



State of land information Uganda

Uncovering Uganda's land information ecosystem





Our mission

To build an information ecosystem for land governance that supports better informed decision and policy making at national and international levels.

Our objectives

To improve documentation, mapping and monitoring of land governance issues through the provision of a widely used platform which includes structured information, tools and services.

Promote, inform and enrich global debate and practice on key land issues while providing further awareness on selected thematic areas of central importance to land governance.

Raise awareness on Open Data principles, support the creation of a solid data infrastructure and build the capacities of information providers, in order to strengthen the flow of land governance information at all levels.



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L. Mey, M. Ochieng Odhiambo,
C. Tejo-Alonso, M. DeMaria

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Executive Summary

The image features a white background with large, overlapping curved shapes in bright blue and red. The blue shapes are the most prominent, curving from the top left towards the bottom right. A red shape is visible at the bottom, partially overlapping the blue. The text 'Executive Summary' is positioned in the upper left quadrant, within a blue area.

With this State of Land Information Report we seek to provide an overview of existing data and information on key land issues. Our aim is to uncover the many different sources of land data and information in Uganda and thus provide a basis to substantiate, refute or nuance the often-repeated rhetoric that there is a lack of land data. To this end, we developed an original scoping and assessment methodology building on existing internationally recognized and well-known frameworks. For the very first time, we systematically reviewed and categorized the entire landscape of data and information related to key land topics in Uganda, assessing over 140 land resources from 74 different sources. This robust scoping exercise not only allowed us to see trends and gaps when it comes to land data collection, but also prompted us to provide very practical recommendations to improve visibility and usability of data and information, and thus improving the land information ecosystem in the country.

In performing this scoping study on “what is known” or somehow documented about land in Uganda, we considered that it would be an oversight if we only scoped for raw data and statistical indicators. Our expectation was that much of what is known, particularly at the grassroots level, is not captured in an indicator, but rather in a publication or news article, for example. Our research confirms this expectation, highlighting that **90% of key land resources in Uganda are available as documents, not statistical data.**

The main information and data providers of key land resources in Uganda are the government (accounting for 38% of the total resources, though many of those include laws and policies regulating land in Uganda) **and research institutions and international organizations** (each providing 25% of the key land resources). A notable lesser representation is that of national **Civil Society Organizations, accounting for less than 6%** of the total key resources related to land. Our assumption is not that CSOs do not have data, information or other kinds of knowledge to share, but rather that their data and information publishing practices can be improved to increase their discoverability on the web.

Availability of Data and Information							
Key Category	Data available?	Representation of Sources					Data up-to-date?
		Government	Research Institutions	National CSOs	Int. Organizations	Other	
Land Tenure Data	✗	✓	!	✗	!	✗	!
Land Cover, Use & Management	✓	✓	!	✗	✓	✗	!
Land Disputes	✗	✓	!	✗	!	✗	✗
Human Settlements	✓	✓	!	✗	!	✗	!
Land Markets & Financing	✓	✓	✓	✗	!	✗	✗
Land, Climate Change & Environment	✗	✓	✓	✗	!	✗	!

✓ = good practice ! = room for improvement ✗ = poor practice

The knowledge is published online (98%), it is available for free (97%) and largely publicly accessible without requiring registration or identification (95%). The basic access to data and information there seems to be in a very good state in the Ugandan Data and Information Ecosystem. When it comes to more sophisticated accessibility assessments however, the data and information providers score much less high:

Accessibility of Data and Information								
Online	No (log in) barriers	Free (unpaid)	Metadata	Standards	Downloadable	License	Machine-readability	(Linked) Data URIs
✓	✓	✓	✗	✗	✗	✗	✗	✗

✓ = good practice ! = room for improvement ✗ = poor practice

Overall, the health of the Ugandan Land Data and Information Ecosystem is scored with **35/105 points**.

Recommendations

The key recommendations emerging from this report to data and information providers in Uganda to increase access to and use of their land data and information, as well as to improve the ecosystem in Uganda overall, are the following ones:

- **Ensure regular updating of the ULII website** so that it provides up to date texts of laws.
- **Establish a web-based platform for policy documents** similar to ULII to ensure up to date access to policies of government. This can also be done by expanding the mandate and coverage of ULII to include policy documents.
- **Support land sector civil society organizations** to develop capacity for effectively making their data accessible online and for advocacy to ensure enforcement of the constitutional and legal right of access to information. After further scoping consultations, CSOs data and information provision as reflected in this report may be updated;
- **Support the establishment of national level frameworks** focused on improving access to land information, bringing together state and non-state actors, to better interface with global other national, regional and global platforms, while also ensuring availability of data at the national level.
- **Ensure that raw data that are at the basis of research documents are published** alongside the research reports and documentation, to allow others to use, challenge and/or build on findings in research and let data be the basis of open debate;

- **Support & enforce data publishing practices** to include a minimum set of metadata with each publication, dataset or other type of information published by any type of information providers;
- **Support & enforce the use of standards when publishing metadata** to promote the usability as well as interoperability of data and information in the Ugandan data & information ecosystem;
- **Enable the possibility to bulk download data and information** from databases to allow for more meaningful and large-scale use and uptake of the data and information;
- **Apply open licenses to published data and information** to allow for more meaningful and in depth use, re-use and modification of data and information to increase its impact, and most importantly, consider licensing and publish it along with the data and information;
- **Consider the formats in which data (and information) are published,** and specifically consider machine-readable formats to allow for greater discoverability of the information as well as re-using the information and apply in applications and other technologies;
- **Apply unique identifiers** to key elements of the data to ensure consistent and reference to the data and information, and allows for more efficient exchange within the data ecosystem.



Introduction



Availability of accurate and up to date data and information on land and different land uses, such as agriculture, forestry, mining, wildlife, water, housing and infrastructure, is critical to effective land governance and crucial for planning and managing the use of land and land-based resources. Public institutions and the government need land data and information for appropriate and timely decision-making; while land users, the general public and other stakeholders need it to effectively monitor and influence those decisions. Land data and information is also critical for effective tracking of land policy implementation processes to inform lesson learning and generate good practices, as well as to ensure sustainable and equitable land investments.

It is an often-repeated rhetoric that there is a lack of land data; either there is no data or the data that exists is unreliable or out of date. Collecting new data is a time-consuming and costly process. Data is collected and captured on a massive scale already, but research shows that of all existing data worldwide, less than 1% is actually analyzed and digested.¹ With increasing digitization of information, increased use of internet in all parts of the world, and continuously growing demand for more data, the risk is that existing data is either purposely cast aside (as the source may be from outside our trusted networks) or simply overlooked. The current reality of land data is that in many parts of the world, data remains inaccessible, fragmented, poorly managed or simply unusable.

Uganda has not been measured in the international Open Data-measurement projects, such as the Open Data Index or Open Data Barometer, nor is the Ugandan government part of the Open Government Partnership. This does not mean that Open Data has not been a topic of discussion within the Ugandan government, however. In response to accusations on corruption and mismanagement of public funds, the Uganda government prompted to open all public, government data. The first draft of the Open Data Policy was released in May 2017 and by 2020, Uganda intends to adopt an “open-by-default” policy, where all data collected and held by publicly-funded institutions will be openly accessible to anyone.² This Open Data Policy, however, is still in draft version as of 2019, nor is the document accessible through the government websites anymore. This, in combination with recent reports such a social media tax per day³, leads to question how high a priority free sharing of data, information and perspectives currently is for the Ugandan government. There are many opinions and articles providing perspectives on this issues. In this State of Land Information Report, we want to investigate whether this has affected the availability of land data and information in the land governance sector.



- 1 John Gantz & David Reinsel: “IDC’s Digital Universe Study”, EMC, December 2012.
- 2 H. Acharya, “Harnessing open data to help the most vulnerable in Uganda”, Aiddata, September 2017.
- 3 H. Matfess & J. Smith, “Argument: Africa’s Attack on Internet Freedom”, Foreign Policy, July 2018.

With the **State of Land Information Report**, we seek to provide an overview of publicly available data and information on key land issues, from not only government, but also other sources. The aim of the research is to uncover the many different sources of land data and information at the country-level and help to identify actual data and information gaps, with a view to establishing a baseline for targeted 'information-based' interventions to improve the information ecosystem. What sets this research apart from other monitoring initiatives, is that the focus is on the database or dataset and its sources; the value or content of the information is not our main focus. Our belief is that data quality, accuracy and reliability lies in the judgement of the user. For the very first time, we look at the entire landscape of a country to see trends and gaps when it comes to land data collection, as well as how accessible it is on the world wide web. The State of Land Information report concludes with -where necessary- concrete recommendations to data and information providers to improve their data sharing practices, to help establish a functioning, inclusive and democratized ecosystem of data.

Why is this report useful?

The report is useful as a tool for any land governance work that requires access to data and information. For example, a **researcher** may use this report to identify gaps in information and identify research priorities accordingly. A **land practitioner** working at the global level may use the information sources as a basis to monitor land governance performance against international indicators. **Private companies** may find the report a useful starting point in due diligence processes prior to working or investing in a country. **Local information providers** may identify weak links in their data sharing practices and implement concrete recommendations. **Governments** can use the outcome to establish or strengthen their policies that aim to increase access to data and information by citizens. Ultimately, we hope the report will make data and information more visible and usable by any potential user and thus improve the local information ecosystem from the bottom-up.

Methodology

The State of Land Information methodology consists of two consecutive phases, namely the scoping research, followed by an accessibility assessment of the identified datasets and other sources of information. These aspects together provide a snapshot of the state of the land data ecosystem in Uganda in 2019 and the only true, comprehensive reference point for available land data and information in the country. We intend this to be a “living” document to be updated regularly and through an open process.

Scoping the Land Data Landscape

The parameters for the scoping study were set on the basis of key land issues identified by the Land Portal. The mantra of “building on rather than duplicating” that underlies the entire effort of this study has also been applied to the process of identifying the key land issues. We drew from key land indicators and guidelines from several global and regional land monitoring initiatives. The Land Portal team assessed overlaps and availability of information based on indicators identified in the following initiatives:

- 1 Sustainable Development Goals, “SDGs” (United Nations)⁴;
- 2 Voluntary Guidelines on the Responsible Governance of Tenure, “VGGTs” (FAO)⁵;
- 3 Land Governance Assessment Framework, “LGAf” (World Bank Group)⁶;
- 4 Global Land Indicator Initiative, “GLII” (network facilitated by GLTN/UN-Habitat)⁷;
- 5 Monitoring & Evaluation of Land in Africa, “MELA” (IFPRI & Land Policy Initiative)⁸;
- 6 International Land Coalition Dashboard (facilitated by ILC)⁹;
- 7 Africa Data Revolution Report (facilitated by Open Knowledge International)¹⁰.

Based on the categories, indicators and principles included in these international land data monitoring and governance guidelines and frameworks, the Land Portal has grouped overlapping indicators and principles into the following seven categories: Legal, Policy & Institutional Framework; Land Tenure data; Land Cover, Use and Management Data; Land Disputes; Human Settlements; Land Markets & Financing; and Land, Climate Change & Environment. For each of those categories, associated key information has been identified based on the principles and indicators identified in the initiatives above. The full methodology can be accessed through the online and open [State of Land Information Research Guide](#).

It is important to mention that although the scoping study performed has been as rigorous and as targeted as possible with the use of key issues around land, we do not claim to have captured all data and information ever captured or published about land in Uganda. Most particularly, offline resources are difficult to find and it is difficult to know all the possible sources that somehow have collected some form of data, information or knowledge about land issues. Moreover, new perspectives are constantly being collected every day.



4 <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

5 Food and Agriculture Organization of the United Nations, “Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security”, Rome 2012.

6 <http://www.worldbank.org/en/programs/land-governance-assessment-framework>

7 <https://gltn.net/global-land-indicators-initiative-glii/>

8 <https://melafrica.wordpress.com/>

9 International Land Coalition, “The Dashboard Indicators”, Rome May 2018.

10 World Web Foundation, “Africa Data Revolution Report 2018. Status and Emerging Impact of Open Data in Africa”, 2018.

The picture of the Data Landscape in Uganda we are presenting in this report is therefore not all-encompassing, but is, rather, a snapshot of a certain moment in time. That said, it is the most comprehensive and definitive resource for land data and information in Uganda available and will be considered a “living” document that we aim at having updated regularly.

Data or Information?

You will notice we use data and information almost interchangeably, purposely so. When we perform a scoping study on “what is known” or somehow documented about land in a country, it would be a major oversight if we only include raw data and statistical indicators. Much of what is known, particularly at the grassroots level, is not captured in an indicator, but rather in a publication or news article, for example. In this scoping exercise, we therefore very purposely talk about both data and information.

Assessing Accessibility

Following the scoping research, the study focuses on a rigorous assessment based on the accessibility of the identified sources of data and information on key land issues in Uganda. Similar to the scoping study, accessibility of the data and information was assessed on the basis of key criteria, guidelines and principles that have generally been accepted to define “accessible” and “open” data. The following frameworks and initiatives have been used to identify the criteria:

- 1 Open Data Index (Open Knowledge International)¹¹;
- 2 Open Data Barometer (Web Foundation)¹²;
- 3 5 Stars of Linked Open Data (Tim Berners-Lee)¹³;
- 4 FAIR principles of Open Research Data¹⁴;
- 5 Open Data Inventory (Open Data Watch)¹⁵;
- 6 Africa Data Revolution Report (Open Knowledge International)¹⁶;



11 Open Knowledge International, “Global Open Data Index. Methodology”, consulted website September 2018: <https://index.okfn.org/methodology/>

12 World Wide Web Foundation, “Open Data Barometer. Methodology”, consulted website September 2018: <https://opendatabarometer.org/leadersedition/methodology/>

13 Berners-Lee, “5 Stars of Linked Open Data”, consulted website September 2018: <https://5stardata.info/en/>

14 Wilkinson, Dumontier et al, “The FAIR Guiding Principles for scientific data management and stewardship”, Scientific Data No 3, March 2016.

15 Open Data Watch, “Open Data Inventory 2017. Methodology Report”, 2018.

16 World Web Foundation, “Africa Data Revolution Report 2018. Status and Emerging Impact of Open Data in Africa”, 2018.

- 7 EU Open Data Maturity Assessment (European Union)¹⁷;
- 8 OUR Data Index (OECD)¹⁸.

The Land Portal identified 18 criteria against which every information item identified during the scoping study has been assessed. This has been done on the basis of extensive studying of the available data and information online, as well as contacting data owners with additional questions and clarifications to gain as much information about the particular data or information source as possible.

Why does Open Data matter?

Open Data principles are critical to bring a perspective to data that makes it more useful, more democratic and less harmful.¹⁹ It is a common misunderstanding that publishing publications on a website is all you need to do to make the information accessible and useable. Data that is published according to Open Data principles is much more visible on the web than a single PDF on a website, and, perhaps more importantly, make it possible for anyone to use, re-use and build upon the data for innovations, thereby empowering citizens and fostering transparency and accountability. Open Data empowers, democratizes and enables large-scale impact!

An important caveat to this research is that the above-mentioned criteria and initiatives are based on assessing datasets, whereas this study focuses on documents and other types of information as well. This means that the application of the criteria from the above-mentioned initiative are therefore not always (completely) performed in the way they were intended. To understand how we interpreted those criteria when it comes to documents and other sources of information than data, please refer to our public [Open Data Assessment methodology](#).



17 European Commission, "Open Data Maturity in Europe 2017. Open Data for a European Data Economy", November 2017.

18 Ubaldi, B., "Open Government Data: Towards Empirical Analysis of Open Government Data Initiatives", OECD Working Papers on Public Governance, No. 22, OECD Publishing, Paris 2013.

19 Joel Gurin, "Big data and open data: what's what and why does it matter?", The Guardian, April 15th 2014.

Availability of Land Data & Information in Uganda

The availability of land data and information in Uganda was assessed with reference to: types of data or information, representation of sources of data and information and finally, timeliness of the resources (are they up to date). This is done for all key categories with the exception of the first category, Legal, Institutional and Policy framework, as this category mostly covers the availability of laws and policies, and therefore less suitable to assess based on the aforementioned criteria. For each criteria, a general score is given. **✓ indicates a good practice; ! indicates a practice that can be improved; and ✗ indicates a poor practice.** More information about how these scores were allocated can be found in [Annex I–Scoring Chart](#).

Legal, Institutional & Policy Framework

The first category of key land issues is the Legal, Institutional and Policy Framework. The scoping research aimed to uncover whether the legislative and policy framework could be identified with the accessible data and information, as well as use the framework as the basis to find possible data and information providers from the government based on their respective mandates. Naturally, this category lends itself to mostly documents and other types of information, rather than (statistical) data.

Policy documents are for the most part accessible online, but there is no dedicated website for policies. Ministerial websites tend not to post policies implemented by the relevant ministries. For instance, we were unable to trace the Mineral Policy of Uganda 2001 on any government (or other) website. The website of the Ministry of Energy and Minerals appeared to have been hacked and was not accessible throughout the period of the review. The draft Mining and Mineral Policy for Uganda 2018 was traced online, but we were unable to establish its current status.

Texts of laws are available online through the Uganda Legal Information Institute (ULII). However, the material on the ULII website is not all up to date. For instance, the website posts the 1979 version of the Local Government (Rating) Act, which was repealed by the 2005 version of the Act. Some critical pieces of legislation, e.g. Access to Information Act, 2005, are not posted on the website. The website of the Parliament of Uganda (www.parliament.go.ug) contains the text of the Constitution, but the same is not up to date as the last amendment posted is the one of 2005. As for texts of laws, [the website](#) has two pages of folders for Acts organized by year from 2001 to 2017), but all the folders are empty!

Land Tenure Data

When scoping for land tenure data, the researchers scoped for cadastral data (of mining, forestry or agriculture cadasters) and/or land registry data (are there individual or community land records available; are these disaggregated by urban/ rural areas, by gender or rights holder, by indigenous and non-indigenous peoples or communities?). The scoping research also focused on whether any evidence existed on whether or not the land registry data is contested.

There is an ongoing government project to strengthen Land Information Management Systems (LIMS), and a commitment in the Land Policy Implementation Strategic Plan to improve access to land information. Currently, the scoping exercise revealed the following.

Types of data or information

Publicly available information on land tenure identified in this scoping study were **exclusively documents (100%)**. This includes many legal information sources (laws, policies and jurisprudence) that govern land tenure, that specify gender and indigenous land rights, communal vs private ownership, as well as various research reports studying the efficiency and challenges of the land tenure system in Uganda. None of the raw data that may have been at the basis of these research reports were uncovered, nor does the government of Uganda provide access to land ownership data in any form.

Is there data?	X
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Sources of data or information

The Government is the main provider of information on Land Tenure. This is explained mainly due to the findings of legal framework documentation for the land tenure system in Uganda. There are research documents as well as research articles by Research Institutions and universities as well as International Organizations, such as United Nations agencies. A noticeable weak source in data or information about land tenure systems in Uganda, is the national Civil Society perspective, accounting for less than 5% of information found on land tenure systems. The overall scoring per category is given below. More details on the method of scoring can be found in Annex I.

Government	Research Institutions	(National) Civil Society Organization	International Organization	Other
✓	!	X	!	X

Timeliness of data and information

For the timeliness of data and information assessment, we excluded laws and policies because it is not in the nature of laws and policies to be updated regularly. For the remaining resources, **a critical 32% was either not-dated or published before 2010**, 52% was published between 2010 and 2017 and, finally, another 16% was published in 2018.

Is the data up to date?



Land Cover, Use and Management

For the Land Cover, Use and Management category, we sought to establish whether there was any land cover data or information (i.e. land surface data, soil type data) or data or information on land management (such as land consolidation, exchanges or other approaches for the readjustment of parcels or holdings).

20

Types of data or information

A majority of the information on land cover, use and management that were identified are in the form of documents (70%). The documents are legal documents, map documents (images), as well as reports and presentations. No raw data associated with these maps, reports and presentations were identified in this scoping exercise. Twenty percent of the data was geospatial data and another 10% made up statistical data. All the statistical and geospatial data identified were openly accessible without any login or payment barriers.

Is there data?



Sources of data or information

The main provider of land cover, use and management data are governmental institutions (accounting for 50% of the data), followed by International Organizations, accounting for 25% of the information, and Universities and Research Institutions with 20% of the information. A noticeable gap is information from national civil society organization, who account for a mere 5% of the information.

Government	Research Institutions	(National) Civil Society Organization	International Organization	Other
✓	!	✗	✓	✗

Timeliness of data and information

Land cover, use and management data and information are largely out of date, with 24% of the data and information either undated or dated before 2010. A **majority of the information (53%) is dated between 2010 and 2017**, and 23% dated in 2018 or later.

Is the data up to date?



Land Disputes

For land disputes, the scoping research focused specifically on (historical) data and information. We also looked for data or information on the legal framework for land disputes resolution and specifically evidence on the effectiveness of this framework. Finally, we looked for data on concrete disputes, such as share of land affected by disputes (possibly disaggregated by type of land: agricultural, forest, urban), the number of people affected by land disputes (possibly disaggregated by type of people, indigenous/gender).

Types of data or information

The knowledge found during the scoping study consisted **100% of knowledge captured in documents** and no concrete statistical data. Laws documenting the legal framework were found, as well as many research reports on (historical) land disputes in Uganda.

Is there data?



Sources of data or information

The government again is the main provider of data for this key land category, accounting for 2/3rds of the total information identified in this scoping study, followed by Research Institutions that account for 22% of the information available and International Organizations with 11%. The other categories, National Civil Society Organizations as well as Other organizations (such as news agencies).

Government	Research Institutions	(National) Civil Society Organization	International Organization	Other
✓	!	✗	!	✗

Timeliness of data and information

A majority of the resources were either undated or published before 2010, with a staggering 66,67%. The rest of the resources (33,33%) was published between 2010 and 2017, with no data or information identified in this scoping study that were dated in 2018 or later.

Is the data up to date?	✗
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Human Settlements

For Human Settlements, the scoping study focused on whether or not there is any data or information about the number of people without a registered address (possibly disaggregated by women, indigenous peoples, youth and other marginalized groups); legal frameworks on (social) housing provisions and any evidence of their effectiveness in practice; data on informal settlements (such as the number of people living in informal settlements; data and information about their access to basic services within informal settlements); laws and policies on regularization of tenure in informal settlements; and any evidence on the implementation and effectiveness of these policies in practice. In addition, the scoping exercise focused on displacement and eviction information (such as the number of displaced people (possibly disaggregated by gender, youth, indigenous/non-indigenous peoples), statistics or other information about the cause of displacement (such as conflict/violence, natural disasters, development, or others) and finally, expropriation data (such as the number of expropriations, statistics or information on the provided compensation for the people that were expropriated, etc).

Types of data or information

In comparison with the other categories, there is a lot of data and information available that concerns human settlements in Uganda. **A large majority of this information identified in this scoping study is captured in documents** however (94%), with a mere 6% of the total identified data and information under this category being statistical or geospatial data. The statistical data that was available, is freely accessible without any payment or log in barriers. Notably, the statistical data identified was all published by international organizations (UN-Habitat and Internal Displacement Monitor).

Is there data?



Sources of data or information

This key land issue of human settlements is no exception to the fact that the government seems to be the main source of this type of data, accounting for no less than 54%. The government data mostly sees on legal frameworks and documentation on the governance of human settlements. Research Institutions and International organizations both account for one fifth of the total resources identified under this key category, namely 22% and 20% respectively. Other types of sources were news and media. For this category as well, it is no exception that national Civil Society Organizations are a major gap in terms of information provision.

Government	Research Institutions	(National) Civil Society Organization	International Organization	Other
✓	!	✗	!	✗

Timeliness of data and information

In order to gain the most realistic perspective of the timeliness of data and information related to human settlements, laws and policies have been excluded from this particular exercise. From the remaining resources, it seems that most data and information identified in this scoping study was either not dated (**for no less than 23% of resources we were unable to trace a date of collection or publication**) or was published before 2010 (19%). The majority of resources (57%) was published between 2010 and 2017. No resources in this scoping study were dated in 2018 or later.

Is the data up to date?



Land Markets & Financing

The scoping exercise focused on land valuation information as well as land transaction data and information, such as market transaction data (disaggregated by sale and lease), market transaction data of indigenous and community lands, any information on land investments (if possible, disaggregated by public/private investments, disaggregated by scale of land areas, disaggregated by indigenous and non-indigenous lands, or foreign and domestic investments), as well as data or information on national government's foreign land investments (in other countries).

Types of data or information

The large majority of knowledge about land markets & financing is captured in documents (90%). The scoping study identified only one dataset, the Land Matrix, on large-scale land acquisitions.

Is there data?



Sources of data or information

Half of the sources of the scoped data and information for Land Markets & Financing are Governmental Institutions (42%), though this is mostly relating to land valuation frameworks and laws set out by the government. Research Institutions follow with 30% of the data and information identified in this scoping study and finally 20% by international organizations. National Civil Society Organizations again are a noticeable gap and not captured in this scoping study.

Government	Research Institutions	(National) Civil Society Organization	International Organization	Other
✓	✓	✗	!	✗

Timeliness of data and information

Laws and policies have been excluded from the identified resources under this category, to gain the most accurate picture of the timeliness of the data. **A staggering result is that for 83% of the resources, we were unable to identify the date of publication of the information or it was published before 2010.**

For the Land Matrix, for example, it was difficult to obtain information on when the last deal was added to the database from the database itself. Database updates need to be found on a separate box on the Land Matrix website. For the other resources, 17% was published between 2010 and 2017 and no resources were identified that were published since 2018. An important note to mention here is that the timeliness of the data refers to when the data or information was published, not the date of the actual valuations or investments.

Is the data up to date?



Land, Climate Change & Environment

The data and information that was scoped for under the Land, Climate Change & Environment category, was land degradation information (data on proportion of degraded land over total land area, data or information on causes of land degradation), data and information on protected areas (proportion of protected areas over total land area, data or information on existing restrictions of land use or access with regards to protected areas and evidence of possible non-compliance with restrictions) and data and information on natural disasters (data on number of natural disasters per year including disaggregation by type of natural disasters, and number of displacements due to natural disasters).

Types of data or information

In this scoping study, **the resources identified under this key category were exclusively documents (100%)**. Many of these documents include legal framework documentation, but also research documents produced by Research Institutions as well as International Organizations. Raw data that lies at the foundation of these research documents were not identified in this scoping study.

Is there data?



Sources of data or information

This last key category of land issues is no exception to the overall rule in the Ugandan data ecosystem: **the government again accounts for half of the resources identified**. Research Institutions follow by providing 25% of the resources. International Organizations and Civil Society organization account for 17% and 8% of the resources identified in this scoping study respectively.

Government	Research Institutions	(National) Civil Society Organization	International Organization	Other
✓	✓	✗	!	✗

Timeliness of data and information

Half of the resources identified that cover key information on land, climate change and environment were published between 2010 and 2017. For the remaining resources, 38% were either not dated or published before 2010. This category is one of the few in which recent resources (published in 2018 or later) were identified, accounting for 12% of the resources. An important caveat to mention is that laws and policies have been excluded from the identified resources under this category, to gain the most accurate picture of the timeliness of the data.

Is the data up to date?

!

Overall Availability of Land Data & Information

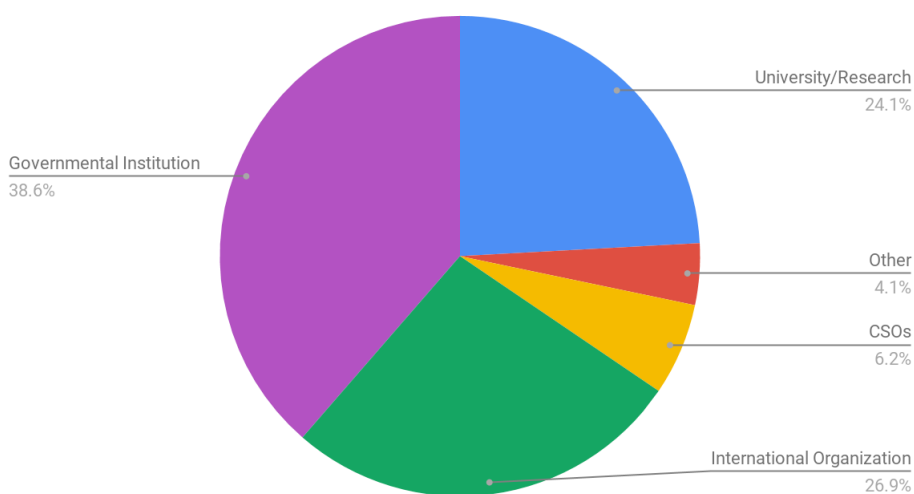
Overall, we conclude that as regards land Uganda has an information ecosystem and not a data ecosystem. Our findings show that **over 88% of key land information resources in Uganda can be found in documents**, not datasets.

Although whether or not there are documents or datasets, highly varies between the type category of land data and information. The documents and data available are predominantly available online (98%), though this is a skewed picture considering that offline data and information are harder to access and therefore easily missed in scoping the information landscape.

As regards availability of up-to-date information (excluding laws and policies), 18% of the information is dated from before 2010, while were unable to determine the date of publication or creation for 12% of the information. This means that **almost one third (30%) of the resources that hold key data and information about land is outdated or lacking details** about date of publication or production.

A data ecosystem is defined not only by the type and coverage of the information it contains, but also by its data and information providers. The source of data and information is almost as important as its content. As consumers of data and information, our judgment of the accuracy and reliability of the data is, to a large extent, based on our perception of the trustworthiness of the source. From the identified datasets and other resources on key categories of information on land governance in Uganda, the division of types of information providers can be grouped as follows²⁰:

Figure 1



This figure shows that the **Government is by far the main source of land data and information**, accounting for 38% of the total resources identified. In particular, governmental institutions are the main source of policy and legislative instruments on land. Both **International Organizations and Research Institutions** and Universities each account for roughly one-fourth of the data and information identified through the scoping exercise. A noticeable gap in the provision of data and information in this scoping exercise is the **National Civil Society Organizations** as an information provider. It is possible the reason CSOs are represented as a smaller group of information providers in this scoping exercise is a reflection more on their dissemination practices than of role and standing as information providers. One needs to be aware of a civil society organization, their work and actively access their website to find the information they are looking for -- and even then often their complete body of knowledge is not uploaded online. As a result, potentially important perspectives from the civil society are underrepresented in this comprehensive overview of land data, information and knowledge in Uganda.



20 An important note to this figure in comparison to the scoring per key land category above, is that these aggregate numbers in Figure 1 are calculated based on the resources identified with duplicated resources removed. For example, the Constitution of Uganda provides information about more than just one key category of land data and will therefore be reflected in more than one category. In this aggregate figure, such a document has only been counted twice. This is particularly visible in terms of the share of government information, which, while still high, is lower than the individual categories above might have suggested.

Accessibility of the Uganda Land Information Ecosystem

Having mapped the information ecosystem based on availability, type and relevancy of the data and information, the study subsequently focuses on the accessibility of the data and information. **The criteria to assess the accessibility are based on Open Data principles** as laid out in the initiatives highlighted in Chapter 2 of this report. The final criteria against which each document or dataset was assessed against are: 1) Online; 2) Accessible; 3) Free; 4) Metadata; 5) Standards; 6) Downloadable; 7) Open License; 8) Machine Readability; and 9) (Linked) Data URI for key elements of the data.

In this chapter we highlight, per criteria, how the various data and information sources on key land issues are ranked. For each criteria, we provide a general score. **✓ indicates a good practice; ! indicates a practice that can be improved; and ✗ indicates a poor practice.** More details on how those scores are allocated can be found in [Annex I-Scoring Chart](#). The chapter concludes with an overall assessment of these criteria combined to provide one measurement for the state of Uganda's data and information ecosystem.

Online

A first criteria to assess the accessibility of key land resources is whether or not the information is available online or offline. The findings of the scoping exercise are positive and indicate **98,6% of the key resources are available online.**

Why is it important data & information are online?

Only 55% of the world's population makes use of the Internet as of June 2018.²⁰ A valid question therefore is why data or information being online is one of the criteria used to define accessibility. There has been an exponential increase in Internet users in the last few years, particularly in the global South. Another undeniable advantage of the Internet is that knowledge can reach a great audience at an unequalled speed and scale than any other medium. The potential of knowledge being put into practice in other parts of the world, is endless. To ensure maximum reach and impact of data or information, making it available online is essential.

The representation of online materials through this scoping research may be skewed, considering the scoping research was largely a desktop study and offline materials are more difficult to scope. A potential recommendation for continued or future expansion of this scoping research could be to apply scoping methods to allow for more inclusion of offline sources and resources.

Overall Score "Online"



21 Internet World Stats, "Internet Users in the World by Regions", June 30, 2018, Miniwatts Marketing Group.

Accessibility

The 'Accessibility' criteria looks into the ease with which the resource may be accessed. We studied whether users are required to register, log in or perhaps request access, to be able to study the complete resource of key land information. For this criteria, too, the key land resources in Uganda ranked very high with **95% of the resources accessible without any log in barriers.**

Similar to the 'online' criteria, however, the representation of accessible resources may be biased with the scoping exercise, revealing mostly those resources that are more easily accessed.

Overall Score "Accessibility"



Free

Another important criteria that helps determine the extent to which data and information is inclusive and useful to a wider audience, is whether or not it is available for free (unpaid). Particularly in the academic sector, data and other research findings are often hidden behind publisher paywalls. So how about key land resources in Uganda? Our research findings suggest that the data and information ecosystem overall is freely accessible, with **97% of the data and information available on the web for free.** The same caveat applies as for the two previous criteria, in that the scoping research is more likely to identify freely accessible resources than those behind paywalls.

Overall Score "Free"



Metadata

Crucial to the accessibility of data and information is being able to find it on the web. Metadata, or information about the data or information, is key to catalogue data and information in databases or repositories.

What is metadata and why does it matter?

Metadata, or 'data about data', explains a dataset or information resource and allows for data providers as well as users to understand what the data or information resource is about at a later time.²¹ Metadata provides information on the source of the data, the date of publication and other important characteristics of the data. Metadata therefore plays an important role in the usability of the data or information resource. But it is not only that, metadata also plays a key role in discoverability of data and information resources on the web, playing a key role in cataloguing of resources in databases and for search engine optimization.

From the key land resources identified in this scoping exercise, **only 29% of the data and information came accompanied with metadata.**

Overall Score "Metadata"



22 GODAN Action, "Open Data in Agriculture & Nutrition: Making Data Open", November 2017.

Standards

The standards criteria is based on the FAIR-principles and is arguably one of the more subjective criteria to assess accessibility of key land data and information in this study. The importance of standards in accessibility of data is largely uncontested, the qualification of whether something is a 'standard' or not is mostly subjective. The approach taken here is to assess whether any kind of standard is used, whether that is a standard way to classify geographical or topical coverage, or the type of metadata fields.

Potential of a Standard Vocabulary for Land

Land is a topic which is debated across the world, in many natural languages and in a variety of different (academic) disciplines. Having a common and standard vocabulary to classify data and information to ensure no perspective is lost, is therefore very important. When a grassroots NGO wants to spread its good practice on mapping land boundaries in a "favela" in Rio de Janeiro, it would be a missed opportunity if this could not be applied in a "township" in Johannesburg, simply due to a linguistic difference in describing an issue – and therefore the right connections are not being made. To accommodate for the fact that no vocabulary standard for land existed, the Land Portal helped facilitate the establishment of LandVoc, the Linked Land Governance Thesaurus.²² LandVoc is a part of widely accepted agriculture thesaurus by the Food and Agricultural Organization, AGROVOC.

A mere 10% of the data and information providers make use of standards in their data or their metadata. About half (47%) of the data and information providers that provide metadata use standards in their metadata. A commonly found standard were DOI identifiers (for research publications).

Overall Score "Standards"



²³ <https://www.landvoc.org>

Downloadable

A measure of accessibility that is crucial for the usability of the data and information, is whether or not the data or information can be downloaded by the user. Downloading the data allows a user to perform more rigorous data analysis and application for their particular use; it is also important to be able to reach offline communities and make the data or information useful to them. In principle, many of the key land resources are downloadable by the user. About 17% of the data providers actually prevent a user to download the data and restrict its use to their own platform (unless one would download the webpage in itself). However, in order to meet the accessibility criteria, being able to download a single file is not sufficient. The data and information should be downloadable in bulk and/or queried in bulk through an API or other access protocol. The data and information providers scored incredibly low on this criteria - only 2% of key land resources are available to download in bulk.²⁴

Overall Score "Downloadable"



²⁴ When the key resources referred to a document, the downloadable-criteria was applied to the database this particular document was hosted.

Open License

A license regulates the manner in which data and information can be used. It is one of the cornerstones of Open Data, because the Open Definition²⁶ specifies that open data should be allowed to be used, re-used and modified by anyone and for any purposes. This includes commercial purposes, thereby allowing a data user to make a profit out of the use and application of another party's data.

Why does a License matter?

When it comes to data and information about land, privacy and safety concerns are always important topics to consider. They are common incentives for data and information providers not to publish their data at all. Paradoxically, if this data is opened up by using an open license, it can protect because the license facilitates a controlled and steered way in which the data can be used. An open license allows for the best of both worlds: safe and controlled publishing as well as increased awareness and (controlled) use of the dataset. An open license is a key element for a democratized data and information ecosystem.



²⁵ When the key resources referred to a document, the downloadable-criteria was applied to the database this particular document was hosted.

²⁶ <https://opendefinition.org/>

From the key resources on land in Uganda, **22% of the information providers have applied an open license to their resources.** It is worth noting that the large majority of these open licenses apply to policy and legislative instruments, that are licensed under the Public Domain license. Only 11% of the resources with an open license are another type of data. Another important finding in this Accessibility assessment is that while 22% of the resources have an open license - this does not mean that the remaining 64% have a license that does not meet the 'open'-criteria.

Overall Score "License"



Machine Readability

The criteria of machine readability is a common criteria used to assess compliance with (linked) open data principles. As mentioned, the Open Definition includes that data and information should be able to be re-used and modified by anyone for whatever purposes. For users to be able to modify, re-use and build on existing data—for example by designing innovations or technologies based on the data—the data needs to be in a machine readable format. A machine readable format means that a machine (a computer) can easily process the data.

Twenty five percent of the key resources related to land in Uganda are published in a machine readable format. The most commonly used formats for data and information are PDFs (not machine readable²⁷), HTML, CSV and XLS (the latter two are common formats for tabular data). An important caveat to mention with this criteria is that machine readability in the Open Data assessment tools on which these Accessibility criteria are based, really applies to raw, numerical data - not documents. The laws and legislations various websites, for example, are available both in PDF as well as HTML formats. HTML is a machine readable format. The application of this criteria on such documents (which, as mentioned, account for 90% of the key land resources in Uganda) needs to be interpreted carefully; having an HTML page through which a computer could process the contents, does not mean that the raw HTML code allows for 'clean' data exchange or application in technologies without any manual intervention. To mitigate this, the criteria was applied to the metadata of documents, where possible, not the document itself.

Overall Score "Machine Readability"



²⁷ More specifically, PDFs can be read by computers but it is not easily processable by machines.

(Linked) Data URI

The final criteria in our Open Data-compliance assessment is investigating whether the key land resources can be awarded the fourth star of the famous “Five Stars” of Linked Open Data.²⁸ This fourth star is awarded to a dataset if it contains URIs: a Uniform Resource Identifier. The URI was invented by Sir Tim Berners-Lee as a protocol to provide unique ‘identifier’ to a resource, a piece of data. This unique identifier is usually in the form of a code that should not change in the future; it is an ever-fixed reference point in the world wide web, completely unique for this one resource. Each indicator, piece of data and overall dataset should have a URI to comply with fifth star of Linked Open Data. If that URI refers to (links) to other URIs, we create what Sir Berners-Lee called the “linked web”.

Evidently, complying with the principles of the linked web is not a priority for data and information providers on land in Uganda. A mere 2% provided unique identifiers to classify key elements of the data. Of those that provide unique identifiers, none linked to other URIs.



28 Berners-Lee, “5 Stars of Linked Open Data”, consulted website September 2018: <https://5stardata.info/en/>.

Overall Score “(Linked) URIs”



Overall Accessibility assessment

The Ugandan Land Data and Information Ecosystem scores well with a basic interpretation of accessibility, namely whether it is online, accessible without registration or other types of barriers, and free. However, true accessibility of data goes much beyond these three criteria. True accessibility of data and information means that any person is free to use, re-use and modify the data and information for any possible purpose and that the data and information is published in such a way that allows for effective and unrestricted flow across websites and to and from people. For these latter accessibility criteria, the Ugandan Land Data and Information Ecosystem scores much less high.

A lot of key land data and information on Uganda is available online, can be accessed without needing to register or request access and can be viewed without needing to pay. **The discoverability of the resources within the ecosystem is still considerably poor.** Less than 30% of the data and information were published with metadata and even fewer made consistent use of standards in their metadata. In several instances, a publication date of a particular resource was untraceable. Not only do these weak data publishing practices make the data and information less discoverable on the web (metadata

and standards strengthen the (relevant) cataloguing in databases and the web in general), but it also restricts the possible use of the resource -- metadata often contains vital information for a user to determine whether or not the resource is of relevance or of sufficient quality and reliability for them to use.

Scores are equally low for other criteria that are intended to promote the use of the data, for whatever purpose. Only 1% of the data and information are available to download in bulk and only 22% of the data providers apply an open license to their data. What's even more striking, is that over half (64%) of the data providers do not even specify a license! These criteria are at the very core of the Open Definition. Using, re-applying and building on data and information has an enormous potential and can increase the impact of the knowledge considerably. Another criteria that supports re-use and modification of data and information, machine readability of data and information, met not much better results: 25% of the data and information are made available in a machine readable format.

Finally, as regards having unique identifiers (URIs) for key elements of data and/or metadata and linking to other URIs, none of the local information providers included this in their data. Of all the key land resources identified in the scoping study, only 2% provided URIs, and those were all global sources.

Conclusions & Recommendations



It is an often-repeated rhetoric that there is a lack of land data - that the data is either unavailable or if available is unreliable and/or out of date. With this State of Land Information Report we seek to provide an overview of existing data and information on key land issues. Our aim was to uncover the many different sources of land data and information in Uganda and thus provide a basis to substantiate, refute or nuance the rhetoric that no land data exists. For the very first time, we looked at the entire landscape of data and information related to land in Uganda, assessing over 145 land resources, to see trends and gaps when it comes to data collection as well as how accessible it is on the world wide web. Ultimately, we hope to improve the overall health of the Ugandan Data & Information Ecosystem on land.

The statement that there is a lack of data is partially accurate: **our scoping exercise shows that 90% key land resources are available as documents, not statistical data.** However, there was no key land category where no knowledge or information was found, suggesting that there is indeed knowledge generated and published, but not (yet) translated to statistical data (where possible). Our research also shows that the knowledge is published online (98%), it is available for free (97%) and largely publicly accessible without requiring registration or identification (95%). The rudimentary access to data and information there seems to be in a very good state in the Ugandan Data and Information Ecosystem, but important to mention is that those resources that are online, free and accessible without barriers are also those most likely to have been identified in our scoping exercise.

Another important caveat to the statement knowledge was found for each key category of land, is that **one third of the resources identified were either dated from before 2010 or were published without a clear publishing date.** This is a significant constraint for these resources to be useful or used. Another important aspect that defines the usability of a resource for a user, is knowing the source of the data or information. The main source of key data and/or information identified in this scoping exercise was the government, accounting for the majority of the resources available. The government, in particular, played a significant role in publishing policies and laws on land and land-based resources. The Uganda Legal Information Institute (ULII), an organization that is part of the Judiciary in Uganda, is a good source for text of laws, but not all the material on the ULII website is up to date. Some other critical pieces of legislation, such as the Access to Information Act, are not posted on this website.

International Organizations and Research Institutions provided a quarter each of the total resources identified in the scoping exercise. Many of their information was found in the form of research documents, reports and presentations, but in not one instance was the raw data on which the research is based, found online. A notable weaker link in terms of information provision, were the (national) **Civil Society Organizations**, which accounted for less than 6% of the total resources identified and provided little information for almost each key category. This is not necessarily because CSOs do not have data, information or knowledge to share, and may well reflect on their poor information sharing practices, and demonstrate the need to improve the discoverability of their perspectives online.

Availability of Data and Information							
Key Category	Data available?	Representation of Sources					Data up-to-date?
		Government	Research Institutions	National CSOs	Int. Organizations	Other	
Land Tenure Data	✗	✓	!	✗	!	✗	!
Land Cover, Use & Management	✓	✓	!	✗	✓	✗	!
Land Disputes	✗	✓	!	✗	!	✗	✗
Human Settlements	✓	✓	!	✗	!	✗	!
Land Markets & Financing	✓	✓	✓	✗	!	✗	✗
Land, Climate Change & Environment	✗	✓	✓	✗	!	✗	!

✓ = good practice ! = room for improvement ✗ = poor practice

On accessibility of key land resources, the Ugandan data ecosystem is not quite in a similar good state. As mentioned, on a basic level (available online, for free and without restrictions), the Ugandan information ecosystem performs well.

When it comes to more sophisticated accessibility, however, the state of the ecosystem is still considerably poor. Less than 30% of the data and information were published with metadata and even fewer made consistent use of standards in their metadata. Not only do these weak data publishing practices make the data and information less discoverable on the web, they also restrict the possible use of the resource. Metadata often contains vital information for a user to determine whether or not the resource is of relevance or of sufficient quality and reliability for them to use.

For other criteria that are intended to promote the use of the data, for whatever purpose, the scores are very low as well. Only 1% of the data and information are available to download in bulk and only 22% of the data providers apply an open license to their data. Even more striking is the fact that well over half (64%) of the data providers do not even specify a license! These criteria are at the very core of the Open Definition. Using, re-applying and building on data and information has an enormous potential and can increase the impact of the knowledge considerably.

Another criteria that supports re-use and modification of data and information, machine readability, hardly met better results, with 25% of the data and information available in machine readable format. Finally, as regards the criteria of the linked web, namely having unique identifiers (URIs) for key elements of data and/or metadata and linking to other URIs, none of the local information providers included this in their data. Of all the key land resources identified in the scoping study, only 1% provided URIs, and those were all global sources.

Accessibility of Data and Information								
Online	No (log in) barriers	Free (unpaid)	Metadata	Standards	Downloadable	License	Machine-readability	(Linked) Data URIs
✓	✓	✓	✗	✗	✗	✗	✗	✗

✓ = good practice ! = room for improvement ✗ = poor practice

Overall, the health of the Ugandan Land Data and Information Ecosystem is scored with 35/100 points. Recommendations to data and information providers in Uganda to increase access to and use of their land data and information, as well as to improve the ecosystem in Uganda overall, are as follows:

- Ensure regular updating of the ULII website so that it provides up to date texts of laws.
- Establish a web-based platform for policy documents similar to ULII to ensure up to date access to policies of government. This can also be done by expanding the mandate and coverage of ULII to include policy documents.
- Support land sector civil society organizations to develop capacity for effectively making their data accessible online and for advocacy to ensure enforcement of the constitutional and legal right of access to information. After further scoping consultations, CSOs data and information provision as reflected in this report may be updated;
- Support the establishment of national level frameworks focused on improving access to land information, bringing together state and non-state actors, to better interface with global other national, regional and global platforms, while also ensuring availability of data at the national level;
- Ensure that raw data that are at the basis of research documents are published alongside the research reports and documentation, to allow others to use, challenge and/or build on findings in research and let data be the basis of open debate;
- Support & enforce data publishing practices to include a minimum set of metadata with each publication, dataset or other type of information published by any type of information providers;
- Support & enforce the use of standards when publishing metadata to promote the usability as well as interoperability of data and information in the Ugandan data & information ecosystem;
- Enable the possibility to bulk download data and information from databases to allow for more meaningful and large-scale use and uptake of the data and information;
- Apply open licenses to published data and information to allow for more meaningful and in depth use, re-use and modification of data and information to increase its impact, and most importantly, consider licensing and publish it along with the data and information;

- Consider the formats in which data (and information) are published, and specifically consider machine-readable formats to allow for greater discoverability of the information as well as application in technologies;
- Apply unique identifiers to key elements of the data to ensure consistent and reference to the data and information, and allows for more efficient exchange within the data ecosystem.

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Annex I

Scoring Chart

For ease of reference and understanding, the various criteria used in availability and accessibility assessments in this study have been collated into three scoring categories highlighted through colors: **✓ indicates a good practice; ! indicates a practice that can be improved; and ✗ indicates a poor practice.** This Scoring Chart highlights for each individual assessment, how a certain scoring category was determined and allocated.

Types of Data Criteria

We assessed per key land category whether or not there is statistical data available. Please find below the scoring:

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Criteria	Scoring Chart
Statistical data is available and accessible, with fewer than 33% of the datasets accessible only after registering or identifying yourself.	✓
Statistical data is available, but more than 33% of the datasets are not accessible without having to register or identify yourself.	!
Statistical data is not available	✗

Representation of Types of Sources Criteria

Per key category of land issues, we highlighted the groups of sources and assessed their contribution to the key resources identified for each respective category.

The following types of data and information providers were grouped together:

- 1 Governmental Institutions;
- 2 Research Institutions (including universities);
- 3 (National) Civil Society Organizations;
- 4 International Organizations;
- 5 Other.

Whenever a data source was an international research institution or international civil society organization, these were grouped under 'international organizations', in order to highlight as much as possible whether a perspective was 'local' or not.

The classification of the representation of these groups for a particular category was done as follows:

Criteria	Scoring Chart
Group accounted for more than 25% of the total resources per category	
Group accounted for between 10% and 24% of the total resources per category	
Group accounted for less than 10% of the total resources per category	

The threshold of 25% for the green score was chosen relatively low to avoid misrepresentation of perspectives and reduce the chance that the scoring of one group is too heavily dependent on the actions of another group. For example, in the event many different groups provided a similar amount of resources per category, the respective percentages of the total would automatically be on the lower side (if all provided the same amount, all would account for 20% of the resources for a category). Similarly, if one group of information providers simply provided an extremely large volume in comparison with the other groups, other groups—even though they might also provide a fair amount of data and information—would rank lower simply because another group increased the total significantly. To allocate absolute number-thresholds was not possible either because that would have been heavily dependent on each category and differ per each country.

Timeliness Criteria

For each key category of information, we assigned a red, orange or green score indicating whether or not the key resources are up-to-date. The scoring based on the findings was done as follows:

Criteria	Scoring Chart
Majority of resources were either not-dated or published before 2010	
Majority of resources were published between 2010 and 2017	
Majority of resources were published since 2018	




Laws, policies and other legal documentation were purposely left out of this assessment, as it is not in the nature of legal documents to be regularly updated.

Accessibility Criteria

To determine the accessibility of the key land resources in Uganda the resources were assessed against the following criteria:

- 1 Online;
- 2 Accessible (no registration or other types of barriers);
- 3 Free (unpaid);
- 4 Metadata;
- 5 Standards;
- 6 Downloadable
- 7 Openly Licensed;
- 8 Machine Readable;
- 9 (Linked) data URIs.

We allocated one score (red, orange or green) for each category, assessing all the key resources identified. The scoring was based on the following criteria:

Criteria	Scoring Chart
Accessibility criteria is met by less than 33,33% of the total key land resources	
Accessibility criteria is met by between 33,33% and 66,66% of the total key land resources	
Accessibility criteria is met by exactly or more than 66,67% of the total key land resources	

Overall Accessibility Score

Not each of the nine accessibility criteria is generally considered of equal importance. Therefore, to accommodate for that fact and provide a general assessment for ease of reference and understanding, an “overall accessibility” score has been given to assess the overall “health of the Data and Information Ecosystem in the country.

Following the Open Data Barometer methodology²⁴, particular weight is given to the criteria Free (3), Downloadable (6), Openly Licensed (7) and Machine Readable (8). Points per criteria along with their associated weight have been incorporated as follows:

Accessibility Criteria	Points if red score	Points if orange score	Points if green score
Online	0	5	10
Accessible	0	5	10
Free	0	5	15
Metadata	0	5	10
Standards	0	5	10
Downloadable	0	5	15
Openly Licensed	0	5	15
Machine Readable	0	5	15
(Linked) Data URIs	0	2	5

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The total score (if all green scores are given) can be 105 points. Based on the scoring per country of the overall accessibility, a subsequent green, orange or red score will be given to the “overall accessibility” of the information ecosystem. This ranking is allocated as follows:

Criteria	Scoring Chart
Total points below 35	
Total points between 35 and 65	
Total points of 65 and higher	



29 World Wide Web Foundation, “Open Data Barometer. Methodology”, consulted website September 2018: <https://opendatabarometer.org/leadersedition/methodology/>







LAND PORTAL FOUNDATION
Postbus 716, 9700 AS
Groningen, the Netherlands

www.landportal.org
contact@landportal.org