



Land Statistics in Africa: Status and Implications for Policy

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1. Executive Summary

The effective measurement of land resources is fundamental for sustainable development in Africa. Yet, most African countries face serious challenges in producing comprehensive, timely and harmonized land statistics. This concept note assesses the status of land statistics in Africa and proposes ways to improve measurement systems.

Land statistics consist of four inter-linked domains: land cover, land cover change, land tenure and land productivity. These combine to produce a cohesive nexus for land statistics that is critical for agricultural planning, environmental management, climate action, natural capital accounting and SDG monitoring, in particular SDG 15 (Life on Land).

Although there have been breakthroughs in remote sensing and geographic information systems (GIS) technology, land data in Africa are still disjointed. There are several incompatible datasets across ministries, with various harmonization techniques, reference periods, and methodologies. Land cover maps are outdated (2-to-10-year cycles); land registries cover only tiny fractions of national territory, with minimal acknowledgment of customary tenure and women's land rights; agricultural surveys are uncommon; and many countries rely on global modeled data for SDG reporting, with limited national validation.

The policy consequences of these gaps are severe. Agricultural GDP statistics are often based on outdated assumptions, despite agriculture contributing 15-25% of GDP in many African nations. Land records are incomplete, limiting access to financing. There are attempts at natural capital accounting in Botswana, Rwanda, Uganda, Kenya, South Africa, and Ethiopia, which show they are feasible but are constrained by capacity and data limitations for scaling up.

This concept note complements ECA's leadership through the former African Land Policy Centre. It relies on credible data sources, harmonized procedures consistent with international frameworks (SEEA, SDG monitoring, FAO LCCS, VGGT, UNCCD advice) and multi-stakeholder cooperation. It identifies options for strengthening conventional sources, using emerging technologies (cloud platforms, machine learning, drones), researching synthetic data and imputation, and boosting regional harmonization. It also proposes practical commitments at strategic, tactical and operational levels to modernize land statistics systems.

2. Introduction

2.1 Purpose and Scope of the Concept Note

This concept note improves measurement and highlights the policy importance of land data in Africa. It contributes to the measurement and monitoring of SDG 15 through better data, updated metadata and methodological integration within emerging frameworks, including the 2025 System of National Accounts.

The concept note focuses on basic land variables, including land cover, land cover change, land tenure, land productivity, land degradation, and carbon stocks. These variables are considered in relation to emerging issues on the continent, including land governance, conflicts, gender inequities, climate change, urbanization, and resource exploitation. Leveraging the ECA's leadership through the former African Land Policy Centre (ALPC) and Land Portal databases, it sets out tangible commitments for African countries and institutions to improve land statistics to support sustainable development decision-making.

2.2 Structure of the Concept Note

Section 3 describes the rationale, objectives and importance of land statistics. Section 4 presents the conceptual and methodological foundations. Section 5 discusses data sources and stakeholder agreements. Section 6 outlines gaps, fragmentation, and harmonization issues. Section 7 reviews the status quo of land statistics in Africa. Section 8 discusses policy implications and macroeconomic ramifications. Section 9 offers gap-filling possibilities. Section 10 proposes commitments and actions. The section sets out expected outputs and the way forward. Section 12 provides an indicative action plan and roadmap. A full set of tables and figures is provided in an Annex.

3. Background and Rationale

3.1 The Critical Role of Land Statistics in Africa

Land statistics provide a compass for policymakers in four essential areas: land surface characteristics (land cover), changes in land surface characteristics, land rights (tenure) and land productivity. These disciplines constitute a coherent body of knowledge for evidence-based land governance. Sound land data are essential for socioeconomic planning, environmental management, climate action and sustainable development in Africa. Land is key to livelihoods, food security, economic growth and ecosystem services. Accurate measurement is therefore fundamental to agriculture policy, infrastructure planning, climate pledges, natural resource management and fiscal tools. Poor land management results in ineffective land measurement, leading to missed benefits and repercussions on domestic resource mobilization. Currently, land statistics are not sufficiently standardized due to differences in categorization criteria, methodological constraints, boundary issues, antagonism between state and traditional systems, and walled institutional structures.

3.2 Emerging Continental Land Issues

Current land narratives focus on: land conflicts and governance challenges (rights, boundaries, and competing claims); gender gaps (women's exclusion from land ownership, limited gender-disaggregated indicators); climate change (land degradation, desertification, and deforestation); resource exploitation (including mining impacts and pressures linked to rare earth minerals); and urbanization (conversion of

agricultural and natural lands at a rapid pace). These concerns require extensive, timely and disaggregated land statistics.

3.3 Linkages to Sustainable Development Goals

Land statistics are crucial in monitoring SDG indicators 15.1.1 (forest area), 15.2.1 (sustainable forest management), 15.3.1 (land degradation neutrality), 5.a.1 (tenure rights by sex) and 2.4.1 (sustainable agricultural area). Many African countries depend significantly on global modeled data with little indigenous validation. Strengthening national land statistics systems is critical for reliable monitoring of the SDGs and ensuring that global data products align with realities in Africa.

3.4 Overall Goal and Specific Objectives

Overall Goal

Strengthen national and regional land statistics systems in Africa to enable African countries to generate, integrate and use high-quality harmonized data on land cover, land cover change, land tenure, natural capital accounting, land conflict resolution and land productivity for evidence-based policy and decision making at national and continental levels while monitoring national and international agreed policies such as SDGs.

Objectives

- a. Develop criteria to evaluate and prioritize land data gaps within an integrated block of land statistics (cover, change, tenure, productivity).
- b. Review the state of data on land statistics indicators in Africa and identify key gaps, fragmentation trends and harmonization problems.
- c. Support harmonized techniques and measurement of land cover, change, land tenure and productivity in nations
- d. Strengthen the measurement and monitoring of SDG 15.3.1 and related land indicators utilizing remote sensing, censuses, surveys and land registries calibrated at the national level.
- e. Enhance the availability, frequency and quality of land usage and land ownership statistics including gender disaggregated indicators, land disputes by combining survey, registration and geospatial data.
- f. Promote regional harmonization of land statistics categories and procedures to promote comparability and minimize duplication.
- g. Promote the macroeconomic and governance significance of good land statistics, including links to GDP, financial sector growth and natural capital accounting, to raise the profile of land statistics on policy agendas.
- h.

4. Conceptual and Methodological Foundations

4.1 The Land Statistics Nexus: Four Core Domains

A ‘statistics Nexus’ is a logically consistent, integrated set of statistics, developed to serve a particular area of policy. The land statistics nexus consists of four interrelated domains: (1) Land cover, consisting of surface characteristics (forests, grasslands, croplands, urban areas); (2) Land cover change made-up of temporal evolution (deforestation, agricultural expansion, urbanization); (3) Land tenure composed of rights holders (ownership, use rights, customary versus statutory tenure, gender data); (4) Land productivity involving output (crop yields, biomass production, net primary productivity).

These areas are interrelated. Land cover change influences production and alters the tenure dynamics. All four domains are necessary for effective land governance. With the statistics nexus or block technique, they have to be included from the get-go.

4.2 Global Statistical Frameworks Shaping African Land Statistics

The impact of global frameworks on African land statistics: System of Environmental-Economic Accounting (SEEA) (UN Statistics Division, pilots in 15 African countries); Monitoring Framework for the Sustainable Development Goals (IAEG-SDGs, indicators 15.1, 15.2, 15.3, 5.a.1, 2.4); Global Core Indicators (GCI) (UN-GGIM); Good Practice Guidance of the UNCCD (SDG 15.3.1); FAO Land Cover Classification System (LCCS); Voluntary Guidelines on the Responsible Governance of Tenure (VGGT) (FAO/CFS); African Union Land Governance Frameworks (e.g., LGAF); Eurostat. This brief aligns with these frameworks and focuses on establishing nationally owned and regionally harmonized systems.

4.3 Integration with the System of National Accounts

Land statistics are key inputs to the System of National Accounts (SNA). The transition from the SNA 2008 to the SNA 2025 will be important for African countries, as the integration of land variables is key. Within the SEEA framework, land accounts provide spatially explicit data on land cover, land use, and land condition that are used to calculate agricultural value added, natural capital accounts, and integrated environmental-economic accounts. Debates are evolving over the creation of land statistics frameworks to capture the interlinkages among food security, transport, economic growth, sustainable development, and climate change. ECA is well placed to lead this African drive.

5. Data Sources and Stakeholder Arrangements

5.1 Primary Data Sources for Land Statistics

Land data are produced from several sources: Household surveys (e.g., LSMS, agricultural surveys) provide data on land ownership, tenure, use, and production, with gender disaggregation but limited spatial coverage and infrequent cycles. Agricultural censuses are extensive, though uncommon (at 10-year intervals) and expensive. Administrative records, such as land registers and cadastres, provide legal documentation but are generally limited to urban areas and do not recognize customary rights. Geospatial data (satellite imagery) underpin all land cover mapping and change detection and are increasingly available

through cloud platforms, but they require technological competence and ground-truthing. Community mapping (citizen science) complements official sources yet faces quality assurance challenges.

5.2 Multi-Stakeholder Coordination and Institutional Arrangements

Some of these institutions are National Statistical Offices (NSOs), National Mapping Agencies (NMAs), Ministries of Agriculture, Environment/Forestry, and Lands/Urban Planning. Fragmented, incompatible datasets emerge from limited coordinating methods among institutions. Effective systems need explicit institutional mandates and coordination structures, procedures for data sharing, shared production processes and links with regional and worldwide activities.

5.3 Methodological Standards and Classification Systems

Harmonized techniques and categorization systems are key for comparability: FAO Land Cover Classification System (LCCS) (hierarchical land cover classification system); SEEA Land Cover and Land Use classifications (aligned with LCCS, compatible with integration with national accounts); UNCCD land degradation methodology (three sub-indicators for SDG 15.3.1); Tenure classification systems (statutory, customary and informal tenure); Methods of measuring productivity (Survey-based yields, Remote sensing proxies (NDVI, EVI, NPP), Crop modeling). Adoption varies across African countries, making comparisons difficult.

5.4 Data Governance, Sovereignty and Ethics

The modernization of land statistics and LMIS requires strong data governance. Land information combines household, cadastral, administrative, geospatial, and remotely sensed data, thereby raising issues of data sovereignty, privacy, cybersecurity, ethical use, interoperability, and accountability. Countries need clear arrangements for institutional mandates, data stewardship, metadata standards, quality assurance, access rules and protection of sensitive land rights information. Data sovereignty is especially important when land data are produced, stored, or analyzed through external platforms, private-sector tools, or donor-supported systems. National authorities should retain ownership, validation authority, and responsibility for official land statistics, while enabling appropriate access for policy, planning, research, and public-interest uses. The private sector can support innovation through geospatial technologies, analytics, cloud services and implementation support. However, such partnerships should be governed by open standards, transparent procurement, fair licensing, capacity transfer, and safeguards against data extraction, exclusion, or long-term dependency.

6. Land Measurement Challenges: Gaps, Fragmentation, and Harmonization Challenges

6.1 The Nature of Data Gaps in African Land Statistics

Land data gaps are most visible in regions of smallholder agriculture, pastoral lands, peri-urban fringes and fragile ecosystems. The gaps are specific: spatial gaps (land registries are often only for urban areas, leaving large rural areas with customary tenure out); temporal gaps (land cover maps are updated infrequently (2 to 10 years) and agricultural censuses every 10 years or more); thematic gaps (little data on land

degradation, soil quality, carbon stocks); disaggregation gaps, including insufficient gender-disaggregated data and limited data on youth, Indigenous peoples, vulnerable groups; and quality gaps (outdated methodologies, little ground-truthing, and poor quality assurance. Lack of proper data has aggravated land conflicts and the exclusion of women from land ownership.

6.2 Fragmentation and the Challenge of Reconciling Measurement Systems

Missing data is a major concern, but reconciling measurement methods is more delicate. Even where statistics on land are accessible, they are rarely comparable or combined in a meaningful way. A typical country may have: a land cover map from the Ministry of Environment based on satellite imagery and one classification scheme; an agricultural ministry land use survey with another classification scheme; a cadastral database from an urban planning ministry with yet another set of land types; a global land cover dataset from an international organization with a different classification and methodology. These databases were built at a great expense, but the result is poor measurement and duplication. A simple inquiry like “How much agricultural land has been converted to urban use in the past decade?” is answered differently, in various units, for different reference periods, with different meanings. This is the case for many African NSOs and NMAs. The problem is not only a lack of data, but also a cacophony of data that is difficult to interpret.

6.3 Development of modern integrated Land Management Information Systems (LMIS)

The development of modern integrated Land Management Information Systems (LMIS) at the national and regional level is a critical imperative for sustainable development in Africa. It requires comprehensive approaches across multiple jurisdictions and sectors. Integrated information across four core domains land cover, land cover change, land tenure and land productivity is a prerequisite for effective land administration. Urban jurisdictions require detailed cadastral data, formal land registries, high-resolution spatial data and property valuation systems. Rural jurisdictions require comprehensive records on customary tenure systems (which remain largely undocumented despite legal recognition), smallholder plot boundaries, pastoral land management and gender-disaggregated ownership data. Environmental management sectors require time-series datasets on deforestation, land degradation, biodiversity, and soil carbon stocks that align with SDG and UNCCD monitoring frameworks. Social and economic development planning requires systems that connect land statistics to macroeconomic indicators, natural capital accounting, conflict resolution and gender equity monitoring. The African Centre for Statistics at ECA can provide strategic leadership by supporting nationally owned and regionally harmonized LMIS that integrate censuses, surveys, administrative records, cadastral data, GIS, remote sensing, mobile data collection and field validation to drive SDG progress, agricultural development, climate resilience and equitable land governance across the continent.

6.4 Land conflicts, fragile states, displacement and post-conflict restitution

Land conflict and governance are critical continental challenges due to weak land data, contested rights and the exclusion of women from land ownership. These issues can be addressed through improved land dispute statistics that combine survey, registration, administrative and geospatial data. Land statistics systems should therefore incorporate conflict-sensitive indicators on the incidence, type, location and resolution of land disputes; land-use change in displacement and refugee-hosting areas; secondary occupation; restitution claims; compensation; redistribution; tenure security; and livelihood outcomes. Displacement and refugee hosting lack indicators to track land-use changes in refugee-hosting areas; data

are needed on the land rights of displaced populations and on methods to measure secondary land occupation or the impact of displacement on host communities. It has been noted that there are serious omissions given that conflict-driven displacement impacts millions across West, Central and East Africa. Issues in measuring post-conflict land restitution statistics are critical. South Africa's landmark post-apartheid Restitution of Land Rights Act (1994) and the extensive statistical systems built around tens of thousands of land claims; Zimbabwe's Fast Track Land Reform Programme, are the most significant land redistributions in recent African history, which are examples to be considered, and other post-conflict land reform experiences in Rwanda, Mozambique, Liberia, and Burundi require proper examination. Without conflict-sensitive measurement methodologies, rapid-assessment tools for insecure environments, displacement-specific land indicators, and restitution data frameworks need to be implemented across a substantial portion of the African continent, where land conflict, forced displacement, and contested post-conflict tenure are not exceptional circumstances but defining features of the land governance landscape.

6.5 Key Cross-Cutting Challenges

Key challenges include: inconsistent methodologies and classification systems for land cover and land use; outdated or infrequent land cover maps and land use surveys (often on 2 to 10 year cycles); land registries covering only a small fraction of total land with limited recognition of customary and informal rights and weak gender coverage; infrequent, costly agricultural surveys and limited use of geospatial methods; heavy reliance on global modelled data for SDG indicators with limited national validation. These challenges limit the quality of SDG reporting, natural capital accounting, macroeconomic assessment, land governance reform, and climate planning.

7. Status of Land Statistics in Africa

7.1 Land Cover and Land Cover Change

Most African countries have at least one land cover map, although the quality and currency vary widely. Many use global products (ESA CCI, MODIS, Copernicus) instead of national maps. The maps range from current (within 5 years) to far outdated (10+ years old). The usual update cycle is 5 to 10 years, not nearly often enough to keep up with rapid developments. Classification schemes used across countries are varied (FAO LCCS, CORINE, national schemes) and hamper comparisons. The spatial resolution varies from coarse (300m-1km for global goods) to fine (10-30m for national products using Sentinel-2 or Landsat). Limited systematic monitoring of land cover changes. Many nations lack multi-temporal datasets or transition matrices. Data for SDG 15.1.1 and 15.3.1 are commonly reported from global models. Existing statistics suggest extensive deforestation in Central and West Africa, agricultural expansion, increasing urbanization, and land degradation in the drylands.

7.2 Land Tenure and Ownership. Formal land registers cover just a tiny proportion of total land area in most African nations, usually 10 to 30% in rural regions, more in urban areas. Much of the land under customary tenure is not recorded. Gender-disaggregated data is not widely available. Few countries systematically collect and publish statistics on land ownership disaggregated by gender. Where statistics are available, large gender gaps are seen. Most African countries have legal recognition of customary tenure, but methods for recording it are insufficient. Customary lands are typically not included in official statistics. Land tenure modules are increasingly being integrated into agricultural censuses and household surveys (e.g., LSMS-ISA), which provide useful data on tenure security and gender disaggregation. But surveys are infrequent

(usually 3 to 5 years for LSMS, 10 years for censuses). Many countries lack statistics for the SDG 5.a.1 (Secure tenure rights, by sex)

7.3 Land Productivity

Agricultural censuses are uncommon (occurring every 10 years or longer) and expensive. Agricultural surveys are more frequent (annual or seasonal) but are generally spatially constrained. Yield data is largely based on farmer recall and is therefore vulnerable to bias. Remote sensing proxies (NDVI, EVI, NPP) are increasingly employed but require calibration. In agricultural surveys, GPS use is limited, making it difficult to correlate production with land cover and environmental data. African farming systems are highly diversified (mixed cropping, intercropping, agroforestry, pastoralism); therefore, a standardized assessment of productivity is challenging. This variability is frequently not reflected in global production figures. SDG 2.4: Comprehensive data is missing in many countries.

7.4 Land Degradation and Carbon Stock

The majority of African countries used the UNCCD technique (three sub-indicators: land cover change, land productivity, carbon stock) to calculate baseline values for SDG 15.3.1. Many of them, however, are based on global defaults rather than domestically calibrated data. Data sources: land cover change, usually from global products (ESA CCI) or national maps; land productivity, usually from remote sensing (NDVI trends from MODIS) with limited ground validation; carbon stock, usually from global soil organic carbon maps (e.g., SoilGrids) with limited national soil survey data. Limited national validation. Much of the ground-truthing has not been methodical, and there is some ambiguity about its accuracy. SDG 15.3.1 data are needed every 4 years; however, many countries lack the methods to update them regularly. Remote sensing poses a problem of spectral confusion that should also be tackled. Soil survey data is restricted to broad classifications and not adapted to local realities. Geospatial analytic capabilities are still limited. Integration with national monitoring systems is limited across countries.

7.5 Cross-Continental Comparative Analysis

Data coverage is highly heterogeneous across domains and countries. Land cover statistics are the most widely accessible (though typically from global products), followed by land productivity, land tenure (limited), and land degradation (mainly from global models). The recency of data might vary widely. Some countries have current data (up to 5 years old), while others rely on data 10+ years old. Most countries have only 1 to 3 data points for land cover, 5 to 10 for agricultural production, and extremely short time series for land tenure and degradation. Earliest data generally from the 1990s or 2000s (land cover) or 1960s to 1980s (agricultural censuses). The latest statistics are usually from 2015 to 2020 for land cover, and from 2018 to 2022 for agricultural surveys. The sources are a combination of national (NSOs, NMAs, Ministries) and international (FAO, ESA, UNCCD, World Bank). High dependence on overseas sources for land cover and degradation. Patterns by region: North African countries tend to have superior infrastructure and more frequent upgrades. Southern African countries have pretty robust land registry systems. For example, countries in West and Central Africa have it tougher. The performance of the East African countries has been varied.

8. Implications for Policy and Macroeconomic Planning

8.1 Agricultural Value Added and GDP Measurement

Agricultural GDP is calculated directly from statistics on land area and production. Agriculture accounts for 15 to 25% of GDP in many African countries, making correct land figures vital for national accounting. However, estimations of agricultural GDP are generally based on outdated assumptions due to infrequent censuses and insufficient integration of geographical data. Errors in plot measurements or yield calculations are carried through into national accounts, with consequences for fiscal planning, trade forecasts, and investment decisions. If agricultural land area is undercounted by 20% and yields are overstated by 15%, agricultural GDP might be misestimated by 30% or more, with cascade implications on total GDP, poverty estimates, and policy goals.

8.2 Land as Collateral and Financial Sector Development

The value of land as collateral depends on secure and confirmed tenure. Incomplete registries and little recognition of customary or women's rights impede access to financing and investment. In countries where land registers cover only 10-30% of rural land, most rural people are unable to use land as collateral for loans, thereby restricting agricultural investment, entrepreneurship, and economic growth. Gender gaps in land documentation further lock women out of financial services. Improving land tenure statistics and registration systems can unleash considerable economic potential.

8.3 Natural Capital Accounting and Green GDP

The SEEA requires data on land cover and land condition to calculate natural capital accounting. Without these, GDP numbers are 'ecological illusions' that capture the gains from resource conversion but not the degradation of natural capital. Feasibility and policy benefit of natural capital accounting projects in Botswana, Rwanda, Uganda, Kenya, South Africa and Ethiopia. These experiments demonstrate the potential of land and ecosystem accounting to influence policy on sustainable land management, climate action and fiscal tools. But scalability is constrained by major data and capacity restrictions. Most nations lack the land cover, land use and land condition data essential to produce full natural capital accounting. Strengthening land statistics is essential to mainstreaming natural capital accounting in Africa.

8.4 Implications of Data Heterogeneity for Policy Use

Heterogeneity in data coverage, recency, frequency and sources pose major challenges: cross-country comparisons are difficult when countries use different classification systems, methodologies and reference periods; trend analysis is limited by lack of time series and inconsistent measurement; policy targeting is hampered when data gaps coincide with priority areas; accountability and monitoring are undermined when countries rely on global modelled data rather than nationally validated data for SDG reporting. Harmonizing land statistics is necessary for regional integration, comparative analysis, and evidence-based policy at the continental level.

9. Options for Filling Gaps in Land Statistics

9.1 Strengthening Traditional Data Sources

Agricultural censuses and surveys: Increase frequency, enhance sample methodology, use GPS and include detailed land tenure modules with gender disaggregation. Implement low-cost mixed-mode data collection in land registers: Speed up digitization. Expand coverage to rural regions. Develop mechanisms to record customary tenure. Facilitate gender equal registration. Merge registries with geographical layers. National land cover mapping: Regular mapping cycles (3-5 years), standard categorization systems (FAO LCCS, SEEA) and integration with national geospatial infrastructure.

9.2 Leveraging Emerging Data Sources and Technologies

Cloud-based geospatial platforms: Leverage platforms like Google Earth Engine, SEPAL, and national geospatial data infrastructures for low-cost land cover mapping and change detection utilizing free-of-charge satellite images (Sentinel-2, Landsat). Machine learning and AI: Machine learning techniques for automated land cover categorization, change detection and productivity calculation. Drones and UAVs: Use drones for high-resolution mapping of priority regions, as well as ground-truthing and validation. Mobile data collection: mobile apps for field surveys, citizen science and participatory mapping. Big data and alternative data sources: examine the use of mobile phone data, social media, crowdsourcing and other alternative sources for quick monitoring and early warning. These technologies should be embedded in an integrated LMIS so that survey, administrative, cadastral, registry, and geospatial data are connected for land cover mapping, land cover change monitoring, tenure documentation, productivity measurement, and nationally validated SDG reporting.

9.3 Exploring Synthetic Data and Imputation Methods

Statistical imputation: Fill in missing data using statistical approaches that are based on connections with known data. Geospatial modeling: Develop spatial models to estimate land statistics for regions lacking direct measurements, leveraging variables derived from remote sensing, climate data, and other sources. Synthetic data generation: Explore the use of synthetic data (e.g., from agent-based models, simulations) to augment scarce data, particularly for scenario analysis and policy modeling. Caveats: The use of synthetic data and imputation should be carefully documented, verified when feasible, and used with caution in policy decisions. They supplement but do not replace direct measurement.

9.4 Harmonization and Regional Coordination

Adopt common standards. Promote the adoption of the FAO LCCS, SEEA classifications, the UNCCD methodology, and other international standards to enhance comparability. Regional coordination mechanisms: Set up regional working groups on land statistics, peer-learning networks, and collaborative production projects to exchange methodologies, data and capabilities. Harmonized data sets: Develop regionally harmonized data sets on land cover, land use, and land degradation to enable continental monitoring and comparative analysis. Capacity building: Training of NSOs, NMAs and line ministries on remote sensing, geospatial data integration, SDG monitoring and SEEA implementation through regional centers of excellence. Regional harmonization should also include common LMIS interoperability standards, metadata protocols, cadastral data exchange rules, tenure categories, and validation procedures to ensure that nationally owned land statistics are comparable across the continent.

10. Commitments and Actions for African Countries and Institutions

10.1 Strategic-Level Commitments

Use land statistics to raise land on national policy agendas, as a basis for SDG monitoring, natural capital accounting, macroeconomic assessment and land governance. Create or reinforce national coordination institutions for land statistics, with explicit directives, data-exchange procedures, and collaborative production processes. Invest more in domestic land statistics infrastructure, including geospatial data systems, land registries, agricultural surveys and technical capability. Enhance regional cooperation through the African Union, the Regional Economic Communities, and the ECA venues to enhance harmonization and peer learning. Ensure national land statistics systems are aligned with the SEEA, the SDG monitoring framework, UNCCD recommendations, FAO standards, and other international frameworks, while addressing national requirements.

Building on these strategic commitments, countries should prioritize nationally owned and regionally interoperable Land Management Information Systems (LMIS) as the practical mechanism to integrate land cover, land cover change, land tenure, and land productivity data across institutions, jurisdictions, and sectors. LMIS would translate the proposed investments, coordination arrangements and standards into operational infrastructure for land administration, planning, monitoring and evidence-based decision-making. To ensure trust, sustainability and national ownership, these systems should be supported by robust data governance frameworks that address data sovereignty, privacy, ethics, interoperability, appropriate open data practices, responsible private sector participation and the protection of customary, community and women's land rights.

10.2 Tactical-Level Actions

Undertake a detailed diagnosis of national land statistics systems, including data sources, institutional mandates, techniques, gaps and priorities per domain. As part of this diagnostic process, countries should conduct LMIS readiness assessments that cover institutional mandates, existing datasets, registry coverage, cadastral systems, geospatial infrastructure, data governance arrangements, technical capacity, and priority information needs across urban, rural, environmental, social, and economic sectors. Apply agreed classification systems, including FAO LCCS and SEEA, measurement methodologies such as the UNCCD SDG 15.3.1 methodology, and quality assurance processes. Apply agreed categorization systems (FAO LCCS, SEEA), measuring methodologies (UNCCD SDG 15.3.1 methodology) and quality assurance processes. Apply cloud-based geospatial platforms and machine learning to develop nationally calibrated land cover, land cover change and land degradation products. Develop standard calibration and validation procedures using ground-truth data. Gender disaggregated land usage and land ownership modules in the agricultural census and the household survey. Digitize and extend land registries, including mechanisms for recording customary tenure and women's rights. Deliver targeted training for NSOs, NMAs, and line ministries on remote sensing, geospatial analysis, SDG monitoring, land productivity measurement, and SEEA implementation. Establish national technical working groups for ongoing peer-to-peer learning. Support pilot nations to build or improve land, forest and ecosystem accounting as part of national NCA programmes.

10.3 Operational-Level Actions

Develop 3 to 5-year land cover mapping cycles using Sentinel-2, Landsat, or comparable images with standardized categorization and validation processes. Strengthen national SDG 15.3.1 monitoring systems with national calibration and validation of land cover change, land productivity and carbon stock data, based on the UNCCD three-indicator methodology. Increase the frequency of agricultural surveys, use GPS, use

crop cuttings for yield validation and combine with land cover data. Accelerate the digitization and spatial referencing of land registries, establish methods for recording customary tenure, and ensure gender-equitable registration processes. Build open data platforms for land statistics, develop user-friendly data products and visualizations, and enable policy dialogues among statisticians, planners, economists, and environmental authorities. Implement systematic quality assurance procedures for land statistics, including ground-truthing, validation, quantification of uncertainty, and documentation of methodologies and constraints.

11. Expected Outputs and Way Forward

This concept note is expected to support a common understanding of priority gaps in land statistics in Africa and identify entry points for strengthening national and regional statistical systems. It frames issues for discussion on how land cover, land-cover change, tenure, productivity, degradation, and carbon-stock data can be better integrated for SDG monitoring, natural capital accounting, agricultural planning, land-governance reform, and macroeconomic analysis. The proposed way forward is organized around three levels: Strategically, countries and institutions should elevate land statistics on policy agendas, strengthen coordination, increase funding, and integrate national systems with global statistical frameworks. Tactically, there is a need to conduct diagnostic evaluations, align techniques, include remote sensing, modernize and update surveys and registries, increase capacity, and pilot land and ecosystems accounts. Operationally, countries should establish regular cycles of land-cover mapping, strengthen monitoring of SDG 15.3.1, improve agricultural surveys, extend land registries, expand data dissemination, and institutionalize quality assurance.

Emerging technologies such as cloud-based geospatial platforms, machine learning, drones and mobile data collecting provide an unparalleled opportunity to improve land statistics in a cost-efficient way. Regional cooperation and harmonization can also enhance comparability, reduce duplication and strengthen continental monitoring.

The African Centre for Statistics at ECA is well placed to drive this transition: ECA can convene stakeholders, support harmonization, develop guidance, provide capacity building, and assist countries in strengthening their land-statistics systems. The proposed way forward is to use this concept note to validate priorities, identify country experiences, and agree on practical follow-up actions to strengthen land statistics in Africa. Better land statistics will help governments track SDG progress, manage natural capital, plan agricultural growth, address land conflicts, promote gender equality in land rights and respond to climate change.

12. Action Plan & Roadmap: Strengthening Land Statistics in Africa

Overview

This roadmap outlines priority actions for African countries to build robust, integrated Land Management Information Systems that support SDG monitoring, natural capital accounting, agricultural planning, and equitable land governance. Actions are structured across three tiers.

Strategic Actions: Policy & Governance

- a) Elevate land statistics on national policy agendas, linking them to GDP, SDGs, climate action, and land governance priorities.
- b) Establish inter-ministerial coordination mechanisms among National Statistical Offices (NSOs), National Mapping Agencies (NMAs), and Ministries of Agriculture, Environment, and Lands.
- c) Increase domestic budget allocations and mobilize international support (FAO, UNCCD, World Bank) for land data infrastructure.
- d) Strengthen regional cooperation through the African Union, Regional Economic Communities, and ECA to harmonize datasets and enable continental monitoring.
- e) Align with international frameworks: SEEA, SDG indicators (15.1.1, 15.2.1, 15.3.1, 5.a.1), FAO LCCS, VGGT, UNCCD, and SNA 2025.

Tactical Actions: Standards, Systems & Capacity

- a) Conduct national diagnostic assessments of land statistics systems to identify gaps, mandates, and priorities.
- b) Adopt standardized methodologies: FAO Land Cover Classification System (LCCS), UNCCD three-indicator method for SDG 15.3.1, and SEEA for natural capital accounting.
- c) Deploy cloud-based geospatial platforms (Google Earth Engine, SEPAL) and integrate machine learning, drones/UAVs, and mobile data collection tools.
- d) Modernize agricultural censuses, increase frequency, integrate GPS referencing, and add gender-disaggregated land tenure modules.
- e) Accelerate land registry digitization, expand rural coverage from 10–30% to 50%+, and record customary tenure using Social Tenure Domain Models (STDM).
- f) Build institutional capacity through targeted training in remote sensing, GIS, SDG monitoring, SNA, SEEA implementation, and quality assurance.
- g) Scale up natural capital accounting pilots from Botswana, Rwanda, Uganda, Kenya, South Africa, and Ethiopia to all member states.

Operational Actions: Day-to-Day Implementation

- a) Run 1–3-year land cover mapping cycles using Sentinel-2/Landsat with standardized FAO LCCS classification and national validation.
- b) Conduct annual agricultural surveys with GPS-enabled plot referencing and crop-cutting methods for yield validation.
- c) Continuously digitize land registries, record women’s land rights, and expand coverage to rural and peri-urban areas.
- d) Maintain open data platforms integrating surveys, registries, and remote sensing for policy makers, planners, and researchers.
- e) Implement systematic field validation and quality assurance protocols, including uncertainty quantification and methodology documentation.
- f) Publish annual SDG indicator reports (15.1.1, 15.2.1, 15.3.1, 5.a.1, 2.4.1) using nationally validated not global default data.

Implementation Phases

Phase	Timeline	Focus
Phase 1	Years 1–2	Diagnostics, coordination mechanisms, standards adoption, pilot programmes
Phase 2	Years 2–3	Mapping cycles, registry expansion, technology deployment, survey modernization
Phase 3	Years 4–5	Full system integration, regional harmonization, mainstreamed SDG & NCA reporting

Key Success Factors

Strong political commitment · Sustained funding · Effective multi-stakeholder coordination · Cost-effective technologies · Intensive capacity building · Regional harmonization · Data governance and sovereignty · Regional harmonization

13. Resource Documents

1. SDG Indicator Metadata for indicators 15.1.1, 15.2.1, 15.3.1, 5.a.1, and 2.4.1 (UN Statistics Division)
2. System of Environmental-Economic Accounting (SEEA) framework documents (UN Statistics Division)
3. UNCCD Good Practice Guidance for SDG Indicator 15.3.1 (UNCCD Secretariat)
4. FAO Land Cover Classification System (LCCS) documentation (FAO)
5. Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT) (FAO/Committee on World Food Security)
6. African Union Land Governance Assessment Framework (LGAF) and related frameworks
7. Eurostat-OECD Compilation Guide on Land Estimation (Eurostat/OECD)
8. ECA publications on land policy and statistics (African Land Policy Centre)
9. Land Portal databases and knowledge resources (www.landportal.org)
10. Country-specific land statistics reports and natural capital accounting studies from Botswana, Rwanda, Uganda, Kenya, South Africa, and Ethiopia

14. Annex: Detailed Tables and Figures

This annex includes detailed tables and figures supporting the analysis presented in the main text:

Table A1: Status of Land Cover Statistics in Africa by Country

Columns: Country | Latest land cover map year | Data source | Classification system | Spatial resolution | Update frequency

Table A2: Status of Land Tenure Statistics in Africa by Country

Columns: Country | Land registry coverage (% of land area) | Latest household survey with land tenure module | Gender-disaggregated data available (Y/N) | Recognition of customary tenure (Y/N)

Table A3: Status of Land Productivity Statistics in Africa by Country

Columns: Country | Latest agricultural census year | Agricultural survey frequency | Yield measurement method | Spatial referencing (Y/N)

Table A4: Status of Land Degradation Monitoring in Africa by Country

Columns: Country | SDG 15.3.1 baseline year | Data source for sub-indicators | National validation conducted (Y/N) | Update frequency

Figure A1: Map of Land Cover Data Availability and Recency in Africa

Choropleth map showing the year of the most recent land cover map for each African country

Figure A2: Distribution of Land Registry Coverage Across African Countries

Bar chart or histogram showing the percentage of land area covered by formal land registries in different countries

Figure A3: Frequency of Agricultural Censuses and Surveys in Africa

Timeline or chart showing the frequency of agricultural data collection across countries

Figure A4: Sources of Data for SDG 15.3.1 Reporting in Africa

Chart showing the proportion of countries using national data vs. global modeled data for SDG 15.3.1 reporting

Table A5: Key Land Statistics Indicators - Cross-Country Comparison

Comprehensive table showing key indicators (forest cover %, agricultural land %, land degradation %, etc.) for all African countries with data availability notes

Figure A5: Trends in Land Cover Change in Africa (2000-2020)

Charts showing regional trends in deforestation, agricultural expansion, urbanization, and land degradation

Table A6: Institutional Arrangements for Land Statistics in Selected African Countries

Comparative table showing which institutions are responsible for different aspects of land statistics in different countries

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