

# Discussion document for the Land Governance and Agrarian Transformation MSP

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## Concept note for a national land observatory

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*The document is for discussion purposes*

Prepared by Siyabulela Manona for LandNNES

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Submit all comments to [siyabu@phuhlisani.org.za](mailto:siyabu@phuhlisani.org.za)

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# 1. Purpose of the Discussion Document

The purpose of this concept note to contribute to MSP debates and policy proposals on how to develop an integrated land information system. In 2018 LandNNES prepared three related internal discussion documents;

- *Inclusive Land Administration in the Context of People-centred Land Governance*
- *Developing a People-centred Land Governance Policy Framework: Towards a pro-poor programme built on equitable access to land*
- *An overview of South Africa's Land Data Ecosystem for a People-centred Land Governance system*

The three documents have been used by LandNNES in its engagements with various stakeholders advocating for specific reforms in various elements of land governance and land administration institutions. While institution building is at the centre of the proposals advocated by LandNNES for repurposing of land administration systems, the establishment of a national land observatory is conceptualised as an informational infrastructure in support of land governance.

Among other processes towards the end of 2018 and beginning of 2019 LandNNES participated in a number of sessions arranged by the Presidential Expert Advisory Panel (PEAP), which culminated in The *Final Report of the Advisory Panel on Land Reform and Agriculture* dated 4 May 2019, supporting the idea of a land observatory, partly for the recordal of unregistered rights, and idea originally proposed by the RSA Parliament, High Level Panel (HLP). The PEAP report while foregrounding land governance and administration, it supported LandNNES' idea of the establishment of a National Land Observatory.<sup>1</sup> Most recently there is discussion and behind the scenes work within the DRDLR is happening under the 'integrated land information system'<sup>2</sup>, even though the form and nature of such a system remained unclear. Through this concept note LandNNES is taking the lead in presenting an overview of South Africa's land data ecosystem and an initial set of ideas towards an essential but insufficient condition for the (re)designing land data/information ecosystems.

The basic point of departure for LandNNES is that, for the government to be effective, efficient and efficacious in the execution of its governance obligations, it requires access to basic but critical data/information. Governance that is predicated on informed decision making is reliant on accurate, complete and current data/information for decision making, and more likely to allocate resources appropriately. Within government the reliance on the *Intergovernmental Relations Framework Act 13 of 2005* (RSA, 2005), for all coordination and integration issues has

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<sup>1</sup> The report erroneously conflates land administration with administration of land tenure.

<sup>2</sup> A report by Donna Hornby presented at a LandNNES workshop held on 24 and 25 February 2020, Benoni, Johannesburg.

proven it to be a blunt tool, unable to live up to the requirements of section 41 of the Constitution.<sup>3</sup> The manifestations of the poor state of South Africa's data/information ecosystem, are cast far and wide, as the system is unable to provide the requisite ecosystem services. A significant part of the current challenges associated with delivery of land reform, on the one hand, and the implementation of sustainable human settlements, on the other, are not only a function of the organisational architecture of government, but a reflection of weak polycentricity. The lack of a comprehensive national approach to land data/information is a significant impediment to land governance.

Notwithstanding the ample 'degrees of freedom' of introducing policy change that was omnipresent in the new constitutional dispensation, lack of clarity on the goals associated with the post-apartheid state undermined the state's ability to 'maximise of complementary effects' of policy instruments, partly as a result of impermeable boundary silos. The 1996 RSA Constitution was a historical turning point in the history of South Africa's assuming the function of an overarching policy framework of the post-apartheid order, creating a new ethos and a set of new goals which placed the country on a new trajectory of accountability and transparency<sup>4</sup>, breaking away from the policy goals which were anchored on a closed government and secrecy.

Deploying Howlet *et al's* (2013) policy design evaluation criteria, Manona (2020) paints a bleak picture of how South Africa's convoluted land governance and administration system came into being, punctuated by key political transitions; precolonial to colonial era; colonial era to apartheid; apartheid to the post-apartheid order. In his analysis, the author provides insights into how full sets of 'old order' policy instruments acrimoniously found their way into the post-apartheid order, underpinned by a combination of three policy design approaches, i.e. 'conversion', 'layering', and 'drifting'. 'Conversion' policy trajectories, refer to the redeployment of pre-existing policy instruments to new order/goals. 'Layering' as a policy design approaches refers to processes of applying new layers of policy instruments on top of an existing regime, reflected in the process of development of individual land laws from silos. 'Drifting' policy design approaches refer to slight shifts in the policy mix, often adopted by instrument constituencies<sup>5</sup> who are opposed to a new policy mix, but lacking sufficient strength to bend it in their favor. The combined deployment of these three policy design approaches minimised disruption, but also the inevitable consequences of policy incoherence and inconsistencies. The extent to which each one of the three policy design approaches was deployed at any particular phase of the transition, in respect of land governance, inevitably resulted in a poor alignment between old means and

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<sup>3</sup> Section 41 of the Constitution outlines the Principles of co-operative government and intergovernmental relations

<sup>4</sup> See RSA Constitution s195(1) (f) and (g).

<sup>5</sup> Groups of actors at which the policy is aimed.

new goal/s (poor integration) and policy instruments that were not mutually reinforcing. The result of these processes was a mix of land governance and administration institutions akin to a salad, lacking 'coherence' (poor logical coexistence of multiple policy tools); and 'congruence' (the extent of unidirectionality between mutually supportive policy tools). An analogy that best explains the resultant post-apartheid land governance system is that of a dam which looks clear from above, but that is laden with historical sediment, debris and wreckage below the surface.

It is in the light of the resultant policy and institutional incoherence that LandNNEs started making calls for 'repurposing' South Africa's land governance and administration system. Within this context, the notion of 'repurposing' should be understood as broader policy (re)design intervention that is aimed at alignment of policy goals with an appropriate suite of policy instruments, exercising indirect influence over the 'state of the system'. This concept note focuses on a specific component of a broader 'repurposing' platform, primarily targeted at the data/information domain, as the leverage point, within a higher level goal of bringing about wider transitions to the wider system of land administration. The next section provides a brief overview and assessment of South Africa's land data ecosystem.

## 2. An overview of South Africa's land data/information ecosystem

The main government actors in South Africa's land data/information ecosystem are constituted by multiple interconnected layers of three spheres of government, 226 local municipalities, 44 district municipalities, 8 metropolitan municipalities<sup>6</sup>, approximately 40 national government departments (inclusive of the presidency), approximately 82 provincial government departments (inclusive of the premier's offices), and more than 60 state owned entities.<sup>7</sup> Each one of these multiple state entities have varying extents of interlocking constitutionally prescribed mandates which are split between them, some mandates exclusively national, others shared between spheres, while other mandates are either exclusive to or shared with the local government sphere. Some of the constitutional mandates are not neatly split but are overlapping, some obvious and others less obvious. The recognition of customary law by the constitution as an independent source of law complexified this mosaic further.

The post-apartheid state architecture in combination with split of land governance mandates resulted in various land data/information fragments anachronistically located in multiple state departmental silos. For example, on the surface, a department such as Sports, Arts and Culture (DSAC) seems remotely related to land, when on closer examination a major player, a producer

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<sup>6</sup> <https://www.gov.za/about-government/government-system/local-government> (Accessed 25 February 2020).

<sup>7</sup> <https://municipalities.co.za/> (Accessed 27 January 2020)

and custodian of at least three key land data/information sets, through a number of unrelated statutory instruments.<sup>8</sup> DSAC together with its provincial counterparts is responsible for the administration, management and preservation of national and provincial archives, a big repository of land data/information. The department also presides over the determination of new geographical names, and also presides over the identification, recording, assessment management of national heritage resources. From this point of view the DSAC is an important player in land governance, but also a generator and custodian of an important land data/information set.

The Municipal Demarcation Board's (MDB)<sup>9</sup> whose mandate is to make determinations on municipal boundaries (wards, local, district and metropolitan municipalities),<sup>10</sup> which in turn informs municipal jurisdictions and voting districts. Deriving from the demarcation by the MDB, various categories of wall-to-wall municipalities derive territorial jurisdiction which is authorised through a designated set of statute<sup>11</sup>. The demarcated municipal jurisdictions do not only provide service delivery territories, but also set up a spatial framework for voting districts, management of elections and electoral processes by the Independent Electoral Commission (IEC)<sup>12</sup>, inclusive of voter's roll and addresses of voters. From this point of view the MDB is an important actor in land governance and custodians of a small but yet important land data/information set. To the extent that the MDB is a primary generator of municipal boundary data, it is a producer, while the Independent Electoral Commission (IEC)<sup>13</sup> and Statistics South Africa (StatsSA) are land data consumers, from an ecosystems perspective.

Within the massive government structure outlined above, all of these multiple interlocking bureaucratic functions entail varying extents of generation, storage and sharing of different kinds

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<sup>8</sup> Firstly DSAC together with its provincial counterparts administers the *National Archives Act, #43 of 1996* as amended and *Provincial Archive Services Act, #5 of 2001*, which provides for the management and preservation of national and provincial archives. Secondly, the department also presides over the determination of new geographical names through administration of the *South African Geographical Names Council Act #118 of 1998*. Thirdly the department presides over the identification, recording, assessment management of national heritage resources through the administration of the *National Heritage Resources Act #25 of 1999*.

<http://www.sac.limpopo.gov.za/?q=node/126> (Accessed 25 February 2020)

<sup>9</sup> Established in terms of the *Local Government: Municipal Demarcation Act, 1998*

<sup>10</sup> <http://www.demarcation.org.za/site/> (Accessed 20 February 2020)

<sup>11</sup> through the *Local Government Municipal Structures Act #117 of 1998*, and land use management powers authorised through *Spatial Planning and Land Use Management Act #16 of 2013* (SPLUMA).

<sup>12</sup> <http://www.elections.org.za/content/about-us/what-we-do/> (Accessed 20 February 2020).

<sup>13</sup> As at 20 February 2020, the IEC web site was still reliant on 2011 census maps, outdated by 9 years.

of land data, i.e. municipal boundaries, cadaster, physical addresses, land use data, etc., depending on where an entity is positioned in the complex web of land data/information value chains. With a few exceptions, the multiple state organs make use of a range of fragmented web-based technologies or data portals for the purposes of storage and sharing of the data products. In the name of transparency and accountability, each of umpteen municipalities, provincial departments, national departments, state-owned entities have their own fragmented web sites. For example, the MDB has its own portal, the [Spatial Knowledge Hub](#) which carries a comprehensive set of current data/information pertaining to municipal boundaries, which is not linked via any automatic feed to other state actors.

Municipalities in South Africa are by far the bulk generators of land data, and also huge land data consumers with respect to municipal planning and service delivery mandates. Some of the land data value chains such as zoning approvals, approval of building plans, land use planning, etc. the entire land data value chain starts and ends with the municipalities bounds. Similarly a data value chain such as one of determination of municipal boundaries starts and ends within the MDB, as the sole producer of municipal boundary data. On the contrary more complex land data value chains such as land transfers, land subdivisions, land consolidations, removal of restrictive title conditions, approval of township establishments, etc. municipalities are the first point of approval, with the value chains spanning across other provincial and national entities.

The multiple meanings of 'land' as understood by the different state actors finds expression in different state actors (entities) setting up its own separate land information system, all set up with a view to address own land data/information needs. The [Municipal Barometer](#)<sup>14</sup> an initiative of 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 Municipal Demarcation Board (MDB), in its founding statement notes that it was established primarily as a result of perceptions of land data poverty on the part of local government. Under the human settlement sector, there exists a number of poorly integrated land data portals. The [Department of Human Settlements](#) (DHS) and the [Housing Development Agency](#) (HDA)<sup>15</sup> both operate separate and unlinked websites, with HDA operating multiple portals, i.e. [Lapsis](#), National Social Housing Organisations<sup>16</sup>, [HDA Census](#)<sup>17</sup>, and the

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<sup>14</sup> <http://www.cmra.org.za/content/salga-municipal-barometer> (Accessed 8 January 2020)

<sup>15</sup> The HDA is an entity of the DHS . <http://www.thehda.co.za/> (Accessed 04 February 2020)

<sup>16</sup> According to the web site, the database carries important property and statistical information on all existing, developing and future pipeline social housing projects.

<sup>17</sup> Population statistics disaggregated down to the ward level, drawing data from 2011 Statistics <http://www.citysolve.co.za/hda/> (Accessed 22 February 2020)

[National Upgrading Support Programme](#)<sup>18</sup> (NUSP). Of the databases only the Lapsis and NUSP open. Neither the DHS nor HDA make data available on their core mandate of developing human settlements. The Department of Environmental Affairs (DEAT), in addition to its own departmental website, also has the Environmental Geographic Information System ([EGIS](#)),<sup>19</sup> which is an open platform, broadly providing baseline geospatial data on a national scale. The [South African Weather Services](#) (SAWS), an entity that is owned by the DEAT, provides national weather and climate related data (a range of historical, current and forecast data), governed in terms of the *South African Weather Service Act, Act #8 of 2001*. DEAT also hosts the [Protected Areas Register](#) (PAR) portal which provides a register of protected and conservation areas nationally, in terms of the *National Environmental Management: Protected Areas Act #57 of 2003*.

Similar findings of poor data integration prevail in the minerals sector. The Department of Minerals and Energy<sup>20</sup> has own portal, the South African Mineral Resources Administration System ([SAMRAD ONLINE](#)) which provides information to the general public on location of various sorts of mineral authorisation applications, applications approved or on hold in terms of the *Mineral and Petroleum Resources Development Act #28 of 2002*, and allowing for electronic application processes. The [Council for Geoscience](#)<sup>21</sup> an entity that is owned by the [Department of Minerals and Energy](#) operate different unlinked websites, which is open.

The Department of Rural Development and Land Reform, in addition to the dual Deeds Registry (DR) and Surveyor General (SG) dual systems<sup>22</sup>, drives processes related to the work that is undertaken in terms of the *Spatial Data Infrastructure Act # 54 of 2003*, (NSDIA) which feed into National Geo-Spatial Information ([NGI](#))<sup>23</sup> portal and the emerging National Spatial Planning Data Repository (NSPDR)<sup>24</sup> initiative, with the latter at construction stage.<sup>25</sup> The exclusion of hydrogeological mapping, water and environmental data/information from the SDI is not only a reflection of fragmented departmental boundaries (silos) but a reflection of fragmented

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<sup>18</sup> NUSP was designed to support the Department of Human Settlements (NDHS) in its implementation of the Upgrading of Informal Settlements Programme (UISP).

<http://www.upgradingsupport.org/> (Accessed 22 February 2020).

<sup>19</sup> <https://egis.environment.gov.za/> (Accessed 04 February 2020)

<sup>20</sup> <https://www.dmr.gov.za/samrad-online-system> (Accessed 04 February 2020)

<sup>21</sup> <http://www.geoscience.org.za/> (Accessed 02 February 2020)

<sup>22</sup> Both are dealt with in more detail in subsection 11.4.2

<sup>23</sup> <http://www.ngi.gov.za/> (Accessed 05 February 2020)

<sup>24</sup> <http://nspdr.info/index.html> (Accessed 28 January, 2020). The NSPDR is at the development stage.

<sup>25</sup> Note that this portal is predicated on a similar logic as [SAMRAD ONLINE](#) of the Department of Minerals and Energy. It is intended to provide process and progress information on SPLUMA applications.

knowledge systems and a serious impediment to intergovernmental relations. It is also surprising that the [NGI](#) does not carry any data on gazetted land restitution claims.

Despite the seemingly vast and sophisticated land data ecosystem, the idea of or calls for an 'integrated land information system' (LIS), has been bandied around long enough, dating back to the *White Paper on South African Land Reform*, irrespective of what has been understood by this. The early 2000s saw the emergence of new calls for reengineering of land data/information administration systems, a move towards national approaches and national data infrastructure/s, which have been closely intertwined with the global surge in prominence of Spatial Data Infrastructures (SDIs) globally. Closer home, from its 2016 National Conference, the South African Local Government Association (SALGA) expressly identified a requirement for "a structured, comprehensive and integrated land [information] administration system" (Melefe & Nkhahle, 2019). Embedded in SALGA's proposed land information system was a vaguely expressed idea of live-streaming (synchronization/automated updates) of land data from multiple spatial-data (geo-data) sources. More recently, similar calls have also come from Operation Phakisa Lab for Agriculture,<sup>26</sup> Land Reform and Rural Development, a program modelled along the Malaysian Big Fast Results methodology, which is a multi-stakeholder initiative, led by the Department of Environmental Affairs, among others made proposals for a land data/information knowledge hub.

LandNNES is an advocate of Open Government (OG) and Open Government Data (OGD). OG and OGD represent a trajectory within a continuum rather than a fixed state of affairs, and need to be pinned down in law. These boil down to what everyone generally refers to as accountability and transparency<sup>27</sup>, creating conditions for effective participation in policy formulation and decision making possible. Both of these concepts are used loosely in most new order statutes, leaving them in the realm of relativity, without minimum standards. It is important to make a distinction between Land Information Systems (LIS) and Land Information Management Systems (LIMS), the latter placing emphasis on the use of information in management. LIS imply a combination of human and technical resources, together with a set of organizing procedures, which results in the collection, storage, retrieval, dissemination, and use of (land) data/(information) in a systematic fashion. LIS and LIMS are technical tools for collection, storage and dissemination of land information, while the idea of OGD carries both technical (use of Internet Communication Technologies [ICT]) and philosophical undertones. The utilization of computer technologies is not a prerequisite in LIS/LIMS whereas it is a quintessential for OGD. At a technical level, the use of computers creates new opportunities for integration and sharing of

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<sup>26</sup> <http://www.thepresidency.gov.za/press-statements/president-zuma-launch-operation-phakisa-agriculture,-land-reform-and-rural> (Accessed 27 January 2019)

<sup>27</sup> <https://www.opengovpartnership.org/about/about-ogp> (Last visited 02 June 2019)

data/information in ways which were not possible in the past. The OGD logic is founded on the idea of undertaking the data capturing, storage and dissemination for the purpose of empowering both government and more importantly the general public in the participation in governance processes, while the logic of LIMS is limited to satisfying state management requirements and no more. LandNNES believes that the opening up of access to land data/information and OGD is an enabler to government and popular participation process by the citizens.

LandNNES understands that Governments the world over have always collected, analyzed, and used information in their legislatively mandated duties; such activities are essential to delivering any service to citizens. But government has rarely been in a position to have to think about what users, in a wide variety of roles, would find personally, politically, professionally, economically, or medically valuable to know from among the data that the government already possesses or could move to acquire.

Using an ecosystems analogy, the various state actors can be conceptualised as a set of multiple organisms within an ecosystem. Using the example of a grazing biome, the one actor in the grasslands could be sheep, which typically prefer short grass. Goats in the same biome are multi-strata grazers, with preference for longer grass and small shrubs, while cattle which are classified as deep-strata grazers have preference for much longer grass. While all three actors in this analogy are grazers, their grazing requirements vary. Similarly, the different state actors in South Africa's land data/information system, are not only situated in different positions in the complex web of land data/information value chains, they also have varied land data/information consumption preferences. Similarly, while on the surface there might seem to be convergence among different state actors in their requirement for land data/information, at a deeper level there is generally little consensus on the essence and scope of what an integrated land information system entails, because the idea of such a system cannot be divorced from perspective of the actors. In their expressed requirement for a land information system, the content of what South African Local Government Association (SALGA) requires is primarily shaped by the constitutional mandate of local government in land use management and government rationalities of land revenue. A different state actor such as the Department of Environmental Affairs and Tourism (DEAT) from the same system will have data/informational requirements which in all probability are likely to be underpinned by a slightly different set of rationalities of managing the environment (natural resources) particularly in the context of climate change.

Caution should also be exercised against creating artificial silos between what are essentially intertwined elements (water sector, energy sector, agriculture sector, forestry sector,

environment, minerals sector, etc.) of land. Institutional fragmentation arises from the idea of 'governance by domain', which means that administration occurs through the establishment of specialized government departments. The inevitable result of this are compartmentalized (fragmented) institutional, policy, legal, and knowledge silos. The fundamental flaw of these compartmentalized paradigms is that they are incapable to comprehend the systemness (interlinkages), resulting in policies that respond to fragmented small parts of what are essentially complex intertwined problems and solutions that work against each other. Stringer (2018) also cautions on the challenges of multiple autonomous bodies that function on a sectoral basis, operating different scales and different time horizons, instead advocating for a combination of polycentric and systems-based approaches. LandNNES is advocating for a break from traditional silo approaches to land to one that understands land as a system. From the perspective of data and information management, this requires an approach that integrates land data/information across the traditional silos. The land observatory is a good technological example of this approach.

South Africa's land data/information ecosystem has not been able to consistently evolve in tandem with modern "advances in communication technologies and data sharing cultures" which enable easier integration, aggregation and disaggregation of data in ways never seen. The Deeds Registry (DR) and Surveyor General (SG) systems, have received harsh criticism from the World Bank for their rigidity, high cost and failure to include the majority of the South African population. The absence of a national address system and national address database, a critical part of the country's SDI is a structural impediment to participation in the economy. Both of these trigger serious questions of justice for their continued exclusionary nature.

Notwithstanding the prevalence of power dynamics within the ecosystem, it is unproductive to focus on any one single species in undertaking an assessment of the entire grazing ecosystem. When considering the ecosystem health of a grassland biome, one would consider factors such the availability and spread of desirable plant species, the spread of undesirable species (such as unpalatable invader species), bare patches and signs of soil erosion in relation to the different consumer preferences. A useful lens of looking at data is one which equates it to a liquid which unlocks value in the process of flowing through the state and non-state actors (entrepreneurs, publics). It may be stagnant, flow too slowly and not contribute to the evolution of the ecosystem. Similarly water that is stagnant in a grazing ecosystem does not contribute to the health of the rangelands.

Having shed some light into the vast network of producers and consumers of land data that are linked through a complex web of data value chains. The multiple fragmented infrastructures are located in different positions in relation to overarching national regulatory framework, some

operating inside and others outside. For example the combination of [NGI](#), SG and DR systems ticks four principles of Open, i.e; everyone has access; Available in formats that can be easily retrieved and processed using computers; Some data is obtainable at no/low ; Unlimited rights to reuse and distribute data. On the contrary the exclusion of land claims data from the [NGI](#). Similarly, the [Housing Development Agency's \(HDA\) Lapsis](#) also tick all four criteria, while National Social Housing Organisations, [HDA Census](#), and the [National Upgrading Support Programme \(NUSP\)](#) have limited or not inaccessible. Fragmentation of data both within organisational and across organisational boundaries. Notwithstanding the data exclusions, fragmentation is on its own a fundamental barrier to access, and an impediment to the constitutional imperatives of transparency and accountability. The absence of automated data feeds limits flows of land data and resulting in stagnation of data within the system, an indication of the state of poor health in the land data ecosystem.

In-between the different spheres of government, private sector players (town planners, land surveyors, conveyancers, land valuers, environmentalists etc.) form a critical part of the land data value chains in South Africa. While the data or information generated from these consultancies, for all intent and purposes is paid for by and belongs to the state, they also store the data they collect and generate. Many of these entities understand the value of data/information as a resource, a trait found in small quantities among state actors.

In a nutshell South Africa's data ecosystem has largely evolved from paper to computer technologies, the fragmentation of the system defeats the transparency and accountability imperatives. There is no one stop mall where all data/information for land data/information, which implies that, one has to visit the specific portal, to access data. The single greatest malady in South Africa's land data ecosystem is fragmentation. The second malady is the data that is omitted from the fragmented portals. Multiple conceptual meanings of land across governmental are self-defeating. For the purpose of this concept note, the primary thrust should be on bringing together federated systems across jurisdictions (traditional departmental silos) into a single framework of rules. This implies integration of data/information inclusive of water, minerals, agriculture, forestry, etc. The next section provides a brief overview of high level land data/information policy.

### 3. The national policy environment at a glance

The South African Constitution has its own built-in policy design logics which need to be unpacked and understood as part of the high level policy environment. The preamble of the Constitution of the Republic of South Africa (RSA), 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” in Sections 36(1), s39(1) (a), s59(2), 72(2) and s118(2). Section 32(1) of the Constitution, goes further, paving a information transparency path; It reads, “Every person has the right of access to all information held by the state or any of its organs in any sphere of government in so far as that information is required for the exercise or protection of any of their rights.” Chapter 10 of the Constitution of the Republic of South Africa deals with matters of public administration, commits to a public administration that is underpinned minimum basic values of accountability in Section 195(1) (f) and transparency in Section 195 (1)(g) translated into reality through providing the public with timely, accessible and accurate information.

The drafters of the South African Constitution clearly made a distinction between a commitment to Open Government (OG) and Open Government Data (OGD), as different, albeit closely intertwined, constitutional imperatives. How these intertwined constitutional imperatives have been turned into reality is a different matter altogether, a mixed bag particularly with respect to land. In a direct response to s(32), but with an obvious blind spot to s195(1)(f) the *Promotion of Access to Information Act #2 of 2000 (PAIA)* was purportedly designed to bring to life one of the constitutional imperatives, the right of access to information that is held by the State or by a private person, was passed into law.<sup>28</sup> While PAIA represents a clear break from the closed information regime associated with the apartheid past, it still places a requirement for one to request the information through a formality of submitting an application in order to get access, rather than making data/information available by default, which is below the OGD threshold. The definition of ‘open’ makes the meaning of ‘open’ precise with respect to knowledge, promoting a robust commons in which anyone may participate, and interoperability is maximized. The notion of OG and OGD have also increasingly been used in a manner that it specifically targeted at previously undisclosed information, as opposed to an absolute state. Knowledge is open if anyone is free to access, use, modify, and share it — subject, at most, to measures that preserve provenance and openness.<sup>29</sup> For this reason, PAIA can be considered to fall short of s195(1)(g) requirements of the RSA Constitution. In contrast to PAIA the *National Development Plan (NDP)* explicitly calls for ‘open data’ to be made available, without request, based on the principle data must be open by default. In actual fact, the NDP takes a very dim view of PAIA, acknowledging the endemic lack of compliance in the public administration where requests for information are routinely ignored, despite the existence of the PAIA.

A scan of a sample of legislation proclaimed since 1994 in South Africa indicates that the country opted not to have a single framework law for the purposes of adherence to the requirements of

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<sup>28</sup> The PAIA goes 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.

<sup>29</sup> Open Knowledge International- <http://opendefinition.org/od/2.1/en/> (Last accessed 30 December 2019); also see <https://okfn.org/> (Last accessed 30 December 2019)

s195(1)(g) of the Constitution, which by implies that the imperative would be given expression on every post-apartheid land law. On the contrary, a set of 20 randomly selected land laws<sup>30</sup> which constitute the mainstay of the post-apartheid South Africa's land governance and land administration system. While many of these laws theoretically or debatably pass the s195(1)(g) principle of test of accountability, not a single one of these laws pass the s195(1)(f) test of the Constitution. Section 36 of the *Restitution of Land Rights #22 of 1994 Act*, 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 constitutional imperative, the state has hitherto not lived up to this legal requirement, the statute does not commit to currency of data/information as the constitution demands. One of the Bills currently in the parliamentary process cue, the *Expropriation Bill 2016* also fail to tick the ss195(1)(g) box,<sup>31</sup> in that the Bill does not make any transparency with respect to process and status of land.

The National Internet Communication and Technology (ICT) Policy White Paper (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 transparency and accountability imperatives, and the extension of the national broadband infrastructure, as an essential though not sufficient element of the process, to the transmission and access to big data, which is pivotal to sharing of data across traditional government system boundaries for the enhancement of public service delivery. Interoperability<sup>32</sup> is one fundamental principle of OGD, and essentially entails the multiple computers being able to interoperate. The government's Minimum Standards of Operability

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<sup>30</sup> *Restitution of land rights Act #22 of 1994; Development Facilitation Act #67 of 1995 (DFA); Land Reform Labor Tenants Act #3 of 1996; Interim Protection of Informal Rights Act #31 of 1996; Communal Property Associations Act #28 of 1996; Extension of Tenure Security Act #4 of 1997; Housing Act #107 of 1997; Water services Act #108 Of 1997; Prevention of Illegal Eviction from and Unlawful Occupation of Land Act #19 of 1998 (PIE Act); National Water Act #36 of 1998; National Heritage Resources Act #25 of 1999; Promotion of Administrative Justice Act #3 of 2000; Mineral and Petroleum Resources Development Act #28 of 2002; Local Government Municipal Systems Act #32 of 2000; Local Government: Municipal Property Rates Act #6 of 2004; Land Reform Property Valuations Act #17 of 2004; Environmental Conservation Act #73 of 1989; Spatial Planning and Land Use Management Act #16 of 2014.*

<sup>31</sup> At some point it would be useful to look at Open Government Data in relation to the Protection of State Information Act 43 of 2013.

<sup>32</sup> South Africa's ICT interoperability standards are governed in terms of the *Public Service Act (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 (DPSA, 2011).

(MIOS) does not only provide guidelines, but it also compels government ICT leaders to collaborate in respect of e-Government initiatives by sharing scarce resources, but it also provides ICT standards that would make electronic sharing of data/information possible.

In spite of the stated intent and objectives<sup>33</sup>, which is expected to arise from interoperability (DPSA, 2011), lived experience reflects poorly optimized synergy or poor convergence of government processes. For some reason MIOS is underpinned by one of the 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*, and it is informative – it is descriptive and compliance is not mandatory – to heads of Local Government” (DPSA, 2011:10). Among other objectives the primary founding legislation<sup>34</sup> is “to regulate the internal systems” of local government” and “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.” This policy incoherence undermines the entire purpose of MIOS and a major hurdle to the district-based service delivery model. What this implies the State President’s 2020 State of the Nation Address (SONA) policy goals of making local government a point of convergence for the entire government machinery, are circumvented not only by the policy trajectory which excludes municipalities from MIOS as an obligation, but the absence of credible land information system (absence of a single hymn book).

It is not far-fetched to conclude that the intersection between the country's state architecture, the land data/information regime and ICT (inclusive of infrastructure) is characterized by poor misalignment challenges between constitutionally entrenched policy goal/s and policy instruments that are not mutually reinforcing. While the constitution commits to transparency and accountability the state has not set not set out the minimum standards for these principles and has also not put in place requisite policy instruments and requisite infrastructure with respect to land. It is also critical to note that the technical variable of interoperability standards is a key policy ingredient. LandNNEs’s call for a land observatory and associated institutional frameworks is aimed at this junction. Lack of ‘integration’ and poor coherence of land data/information loom large, implies that the proposed land observatory, necessary as it is, is

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<sup>33</sup> The objective of lowering costs and increasing productivity and productivity on the part of the government.

<sup>34</sup> *Local Government: Municipal Structures Act, # 117 of 1998* read in conjunction with the *Local Government: Municipal Systems Act #32 of 2000*.

insufficient to realization of constitutional imperatives, but should be accompanied by requisite institutional reforms. The next section provides a brief overview of some of the global trends.

#### 4. Relevant global trends at a glance

At a global level there is a growing realization for governing land (land, aquatic and air spaces) holistically, and work is underway towards interdisciplinary approaches of earth systems governance which bring together environmental history, international organization, science and technology studies focusing on social and political consequences of human on earth systems. Work on global warming and climate change is primarily focusing on preventing negative consequences, by setting bounds and limits to human activity, in various domains, such as local and aggregate levels of pollution, exploitation of resources, the extinction of species, etc. The climate change phenomenon, which is unquestionably the deepest and most profound event in recent history, and a 21st century existential crisis, presents an unequalled opportunity to develop a national land data infrastructure. The climate change phenomenon in which the "history and geology have become interwoven" in a manner that poses a challenge to the survival of humanity, requires new ways of collecting, storing and dissemination of land information. Modern GIS tools, remote sensing technologies, cloud-based earth observation techniques support the ability to monitor changes in their condition (land cover, water, air quality). A national land observatory could potentially provide a repository for these data sets.

There are a number of small OGD initiatives in the developing country context, which are focusing on different aspects of OGD.

Table 1: Some of the OGD initiatives in Africa

Country	Initiative
Ghana Country	Open data as a tool in empowering small-holder farmers.
India	Open energy data real-time power supply monitoring system.
Jamaica	Open data to benefit tourism
Kenya	Improving voter turnout with Open data.
Nepal	Open data to improve disaster relief
Paraguay	Open data to monitor dengue fever, which is endemic in that country

South Africa	In 2014 Code for South Africa, a non-profit started monitoring medicine prices using data from government.
Uganda	Being used to help improve health outcomes and revolutionize a health care industry marred by staff shortages, lack of resources, and corruption

Numerous African countries are starting to take steps in setting up land informational infrastructure, in the form of land observatories. Among some of the countries that have set up land observatories are Burkina Faso, Cameroon, Madagascar, Mali, Uganda, Senegal, Chad and South Africa (the now defunct University of Pretoria based South African Land Observatory). Most of the land observatories in Africa were largely inspired by and a response to the phenomenon of ‘large scale land acquisitions’ or ‘land grabs’ that were driven by developed countries, rather than as part of reform of land governance machinery, as LandNNEs is proposing for South Africa. Compared to many African countries, South Africa has a relatively more extensive land data/information ecosystem albeit broken, archaic, fragmented and incoherent. The Southern Africa Development Community (SADC), has started setting up its own informational infrastructure, which is land related, with a visible data/information collection focus and specific land governance themes via the following organs, the Climate Services Centre<sup>35</sup>, the Regional Climate Data Processing Centre<sup>36</sup>, Regional Early Warning Centre<sup>37</sup>, Regional Poverty Observatory<sup>38</sup>, Regional Plant Genetic Resource Centre<sup>39</sup> and El Nino Response Coordination<sup>40</sup>. Instead of developing new sub-regional level rules/institutions SADC plays a crucial role of data/information sharing, by collecting, storage and dissemination of data/information that have a bearing on land governance and administration at a regional scale. Similar land informational infrastructure, scaled at national level is what South Africa needs.

On a global scale, the realization of the need for ‘integrated’ approaches of a plethora of concepts, with varying emphasis, but that all share a common thread integrated management of biotic and abiotic elements of ecosystems, i.e. Integrated Natural Resource Management (INRM); Integrated Water Resource Management (IWRM); the Building Block Methodology

<sup>35</sup> <https://www.sadc.int/sadc-secretariat/services-centres/climate-services-centre/> (Accessed 02 July 2019)

<sup>36</sup> <https://www.sadc.int/sadc-secretariat/services-centres/regional-climate-data-processing-centre/> (Accessed 02 July 2019)

<sup>37</sup> <https://www.sadc.int/sadc-secretariat/services-centres/regional-early-warning-centre/> (Accessed 02 July 2019).

<sup>38</sup> <https://www.sadc.int/sadc-secretariat/services-centres/regional-poverty-observatory/> (Accessed 02 July 2019).

<sup>39</sup> <https://www.sadc.int/sadc-secretariat/services-centres/spgrc/> (Accessed 02 July 2019)

<sup>40</sup> <https://www.sadc.int/sadc-secretariat/services-centres/sadc-el-nino-response-coordination-centre/> (Accessed 02 July 2019)

(BBM); the Holistic Approach, Australia grown Expert Panel Assessment Method; and the South African grown Downstream Response to Improved Flow Transition (DRIFT). In addition to the notable marginal role of social sciences in most of these concepts, they were largely focused at national and catchment scales.

For South Africa in particular to be able to take advantage of the data revolution as well as the fourth industrial revolution (4IR), a holistic strategic approach is necessary. While there are a number of national land observatories that are in place in various African countries, there is no single ideal model, and South Africa has an opportunity to draw lessons from some of these countries, given that a land observatory presents multiple opportunities. Given the broad scope of the proposed land observatory, LandNNES proposes an incremental approach to the development of the facility. The next section an overview of the principles that should guide the repurposing project.

## 5. Key elements of the vision

The process of (re)engineering of land data domain as a part of land administration is an extensive and very complex subject. For that reason instead of a blue -print, it is more appropriate to set out guiding principles, as a tangible contribution to the project of rebuilding a capable state. It should be clear that the construction of a land observatory as proposed by LandNNES is a small cog within a wider process of (re)engineering of the data ecosystem. The land observatory is only point of focus and a single infrastructural manifestation within a broader platform.

Land systems transitions are typically characterized by complex multiple sets of causes and effects, emanating from interacting interdependent parts at multiple scales. Land data/information systems should address the simultaneity of land systems, notwithstanding the diversity of perspectives and values. Largely due to the scope and depth requiring extensive changes that occur over long durations, there is a need for durable platform/s as vehicles for solving complex land data/information system challenges. The time dimension is the dividing line between 'projects' and 'platforms', with projects typically gravitating towards shorter durations of no longer than two to five years, while platforms may endure over decades.

The proposed notion of repurposing of land administration imports the notion of 'infrastructuring' from ICT studies. Penuel (2019) defines the notion of infrastructuring as 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 the organisations. In this process, teams of researchers and practitioners should embark on a (re)design journey, guided by contours of problems, and systematically introducing innovations within the

organisation/s. In the context of repurposing of land governance and administration, change efforts should be targeted at multiple layers of information infrastructure including municipalities, provincial, national government departments, select State Owned Entities (SOEs) and private sector players. There is growing acknowledgement that availability of data is meaningless unless the technical infrastructuring are closely bound up with a set of corresponding laws and policies, which support the new information regime of OGD.

South Africa's proposed land observatory requires some level of interoperability of systems between and across different generators and users of land data. Figure 1 above illustrates the principle of pooling data from multiple computers into a single system.



Figure 1.: Model demonstrating interoperability and computer networking<sup>41</sup>

A fundamental ingredient to repurposing is an import from 4IR (industry 4.0)<sup>42</sup>, the goal of a 'single source of truth', at multiple scales (organisational e.g. municipality, government and national), predicated on all data processes, from both ends of the value chain being "filed once, in a structured form", thus enhancing ability to undertake rigorous analysis of data. The concept of a 'single source of truth' (SSOT), alternatively called 'the golden record' is a concept that is used in the context of organisational data/information architecture, predicated on the principle of ensuring that everyone within the defined organisational boundary accesses and makes use of the same data in the course of making decisions. The network models in Figure 1 depict a system

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[https://www.google.com/search?q=picture+of+computers+networking&tbm=isch&source=iu&ictx=1&fir=MgY3a6jOmCM0gM%253A%252CA5tIQWn9x6f8M%252C\\_&usg=AI4\\_kQqSStL6iHktjO\\_VU5\\_5\\_b5tiMPw&sa=X&ved=2ahUKEwjqsqyd0tHgAhXAURUIHXtGBqkQ9QEwAXoECAQQBg&biw=1522&bih=738#imgrc=MgY3a6jOmCM0gM](https://www.google.com/search?q=picture+of+computers+networking&tbm=isch&source=iu&ictx=1&fir=MgY3a6jOmCM0gM%253A%252CA5tIQWn9x6f8M%252C_&usg=AI4_kQqSStL6iHktjO_VU5_5_b5tiMPw&sa=X&ved=2ahUKEwjqsqyd0tHgAhXAURUIHXtGBqkQ9QEwAXoECAQQBg&biw=1522&bih=738#imgrc=MgY3a6jOmCM0gM): (Accessed 11 June 2019)

<sup>42</sup> A subset of the Fourth Industrial Revolution concerned with industry.

of networked computers within an organisational context, linked to the cloud storage,<sup>43</sup> on the OGD principle of interoperability<sup>44</sup>. Theoretically, each computer that is part of the network (system) would intermittently synchronize with the central storage system, and the storage system in turn synchronize with the rest of the computers that are part of the system. In a hypothetical example of a municipality, it would mean that land data generated by one department becomes available in real time to other departments within the organisational boundary of the municipality and beyond. For example, a pipeline alignment design planned by the engineering department within the context of a municipality, would be accessible to departments within the organisational boundaries of the municipality, in real time. The very same concept can be applied at a national government department or to a national government scale/s.

What this implies is that the land observatory would primarily play an integrative function by harvesting land data from multiple preexisting sources, and merely provide infrastructure for integration and analysis. At another level, the proposed land observatory could close gaps in the ecosystem through origination of some categories of data, national address database, and an inclusive national land tenure database.

The notion of polycentricity as a concept which refers to numerous decision making points operating under an overarching institutional framework, with each point having constrained individual autonomous prerogative within the context of the system, is considered to be pivotal to the (re)design process. Two critical functional features of good performance of polycentricity are; the center must hold; and space for self-correction of the system.

In response to the intricate complex paradoxes that are associated with the governance of what are intricately shared land resources and the dangers that are associated with the positivist knowledge silos, there are growing (often overlapping) bodies of knowledge which, advance a very strong argument for a two-pronged approach; one thrust on transboundary governance frameworks (integrating different scales), and another on transdisciplinary teams and individuals, with the former having taken root in the water sector in South Africa.<sup>45</sup> Transboundary approaches place emphasis on regionalization and localization (regional constellation) of and knowledge between states and non-state actors, working with communities, oriented towards

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<sup>43</sup> The option for a hardware storage system is a possibility but costly in the short to medium term.

<sup>44</sup> Open Knowledge International- <http://opendefinition.org/od/2.1/en/> (Last accessed 30 December 2019); also see <https://okfn.org/> (Last accessed 30 December 2019)

<sup>45</sup> While slightly different, the notion of transboundary governance is intricately linked to the notion of regional integration.

how different norms at different scales intersect and shape each other and the actors and vice versa. Transboundary frameworks place a lot of emphasis on multiple scales of knowledge, on the basis that each scale constitutes a critical part of a broader governance framework. As opposed to multidisciplinary, which simply adds up elements, transdisciplinary engages with complexity, placing emphasis in synthesis. The role of transdisciplinary teams constituted by the most competent individuals cannot be overemphasized. They caution against. Notwithstanding all this the sectors do exist in both the mind and in reality, hence the need for inclusive coherent transdisciplinarity.

The very notions of transdisciplinarity and holistic [land] resource management, trigger fundamental questions about the scope of data that in Spatial Data Infrastructures, which are fundamentally which are fundamentally constrained by silo conception land systems. The (re)imagination of the land data/information ecosystem must of necessity be a call for South Africa to go beyond SDIS, and move towards an inclusive conception of land. It is important to note that data originates from multiple layers of depth, and an understanding of how individuals, groups or societies interact with the terrestrial ecosystem or what and how government is exercising its regulatory powers, requires an increasingly deeper understanding of motivations underpinning the behaviors.

These transdisciplinary approaches, by default are a call to go beyond SDIs. In the new paradigm, land data/information can be conceptually differentiated into three broad types i.e. empirical data (what exists?), pragmatic data (what is possible?) and normative data (what is ideal?). These three categories can be further differentiated into more sub-categories based on the source of data/information as well as the form/s that the data/information takes.

There are a number of options for institutional anchoring and financing options for a national land observatory. LandNNES supports the idea of a land observatory that is established and managed through statute, with a proportion of funding provided by the state, a portion provided by the private sector and a small portion financed from cost recovery. South Africa's national land observatory should be governed by a partnership between government, the private sector and civil society. During the set up and upscaling phases, donor funding is necessary.

Largely due to the interdepartmental nature of the endeavor, leadership of the process is critical from the highest office in the land, the Presidency. Leadership by a line function department will not be able to break the silos. Williams-Egebe *et al* (2017) recommends that the correct legal, technical and infrastructural environment should be progressively put in place, in order to ensure effective implementation of both OG and OGD. What this implies is that a range of policies and statute should be put in place with a clear view to support the underlying technical and

infrastructural environment. In other words, there is no point in putting in place the appropriate infrastructure if it is not supported by an overarching legislative environment.

## 6. Immediate steps

State of readiness study:

This is a whole new trajectory, which is a fundamental departure to how South Africa has been going in the first two and a half decades. As indicated before embarking on the new trajectory requires more than putting in place a land observatory, but a range of policies, statutes and institutional arrangements. It is recommended that South Africa undertakes a state of readiness study which should focus on issues of political commitment, public sector readiness, existing legal frameworks, public sector institutional frameworks, public sector culture, financial and sustainability considerations and technical infrastructure considerations (i.e. interoperability). At the center of the study will also be to identify specific institutional adjustments that are required. The United Nations Economic Commission has some guidelines for more detailed planning procedures.

Consider option for SALO

SALO is at a point where it is on the verge of collapse, requiring a small amount to keep it afloat for another year. If this is considered by the MSP to be a viable option for the future, there is merit in LandNNEs securing resources for the upkeep. The facility as it stands presents a range of opportunities for piloting (land tenure information piloting; national address database, etc.)

The MSP has an opportunity of resuscitating the defunct South African Land Observatory (SALO), by acquiring both the infrastructure and the existing data. SALO could be handed over to a multi stakeholder governing body.

- The MSP would negotiate terms of transfer of SALO from UP to the MSP.
- The MSP would immediately need to start work on the policy and legal frameworks that would support SALO into the future.
- The MSP could consider funding options for the short, medium to long term.
- The MSP could develop tangible ideas on what could be done with the facility in the short term. In the short term SALO presents an opportunity to pilot a national address database and or pilot a land records system for rights that are currently off-register, bearing in mind that these two are not mutually exclusive.

## 7. Why is this important for SA?

- LandNNEs takes up the challenge of land governance as entry point into what is an international development imperative: While the land observatory should be anchored and a multidimensional land information infrastructure, it presents an opportunity for recording of land rights are reflected in many of the UN Sustainable Development Goals (SDG). They are explicitly linked to poverty eradication (SDG1), food security (SDG2) and gender equality and women's empowerment (SDG5). Several other goals have implicit links to land-related outcomes.
- Government departments and local government stand to benefit from economies of scale associated with an integrated informational infrastructure, and reduce costs associated with leakage arising from multiple fragmented systems.
- A land observatory provides a one stop shop for land information in making South Africa visible to South Africans.
- In this day and age of climate change, it could well be used to manage climate change impacts which require multiple data sets.
- Credible and current data is critical to planning at all levels of government as well as vertically. The planning as well as monitoring for both land reform and land management in general is greatly enhanced. Municipalities could benefit from centralization of valuation rolls.
- Reliable and current data will facilitate better sharing of data/information within (intra-governmental relations) as well and between state institutions, thus facilitating better and faster decision making within state institutions. The time and cost of sourcing land data/information will be greatly reduced. Oranje & van Wyk (2019) attribute part of the land reform challenges to government organisational architecture, which has hitherto been reliant on *Intergovernmental Relations Framework Act No. 14 of 2005* which has proven to be a blunt tool in supporting coordination and integration issues.
- Electronic data infrastructures provide a platform and an opportunity for digital submissions and processing of development applications. This would reduce the time for processing and approval of development applications between different spheres of government and line departments.
- A national land observatory, provides infrastructure for the storage of informal land rights which impact on the majority of ordinary citizens, including people in informal settlements, people in communal areas, labor tenants and farm dwellers who are currently off the formal register will be included in a national land information system and their rights will be easier to administer and enforce.

- Land records which are currently not possible (outside freehold areas), such as recordal of transactions or servitudes, management of valuation and taxation, management of land use, planning, environmental protection, development control, regulation etc.
- A national land observatory potentially presents infrastructure for the development of an authoritative national address system and database for the country. Data quality is critical to the country's street address system for the purposes of managing interaction between people, places and activities. Various government agencies ranging from Independent Electoral Commission (IEC) to SASSA depend on valid street address information.
- The proposed national data infrastructure coupled with OGD includes other related and mutually reinforcing potential benefits, such as making government accountable to the citizens.
- National statistics are critical to how the country benchmarks itself to international standards. A reliable land data infrastructure will have an effect of improving the quality of statistics. Improved statistics will enhance South Africa's capability of reporting accurately, in relation to a number of international and regional protocols or agreements which bind national governments to abide by certain agreed standards. *While public policy instruments, such as new laws and regulations, are a popular method for upholding these standards at a national level, adherence can only be measured and vindicated with nationally aggregated land information.* (Bennett, et al, 2012). The Kyoto protocol is just one example of many such international treaties. For example, Annex 1 binds nations to the reduction of greenhouse gases by 5.2% from the 1990 levels (UN, 1992). It is, however, not enough to have these statements articulated in policy or legislation. The application of, and adherence to legislation is far more critical.
- Making raw and aggregated data readily available from different government sources creates new opportunities for value addition, as it creates opportunities for different actors to add value to the data and in the process enhancing knowledge (data analytics). In a nutshell, Open Government Data creates new opportunities for South Africa into the 4IR.
- Open Government Data will greatly reduce the cost of doing business in South Africa, and thus create an environment for new businesses emerging.
- An integrated national land information system also presents opportunities for managing land holistically through incorporation and overlaying of data from other sectors beyond land, such as disaster management, climate change etc.
- It creates opportunities for reducing costs of doing business, thus supporting economic growth. In the absence of reliable and integrated land information infrastructure, business is overburdened with costs of opening a range of government doors to find information. Where data is located in a one-stop-mall, it creates opportunities for

reducing the cost of doing business. It creates certainty about correctness or validity of data or information.

- Most importantly, Open Government Data does not only enhance government accountability to citizens, but it creates conditions for citizens to get involved in policy and governance decisions (active citizenry).
- South Africa's university fraternity stands to benefit tremendously from Open Government data for research purposes. In turn the country would benefit from the enhanced knowledge arising therefrom.

LandNNEs takes a view that this proposal will save the country money rather than require money. A number of land information repositories such as those held by parastatals and SOEs could benefit from a specialized land information infrastructure, which relieves them of managing multiple infrastructures.

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