Mozambique

State of Land Information in Mozambique

An Open Data Assessment

land portal

About the State of Land Information (SOLI) reports

The **State of Land Information** (**SOLI**) research and reports seek to provide an overview of available government data and information on key land issues. 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 data and information gaps. The research also provides a technical assessment against open data criteria derived from international standards. The reports establish a baseline for targeted interventions to improve the information ecosystem.

Though SOLI reports are independent research products, they may also serve as the first step in the implementation of the Open Up Guide for Land Governance. The Open Up Guide for Land Governance is a tool for national and local government agencies with a mandate for or an interest in making their land governance data open and available for others to re-use. The Open Up Guide is the result of a collaboration between the Land Portal Foundation and Open Data Charter.

About the Land Portal

The **Land Portal Foundation** was established to create, curate and disseminate land governance information by fostering an inclusive, open, and accessible data ecosystem. Over the last decade, the Land Portal has evolved from a simple information gateway to become a knowledge broker, a resource base, a vibrant online community of users and a trusted voice within global land governance.

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Introduction

In Mozambique, the law recognizes certain forms of occupation as constituting legal tenure and nationals can claim this recognition of their right to occupy and use land allocated through customary norms/practices. Local communities can also claim rights over land which they have customarily occupied, used, and managed. These rights are not prejudiced by their lack of titling or documentation and may be defended on the basis of oral testimony. Whilst providing much needed protection of the land rights of the vast majority of Mozambicans, this has also led to a situation in which many land rights remain invisible, and there is little data available on who owns what and where. For most of the 15 years immediately following the **Land Law of 1997,**[1] the cadastral authorities concentrated instead on the much more manageable task of titling land for investors.

This situation changed in 2013, when the President launched a new program of systematic titling of land rights that had been acquired in law by communities and their members. A target was set for 5 million parcels to be registered by 2018. Progress has been slow, and in 2023 less than half of the target has been achieved. Unfortunately, whilst the government has been able to increase registration through deploying the private sector, it has not been able to create capacity for land data information management. Land data and Information in Mozambique is hampered by technical shortcomings, a lack of data integrity and quality and data fragmentation.

For the last 13 years, land information has been actively present in the political agenda. Due to pressure as a result of climate change impacts, agriculture, conflicts and natural resources, land plays an increasingly important role in the country's development. Land registration efforts have taken place sporadically in several parts of Mozambique, but no national effort towards land registration has yet occurred. Other initiatives have focused on collecting information about, for example, natural resources, health facilities or renewable energies potential.

The Government of Mozambique has been increasing its efforts to digitize and share data. Its current challenge is to manage data. Data is not always shared with the public and if it is, it normally becomes out of date due to lack of maintenance. As a reference, two international indexes show where Mozambique stands in term of land information:

In the **Global Data Barometer** Mozambique scored 9/100 in the **land module (2021)**. This compares to a global average of 25/100. Mozambique scored 1/100 for the openness

1 Land Law of Mozambique, 1997. Retrieved on 12 July 2023, from **https://www.crpnt.gov.mz/por/Legislacao/Lei-de-Terras**

of its land tenure data, 17/100 for its land use data and 14/100 for its gender and inclusion uses of data;[2]

Mozambique ranks 151st (out of 195) in the **Open Data Inventory 2022**[3] with an overall score of 37/100. Either globally or compared with the 16 eastern Africa countries, Mozambique appears in a fair position considering its coverage of information, but in a low position according to its openness evaluation.

Although Mozambique is creating digital information, there is not yet a recognized agency to store data centrally and make it publicly available. Several agencies produce and manage data and some of them share data.

This assessment provides a snapshot of land data in Mozambique, describing the main actors that produce data, where data is kept and how to access it. It serves as a guideline for future improvements.

2 Global Data Barometer. Retrieved on 12 July 2023 from **https://globaldatabarometer.org/module/ land/**

3 Open Data Inventory Country Profile for Mozambique 2022. Retrieved on 12 July 2023 from **https://odin.opendatawatch.com/Report/countryProfileUpdated/MOZ?year=2022**

State of Data Governance in Mozambique

Legal Framework on Access to Information

The **Constitution of Mozambique**[4] guarantees access to information as a fundamental right. Article 48(1) states that all citizens have "*the right to information*", and article 48(6) imposes an obligation on the State to regulate this fundamental right through specific legislation. In 2014, the Mozambican parliament adopted the **Law on Access to Information,**[5] which establishes a legal framework for access to information held by public institutions, with a view to ensuring transparency, accountability, and citizens' rights to access government-held information.[6] Mozambique is one of only four southern African states to have adopted an access to information law. Mozambique has ratified the 2014 **African Union's Convention on Cyber Security and Personal Data Protection,**[7] one of only 14 countries to have done so.

As a variety of institutions move towards greater use and management of digital data and assets, the government has been keen to enforce some level of regulation, and in 2017 passed a **Law on Interoperability.**[8] This establishes principles, standards, guidelines and technical-organizational architectures that government institutions must follow. The aim is to ensure that data is shared between and reused by public institutions. The decree creates the basis for electronic governance (which focuses on shared, not open data) and currently is the responsibility of the **National Institute for Electronic Government (INAGE).**[9]

4 Constitution of Mozambique. Retrieved on 24 August 2023 from; **https://www.portaldogoverno.gov.mz/por/content/download/194/1138/version/2/file/constituicao.pdf**

5 Law on Access to Information, 34/2014 of 31st December 2014 [Boletim da República No. 105 - 8th Supp., Series I – 31st December 2014]. Retrieved on 12 July 2023 from; **https://ictpolicyafrica.org/en/document/rexpqqgad5i**

6 The proposal for a law in this regard lay untouched for 9 years and only after much lobbying by civil society did the National Assembly initiate a process of public hearings on the matter.

7 African Union Convention on Cyber Security and Personal Data Protection; Retrieved on 26 September 2023 from; **https://au.int/en/treaties/african-union-convention-cyber-security-and-personal-data-protection**

8 Interoperability Law, Decree 67/2017 of 1st December 2017; [Boletim da República No. 188, Series I – 1st December 2017]. Retrieved on 12 July 2023 from; **https://gazettes.africa/archive/mz/2017/mz-government-gazette-series-i-dated-2017-12-01-no-188.pdf**

9 National Institute for Electronic Government. Retrieved on 26 September 2023 from; **https://www.inage.gov.mz/**

Legal Framework on Access to Land Information

The foundational principles of Mozambique's approach to land governance were established in the National **Land Policy of 1995,**[10] the **Land law of 1997,**[11] and the **Rural Land Law Regulations of 1998.**[12] None of these instruments addressed issues of access to land information or data. However, in November 2022, the Council of Ministers adopted **a new Land Policy,**[13] after almost two years of discussion. Article 45 recognizes the link between good governance of the land and access to information, and article 48 sets out the policy aim of creating the appropriate infrastructure for sharing land data:

"*Good governance of land, as well as its management and administration, also depends on the availability of accurate and up-to-date information on the use and exploitation of land and the exploitation of other natural resources, through the creation of a national infrastructure of accessible and functional spatial data, with a view to facilitating the production, sharing and dissemination, as well as the use of, geospatial data from the national to the local level*".

Article 109(vii) in the implementation strategy section more explicitly identifies specific measures, including the "*implementation of mechanisms that ensure the exercise of the right of access to information of public interest on the legal situation of lands, integrated in the National Land Registry System*". Despite these policy commitments, which depend primarily on the efficient functioning of the cadastral and land registration systems, the current draft of the new land law makes no mention of rights of access to or availability of land data.

Institutional responsibility for land administration and management is fragmented, as shown in Figure 1 below, which provides an overview of key ministries and departments.

Fig 1: Ministries and Departments involved in Land Administration & Land Management

10 Resolution 10/95 of 17th October 1995 (Land Policy) [Boletim da República No. 9 - Supp., Series I – 28th February 1996]. Retrieved on 20 November 2023 from; **https://www.crpnt.gov.mz/por/content/download/6091/43505/version/1/file/Resolucao%2Bn%2B101995%2BPolitica%2BNacional%2BTerras.pdf**

11 Law 19/97 of 7th October (Land Law) [Boletim da República No. 40 - 3rd Supp., Series I – 7th October 1997]. Retrieved on 20 November 2023 from; **https://www.crpnt.gov.mz/por/Legislacao/Lei-de-Terras**

12 Decree 66/98 of 8th December (Rural Land Law Regulations) [Boletim da República No. 48 - Supp., Series I – 8th December 1998]. Retrieved on 20 November 2023 from; **https://www.crpnt.gov.mz/por/content/download/6086/43480/version/1/file/Decreto+661998+Regulamento+da+Lei+de+Terras.pdf**

13 National Land Policy of Mozambique, Resolution 45/2022 of 1st November (Land Policy & Strategy for Implementation) [Boletim da República No. 229, Series I – 28th November 2022]. Retrieved on 26 September 2023 from **https://gazettes.africa/archive/mz/2022/mz-government-gazette-series-i-dated-2022-11-28-no-229.pdf**

The **National Directorate for Land and Territorial Development (DNDT)**[14] is in charge of land cadaster and land use planning. This entity has the legal mandate to maintain a multi-functional land cadaster but has consistently failed to operationalize this. Its own land administration system, the SiGIT, which was designed to help with land titling workflow processes, has absorbed large amounts of public funding but is currently still unavailable.

In the face of the DNDT's inability to provide a spatial data framework for the country, other institutions have stepped into the role, notably the **National Agency for Geo-Spatial Development (ADE)**[15] located within the Ministry of Transport & Communication. The ADE is responsible for promoting Spatial Development Initiatives (SDIs), developing socio-economic analysis tools, and carrying out studies and geospatial planning processes, especially in the Development Corridors. In February 2023 the National Assembly approved **Law 3/2023**[16] that creates the National Spatial Data Infrastructure (IDEMOC). This approval triggers the development of a decree that is expected to provide the technical and administrative guidance to share spatial data with ADE and create a centralized database of all spatial data collected in Mozambique by either the private or public sectors.

Other elements of the multi-functional national cadaster are provided by the **National Sustainable Development Fund (FNDS),**[17] located within the Ministry of Agriculture, but with administrative and financial autonomy. The FNDS manages a range of large-scale projects on land, forest, biodiversity, and carbon, and maintains a geoportal that provides access to data relevant to these projects.

The **National Center for Cartography and Remote Sensing (CENACARTA)**[18] is responsible for cartography production and the global navigation satellite system (GNSS) network. The **National Directorate of Forestry (DINAF)**[19] is responsible for defining and updating norms and procedures on the sustainable management of forest resources, ensuring licensing, inspection, management, protection, research, conservation, and monitoring of the use of forest resources. The **National Statistical Institute (INE)**[20] is the national reference agency for the publication of statistical data from Mozambique, mainly in the economics, territorial and demographic sectors.

The **Real Property Registry**[21] is located within the **Ministry of Justice, Constitutional & Religious Affairs**[22] and was mandated in **2018**[23] to hold data on land and real property.

14 National Directorate for Land and Territorial Development. Retrieved on 26 September 2023 from; **https://www.mta.gov.mz/en/about-us/our-team/**
15 Decree 88/2020 of 7th October (Creation of the National Agency for Geo-Spatial Development) [Boletim da República No. 191, Series I – 7th October 2020]. Retrieved on 26 September from; **https://gazettes.africa/archive/mz/2020/mz-government-gazette-series-i-dated-2020-10-07-no-191.pdf**
16 Law n3/2023. Retrieved on 17 October 2023 from: **https://www.inm.gov.mz/pt-br/content/assembleia-da-rep%C3%BAblica-br-n%C2%BA-58-de-240323-boletim-da-rep%C3%BAblica-i-serie-p%C3%A1g-633**
17 National Sustainable Development Fund. Retrieved on 26 September 2023 from; **https://fnds.gov.mz/**
18 National Center for Cartography and Remote Sensing (CENACARTA). Retrieved on 12 July 2023 from; **https://www.mta.gov.mz/en/about-us/our-team/**
19 National Directorate of Forestry (DINAF). Retrieved on 12 July from; **http://www.dinaf.gov.mz/**
20 National Statistical Institute (INE). Retrieved on 12 July 2023 from; **https://www.ine.gov.mz/**
21 Real Property Registry. Retrieved on 12 July 2023 from; **http://sirp.registos.gov.mz:8099/?nav=1HnzDn5Y**
22 Ministry of Justice, Constitutional & Religious Affairs. Retrieved on 12 July 2023 from; **http://www.mjcr.gov.mz/**
23 Land Registry Code. Retrieved on 28 September 2023 from; **http://marracuene.pmaputo.gov.mz/docs/Diplomas/Codigo%20de%20Registo%20predial%202018.pdf**

Under this decree, land rights and buildings became objects of compulsory registration. While a digital register has been created, to date no data has been made available online.

At a decentralized level, Mozambique has 65 municipalities with the autonomy to manage land within their jurisdictions with ministerial technical guidance. While these municipalities have responsibility to create and make available land administration data, to date few have a consistent land cadastral register.

State of Land Data and Information in Mozambique

This section assesses the completeness of land data and information in Mozambique across five categories: legal framework, land tenure, use, development, and value. It assesses the completeness of the information and scores the data as being fully, partially, little, or not complete.

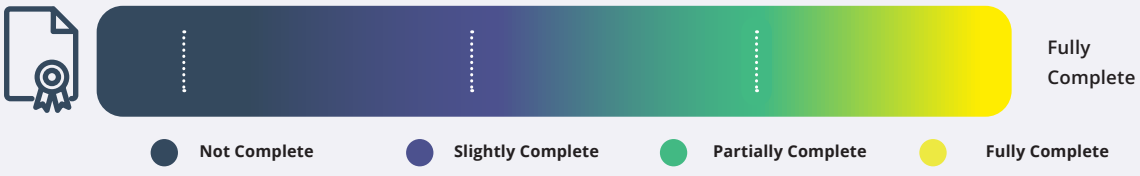
Since 2010 there has been a sustained focus from the Mozambican government on surveying and titling community areas and household parcels (good faith and customary occupation) across the country. In 2013, the government launched the "*Terra Segura*" (Secure Land) program, which aims to survey and register five million household land rights titles and four thousand community lands. Terra Segura seeks to diffuse land legislation, unify land administration procedures in the country, develop land use plans for selected districts and create a Land Information Management System. Over the past 10 years, most land projects have been channeling efforts to support this goal of the government.

With considerably more land data being generated, the need to develop data management capacity within the DNDT became more urgent. Until 2013, data on land holdings and land taxes were managed at provincial level in a variety of spreadsheets or standalone databases. None of the attempts to integrate and harmonies data management, including by the World Bank, have had any lasting impact.

Completeness of Legal and Policy Framework Information on Land

All of Mozambique's bibliographic legal and policy framework information relating to land is available online and **freely downloadable in PDF format.**[24] It is published by several separate entities. **Mozambique scores 100 for the completeness of its legal and policy land information.**

Legal and Policy Data and Information on Land: Fully Complete (100)

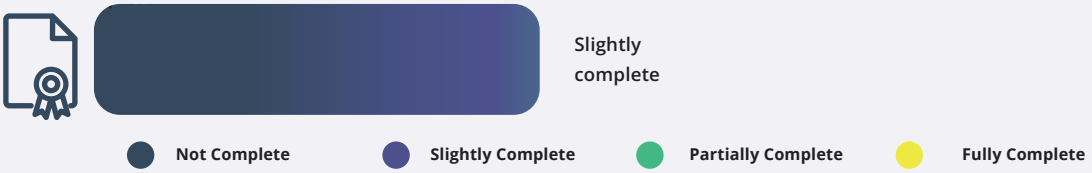


24 Gazettes. Africa. Retrieved on 28 September 2023 from; **https://gazettes.africa/**

Completeness of Land Tenure Data

Land tenure data in Mozambique is only slightly complete. The available data on parcel boundaries and rights registers is mostly not online. Informal land rights are only partially documented. The MADICO initiative to make community land rights publicly accessible, was launched on 13 November 2023 and is now public. **Mozambique scores 22 for the completeness of its land tenure data.**

Land Tenure Data: Slightly Complete (22)



Since 2013, as a central part of the MCC's first compact with Mozambique, there has been a sustained effort to design and deploy an Information Management System (SiGIT). However, due to design flaws, the deployment of expensive proprietary software and complex procurement processes, SiGIT has consistently faced serious constraints and has eventually proved to be too expensive and technically difficult to maintain.[25] In the latest restructuring of the MozLand project and given time constraints, the World Bank is now focusing only on renovating DINAT's data center, addressing critical SiGIT performance issues, and centralizing the SIGIT ICT infrastructure. Its indicators have changed from;

"*SiGIT is upgraded, operational and available to use, including a Web Portal that enables public access to the national land cadaster data*" to "*SiGIT is deployed and operational on the centralized ICT infrastructure at the renovated DNDT Data Center*".

The World Bank also supported a national network of organizations (ReGeCom) to design and launch a **platform**[26] that aimed to improve decision-making processes by sharing information on community lands, governance, economy, conservation and disasters. The intention appeared to be to get communities themselves to engage in data collection and for the platform to act as a portal for analyzing and sharing the results. Since its launch in late 2021, it has never been updated and is not used.

The **MADICO Geoportal**,[27] hosted by the Ministry of Land and Environment and developed by **Terra Firma**,[28] makes community land tenure rights information and documentation available online to the public. It currently contains records on more than 2,000 community delimited land areas. It is also a digital repository for important official documents that form part of the community land rights processes. A system is in place to ensure the

25 For a description of the design and challenges of the SiGIT system see the paper presented at FIG Congress. (2018) Retrieved on 28 September 2023 from; **https://www.fig.net/resources/proceedings/fig_proceedings/fig2018/papers/ts04g/TS04G_balas_joaquim_et_al_9582.pdf**

26 ReGeCom. Retrieved on 25 August 2023 from; **https://cadasta.maps.arcgis.com/apps/dashboards/af2824afbb114b15b46c043cd7f02fae**

27 Geoportal MADICO. Retrieved on 25 August 2023 from; **https://madico.terrafirma.co.mz/ or http://madico.dndt.gov.mz/**

28 Terra Firma. Retrieved on 25 August 2023 from; **https://www.linkedin.com/company/terra-firma-limitada/**

updating of data generated through new land delimitations, and to undertake a form of crowdsourcing for missing data. It seeks to mobilize collaborators to update the system and build a complete digital public register of community lands. Users are able to download all data, and to create content based on that data (GeoStories, dashboards, maps, etc.).

The **Monitoring, Reporting and Verification Unit**[29] of the FNDS makes available data on parcels and community lands completed on the **FNDS platform,**[30] which are a subset of the national level data, since data available is the result of projects funded by FNDS. **ADE**[31] publishes census population data (1997 and 2007) generated by the GRID3 program via their MozGis platform and spatially enabled data for towns and the lowest level administrative divisions (*posto administrativo*). Both layers are available for download and via API connections. Both FNDS and ADE publish spatial data on utilities, such as roads. In some cases, the spatial data published in one (railways, for example) doesn't correspond to the data in the other. As reliable metadata is almost completely absent, the source of data, or the moment that data was produced or updated, is unknown. Users can download data from both geoportals or use API connections. Natural resource and environmental data such as comprehensive data about national conservation areas or hunting concession areas, is found mainly in the FNDS and ADE geoportals. They hold limited data on forestry concessions and timber exploitation licenses (for one province).

At municipality level, there are a wide variety of analogue land data systems; digital land cadastral systems are very rare. While the rural Terra Segura program has a strict focus on land titles, other projects, especially in municipal areas, prefer to survey all land in a specific area, even if some parcels do not meet urban land planning regulations and cannot be titled due to their informal nature. Those registers are kept in different databases and platforms due to technical issues with the National Land Information System, are rarely shared with the national level institutions, and none are publicly available.

In a partnership between **Trimble**[32] and **Ministry of Mineral Resources and Energy,**[33] the **Mozambique Mining Cadaster Portal**[34] launched in 2013, contains comprehensive data on mining licenses and concessions, hydrocarbon extraction blocks and conservation areas. Downloads or connections through an API are not possible. While the site states that it is frequently updated, an analysis of the attributes of the layer on mineral exploration licenses reveals that many have already expired. The ADE and FNDS publish the data from the Mining Cadaster via their geoportals, but there is no real time link, and their displayed data is less complete than in the Mining Cadaster.

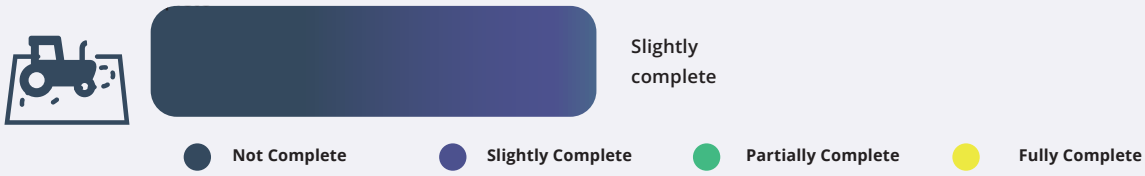
29 Monitoring, Verification and Reporting Unit. Retrieved on 25 August 2023 from; **https://fnds.gov.mz/mrv/**
30 Geoportal. Retrieved on 25 August 2023 from; **https://www.arcgis.com/apps/webappviewer/index.html?id=1e201cf974584b38ac5dd92b005c99ae**
31 ADE Geoportal. Retrieved on 25 August 2023 from; **https://www.mozgis.gov.mz/portal/apps/webappviewer/index.html?id=fd60a4ae640f4f2590da3976b3fca314**
32 Trimble. Retrieved on 25 August 2023 from; **https://www.trimble.com/en**
33 Ministry of Mineral Resources and Energy. Retrieved on 25 August from; **https://mireme.gov.mz/**
34 Mozambique Mining Cadastre Portal. Retrieved on 25 August 2023 from; **https://portals.landfolio.com/mozambique/pt/**

Bibliographic information about conservation areas and issues in Mozambique can be found in the **National Administration of Conservation Areas.**[35] Updating the geoportals is infrequent, for example, the **forest geoportal**[36] has not been updated for 7 years.

Completeness of Land Use Data

Land use data is only slightly complete. The government makes a variety of land use and land cover datasets available. While there is no public land inventory, land use classes and data on these classes is made partially available. **Mozambique scores 33 for the completeness of its land use data.**

Land Use Data: Slightly Complete (33)



In Mozambique land cover and land use data is interchangeable and data layers may include data on both. **FNDS**[37] has the most up to date (2016) land cover map, available for download and use through its API (even if only in raster mode). FNDS also monitors deforestation and makes this data available as shown **here,**[38] as well as deforestation data sourced from Global Forest Watch. Key Biodiversity Areas (KBAs) in Mozambique are **detailed**[39] in publications and their spatial data made available on the **FNDS Geoportal.**[40]

DINAF[41] is in charge of defining and updating standards and procedures on the sustainable management of forest resources. Under the **National Forest Monitoring System,**[42] DINAF and partners have produced and published information on **Forest Cover in Mozambique.**[43] Deforestation information, including alerts produced by Global forest Watch, can be viewed as a map (API to raster) on the **dashboard.**[44] DINAF also maintains a Forest Information System (SIF), a digital platform for the management of forest resources. Its main objective

35 National Administration of Conservation Areas. Retrieved on 25 August 2023 from; **https://www.anac.gov.mz/**
36 Forest Geoportal. Retrieved on 25 August 2023 from; **https://www.dinaf.gov.mz/portal/apps/webappviewer/index.html?id=50a3bb08558e4a06a5b3453866ee1af7**
37 FNDS Geoportal. Retrieved on 25 August 2023 from; **https://www.arcgis.com/apps/webappviewer/index.html?id=1e201cf974584b38ac5dd92b005c99ae**
38 Land cover maps. Retrieved on 25 August 2023 from; **https://www.fnds.gov.mz/mrv/index.php/documentos/outros-documentos/53-apresentacao-da-unidade-mrv-no-evento-da-dinab/file**
39 Key Biodiversity Areas. Retrieved on 25 August 2023 from; **https://mozambique.wcs.org/Initiatives/Key-Biodiversity-Areas-KBAs.aspx**
40 FNDS Geoportal. Retrieved on 25 August 2023 from; **https://www.arcgis.com/apps/webappviewer/index.html?id=1e201cf974584b38ac5dd92b005c99ae**
41 National Institute of Forest in Mozambique. Retrieved on 25 August 2023 from; **http://www.dinaf.gov.mz/**
42 National Forest Monitoring System. Retrieved on 25 August 2023 from; **https://www.dinaf.gov.mz/portal/apps/sites/#/frip-contents/pages/monitoring-en**
43 Forest cover in Mozambique. Retrieved on 25 Aug 2023 from; **https://www.dinaf.gov.mz/portal/apps/webappviewer/index.html?id=50a3bb08558e4a06a5b3453866ee1af7**
44 Deforestation Dashboard. Retrieved on 25 August 2023 from; **https://www.dinaf.gov.mz/portal/apps/opsdashboard/index.html#/ec8916bbd4384bc7bd18af95c03a9c8b**

is to facilitate the administration of forest resources through a set of functionalities that are also accessible on a web browser/browser and mobile application (smartphone).[45] The functionalities are grouped into main modules (Licensing, Sustainability, Monitoring, Planning and Community Management) and complementary modules (Administration, Descriptive Cadaster and Command and Control). Log in credentials are required, and can be requested; however, several requests submitted to the address provided have not been answered.

The National Centre for Cartography and Remote Sensing (CENACARTA) has base cartography dated from the 1990s in two main scales: 1/250K and 1/50k. CENACARTA can produce base or specific cartography by request. In 2016, it mapped base cartography at the scale of 1/25k for a specific area in the Vale do Zambeze (center/north of Mozambique). The GNSS permanent station network and data of observations and beacon coordinates can be purchased from them offline. Some material can be acquired directly, whilst other material requires written requests explaining the reason for the purchase.

The National Water and Sanitation Information System (**SINAS**[46]) was promoted by **National Directorate of Water Supply and Sanitation,**[47] under the Ministry of public works, housing and water resources. It is designed to cover the entire water supply and sanitation area of Mozambique, based on a collection and management of data at the local level. The Mozambican **Energy Fund,**[48] under the **Ministry of Mineral Resources and Energy**[49] produced between 2011 and 2013 an exhaustive study on hydro, wind, solar, biomass/USR, geothermal and maritime resources throughout the country. It assessed and characterized the potential for electricity generation of each resource and identified several hundred projects which it studied in terms of technical and economic pre-feasibility. Its **ATLAS**[50] of Renewable Energies of Mozambique, available for purchase, sets out the potential areas for each resource. Data can't be downloaded.

The SIBMOZ is part of the global information exchange network established under the Convention on Biological Diversity CBD (Clearing House Mechanism - CHM) with the goal of providing access to information and data. This **portal**[51] is hosted at the Ministry of Land and Environment and was developed between 2021 and 2022 through a partnership between the National Directorate of Environment, under the Ministry of Land and Environment, the Wildlife Conservation Society (WCS), which developed the concept with support from USAID's SPEED program, and UNEP-WCMC which funded and elaboration of the portal through the CONNECT project. The portal centralizes technical information, policy, strategies, legal framework, and partners working in the area of biodiversity. The information is made available in the form of reports, published documents, databases, interactive maps, photographs, among others. The SIBMOZ establishes links with several complementary platforms from various partners, thus constituting a true portal for all validated biodiversity information for the country.

45 DINAF Web Application. Retrieved on 4 October 2023 from; **https://sif.dinaf.gov.mz/login**
46 National Water and Sanitation Information System. Retrieved on 25 August 2023 from; **https://www.sinasmz.com/lizmap/lizmap/www/index.php/view/**
47 National Directorate of Water Supply and Sanitation, Retrieved on 25 August 2023 from; **https://www.dnaas.gov.mz/index.php**
48 Energy Fund. Retrieved on 25 August 2023 from; **https://funae.co.mz/**
49 Ministry of mineral resources and energy. Retrieved on 25 August 2023 from; **https://mireme.gov.mz/**
50 ATLAS of Renewable Energies of Mozambique. Retrieved on 25 August 2023, from; **https://atlas.funae.gestoenergy.com/#**
51 SIBMOZ. Retrieved on 25 August 2023, from; **https://sibmoz.gov.mz/**

Completeness of Land Development Data

There is no online land development data in Mozambique. Any existing data on land consolidation, exchanges, tracking, monitoring, and enforcing land use permits, compliance with and effectiveness of land development measures, number of expropriations, compensation of expropriation, possible historical land justice and restitution of rights is not available. Several levels of national, regional, and local development plans have been developed but are also offline. **Mozambique scores 4 for the completeness of its land development data.**

Not complete

Not Complete Slightly Complete Partially Complete Fully Complete

Land Development Data: Not Complete (4)

Available online in pdf format is the National Territorial Development Plan (PNDT), approved in November 2021, and defining the norms to guide land use and priorities interventions at national level.

The following levels of land development planning and plans in Mozambique are offline:

National level, with long term perspective:

- PEOT - Special Land Planning Plan for two specific areas, also approved in November 2021 (Vale do Zambeze and Ilha de Kanyaka including an area from Matutuíne district), are instruments that establish the parameters and conditions for the use of zones with spatial, ecological, economic, and interprovincial continuity.
- POEM - the Maritime Spatial Plan, the main strategic instrument for plans within maritime space, which establishes general guidelines for the use of marine resources and coastal ecosystems.

Regional level, produced these days in a sporadic way, in the context of a development project or by request:

- PPDT - Provincial Territorial Development Plan
- PDUT - District Land Use Plan

Urban level, produced by each municipality as needed and/or conditions to finance:

- PEU - Urban Structure Plan
- PGU - General Urbanization Plan
- PPU - Partial Urbanization Plan
- PP - Detail Plan

Several land management plans in Mozambique have been drawn up by consulting companies and government institutions. **Some**[52] of these management plans, mainly for conservation areas and natural resources, are available online. They establish guidelines and strategies for sustainable natural resources use and management in a given area. Provincial land use plans can be found in national or provincial departments. Information can be acquired for free, in paper or digital (PDF) format. At municipality level, when it exists, information might be in paper or digital format. Some municipalities don't update their instruments for a long time.

There is no public land inventory in Mozambique.

The National Statistics Institute **INE**[53] publishes statistics on demographics, housing, characterization of each district and sector by theme. Data can be downloaded either in EXCEL or PDF format, with basic administrative boundaries and spatial reference. It is also possible to explore data through platforms such as **Open Data For Africa**[54] or by accessing the National Statistics **dynamic database.**[55]

No resettlement data was found online for Mozambique, despite **Decree 31/2012**[56] on resettlement, due to economic activities. This legislation requires urgent review to face the current challenges in the country. The Resettlement Policy Framework **(QPR)**[57] was developed for the Sustainable Rural Economy Program project (SREP), and establishes the principles of resettlement and compensation arrangements for the project.

IOM[58] provides various information on Internally Displaced Persons (IDP's) which, even if not directly related to expropriation, can be an indicator for people's vulnerability on land rights. No information is available at a national level about land disputes. The **Dialogue and Complaints Mechanism**[59] (DCM) is a system set up to answer questions, clarify issues, and resolve problems and complaints from people affected by the activities of the FNDS projects. Some statistics can be viewed, but not downloaded, using filters of time, province, and project.

Completeness of Land Value Data

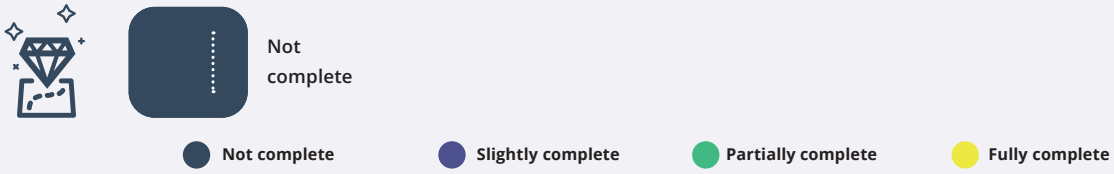
Land in Mozambique belongs to the Government and is not available for sale or mortgage. There are, however, some options for transmitting land use rights, covering:

52 Biofund digital library. Retrieved on 25 August 2023 from; **https://www.biofund.org.mz/biblioteca-virtual/**
53 The National Statistics Institute. Retrieved on 24 August 2023 from; **https://www.ine.gov.mz/web/guest**
54 Open Data for Africa. Retrieved on 24 August 2023 from; **https://mozambique.opendataforafrica.org/**
55 National Statistics Database. Retrieved on 28 September 2023 from; **http://41.94.86.11/Censo2017/pxweb/pt-PT/?rxid=e5c48be5-440e-438f-b5ac-67bfe9846e99**
56 Regulamento sobre o processo de reassentamento resultante de atividade económica de Moçambique. Retrieved on 28 September 2023 from; **https://www.landportal.org/node/61661**
57 Resettlement Policy Framework. Retrieved on 25 August 2023 from; **https://documents1.worldbank.org/curated/en/910561617046689650/pdf/Resettlement-Framework-Sustainable-Rural-Economy-Program-P174002.pdf**
58 IOM. Retrieved on 25 August 2023 from; **https://mozambique.iom.int/data-and-resources**
59 Dialogue and Complaints Mechanism. Retrieved on 25 August 2023 from; **http://sismdr.fnds.gov.mz/fnds/**

- **Inheritance**: Land use rights can be passed *causa mortis*;
- **Sale of infrastructures**: The infrastructure built on land with a valid right to use can be sold, and the land use right can be transmitted.

It is commonly recognized in Mozambican society that there are land transactions, but all are done in an informal way. There is no formal process for collection or publishing information on land values or tax charges. **Mozambique scores 3 for the completeness of its land value data.**

Land Value Data: Not Complete (3)



In Mozambique, most residents access land through either obtaining infrastructures (so the land right passes consequently) or in the informal market which recognizes existence but does not regulate. Thus, the cumbersome process of obtaining land constrains the development of an open and transparent formal land market and makes the tax collection system more difficult.

Fees and taxes as described in the law for **rural areas**[60] (updated in 2020) specify the value of land use rights, based on the process to acquire the right, land use and land size, for example. For urban areas, specific **legislation**,[61] created in 2008, defines the type of taxes to be charged in municipal areas.

Despite the publication of due taxes related to land by law, there is no periodic report on either the level of compliance or the amount collected. Some information is released sporadically, but with insufficient detail to allow an accurate validation.

Other Relevant Land Data Types

This chapter covers relevant data that is not produced directly by governmental institutions, such as data produced or published by international or national entities, some in partnership with Mozambican governmental entities, that are a useful complement when national governmental data might be lacking.

The Geo-Referenced Infrastructure and Demographic Data for Development (**GRID3**[62]) program works with countries to generate, validate, and use geospatial data on population, settlements, infrastructure, and boundaries. GRID 3 **published**[63] important data on

60 Fee and taxes on rural land. Retrieved on 25 August 2023 from; **https://gazettes.africa/archive/mz/2020/mz-government-gazette-series-i-dated-2020-09-14-no-176.pdf**
61 Urban areas legislation. Retrieved on 25 August 2023 from; **https://www.anamm.org.mz/index.php/gestao-de-conhecimento/legislacao?task=document.viewdoc&id=34**
62 GRID3. Retrieved on 25 August 2023 from; **https://data.grid3.org/**
63 GRID 3 data on settlements and population. Retrieved on 25th Aug 2023 from; **https://grid3.maps.arcgis.com/apps/webappviewer/index.html?id=ef52a2367dd445aebfb8a0399c96efe5**

settlements and population, in partnership with **WorldPop**[64] that resulted in a gridded population estimate at a 100x100m resolution based on **INE**[65] statistics and satellite imagery. This data is available for download.

Some relevant data from Mozambique can be found through **Arcgis hub,**[66] published by several actors, like WWF or FAO. Examples include data on mangroves and other ecosystems, health data, or a variety of social indicators. Data can be sourced in a variety of formats, such as feature layers, raster or web maps, webpages, or pdf, for example.

Relevant data published by the World Bank about **Mozambique**[67] includes many statistics and indicators. Download of some data is available, mainly in EXCEL or XML formats. Born from a partnership between the Italian Agency for Development Cooperation, UEM and MITADER, **BioNoMo**[68] provides research-grade primary biodiversity **data**[69] from leading national universities, research centers, and conservation areas. Data can be accessed by WMS services. Resolve (an NGO that engages stakeholders on a variety of social, health, and environmental challenges) maintains data on biomes and ecoregions **on their portal.**[70] A web feature service[71] is available for API and download of shapefiles.

The **Forest Landscape Integrity Index**[72] integrates data on observed and inferred forest pressures and lost forest connectivity to generate the first globally-consistent, continuous index of forest integrity as determined by degree of anthropogenic modification. Data available, after filling in a form, in raster format. **Copernicus Global Land Service**[73] provides land cover maps representing spatial information on different types (classes) of physical coverage of the Earth's surface, e.g. forests, grasslands, croplands, lakes, wetlands. Dynamic land cover maps include transitions of land cover classes over time. Land use maps contain spatial information on the arrangements, activities and inputs people undertake in a certain land cover type to produce, change, or maintain it.

Digital Earth Africa[74] provides a routine, reliable and operational service, using Earth observations to deliver decision-ready products. The **Digital Earth Africa (DE Africa) Map**[75] is a website for map-based interaction with DE Africa products and services. Through the map, users have tools to explore data and products and visualize the African continent with satellite images to understand its geographic diversity and how it changes through time.

The SADC Groundwater[76] Information **Portal**[77] (SADC-GIP) is a platform for sharing

64 WorldPop. Retrieved on 25 August 2023 from; **https://wopr.worldpop.org/**
65 INE. Retrieved on 25 August 2023 from; **http://www.ine.gov.mz/iv-rgph-2017**
66 Arcgis hub. Retrieved on 25 August 2023 from; **https://hub.arcgis.com/search?q=Mozambique**
67 WB data for Mozambique. Retrieved on 25 August 2023 from; **https://data.worldbank.org/country/mozambique**
68 BioNoMo. Retrieved on 25 August 2023 from; **http://www.secosud2project.com/the-5-components/biodiversity-network-of-mozambique/**
69 BioNoMo data. Retrieved on 25 August 2023 from; **https://maps.openscidata.org/index.php/view/map/?repository=bionomo&project=Bionomo**
70 Resolve Portal. Retrieved on 28 September 2023 from; **https://ecoregions.appspot.com/**
71 Resolve Eco Regions and Biomes. Retrieved on 4 October 2023 from; **https://www.arcgis.com/apps/mapviewer/index.html?layers=37ea320eebb647c6838c23f72abae5ef**
72 Forest Landscape Integrity Index. Retrieved on 25 August 2023 from; **https://www.forestlandscapeintegrity.com/**
73 Copernicus Global Land Service. Retrieved on 25 August 2023 from; **https://land.copernicus.eu/global/products/lc**
74 Digital Earth Africa. Retrieved on 25 August 2023 from; **https://www.digitalearthafrica.org/**
75 Digital Earth Africa (DE Africa) Map. Retrieved on 25 August 2023 from; **https://maps.digitalearth.africa/**
76 SADC Groundwater. Retrieved on 25 August 2023 from; **https://sadc-gmi.org**
77 Portal SADC-GIP. Retrieved on 25 August 2023 from; **https://sadc-gip.org/**

groundwater-related data and information in the SADC region. It includes the maps from the 2010 SADC Hydrogeological Mapping project (SADC-HGM), among others. Organizations and individuals are invited to register and share relevant groundwater data and information in the SADC-GIP. **Restor**[78] brings transparency, connectivity and ecological information to restoration and conservation initiatives around the world. The Restor platform is easy to use, and the information is based on the best quality science and technology available.

Esri initiated its GeoPortal Program in 2018, focusing on investing in the people, businesses, and governments of the **African**[79] continent to foster an inclusive mapping community. By offering geospatial cloud infrastructure, free tools, and access to open data science libraries, the program paves the way for capacity development and the education of future leaders. It includes some information about Mozambique.

78 Restor. Retrieved on 25 August from; **https://restor.eco/**
79 Africa GeoPortal. Retrieved on 25 August 2023 from; **https://www.africageoportal.com/**

Open Data Compliance Assessment in Mozambique

Mozambique's SOLIndex Score

State of Land Information (SOLI) reports assess and score the completeness and openness of the information about a country's legal framework for land governance, its land tenure data, land use data, land development data and its land value data. The report examines each land data type in detail, identifying which elements are available in a digital format, how these comply with international open data criteria and assesses their completeness and openness. From these results a country's SOLIndex score is calculated. Mozambique has a **completeness score (CS) of 31** and an **openness score (OS) of 37**. **The overall SOLIndex score for Mozambique is 11.6** (31CS x 37OS)/100.

Detailed SOLIndex Scoring Results

Completeness Scoring

SCORE	DESCRIPTION
3	All land legislation, tenure, use, development, or value data is digital
2	A substantial amount of land legislation, tenure, use, development, or value data is digital.
1	Little land legislation, tenure, use, development, or value data is digital
0	No land legislation, tenure, use, development, or value data is digital

Completeness Results

COMPLETENESS SCORES FOR EACH LAND DATE TYPE	CS SCORE	CS %
How complete is the digital legal and policy framework?	*6/6*	100
How complete is digital land tenure data	6/27	22
How complete is digital land use data	4/12	33
How complete is digital land development data	1/27	4
How complete is digital land value data	1/36	3
Total land data completeness score		**32%**

Openness Scoring

Ten open data criteria are used to assess the openness of land data across each of the five land data types. These criteria are drawn from the methodologies used by the **Open Data Index**[80] and the **Open Data Barometer**.[81] For each criteria and each land data types the following openness scoring system is used:

SCORE	DESCRIPTION
3	The digital data meets all or most of the open data criteria
2	The digital data meets more than half of the open data criteria
1	The digital data meets few of the open data criteria or there is digital land governance
0	There is no evidence of digital or open data

Table 1 presents the open data assessment for Mozambique.

80 2016/2017 Global Open Data Index methodology. h**ttps://index.okfn.org/methodology/**

81 Open Data Barometer Methodology, 4th ed 2016. Retrieved on 17 August 2023 from; **https://opendatabarometer.org/4thedition/methodology/**

Table 1: Overall score of the Open Data Compliance Assessment for Mozambique

	Legal	Land Tenure	Land Use	Land Development	Land Value	Overall Score	Index Score
Online	Fully online	Partially online	Partially online	Slightly online	Not online	**Not online**	**53**
Accessible	Fully accessible	Partially accessible	Partially accessible	Slightly accessible	Slightly accessible	**Not accessible**	**60**
Free	Fully free	Fully free	Fully free	Partially free	Slightly free	**Not free**	**80**
Timely	Partially timely	Slightly timely	Slightly timely	Slightly timely	Slightly timely	**Not timely**	**40**
Metadata	No use of metadata	Slight use of metadata	Slightly use of metadata	Slightly use of metadata	No use of metadata	**No use of metadata**	**20**
Standards	No use of standards	Partial use of standards	Slight use of standards	No use of standards	No use of standards	**No use of standards**	**27**
Downloadable	Partially downloadable	Slightly downloadable	Slightly downloadable	Slightly downloadable	Slightly downloadable	**Not downloadable**	**40**
Open License	Full use of open license	No use of open license	No use of open license	No license mentioned	No use of open license	**No use of open license**	**20**
Machine Readable	Not machine readable	Partially machine readable	Partially machine readable	Not machine readable	Not machine readable	**Not machine readable**	**27**
Linked Data	No use of URI	Slight use of URI	No use of URI	No use of URI	No use of URI	**No use of URI**	**7**
Overall	Partially open	Partially open	Slightly open	Slightly open	Not open	**Not open**	
Percentage	**53**	**50**	**47**	**23**	**13**		**37**

Criteria 1: Online

The effort to publish data online is visible in Mozambique. Whether by government or private initiative, in recent years there has been an increase in the number of websites providing land-related information. Information on legislation is widely available on various sites.

Spatial information is usually published under specific initiatives and not with the intention of publishing the topic in a comprehensive way at a territorial level. Scattered initiatives from various sources publish land-related information, such as the renewable energy atlas or the mining cadaster. There is still no website that brings together the various types of land information.

Criteria 2: Accessibility

Most of the information online is easily accessible, apart from a few cases where registration is compulsory. With the exception of one site, registration is free. In some cases, the information can be accessed without registration, but if the users register, they can access more information/tools.

Criteria 3: Free

With exception of LEXLINK,[82] all websites are free to use. In some cases, as referred in the previous item, registration might be required, but is free of charge. Registration in ADE Geoportal needs a previous agreement that might involve costs.

Criteria 4: Timeliness

In terms of legislation, you can access the most recent documents, even if, for example, the land law dates back to 1997. As far as spatial information is concerned, it seems that in Mozambique, unfortunately, the effort to launch the data online initially has not continued with respect to updating the information. There are data from different dates that need to be updated. According to this assessment, some of the sites update their information only sporadically.

Criteria 5: Metadata

As almost all the resources identified had the minimum metadata, as individual items they fully met this criterion. However, as the amount of information available tends to be low, the overall metadata score is "*Slight use of metadata*".

Criteria 6: Standards

Most of the available data for download is in a standard format, and with respect to spatial data, the preferred formats are the proprietary ESRI shapefile product and OGC formats like WMS or WFS.

Criteria 7: Downloadable

All online legislation materials can be downloaded. Only one site requires a fee. In terms of spatial data, several resources are available for download or API connection.

Criteria 9: Machine Readability

Legal information is accessible by pdf or image, as these are old scans of documents.

82 LEXLINK, retrieved on 4 October 2023 from **https://www.lexlink.eu/legislacao/mocambique**

Neither of these formats is machine readable. Most of the machine-readable information refers to spatial information, with a prevalence in the use of shapefiles, GDB, or web services such as WMS and WFS. Some information is available via EXCEL or CSV.

Criteria 10: Uniform Resource Identifiers (URI)

For those land data sources found online, only one resource included a URI. It is MADICO geoportal and URI was created to uniquely identify each community.

Overall Open Data Compliance Assessment

The openness of data and information in Mozambique is rated as "**Slightly Open**" with a score of 37 out of 100. (37/100).

Legislation and key documents in the land sector are available online and are downloadable. There has been an effort from the government (and some private companies) to make data available online as evidenced by the increased publication of data and information online, most of which is downloadable, including the use of APIs.

Some of the information available online is the result of one-off initiatives or projects and is often restricted in terms of area, period, or content according to that purpose. Most of the available data is out of date and is not maintained. Metadata exists on most sites but is very scarce in terms of the volume of information.

All spatial data is accessible in machine-readable formats and accepted by spatial information standards (shapefiles and tiff) and open standards (WMS and WFS).

Conclusions

Mozambique has taken steps to make the government actions more transparent, gradually achieving occasional successes. Despite the many challenges that remain, progress has been made in recognizing that access to information is a key pillar in reforming governance. Overall land data and information in Mozambique is found to be **slightly open**. However, the research has documented ongoing initiatives for more open publication of data and with a score of 31 for the completeness of its land data and 37 for the openness of its land data, there are significant opportunities and momentum for improving the volume of data published as well as making technical improvements to support existing data availability.

Developing Legislative Framework

Access to information is a fundamental right in Mozambique's constitution and enabled in law through the right to information legislation. As a result, there is ongoing effort from the government (and some private companies) to make data available online as evidenced by the increased publication of data and information online. Mozambique has also ratified the African Union's Convention on Cyber Security and Personal Data Protection and passed a law on Interoperability to improve use and management of digital data and assets.
The new land policy reinforces positive aspects such as the sharing of information and the creation of a national cadaster system. The next steps are to ensure that these principles are embedded in a new land law and that a new system will make land data publicly available.

Full Publication of Legal and Legislative Data

Legislative and policy information in Mozambique is accessible online. There are currently several ongoing revisions to the legal framework for the land sector, in particular the land policy (published at the end of last year), the land law and legislation on land use planning. Information on land is somewhat dispersed, currently covering four ministries. While this is understandable it may result in some legislation being overlooked for publication or for duplicate versions or older versions of some legislation being published on the different websites and portals. There is an opportunity to work with **African Legal Information (AfricanLII)** to publish all Mozambican legislation in open formats.

Increased Publication on Data Portals

An innovative **Geoportal**[83] was launched with the aim to publish spatial information and the documentary archive (in digital format) of community land in Mozambique. This first effort to publish information in the context of land rights on a large scale takes advantage of the constitution's support for defending the right to information and recognizes the land law's advocacy for a land registry. Other land rights have yet to be published.

83 MADICO GEOPORTAL. Retrieved on 27 November 2023 from; **http://madico.dndt.gov.mz**

Little Publication of Land Use Data

While some land use data is being published, many shortcomings could be addressed. More than 600 land use plans have been prepared in Mozambique, but only six are approved and none are published online. Land use data is often out of date and not consistently published. Also, the data published on land uses (land, water, energy, mining) often relates to one-off initiatives/projects. If these are not continued, this data risks becoming obsolete with little application or further use by the government or the public for land governance.

No publication of Land Development Data

Mozambique has very few land development plans. When they do exist, they are mostly in paper or PDF format. These instruments are crucial for addressing the huge challenges on land requests in Mozambique in the past years, for example, in renewable energies, mining resources, climate change effects and internal displacements. Some efforts are beginning to be made on development plans, relying on the National Institute for Statistics or increased communication mechanisms.

No publication of Land Value Data

Land fees and taxes due are publicized, but there is no regular public data about the revenue received and its management.

Recommendations

Current legislation in Mozambique advocates important instruments for making information available based on the "*right to information*" referred to in the Mozambican Constitution.

The November 2022 land policy states that greater citizen involvement in the land management process depends on good land governance, and that land management and administration requires accurate and up-to-date information on land use and utilization and exploitation of other natural resources. The policy emphasizes the importance of creating an accessible and functional national spatial data infrastructure to facilitate the production, sharing, publication and use of geospatial data from the national to the local level.

To fulfil these objectives, Decree Law 2/2023, provides for the creation and operation of Mozambique's National Spatial Data Infrastructure (IDEMOC). It establishes the mechanisms for implementation, development, maintenance, and monitoring through the National Geospatial Development Agency.

Data Production

It is essential that all organizations that produce information take a step towards sharing information online:

- Agencies and entities that have analogue information should digitize it.
- Information that is in digital format should be published online, considering the contents of the data, and using appropriate open standards.
- What is published online should be publicized so that the greatest number of users can consume, validate, and improve the information.

Policies, Regulations and Rules for Data Sharing

This effort should be made by the National Geospatial Development Agency and all stakeholders involved. The main challenges will be:

- Creating the routines for the various organizations to contribute their data;
- Creating the conditions for data to be made available online in a structured way;
- Keeping data up to date; and
- Creating value from the data, for example, by making available spatial analyses and specific products that result from the work done on the basic data.

Open Data Action Framework for Mozambique

A recommended first step in considering and implementing these recommendations is to develop an Open Data Action Framework for Mozambique which will allow for dialogue and engagement with all relevant stakeholders, outline responsibilities, actions, resources and identify gaps and opportunities. This framework would set the scene for developing a comprehensive land data and information ecosystem that supports equitable and sustainable development and decision making in Mozambique.

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