jan 2020	Participated as a panellist in the Alliance for Rural Democracy Trust (ARD)	Parktonian Hotel, Braamfontein, Johannesburg.	Planning session attended by approximately 80

	strategic planning session		participants from a range of rural movements, NGOs and civil society formations from 5 provinces (Eastern Cape, North West, Kwazulu Natal, Limpopo and Mpumalanga).
22-23 Jan 2020	Participated in LandNNES policy workshop	LandNNES	
30 Jan 2020	Participated in Housing Development Agency (HDA) land assembly policy and strategy development session	Cape Town	Proffesional team of 8 participants
28 Apr 2020	ARD Webinar Series: Towards a startegic responce: Applying a Rural Lens to Intergrated Geospatial Information during Covid_19.Nancy Kachingwe; Independent advisor Gender Advocacy and Policy; Esther Abaikol Land Governance Expert & Founding Director LANDnet Uganda Siyabu Manona PhD candidate in Geography	Alliance for Rural Democracy (ARD) Webinar Series	Presenter with 2 respondents: Approx 80 participants.

5 May 2020	Webinar as participant: The Distribution of Urban Land in the Global South.	Land Portal Foundation, Habitat for Humanity International, the Council for Scientific and Industrial Research, UN Habitat and Tata Trusts on the distribution of urban land in the global south.	Mark Napier, Council for Scientific and Industrial Research South Africa; Raquel Ludermir Bernardino, London School of Economics; Tala Kammourieh, UN Habitat; Tala Kammourieh, UN Habitat; Shikha Srivastava, Tata Trusts; Moderator Jane Katz, Habitat for Humanity International
16 Sep 2020	PARI Webinar - Towards achieving coherence in land policy-making in South Africa: Insights and Lessons	Public Affairs Research Institute (PARI), Wits University.	Professor Mandivamba Rukuni of Barefoot Education Trust for Africa (BEAT) with extensive experience in facilitating land policy–making in Sub-Saharan Africa
01 Oct 2020	Webinar as one of panellists - "The State of Land Information in South Africa"	Land Portal and Council for Scientific and Industrial Research (CSIR).	Other panellists -- Dr Margaret Rugadya an Independent Land Governance Uganda. Professor Mandivamba Rukuni

			of Barefoot Education Trust for Africa (BEAT), Zimbabwe. +- 260 participants
09 December 2020	4th Virtual Seminar: Land Administration - How to move from a cadastral data system to an integrated land data system and beyond?	Land and Agricultural Development Bank of South Africa (Land Bank) in collaboration with LandNNES	Dr Rosalie Kingwill and Siyabulela Manona
17 February 2020	2nd Land Administration workshop - Making off-register rights visible. Webinar	PLAAS-PARI partnership	Peter Newmarch – President of the South African Geomatics Institute (SAGI)