Introduction

The Global Fundamental Geospatial Data Themes are 14 fundamental data themes that can help improve the capacity of National Geospatial Information or Mapping Agencies in producing geospatial information that are referenced to internationally agreed fundamental geospatial data themes, enhancing data interoperability, and thus increase the availability, accessibility and application of geospatial information in Africa.

This International Workshop on Global Fundamental Geospatial Data Themes for Africa was convened at the United Nations Economic Commission for Africa (ECA), from 25-27 April 2018. It was convened back-to-back with the Sub-regional workshop on Integration of Administrative Data, Big Data and Geospatial Information for the compilation of SDG indicators for English-speaking African countries, as part of the 10th Tranche Development Account Programme on Statistics and Data (DA10)\(^1\).

In holding a joint session “Statistical Geospatial Integration Day” on April 25th, both Statistical and Geospatial communities were brought together to facilitate discussion and learning across their communities. It brought together 18 representatives from National Geospatial Information or Mapping Agencies of the region. There were 25 Statisticians and 18 Geospatial participants from countries from across Africa, including Small Island Developing States (SIDS) and land-locked countries. The convening of these important technical meetings back to back was welcomed by participants and provided a considerable opportunity to leverage the many synergies and commonalities that existed between these two communities.

The International Workshop on Global Fundamental Geospatial Data Themes for Africa was attended by 18 participants from Algeria, Botswana, Burkina Faso, Cameroon, Cote d’Ivoire, Ethiopia, Kenya, Madagascar, Mozambique, Namibia, Niger, Senegal, Seychelles, South Africa, South Sudan, Tunisia, and Zambia. It was organised by the United Nations Global Geospatial Information Management Secretariat (UN-GGIM), part of the United Nations Statistics Division (UNSD) as well as representatives from ECA.

The goal of this International Workshop is to provide guidance and improve the capacity of National Geospatial Information or Mapping Agencies in producing geospatial information that are referenced to internationally agreed fundamental geospatial data themes, enhancing data interoperability, and thus increase the availability, accessibility and application of geospatial information in Africa. The annotated agenda is an annex to this report.
Session 1 – Geospatial Information Systems: Integrating Statistical and Geospatial Information

Chair: Swaziland

The integration of Statistical and Geospatial Information is crucial to supporting both the 2030 Sustainable Development and the 2063 Africa Agendas. Mr Oliver Chinyanga, Director of the African Centre for Statistics, provided the opening remarks for the Statistical Geospatial Integration Day. In his remarks he stressed the importance of collaboration and partnership-building to avoid fragmented national statistical and geospatial systems, noting that National Statistical Offices (NSOs) and National Mapping Agencies (NMAs) have the duty to promote such collaboration and partnership in their role as coordinators of national statistical and geospatial systems, ultimately, to ensure quality of the information needed to monitor progress on the Sustainable Development Goals (SDGs).

Session 1a: ECA Self-Assessment Questionnaires: Geospatial within Statistical Offices and Readiness for the Global Fundamental Geospatial Data Themes

This session provided an overview of the geospatial section of a self-assessment survey on the integration of administrative data, big data and geospatial information for the compilation of SDG indicators from Haile Mulualem, ECA noting the progress in Africa regarding the integration of statistical and geospatial information to improve the production, analysis, and use of SDG Indicators. The survey was answered by 22 countries out of 54 ECA Member States.

Specific insights from the survey included:
- 10 NSOs have procedures in place to investigate the potential use of geospatial information for statistical purposes, including for the development of SDG indicators;
- 19 NSOs use geocoding to assign locations to statistical units;
- 18 NSOs have access to geocoded unit record data in a data management environment;
- These NSOs also use common geographies at the subnational level for the dissemination of statistics; and
- In 8/22 NSOs, the NSDS have a relationship/coordination mechanism with the National Spatial Data Infrastructure (NSDI) and/or other National Policies (such as standardization, interoperability, and data sharing).

Proceeding this, Aster Denekew, ECA presented the results of a survey to assess the readiness of African Countries in utilizing fundamental geospatial data themes for monitoring the SDGs. The survey was answered by 13 of 54 ECA Member States.

Specific insights from the survey included:
- Fundamental Data themes readily available: Geodetic/Surveying data; Elevation/Bathymetry; Hydrography; Land Cover/Use; Administrative Data; Land Management Units; Imagery; Population Data; Infrastructure Data; But: Infrastructure data and land management units are missing in most cases.
- Policies and strategies, action plans are available:
- National Spatial Data Infrastructure is top priority: need to advance and support the establishment of national spatial data infrastructures in Africa;
- Policies and strategies, action plans are available
- National Spatial Data Infrastructure policies and their implementation are priority to advance and support geospatial infrastructure in African Member States;
- Most of the fundamental data will be highly relevant in assessments for SDG reporting - Countries are endeavouring to generate /acquire fundamental datasets;
• There are some exemplars regarding the integration of geospatial information with statistics (e.g.: Namibia)
• Geospatial data has been widely used as a support for population and housing censuses (e.g. Madagascar, Ethiopia, and Cameroon);
• Requires high level support and commitments from governments

Session 1b: Sustainable Development Goal Indicator Demos
This session examined country case studies on how the use of innovative data sources can support the 2030 SDGs’ implementation and monitoring of the indicator framework. Presentations were given from Namibia, Tanzania, and Burkina Faso.

Namibia presented the geospatial ecosystem that enables the derivation of SDG Indicators. This was specifically through examining the relationship between its geoportal\(^2\), metadata browser\(^3\), its policy and legal frameworks\(^4\) that create the enabling environment in which the NSDI exists.

Tanzania presented on the production of disaggregated sectoral indicators, based on Tanzania’s national priorities, examining how different data sources can be combined to support data driven decision making locally.

Burkina Faso presented on the various regional agendas, such as Africa 2063 and the 2030 Sustainable Development Goals intersect with national programs. Specifically, the importance of strengthening collaboration between NSOs and NMAs nationally, but also through “identifying, creating, and making available primary quality and high accuracy data”. This can be enabled regionally through collaboration of regional entities such as UN-GGIM Africa regarding the implementation and adoption of the Global Fundamental Geospatial Data Themes and through regional programs, such as the African Action Plan on Global Geospatial Management.

In round table discussion, it was noted that statistical and geospatial practitioners are becoming more aligned through the coordination between global intergovernmental mechanism for geospatial information and statistics. In this connection, participants highlighted the importance of integrating statistics and geospatial information communities, with a view of support and complement each other in producing accurate data to measure and implement the SDGs. However, participants also indicated the need to follow up on the reasons why the geospatial information authority is not part of the statistical council in some countries, stressing that NSOs need to engage more collaboratively with national mapping agencies to make better use of the opportunities provided by geospatial technologies.

Participants also reflected on opportunities to use geospatial datasets to compute some of the SDG indicators. Noting that work has already started in this area, UN ECA noted that there is already a very extensive list of indicators and geospatial datasets available at the national level that can be used to those indicators.

Session 1c: Integrating the broader data ecosystems: Integrating the Global Statistical Geospatial Framework and the Global Fundamental Geospatial Data Themes

The Global Statistical Geospatial Framework is a high-level framework which facilitates consistent production and integration approaches for geo-statistical information. The Global Fundamental Geospatial Data Themes are 14 themes which underpin national statistical and geospatial data needs and offer National Statistical Organisations and National Mapping Agencies foundational data needs.

\(^2\) https://digitalnamibia.nsa.org.na
\(^3\) http://geofind.nsa.org.na
\(^4\) Statistics Act 2011, Sections 47-49
This session examined how these two initiatives can be combined to support and empower government agencies with maximising the potential statistical and geospatial information and how the two combined will lead to a greater outcome than the sum of its parts.

UNSD presented the Global Statistical Geospatial Framework (GSGF) noting that the implementation of the 2030 SDG Agenda will be achieved through the effective dissemination and use of integrated statistical and geospatial data, supported by technologies that facilitate data sharing and interoperability and collaboration to report on the SDGs across local, national and global levels. In this light, the five principles of the GSGF: 1. Use of fundamental geospatial infrastructure and geocoding; 2. Geocoded unit record data in a data management environment; 3. Common geographies for dissemination of statistics; 4. Statistical and geospatial interoperability; and 5. Accessible and usable geospatially enabled statistics are a crucial foundational framework in the development of a nations’ National Strategy for the Development of Statistics (NSDS). In the development of the NSDS, the approach taking an open standards and common vocabularies approach to the describing, organisation, and sharing of statistical and geospatial data can strengthen collaboration, use and dissemination of both statistical and geospatial data. The example of the Federated Information System for the SDGs (FIS4SDGs) was introduced, an online platform/Open SDG Data Hub specifically to promote the exploration, analysis, and use of authoritative SDG data sources for evidence-based decision-making and reviews.

The Regional Centre for Mapping of Resources for Development (RCMRD) presented on a case study of Rwanda. This describes the policies implemented to support the progression of the NSDS and its effect in enabling the development of the National Land Use Master Plan. This was enabled through identifying fundamental data sets in both statistical and land management cases, and enabling the production and sharing of these datasets across government agencies.

ECA presented the regional implementation of the GSGF, the African Statistical Spatial Framework (ASSF). Noting the scarcity of base maps, challenges of coordination, and potential duplication of effort between NSOs and NMAs, the ASSF meant to link geography and place within the African context. It was noted that many countries have integrated Geospatial Information into their census mapping processes and household listings in some regard, and most now have developed a solid geo-referenced (GNSS) database of dwelling locations, clearly delineated enumeration area boundaries and a complimentary set of high-resolution satellite imagery, however, there is still much work to be done to not leave anyone behind; “You cannot count what you cannot locate”.

In round table discussion it was noted that despite progress in recent years, some participants pointed out that Africa is still poorly mapped, and that in many instances there is more out-of-country data than in-country data available. Moreover, it was noted that much of the available geospatial data for Africa is unreliable or inaccurate, or that the lack of metadata negatively affects the ability of users to discover it and to assess its fitness for purpose. Therefore, the workshop identified the need to make already existing geospatial information available and accessible for statistical production, and to develop adequate metadata to enable the use of this type of information.

https://unstats.un.org
Session 2 – Geospatial information systems: The Global Fundamental Geospatial Data Themes.
Chair: UNSD/UN-GGIM

Session 2 introduced the Global Fundamental Geospatial Data Themes and opportunity for the integration of the themes with the SDGs and national priorities. It covered the history and the themes, the journey of their inception, and a deep dive into the 14 themes.

Session 2a. The History of the Global Fundamental Geospatial Data Themes

The concept of fundamental data themes is not new, especially within Africa. Africa has led the way in developing fundamental datasets for Africa, since 2007. Now at the international level the Global Fundamental Geospatial Data Themes have been adopted at the seventh session of the Committee of Experts on Global Geospatial Information Management.

UN-GGIM presented the overview of the international work leading up to the definition of the Global Fundamental Geospatial Data Themes, from their inception through the “Fundamental Datasets for Africa” 2007 ECA report, to the endorsement of the 14 themes by the UN-GGIM Committee of Experts in 2017. The 14 themes can underpin the needs of a National Spatial Data Infrastructure through its societal, economic and environmental pillars. Importantly, through integrating the themes as a foundation for National Indicators, reporting at the Global level through the framework of the Sustainable Development Goals can be achieved.

South Africa presented on the Mapping Africa for Africa initiative, which originated from National reporting showing scant achievement in African national mapping programmes, to address this, the initiative was launched in 2003 in Durban, South Africa. One of the tasks of the initiative was to for countries to identify fundamental datasets, including geodetic framework, topography, land cover, settlements, administrative boundaries and transportation. This lead to the development of the “Fundamental Datasets for Africa” 2007 report. Furthermore, the it was commented that statisticians were integrated in the production of geospatial information, then were not. We could have pushed forward the agenda that we had been pushing forward in 2003, had relationships with statisticians been kept alive; there were many geospatial data collection projects ongoing, particularly regarding development projects. But, the National Mapping Agency was not involved in these projects, consequently when these projects finished the data “just went back onto the shelf”.

Session 2b. The Global Fundamental Geospatial Data Themes Journey: Introduction into the 14 Themes

This session expanded on the history of the Global Fundamental Geospatial Data Themes by providing the recent journey of the themes with exemplars of how the themes can underpin policy development and introduced the 14 themes in detail.

The UN-GGIM Working Group on Global Fundamental Geospatial Data Themes expanded on the journey of the themes at the inter-governmental level, illustrating the process leading to their endorsement. This took a ‘common denominator’ approach, through consultation with regional UN-GGIM committees. In taking account of existing activities undertaken by UN-GGIM regional committees, existing resources were used and enabled alignment with other data needs across the UN-GGIM programme of work. Following the endorsement of the 14 themes at the seventh session of GGIM, draft descriptions of the themes have been developed with inputs from theme experts, regional UN-GGIM committees, and Working Group members.

ECA/ISTD/GEO/2007/02E
UN-GGIM presented a deep dive into each of the 14 themes, from the descriptions of the themes, to how they can support policy development and the monitoring of National Indicators and the Sustainable Development Goals.

**Session 2c. Closing Ceremony for the Statistical Geospatial Integration Day**

This session closed the Statistical Geospatial Integration day, summarising the work presented information on the Geospatial World Congress, which will be held in Deqing, China 19-21 November 2018. This will be another significant global event organized by UNSD after the 2 World Data Forum in Dubai in October 2018.

**Session 3 – Geospatial information systems: The Global Fundamental Geospatial Data Themes.**

Chair: UN-GGIM: Africa

Session 3 expanded on the 14 themes, from their impact at national, regional, and global levels and country exemplars on how they can support the 2030 Sustainable Development Goals’ indicator framework.

**Session 3a. The Global Fundamental Geospatial Data Themes in Africa**

This session examined the impact of the themes at Global, Regional, and National levels. This segment will also introduce the context and challenges within the scope of the Africa 2063 and the 2030 Sustainable Development Agenda.

UN-GGIM: Africa introduced the African Action Plan on Geospatial Information for Sustainable Development (GI4SD) and the indicator framework of the 2030 Sustainable Development Goals as a foundation for the 14 themes in Africa. Furthermore, it was reiterated that the impact of the 14 themes will be greatest in Africa, due to the poor state of coverage of geospatial information and challenges in national institutional arrangements for the capture of geographic information (such as funding, capacity, and capability), but there is a great opportunity to leverage the enabling capabilities of geospatial information to develop geospatial capacity in Africa, noting “The most important things are ourselves to help ourselves. We cannot wait for help to arrive from outside. It’s our responsibility. We in Africa have the responsibly to leave no-one behind”.

ECA expanded on the policy drivers for implementing the 14 themes, through examining the data nexus issues, such as poor coverage of data, a lack of consistent frameworks and tools, duplication in applications, poor capacity, and poor governance as limiting factors in Africa’s spatial enablement. Through pursuing an approach of integrating policies, people, and data, the foundational environment for the creation of datasets from the 14 themes is possible.

South Africa posed the question “Are the African national mapping organisations up to the challenge to support the achievement of the development goals?”. Though investigating the challenges such as the inability to integrate geospatial information across boundaries, other datasets, and differing standards are limiting factors. Furthermore, the lack of understanding of users’ needs for geospatial information results in ineffective and irrelevant data being collected and disseminated and Lack of knowledge of available geospatial datasets results in data being duplicated or not being used. Ultimately, these factors culminate in inhibiting the strengthening of the geospatial environment in Africa. As such, the 14 themes can mitigate these challenges.
Session 3b. National examples of Geospatial and Statistical Information Integration using the Global Fundamental Data Themes

This session presented country level exemplars of how the integration of Geospatial and Statistical Information and the Global Fundamental Data Themes can achieve positive outcomes, whether for national policy or to achieve specific indicators of the 2030 Sustainable Development Goals’ Indicator Framework.

South Africa discussed the temporal challenges of censuses and geographic data collection considering the pace of urbanisation and human settlement growth. In presenting how South Africa is utilising the Human Settlement Layer, population estimate have an improved temporal accuracy, and offer a pilot for understanding how global population estimates can be derived with comparisons available across national and regional boundaries.

UN-GGIM discussed two case studies of how the Sustainable Development Goals can be mapped to the 14 themes, firstly through establishing the how geography is critical for the achievement of the goals, describing Burkina Faso’s work on monitoring drinking water nationally. For example, in utilising simple buffer zones for identifying access to water points is challenging, especially if geographic features that would prevent access, such as water bodies or ravines are not considered. Furthermore, through establishing the various datasets that are needed, combined with an appropriate methodology to create the indicator, it is possible to map the needs of the Sustainable Development Goals to the Global Fundamental Data Themes.

Following these primer presentations, workshop participants mapped the 14 themes to indicators from the 2030 Sustainable Development Goals, specifically those indicators which have been identified by the Inter-Agency Expert Group on Sustainable Development Goals’ Working Group on Geospatial Information (IAEG-SDG WGGI). The results of this work are denoted in Annex 2.

In mapping the 14 themes to the Sustainable Development Goals, core datasets under the themes were also identified.

Figure 1 Mapping the Global Fundamental Data Themes to the Sustainable Development Goals
Session 4 – Implementing the Global Fundamental Geospatial Data Themes.
Chair: UN-GGIM: Africa

Following the mapping of the themes to the Sustainable Development Goals, discussion turned to identifying how to implement the Global Fundamental Geospatial Data Themes. This included the understanding of the foundational requirements and gaps within national and regional policies.

RCMRD noted that it was necessary to address the fundamentals of data including its definition, collection/generation, management/custodianship, dissemination/sharing, standards, security, and privacy. Through taking this holistic approach, it will be possible to breakdown policy barriers built by outdated thinking. This policy thinking can be subsequently aligned with implementation strategies that are realistic, context-relevant, scalable and fit-for-purpose. Through developing National Institutional Arrangements and Skills, the capacity to implement the Global Fundamental Geospatial Data Themes can be strengthened nationally.

ECA presented that a multi-stakeholder approach to production, management, and dissemination of spatially enabled data. This would ensure that reliable spatially-enabled information is easily available for policy, investment, planning, management, monitoring and evaluation purposes at the regional and national scales – but recognised the not all new data sources can fit into traditional/official statistical systems – this necessitates mechanisms for a data ecosystem beyond the National Statistical System. In encouraging countries to open government data for the wider community of users, through agreed standards, metadata, data models, and encoding, the interoperability is possible. This will make the translation of the complex cycle of data acquisition, processing, analysis, visualization and decision making into real time planning, management and monitoring processes more efficient, in terms of human effort, time, and money.

Sessions 5 & 6: Applying the Global Fundamental Geospatial Data Themes and Leveraging Global and Regional Implementations of the Global Fundamental Geospatial Data Themes
Chair: UN-GGIM: Africa

Following the mapping of the 14 themes to the Sustainable Development Goals, a round table session was initiated. Following a primer presentation from the UN-GGIM Working Group on Global Fundamental Geospatial Data Themes, the following questions were posed to the workshop regarding pathways to national implementation of the themes:

- Is there already an NSDI initiative?
- Are there existing actions relating to fundamental geospatial data?
- Are there existing actions relating to the implementation of the GSGF in Africa?
- What are our national priorities and outcome priorities?
- Do we have a high-level champion?
- What principles and policies relating to data do we have?

In addition to the National policy questions, the following questions for workshop attendees to consider on how to implement the Global Fundamental Geospatial Data Themes were posed to workshop participants:

- What datasets are required within this theme?
- What datasets already exist?
  - Is there as custodian? Who?
  - What quality are they? Content, currency etc
  - What standards are used?
• What plans are there for this data?
• Are there any issues relating to this data which require action?
• What datasets do not exist?
• Is the source identified?
• How can sources be identified? To include non-traditional sources.
• Real world object or proxy data?
• Are additional laws or institutional arrangements needed?

In establishing these questions for workshop participants, a round table discussion was started to answer the following questions:

1. What actions are you going to take on your return?
2. How are you going to tackle the policy and high-level champion issues?
3. How are you going to tackle the fundamental data gaps?
4. How should ECA and the UN in general respond?

The following is a summary of this discussion.

UN-GGIM: Africa, noted that the most important thing for us to do is for ourselves to help ourselves. We cannot wait for help to arrive from outside. It’s our responsibility. We in Africa have the responsibility to leave no-one behind. Through workshops like this we have the opportunity for us to learn from each other, to learn about Global Fundamental Geospatial Data Themes and to compare with needed datasets and SDGs within the region. UN-GGIM: Africa needs to continue deliberations on this issue, so that the themes are taken up by those that need to understand and recognise these themes. In this regard, from the national perspective, we will aim to hold a workshop of main stakeholders of those that are relevant to the 14 themes. We will need to engage with our communities to understand where we are. In answering questions such as: Who is the custodian of the data, to what extent is it at? We can identify gaps within our datasets and identify the existing datasets themselves. We now have the authority and mandate to coordinate these efforts nationally. Regarding policy, we as UN-GGIM: Africa are working on an overarching policy framework for countries to develop their own national policy. We will need to push for the formulation of this policy framework, with the assistance of the ECA. Nationally, we will need to place this within the national perspective. Nationally, we are also working on a policy, we will then harmonise. I have reviewed the Terms of Reference of the Working Group on Fundamental Data, we need to consider how to develop the themes and identify sub-themes. Furthermore, in prioritising the data themes, particularly regarding the Sustainable Development Goals and the Africa 2063 agenda, the prioritisation of efforts will help us identify a process for progression and ensure we do not do everything at the same time. ECA needs to collaborate further to enable the development of capacity and coordination in this regard.

Botswana responded with the suggestion to provide key exemplars to policy makers that if they implement a specific policy, they will get that result. Once we have the policies, we can convince the government. Let’s complete the policies and market them at the political leadership; we have a challenge of strategy. We approach this from the bottom up, but we need to work from the top down too. There are numerous systems in place, but they need to be integrated together. While we nationally have the policy of e-government there is more that can be done to harmonise our geospatial information efforts. The challenge is getting it all to work together and therefore raises the need for standards and interoperability. We need to focus on policy concerns and custodianship. They will be complex and we will need assistance and capacity development to support the change of legislation and overarching policies. The infrastructure challenges are present, but we believe that ECA and RCMRD can refocus its objectives, in terms of technical assistance to help countries overcome the challenges that they have. I advocate for other countries to contribute to regional centres to assist countries in delivering in this regard. Some countries are ahead of others and can offer technical assistance to other countries, so we can all move forward together. In November we have a conference for Land Ministers and Permanent
Secretaries, it is an opportunity to invite ministers also from Statistics to further integration of statistical and geospatial information. While we already have the legal framework in place, this enshrines the need for integrating statistical and geospatial information. We each need to identify lead agencies that have the appropriate mandate to develop/coordinate the 14 themes through the National Spatial Data Infrastructure. We have high-level stakeholders, but we need to work close with them for them to advocate for us in cabinet. The governance structures also need to be formalised; we cannot work with informal structures, we need authority and approval through the ministries. This includes identifies key advocates within national data infrastructure. A data inventory will be used to identify your gaps. We have then placed this data online, with metadata, all available online. We found this was useful for others to help capture metadata. We have an economic wastage due to overlapping programs by individual ministries duplicating projects. We need to work out where we need help. There is an issue of data access, data interoperability, to help structure our policies on data sharing and technology. We need to certify data before releasing for public use, so we need to develop policies that enable this in a timely manner.

Namibia echoed the need the high-level political involvement, that will enable National Mapping to be taken to the next level. Politicians do not want to hear about data. They want to hear the language that they’re familiar with. We need to demonstrate why and how we can do the fundamental data for the SDGs.

Zambia discussed the need for learning and capacity development, especially regarding the opportunity to develop on existing programs and infrastructure. In terms of gaps, there was a statement regarding the need for countries to be provided with technical guidance with the formulation of policies which in turn will support an understanding of standards and policies, and further establish national legal and policy frameworks.

South Sudan discussed the progress that his country has been making regarding the implementation of legal and policy frameworks that have been established. An exemplar of this is the National Strategy for the Development of Statistics, but a common understanding of the importance of geography needs to be further established and advocated for within the NSDS. From here, the aim will be able to resolve the challenge of convening stakeholders to identify the data gaps. He further noted that there is the challenge of leadership on these issues, while his staff are pushing from the bottom - can the UN and ECA push from the top? In addition, it was noted that while an online national data portal had been implemented, with the assistance of RCMRD, the challenge of IT, power, and infrastructure challenges prevent the operation of the portal. In leveraging other, alternative data sources, such as OpenStreetMap, certain challenges are mitigated with having a data available for quick assessments but there lies a question for us in making this data authoritative.

Tunisia noted the establishment of a national law which identifies producers and custodians of data, includes 22 themes and 122 datasets that much cover the country within the National Geospatial Data Infrastructure. This includes high-resolution aerial data for urban areas and rural areas. To meet data gaps within national institutions, they build partnerships between public and private institutions.

Mozambique noted the distributed nature of datasets across the country, but emphasised the role that her centre plays in coordinating geospatial curation and creation.

Senegal noted the importance and need for standardised geospatial information and data generally. This assists with the dissemination of data throughout government through the National Spatial Data Infrastructure policy.

South Africa summarised the discussion by stating that while Africa stands prepared due to the Africa Action plan, it is limited by scarce resources. Because of this, our community agreeing to implement the Global Fundamental Geospatial Data Themes offers an opportunity optimising scarce resources. Furthermore, in creating knowledge development indicators that identify the relevance of the themes,
this will help us express our challenges to the decision and policy makers, providing data for evidence based decision making.

Summary

The International Workshop on Global Fundamental Geospatial Data Themes for Africa focused on the use of 14 internationally agreed Global Fundamental Data Themes as a framework to focus efforts to improve the availability, accessibility and application of geospatial information in support of sustainable development in Africa. The workshop also identified challenges and opportunities to further the implementation of the Global Fundamental Geospatial Data Themes in the African context, and provided guidance on how to strengthen the National Spatial Data Infrastructures (NSDIs) both regionally and globally with support of United Nations Global Geospatial Information Management (UN-GGIM): Africa.

Further material can be found here:

Annex 1: Workshop Agenda

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<th>Time</th>
<th>Session</th>
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| 0900 – 0920| **Welcome Remarks and Introductions**  
- Mr Oliver Chinganya, Director, African Centre for Statistics  
- Mr Sultan Mohammad, Chair, UN-GGIM: Africa  |
| 0920 - 0940| **ECA Self-Assessment Question: Geospatial**  
Overview of the geospatial section of the self-assessment questionnaire on the integration of administrative data, big data and geospatial information for the compilation of SDG indicators: Integration of statistical and geospatial information progress in the integration of GIS to improve the production, analysis and use of SDG Indicators.  
Presenter:  
- Mr Haile Mulualem, ECA  |
| 0940 – 1030| **Sustainable Development Goal Indicator Demos**  
This session examines country case studies on how the use of innovative data sources can support the 2030 Sustainable Development Goals’ implementation and monitoring of the indicator framework. Following presentations, a question and answer session will follow.  
Presenters (10 minutes):  
- Ms. Lovisa Nangombe, Namibia  
- Mr. Malamsha Deogratius Herman, Tanzania  
- Mr Abdel Aziz Konate, Burkina Faso  |
| 1030 – 1100| **Break**  |
| 1100 – 1230| **Integrating the broader data ecosystems: Integrating the Global Statistical Geospatial Framework and the Global Fundamental Geospatial Data Themes**  
The Global Statistical Geospatial Framework is a high-level framework which facilitates consistent production and integration approaches for geo-statistical information. The Global Fundamental Geospatial Data Themes are 14 themes which underpin national statistical and geospatial data needs and offer National Statistical Organisations and National Mapping Agencies foundational data needs. This session will examine how these two initiatives can be combined to support and empower government agencies with maximising the potential statistical and geospatial information and how the two combined will lead to a greater outcome than the sum of its parts.  
Following primer presentations, discussion will open with the mutual Statistical and Geospatial communities to identify opportunities for improving integration between these initiatives.  
Primers (15 minutes):  
- Mr Luis Gonzalez Morales, UNSD  
- Mr Emmanuel Nkurunziza, RCMRD  
- Mr Andre Nonguierma, ECA  |
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<th>Time</th>
<th>Session 2: Geospatial information systems: The Global Fundamental Geospatial Data Themes Chaired by UNSD/UN-GGIM</th>
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<td>1230 - 1330</td>
<td>Lunch</td>
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<tr>
<td>1330 – 1430</td>
<td><strong>The History of the Global Fundamental Geospatial Data Themes</strong></td>
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<td>The concept of fundamental data themes is not new, especially within Africa. Africa has led the way in developing fundamental datasets for Africa, since 2007. Now at the international level the Global Fundamental Geospatial Data Themes have been endorsed by countries.</td>
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<td>Presenters (20 minutes):</td>
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<td>- Mr Greg Scott, UNSD/UN-GGIM Secretariat</td>
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<td>- Mr Derek Clarke, South Africa</td>
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<td>1430 – 1500</td>
<td><strong>Break</strong></td>
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<td>1500 – 1700</td>
<td><strong>The Global Fundamental Geospatial Data Themes Journey: Introduction into the 14 Themes</strong></td>
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<td>This segment expands on the history of the Global Fundamental Geospatial Data Themes by providing the journey of the themes within the inter-governmental process, how they can underpin policy development, and introduces the 14 themes in detail. Following presentations is a discussion session, with questions and answers following presentations.</td>
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<td>Presenters (30 minutes):</td>
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<td>- Ms Clare Hadley, United Kingdom/UN-GGIM GFGDT Technical Lead</td>
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<td>- Mr Mark Iliffe, UNSD/UN-GGIM Secretariat</td>
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<td>1700 - 1730</td>
<td><strong>Closing ceremony</strong></td>
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<td>This session closes the Statistical/Geospatial Integration day, summarises work, and presents information on the Geospatial World Congress, which will be held in Deqing, China 19-21 November 2018.</td>
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<td>Convenors:</td>
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<td></td>
<td>- Mr Luis Gonzalez Morales, UNSD</td>
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<td></td>
<td>- Mr Greg Scott, UNSD/UN-GGIM Secretariat</td>
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<tr>
<td></td>
<td>- Mr Oliver Chinganya, Director, African Centre for Statistics</td>
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</tbody>
</table>
### Thursday 26 April

**Session 3: Global Fundamental Data Themes**  
*Chaired by UNGGIM: Africa*

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>0900 – 1030</td>
<td><strong>The Global Fundamental Geospatial Data Themes in Africa</strong></td>
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<td>This session takes a deep dive into the Global Fundamental Geospatial Data Themes. The relevance</td>
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<td>and impact of the themes will be examined through presentations at Global, Regional, and Countries</td>
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<td>levels. This segment will also introduce the context and challenges within the scope of Africa 2063</td>
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<td>and the 2030 Sustainable Development Agenda through presentations and discussions.</td>
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<td>Presenters (15 minutes):</td>
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<td></td>
<td>- Mr Sultan Mohammad, Chair, UNGGIM: Africa</td>
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<td></td>
<td>- Mr Andre Nonguierma, ECA</td>
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<td></td>
<td>- Mr Derek Clarke, South Africa</td>
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<tr>
<td>1030 – 1100</td>
<td><strong>Break</strong></td>
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<tr>
<td>1100 – 1230</td>
<td><strong>National examples of Geospatial and Statistical Information Integration using the Global</strong></td>
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<td><strong>Fundamental Data Themes</strong></td>
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<td>This session establishes country level exemplars of the integration of Geospatial and Statistical</td>
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<td>Information and the Global Fundamental Data Themes to achieve positive outcomes, whether for</td>
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<td>national policy or to achieve specific indicators of the 2030 Sustainable Development Goals’</td>
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<td>Indicator Framework.</td>
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<td>Primers (15 minutes):</td>
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<td></td>
<td>- Mr Derek Clarke, South Africa</td>
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<td></td>
<td>- Mr Mark Iliffe, UNSD/UN-GGIM Secretariat</td>
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<td>Following these primer presentations, breakout discussions will identify how individual countries</td>
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<td>can achieve beneficial outcomes through the implementation of the Geospatial and Statistical</td>
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<td>Information and the Global Fundamental Data Themes.</td>
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<td></td>
<td>Facilitator: Ms Clare Hadley, United Kingdom</td>
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<tr>
<td>1230 – 1330</td>
<td><strong>Lunch</strong></td>
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</table>
### Session 4: Implementing the Global Fundamental Geospatial Data Themes  
**Chaired by UNSD**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Details</th>
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<tbody>
<tr>
<td>1330 - 1430</td>
<td>Implementing the Global Fundamental Geospatial Data Themes</td>
<td>The Global Fundamental Geospatial Data Themes have been partially implemented across Africa. This session will build upon the preceding session, through group discussion, to further identifying how to implement the Global Fundamental Geospatial Data Themes. Facilitator: <em>Ms Clare Hadley, United Kingdom</em></td>
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<tr>
<td>1430 – 1500</td>
<td>Break</td>
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</table>
| 1500 – 1730 | Requirements for Implementing the Global Fundamental Geospatial Data Themes in Africa | Identifying how to implement the Global Fundamental Geospatial Data Themes requires an in-depth understanding of the requirements and gaps within national and regional policy. This session will examine the requirements for the implementation of the Global Fundamental Geospatial Data Themes, proceeding to breakout discussions on the requirements for implementation. Presenters (15 minutes):  
  - *Ms Clare Hadley, United Kingdom*  
  - *Mr Emmanuel Nkurunziza, RCMRD, Kenya*  
  - *Mr Andre Nonguierma, ECA*                                                        |
| 1730    | Close                                                                    |                                                                                                                                                                                                         |

**Friday 27 April**

### Session 5: Applying the Global Fundamental Geospatial Data Themes  
**Chaired by UNSD**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Details</th>
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</table>
| 0900 – 1030 | Applying the Global Fundamental Geospatial Data Themes | The application of the Global Fundamental Geospatial Data Themes will accelerate technical capacity development and the monitoring of the 2030 Sustainable Development Goals. Primers (20 minutes):  
  - *Ms Clare Hadley, United Kingdom*  
  - *Mr Andre Nonguierma, ECA*  
  Following primer presentations, interactive breakout groups will convene to discuss how the Global Fundamental Geospatial Data Themes can be applied within their local context and reported back to workshop participants. Facilitator: *Ms Clare Hadley, United Kingdom* |
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<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>1030 – 1100</td>
<td><strong>Break</strong></td>
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<tr>
<td>1100 – 1200</td>
<td><strong>Session 6: Leveraging Global and Regional Implementations of the Global Fundamental Geospatial Data Themes</strong></td>
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<td><em>Chaired by ECA</em></td>
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<tr>
<td>1100 – 1200</td>
<td><strong>The opportunity of the Global Fundamental Geospatial Data Themes for Africa</strong></td>
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<td>This panel session will summarise the opportunity of the Global Fundamental Geospatial Data Themes, summarising the pathway for the amelioration of Africa's geospatial information infrastructure.</td>
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<td>Panellists:</td>
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<td></td>
<td>- Mr Greg Scott, UNSD/UN-GGIM Secretariat</td>
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<td></td>
<td>- Mr Andre Nonguiema, ECA</td>
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<td></td>
<td>- Mr Derek Clarke, South Africa</td>
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<td></td>
<td>- Ms. Clare Hadley, United Kingdom</td>
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<tr>
<td>1200 - 1230</td>
<td><strong>Breakout, Questions and Answers</strong></td>
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<tr>
<td>1230 - 1330</td>
<td><strong>Lunch and Close of Workshop</strong></td>
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</table>
Annex 2: Mapping the Global Fundamental Geospatial Data Themes (and datasets) to the Sustainable Development Goals

<table>
<thead>
<tr>
<th>SDG -&gt; Theme</th>
<th>1</th>
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<td><strong>Addresses</strong></td>
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<td>Postal addresses</td>
<td>Property addresses</td>
<td>Household addresses</td>
<td>Business addresses</td>
<td>Physical/location addresses</td>
<td>Street addresses and street ranges</td>
<td>Proxies for households</td>
<td>Postal addresses</td>
<td>Property addresses</td>
<td>Household addresses</td>
<td>Business addresses</td>
<td>Physical/location addresses</td>
<td>Street addresses and street ranges</td>
<td>Commercial addresses</td>
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<td><strong>Buildings &amp; Settlements</strong></td>
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<td>Dwelling types</td>
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<td>3D building models</td>
<td>Dwelling types</td>
<td>Commercial and industrial</td>
<td>3D building models</td>
<td>Urban/rural divide</td>
<td>Dwelling types</td>
<td>Commercial and industrial</td>
<td>3D building models</td>
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<td><strong>Elevation &amp; Depth</strong></td>
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<td>Administrative Areas</td>
<td>Public Service Areas</td>
<td>Health Districts</td>
<td>Emergency service areas</td>
<td>Public Services</td>
<td>Social Security Distribution</td>
<td>Water Service Areas</td>
<td>Administrative Boundaries</td>
<td>Solar Potential</td>
<td>Administrative Areas</td>
<td>Public Services</td>
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<td><strong>Functional Areas</strong></td>
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<td>Administrative Areas</td>
<td>Public Services</td>
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<td><strong>Geographical Names</strong></td>
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<td>Locality Names</td>
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<td><strong>Geology and Soils</strong></td>
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<td>Salinity</td>
<td>Engineering Geology</td>
<td>Soil type</td>
<td>Engineering Geology</td>
<td>Structural Geology</td>
<td>Landslides</td>
<td>Volcanic activity</td>
<td>Reefs</td>
<td>Marine sub-structure</td>
<td>Mineral resources</td>
<td>Degraded soils</td>
<td>Soil types</td>
<td></td>
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</tbody>
</table>
| Land Cover and Use | • LU Zones  
• LU – Actual  
• Cover Data  
Recreational land | • Land Use  
• Land use, especially industry  
• LU Zones  
• LU – Actual  
• Cover Data  
Recreational land | • Vegetation  
• Forest  
• Biomes  
• Degraded areas  
• Contributes to Habitats and ecosystems |
|---|---|---|
| Land Parcels | • Valuation  
• Ownership  
• Size  
• Tenure  
• Easements  
• Restrictions  
• Occupancy/use | • Valuation  
• Ownership  
• Size  
• Tenure  
• Easements  
• Restrictions  
• Occupancy/use | • Valuation  
• Ownership  
• Size  
• Tenure  
• Easements  
• Restrictions  
• Occupancy/use |
| Orthoimagery | • Land cover source  
• Basemaps | • Land cover source  
• Basemaps | • Land cover source  
• 3D source  
• Basemaps |
| Physical Infrastructure | • Hospitals  
• Clinics by type  
• Medical facilities  
• Industrial pollutants | • Electrical Grid  
• Type  
• Utilities  
• Cell towers | • Schools  
• Medical facilities  
• Utilities  
• Government buildings  
• Breakwaters  
• Navigation infrastructure  
• Harbours |
| Population Distribution | • Age  
• Demographics  
• Health Workers | • Age  
• Demographics | • Age  
• Demographics  
• Dwelling type  
• Age  
• Income  
• Employment  
• Disability |
| Transport Networks | • Road network  
• Rail network  
• Path network | • Accessibility  
• Road & air pollution  
• HIV vectors  
• Road Traffic Accidents | • Road network  
• Road surface  
• Rail network  
• Air network  
• Water network  
• Road network  
• Rail network  
• Path network  
• Cycle network  
• Stations  
• Bus stops  
• Taxi ranks  
• Shipping routes  
• Harbours |
| Water | • Malaria areas  
• Rivers & vectors for disease  
• Clean water supply | • Quality | • Quality – acidity, eutrophication, salinity, temp  
• Currents  
• Debris  
• Drainage network  
• Quality  
• Flood data  
• Contributes to Habitats and ecosystems |