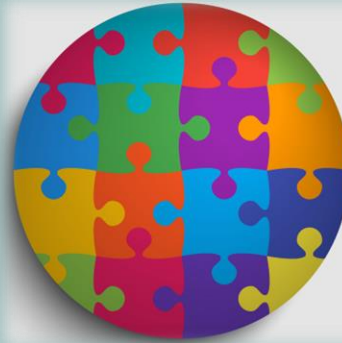




Africa. Geospatial Infrastructure | Holistic Geospatial information Vision



SOLUTION



SUPPORT



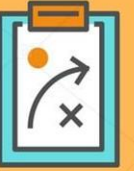
VISION



GROWTH



TEAMWORK



TACTICS



CAREER



STRATEGY



MISSION

ANDRE NONGUIERMA

GEOSPATIAL INFORMATION MANAGEMENT

UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA

UN-IGIF • REGIONAL WORKSHOP • ACCRA • 17 NOVEMBER 2025

WHY GEOSPATIAL INFORMATION MATTERS FOR AFRICA



UN-GGIM

United Nations Secretariat
Global Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org

NSDI Context

- A right decision making requires the gathering and reviewing of up-to-date, cold & hard facts.
- For the facts to be interpreted, understood, and linked to our goals and to our decisions, this needs to bring together data linked with the one thing they have in common: Location **(Where)**

Why we need Geospatial Information

- The Policy Drivers : Global Need for Spatially-Enabled Complex Information
- Everything that happens, happens somewhere over space and time
- 80% of all human decisions involve a “Where?” question
- You cannot count what you cannot locate
- Location affects nearly everything we do in life.

IGIF Business Model

- A paradigm shift.... From... geospatial information as standalone data collection... to Knowledge generation, sharing and dissemination
- Organize data so that information (spatially enabled) can be produced as and when needed
- Just in time data on demand
- Produce Once, Use Many Times
- Data collected for one purpose or project can be used for other purposes and projects
- Empower users to do as much as possible by themselves

Geospatial Information Nexus Issues

Availability

Finding the appropriate information at the required time and at the relevant scale of aggregation.

Accessibility

Even where information is available, it may not be easily accessible, either because of the lack of technology or because of associated costs

Transformability

There is a general lack of infrastructure capacities for the collection and assessment of data, for their transformation into useful information and for their dissemination.

Governance

There is a need for improved coordination among scattered data information, applications & services ecosystems in environment, demographic, social.

Key Pillars

- IGIF : Frameworks with related policies & structures
- FDS : Fundamental Geospatial Datasets
- AFREF : African Geodetic Reference Frame
- SALB : Second Administrative Level Boundaries
- GeoNyms : Geographic Names
- Geo-Stats : Locate & Count

Way Forward

Policy : Institutional mechanisms aligned with national efforts, while taking into account international perspectives

Data democracy : Ubiquitous availability of relevant spatial data/information as common goods. Adhering to agreed standards : metadata, data models, encoding, interoperability

People : High Level Education to empower African youth in geospatial science and technology culture at all education levels (schools, universities)



**Strengthening
governance
of geospatial
information**



**Meeting
urgent
development
needs**



**Providing a
service
(Spatial
enablement)**



Africa.Geospatial Infrastructure | About ECA | [www.uneca.org]

Context

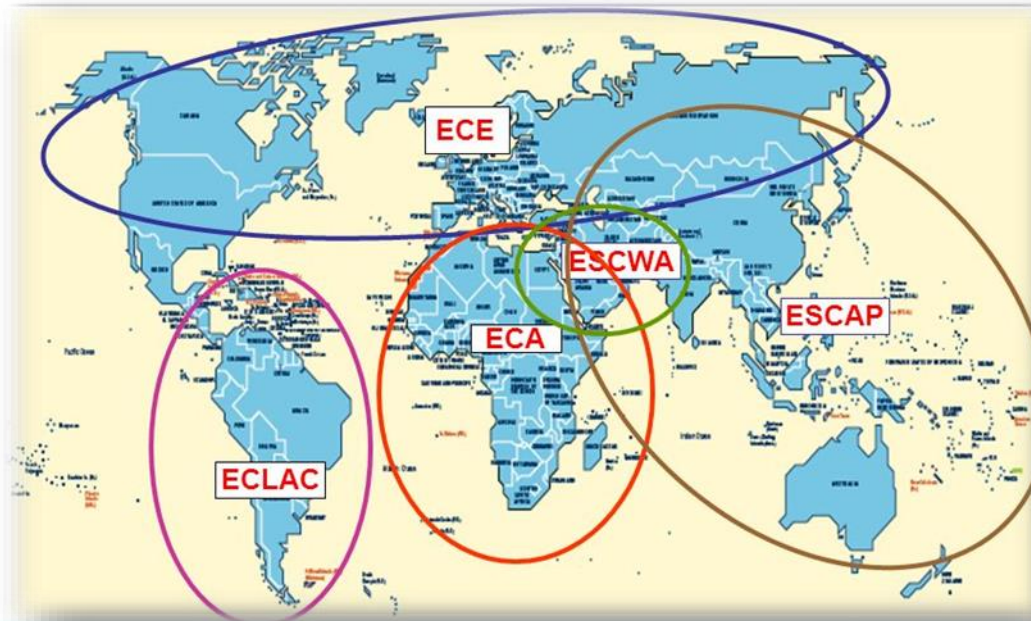
- One of three Regional African Institutions (1958)
- Reports to African Conference of Ministers of Finance & Planning

Mandate

- Support regional development priorities
- Undertake activities to advance social and economic development in Africa

Operations

- Technical Assistance • Advisory Services • Convening • Think tank



The screenshot shows the ECA website with the following elements:

- Header:** United Nations Economic Commission for Africa. Language options: English, Français. Search bar.
- Navigation:** About ECA, Our Work, Subregional Offices, Capacity Development, Publications, Events, Media Centre, Contact Us.
- Featured Content:**
 - Investing in people-centered innovation and technology essential to Africa's development. [READ MORE](#)
 - Knowledge and Innovation for Africa's Transformation. [PREVIOUS](#) 2/7 [NEXT](#)
 - MAJOR EVENTS:
 - AFRICAN ECONOMIC CONFERENCE 2014: 01-03 November 2014, Addis Ababa, Ethiopia.
 - CONFERENCE ON LAND POLICY IN AFRICA: 11-14 November 2014, Addis Ababa, Ethiopia.
 - AFRICA CHEETAH RUN: THE EXECUTIVE SECRETARY'S BLOG. POSTED ON: 16 OCTOBER 2014. *Innovative Financing a Must for Africa*
- RECENT STORIES:**
 - 06 NOVEMBER 2014: As elections become more regular in Africa, so has intolerance of diversity.
 - 05 NOVEMBER 2014: Irish President Michael D. Higgins calls for African-driven alternative development models.
- MAIN AREAS OF WORK:**
 - Macroeconomic Policy
 - Social Development
 - Regional Integration and Trade
 - Natural Resource Management
 - Innovation & Technology
 - Gender
 - Governance
- AFRICAN POLICY CENTRES:**
 - African Centre for Statistics
 - AMDC: African Minerals Development Centre
 - IDEP: African Institute for Economic Development and Planning
 - African Climate Policy Centre
 - Land Policy Initiative
 - African Trade Policy Centre
- ECA DATABANK:**
 - Quote: "What proportion of the total population in Africa use an improved drinking water source?"
 - Discover more on the ECA DATABANK



UN-GGIM

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Global Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org



Africa. Geospatial Infrastructure | ECA Core Functions

Think-tank Function

- Generating knowledge and applied policy research.
- Organizing experts' reviews on the analytical work of ECA and facilitating the implementation of policy recommendations

Convening Function

- Providing regional intergovernmental platforms to discuss regional and national issues and matters of common concern.
- Providing a platform for ECA policy organs

Operational Function

- Providing policy advise to countries and implementing capacity development at regional, sub regional and country level.
- Providing training and policy support through the African Institute IDEP

100+

Convening

1. Conference of Ministers
2. UN-GGIM: Africa Regional Committee
3. Other Suprogrammes Committees



Think Tank

1. Policy Frameworks
2. Guidelines & Advices
3. Handbooks | Manuals

100+

120

Operational

1. Programmes & Projects
2. Capacity Development
3. Technical Assistance



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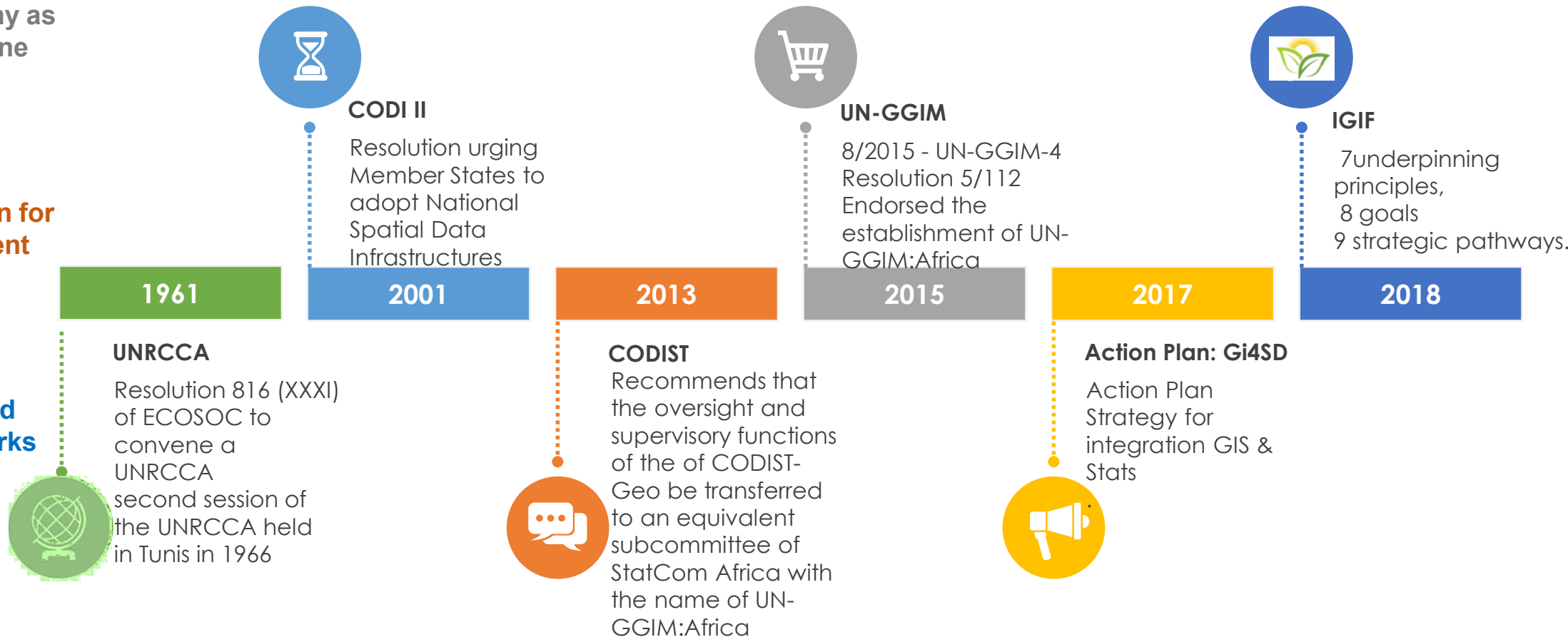


Africa. Geospatial Infrastructure | The path of Progress

...**From**
cartography as
a standalone
activity

...**To**
information for
development

...**To**
integrated
frameworks



UN-GGIM

United Nations Secretariat
Global Geospatial Information Management

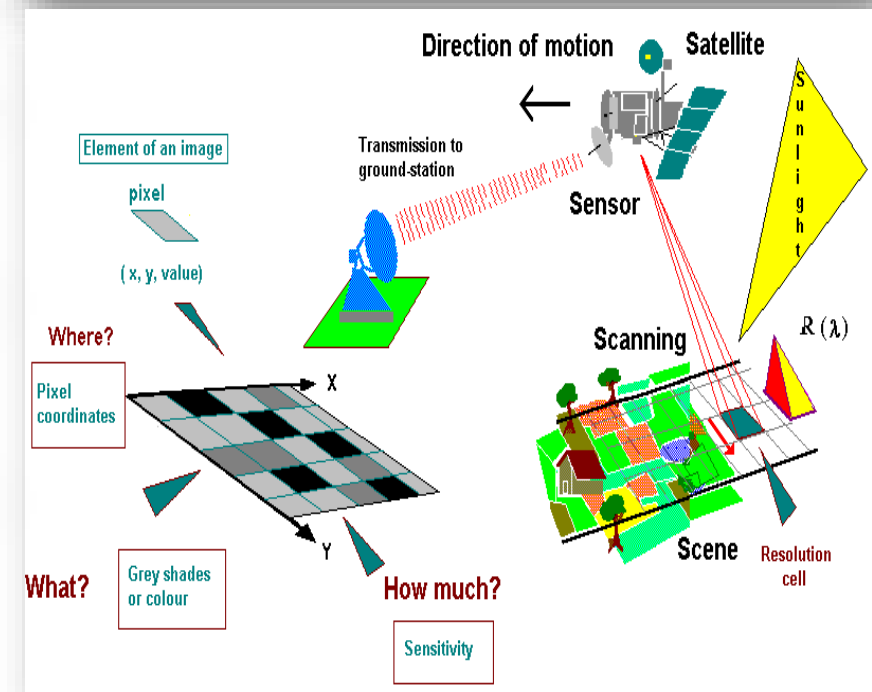
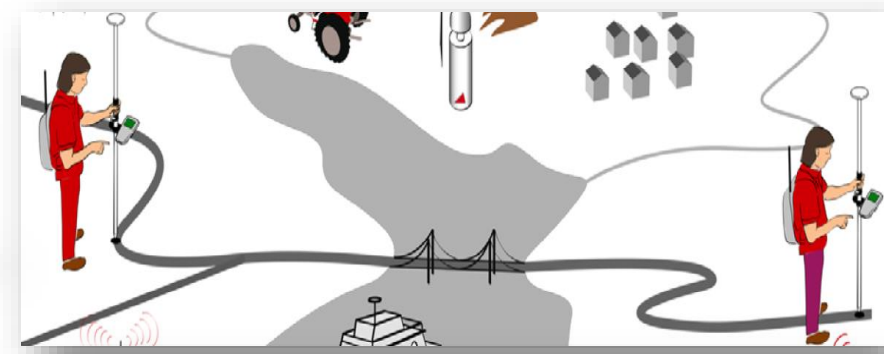
Positioning geospatial information to address global challenges

ggim.un.org

Mapping of the African continent has been at best very patchy. The territories of many countries have not been systematically mapped, particularly in the post-colonial era, at scales that are adequate for national development purposes.

There have been several project-specific mapping activities, but they have often been sporadic and have usually tended to meet the minimum requirement of a particular project. In addition, institutions in the North hold much of the data, with little or no access to users in Africa.

Core Data : Poor Mapping Coverage Lack of consistency	2.5 % of the Continent is Mapped at 1/25.000 (Europe: 86.9% ; Russia : 100%)
Frameworks & Tools :	Poor Interoperability Lack of Standardisation Non codified rules for data access
Applications: Duplication of efforts	Several applications build repetitively the same datasets Data are not publicized
Capacity : Recognition & Retention of Professionals	Critical mass. Turnover
Governance: Lack of Coordination	Redundancies in initiatives. Inadequacy





Africa. Geospatial Infrastructure | National Governance

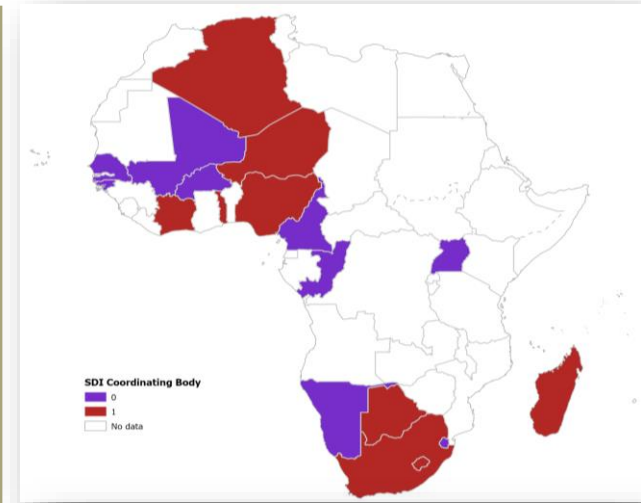
Many NSDI initiatives are stalled after setting up the Management Committee

Policy development is a highly sensitive issue, as it involves people, end-users and decision-policy makers, their influence and their privileges in the respective communities concerned.

Therefore, any process should start in the minds of the people, the mind of the most influential ones: policy and decision makers.

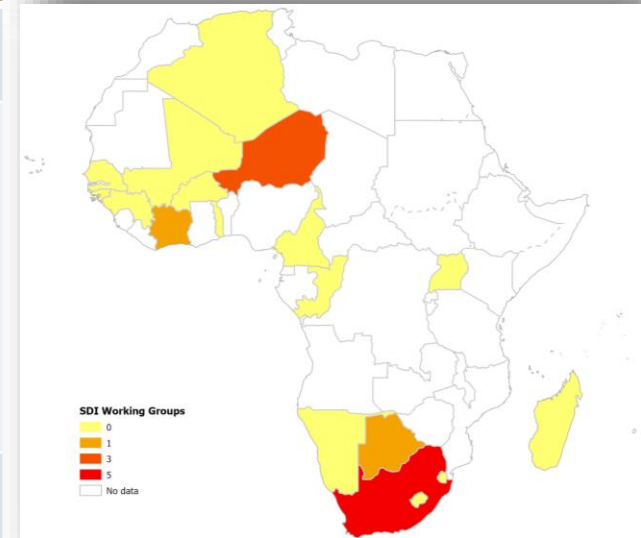
Countries with SDI Coordinating Bodies

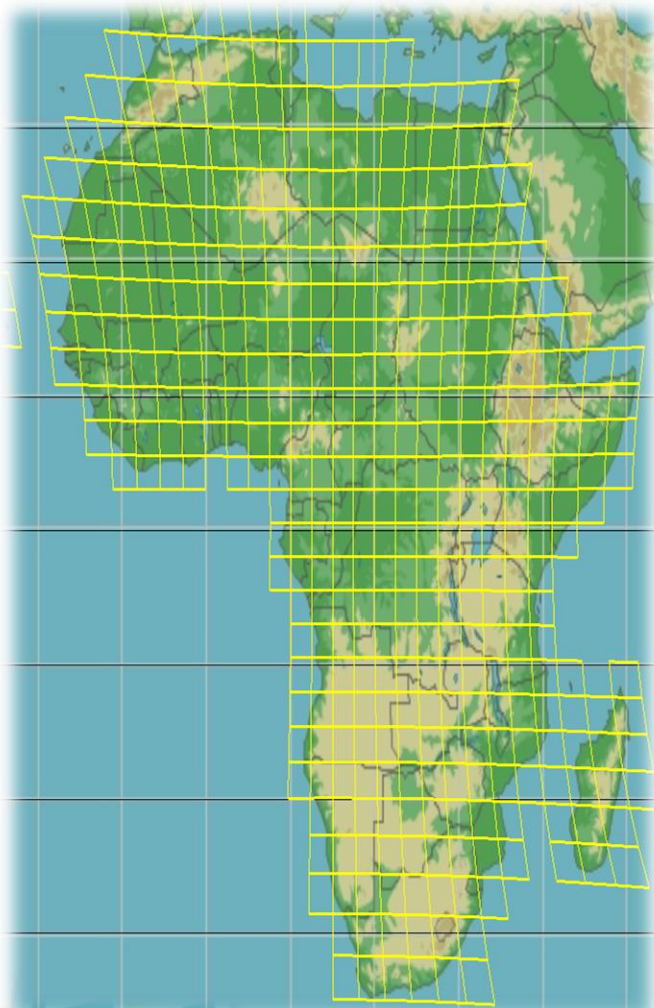
Botswana, Burkina, Congo, Eswatini, Liberia, Madagascar, Mali, Namibia, Nigeria, Senegal, South Africa, Sudan, Tanzania, Zambia



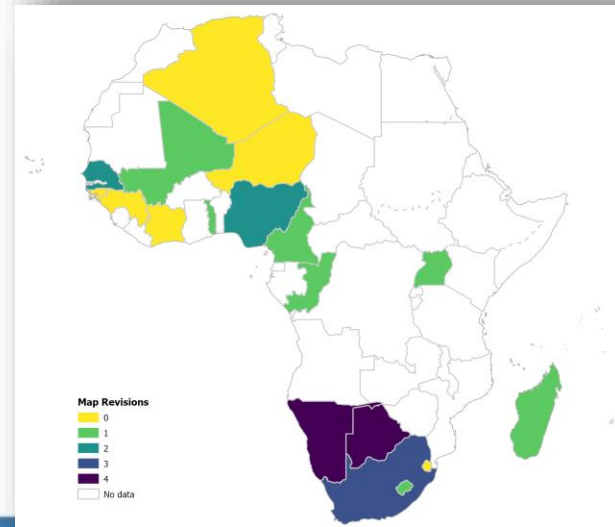
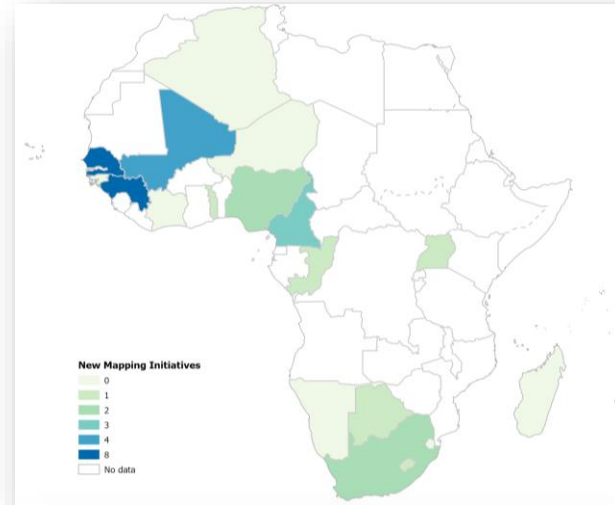
Countries with NSDI Committee, Sub-Committees, Working Groups

Botswana, Burkina, Eswatini, Liberia, Mali, Namibia, Nigeria, South Africa, Tanzania.





<p>Countries with New Mapping Initiatives</p>	<p>Botswana, Burkina, Congo, Eswatini, Lesotho, Liberia, Madagascar, Mali, Namibia, Niger, Nigeria, Senegal, South Africa, Sudan, Tanzania, Zambia</p>
<p>Countries with Maps Revision</p>	<p>Botswana, Burkina, Congo, Eswatini, Lesotho, Liberia, Madagascar, Mali, Namibia, Nigeria, Senegal, South Africa, Sudan, Tanzania, Zambia</p>





Africa. Geospatial Infrastructure | Where to Focus on

1. Improved Data Acquisition, Processing and Dissemination

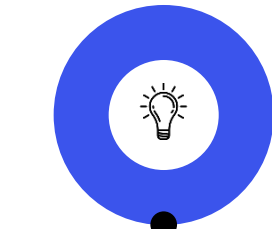
- A streaming service delivering access to satellite imagery.

2. Consistent Methods and Tools

- Real time applications : moving from analyzing and presenting discrete data sets towards working with streams of spatially-enabled data

3. Comprehensive, Holistic, Vision-driven Education

- Spatial awareness : building spatially aware citizens with the essential technological skills and abilities



Policies



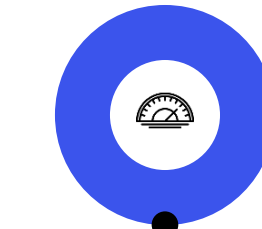
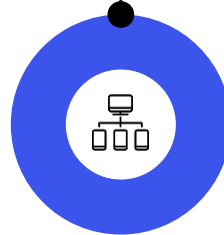
Governance

Formulate policies and develop information infrastructures
GKI mainstreaming in development strategies, political backing and legal/institutional/regulatory frameworks

Capacities

Set up Enabling environment, including people participation

People



Process

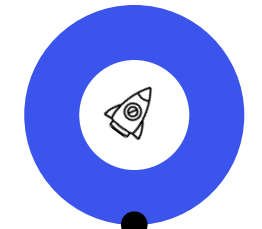
Infrastructures

Strengthen the functions and operational infrastructures
e.g. the AFREF GNSS Network

Societal Benefit

Promote localisation through more applications
Spatial enablement of services that communities needs : incorporate location into problem solving

Profit



Partnership

Linkages

Building multi-stakeholder-partnerships :
Private & public involvement subject to context, policies and approaches taken
Strengthening South-South exchange



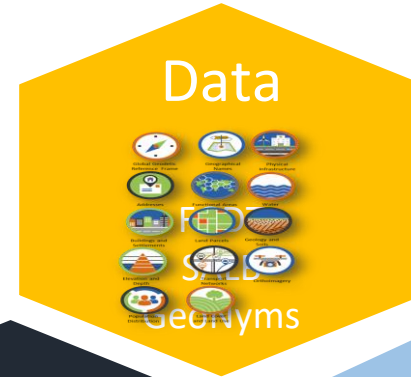
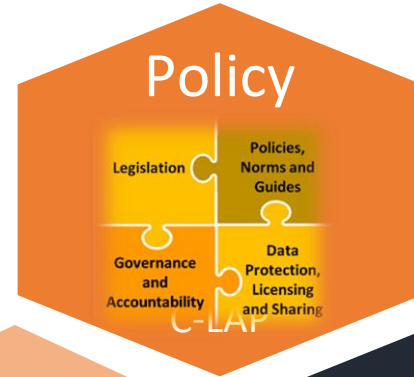
UN-GGIM

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Global Geospatial Information Management

Positioning geospatial information to address global challenges

ggim.un.org

- Frameworks with related policies & infrastructures
- Integrated Geospatial Information Framework
- National Spatial Data infrastructure



- Fundamental geospatial datasets
- Taxonomy of geospatial data
- Second administrative level boundary
- Geographic Names

- Geoportals
- Standards
- Web data services
- APIs



- Mainstreaming GIS in NSOs
- Integrating Geospatial and Statistical Information
- Developing Geocoding schemes
- Census mapping

- African Geodetic Reference Frame
- eLearning on geospatial benefits
- Spatial awareness and literacy
- Regional Centres of Excellence: AFRIGIST, RCMRD



- Facilitate and encourage linkages international programs and initiatives
- Networks | UN-GGIM | ISPRS
- Private Sector | Esri | Trimble



Dialogue

Regional Committee:
Organization of the 10th Session (OCT..2024)
Working Groups: Revamping Structures, Composition and Modis Operandi



Policy Dialogues:

- Overarching Geospatial Governance Mechanism
- Integrated geospatial information framework: Mali Cameroon, etc.



Operations

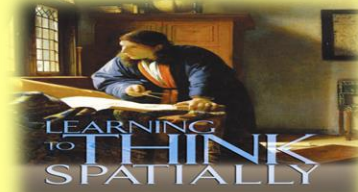


GEO.4.Nations | Support to countries • Development of a geodatabase for urban spatial frameworks in Africa: case study of Luanda • Building of a geospatial data repository of over 70 gigabytes of urban features



Knowledge

Urban Spatial Frameworks for Africa. A guide on using geospatial data sources to map and monitor urbanization in Africa.



- Method for Integration of geospatial data in Small Area Estimation (SAE) in the health sector
- SDG Data Hubs



Partnership

UN-GGIM Secretariat

1. UN-GGIM 13th Session
2. Expanded Bureau
3. HLG – IGIF
4. IAC of CoE
5. EG-ISGI | WG Disasters

- Agreement with Trimble.
- Advisory Services to AFRIGIST & RCMRD
- AUC • NewSpace Africa Conference • FIG • ICA



Capacities

- e-learning courses on Business model options for IGIF sustainably financing
- Webinars | GeoAI | GNSS reference Frames in Africa



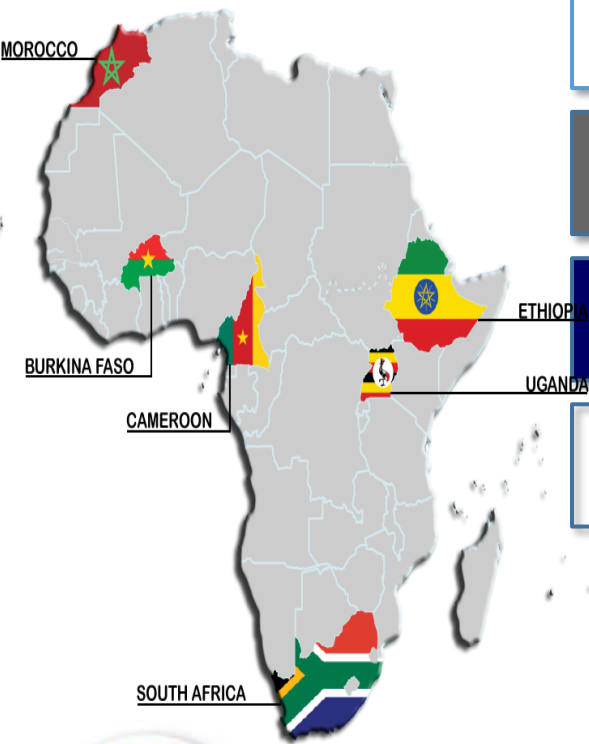
National Trainings:

- GMES.Africa Programme
- Digital Earth Africa | Weekly Live sessions every Wednesday



Africa.Geospatial Infrastructure | ACTIVE QUICK WIN: UN- GGIM

Executive Board (2024)



UN-GGIM Asia-Pacific (2012)	UN-GGIM Africa (2019)	UN-GGIM Arab States (2014)	UN-GGIM Americas (2013)	UN-GGIM Europe (2014)
Japan ROK/Mongolia China	South Africa, Cameroon, Morocco, Uganda, Burkina Faso, ECA	Saudi Arabia Algeria Jordan	Mexico Chile Mexico	Sweden Netherlands/ EuroGeographics
WG 1 Geodetic Reference Frame for SD	WG1: IGIF Integrated Geospatial Information Framework	WG Institutional, Legal, Policy	WG NSDI	European Commission + Eurostat
WG 2 Data Sharing & Integration for Disaster Mgt	WG2: ISGI Integration of statistical and geospatial information	WG Fundamental Data & Geo Standards	WG Integration Stat & Geo	Euro Geographics
WG 3 Place-Based Information for Economic Growth	WG3: AFRF African Geodetic Reference Frame	WG Geodetic Reference	WG Regional Coordination & Cooperation	WG A Core Data
	WG4: LAM Land administration and management	WG Integration Stat&Geo	WG GI in DDR	WG B Data Integration

Working Group (2018)	Chair	Members	No Voting Members
WG1: IGIF Integrated Geospatial Information Framework	1. South Africa	2. Burkina Faso 3. Morocco 4. Botswana 5. Cameroon	Madagascar Nigeria Senegal South Africa AFRIGIST RCMRD UNECA
WG2: ISGI Integration of statistical and geospatial information	1. Camero	2. Cameroon 3. South Sudan 4. Burkina Faso 5. Algeria	Côte d'Ivoire Madagascar Mali Niger Nigeria Senegal AFRIGIST RCMRD UNECA
WG3: AFRF African Geodetic Reference Frame	1. Cote d'Ivoire	2. Nigeria 3. South Africa 4. Ethiopia 5. Central Africa [TBD]	Burkina Faso Morocco AFRIGIST RCMRD UNECA
WG4: LAM Land administration and management	1. Morocco	2. Kenya 3. Eswatini 4. Côte d'Ivoire 5. Central Africa [TBD]	South Africa Burkina Faso AFRIGIST RCMRD UNECA

Executive Working Groups



UN-GGIM

United Nations Secretariat
Global Geospatial Information Management

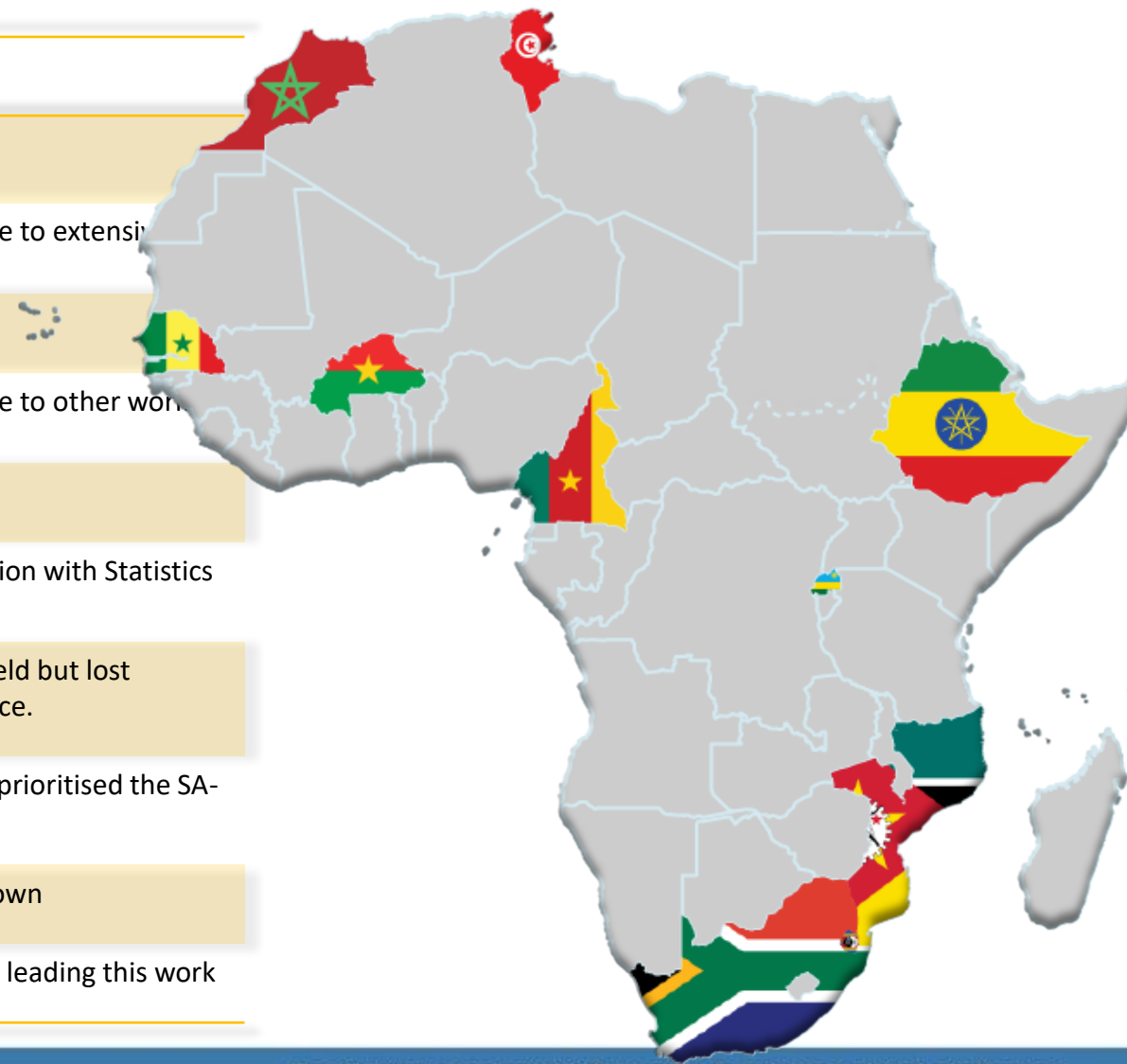
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Africa. Geospatial Infrastructure | ACTIVE QUICK WIN: UN-IGIF

Country	Model	Status of the CLAP
Burkina	Development Account	Complete
Cameroon	UN-GGIM Approach	Good progress, last stages but delayed due to extensive consultation
Ethiopia	Development Account	Completed in Dec 2022
Eswatini	UN-GGIM Approach	Good progress, last stages but delayed due to other work pressures
Morocco	To be confirmed	Not started, awaiting authorisation
Mozambique	Development Account	Made good progress with CLAP. Consultation with Statistics Office underway
Rwanda	UN-GGIM Approach	Process started, consultation workshop held but lost communication with the coordinating office.
South Africa	Hybrid (Outsourced but following UN-GGIM Approach)	Process started but approach changed to prioritised the SA-GIM strategy
Senegal	Development Account	Lead by a consultant and progress not known
Tunisia	To be confirmed	Not started, two organisations involved in leading this work



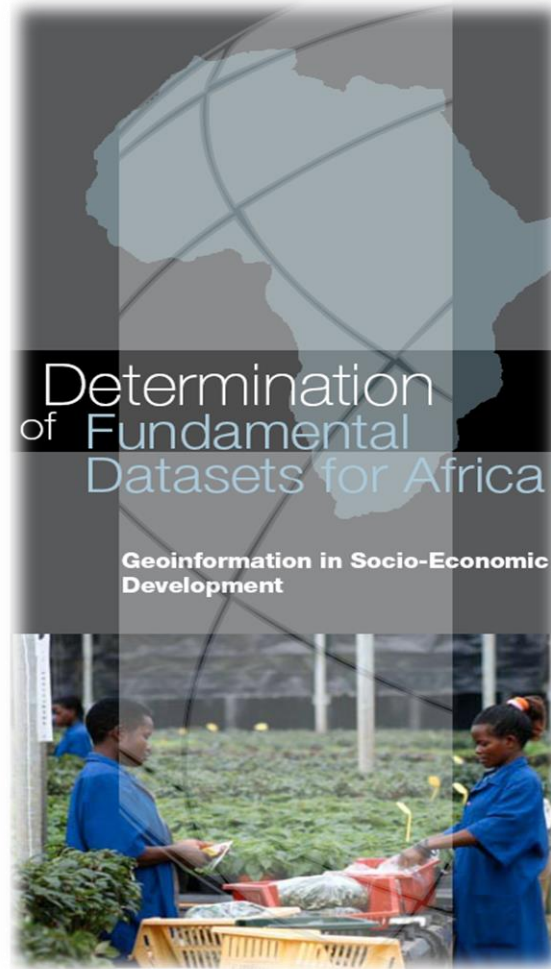
UN-GGIM

United Nations Secretariat
Global Geospatial Information Management

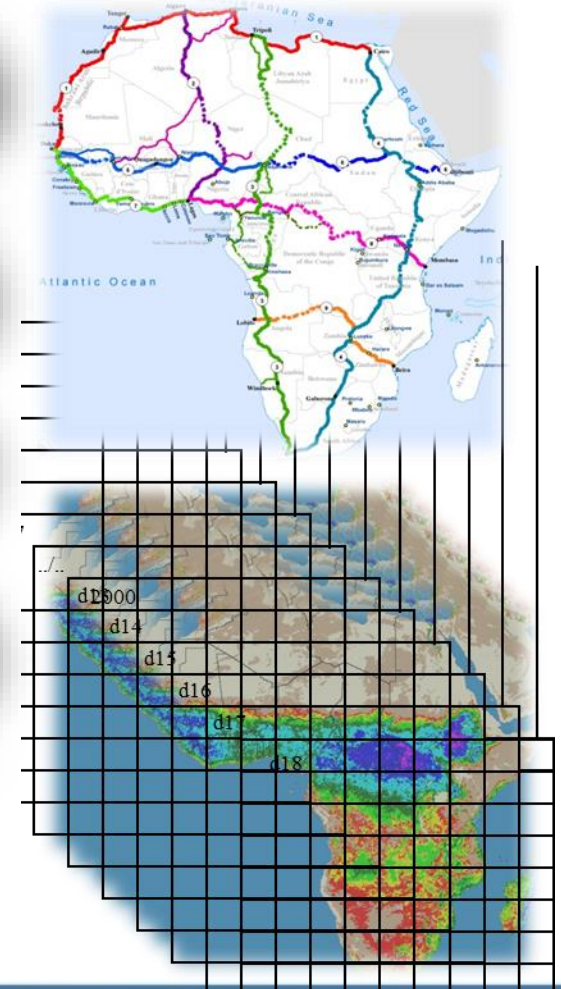
Mapping Africa for Africa

| Advance Africa efforts to build:

- 🎯 Purpose-oriented datasets
- 🎯 Structured and comprehensive data foundation that would be consistent, comparable and compatible at the local, national, regional, and global levels.



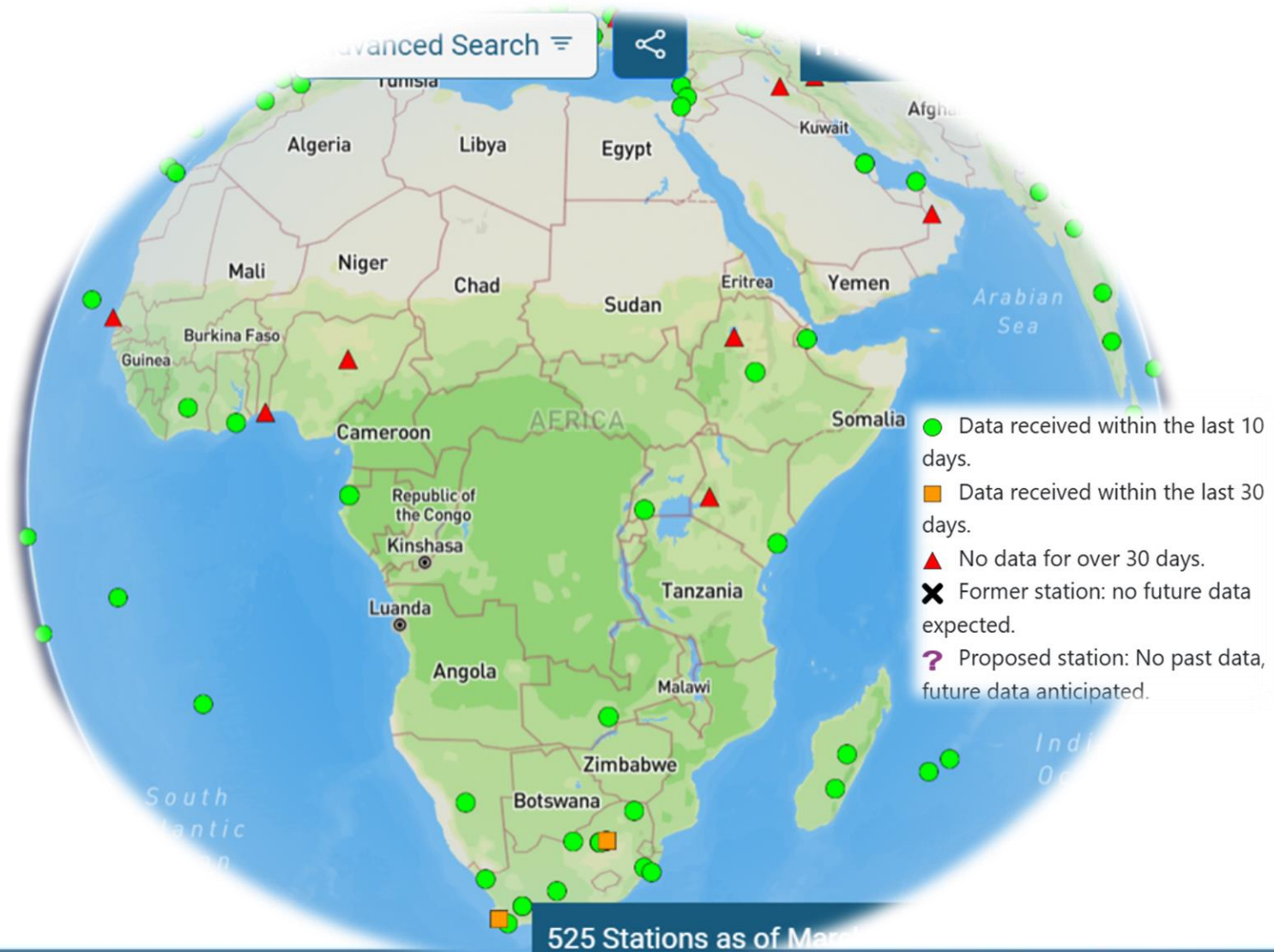
Global Geodetic Reference Frame	Geographical Names	Physical Infrastructure
Addresses	Functional Areas	Water
Buildings and Settlements	Land Parcels	Geology and Soils
Elevation and Depth	Transport Networks	Orthoimagery
Population Distribution	Land Cover and Land Use	



Africa.Geospatial Infrastructure | ACTIVE QUICK WIN: AFREF

AFREF | Africa Geodetic Reference Frame

- Network of permanent GPS|GNSS base stations covering the whole continent
- At least one in every country
- Eventually, everywhere in Africa less than 500 km from a base station
- Uniform geodetic reference frame
- Consistent with the International Terrestrial Reference Frame (ITRF)
- Basis for national 3-dimensional reference networks



• GSGF | Data Integration

📄 Geospatial is important

- Because you cannot count what you cannot locate...

📄 Geospatial is more+ maps and data

- Can be utilized in virtually all situations and human activities that are spatially distributed
- Enabling capabilities in representation, analysis, data modeling and decision making

📄 Geospatial is about :

- Mainstreaming the enabling capabilities of geospatial technology into NSOs activities
- Value Proposition to the production, management, dissemination of statistics.
- Impacting the improvements of statistical processes

Policy and governance

Spatially-enabling NSDS

GSGF | Linking GIS & Stats



Partnership

Ensuring linkages and cooperation with various initiatives



Data & Innovation

Data Themes
Common standards
Common specifications



Capacities | Capabilities

Making geospatial analysis a core competency in any Census Office



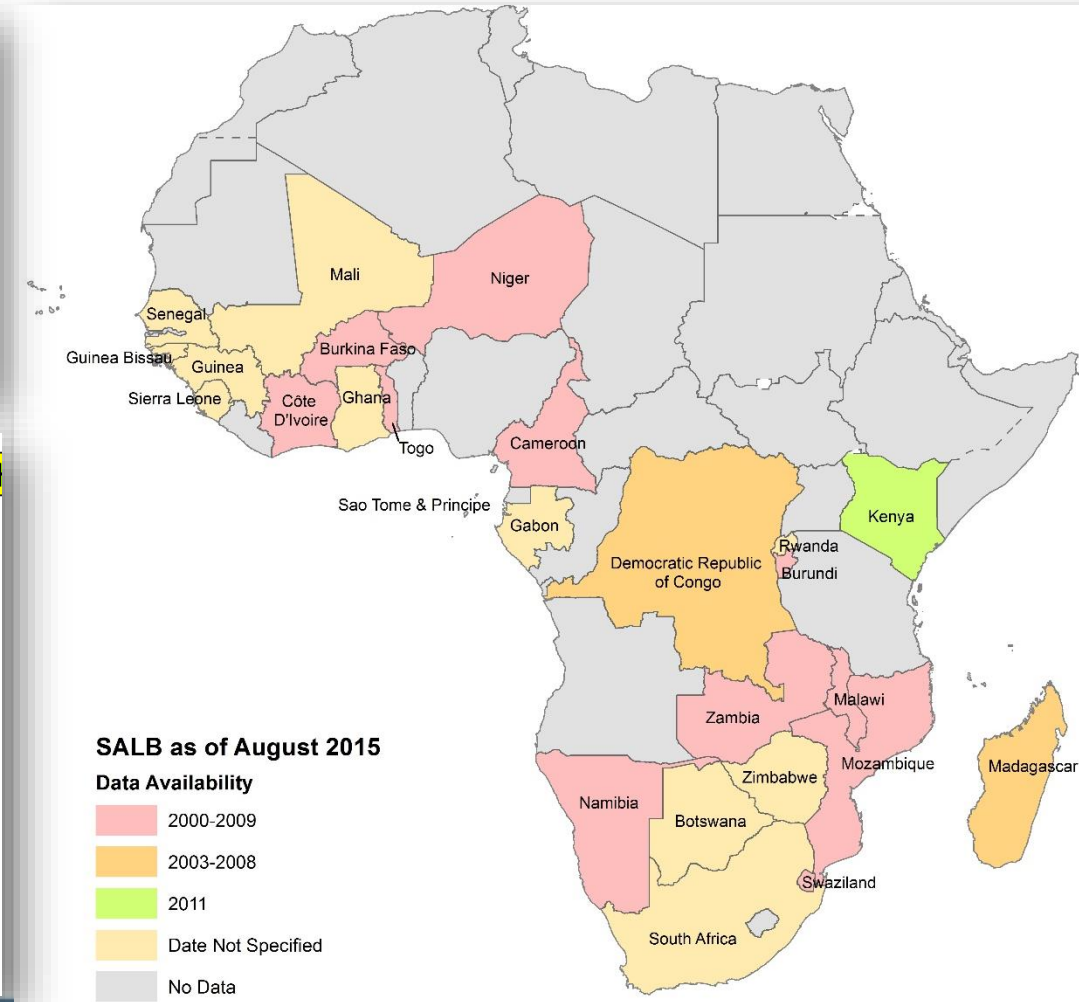
Africa. Geospatial Infrastructure | ACTIVE QUICK WIN: SALB

SALB | 2nd Admin Boundaries

- An important aspect of the SALB project is making the validated data available to the community of users
- So far, data collection has been on an ad-hoc and voluntary basis. Requests are sent to National Mapping Agencies of member States for the relevant tables and maps in any form. This has not resulted in substantial progress.

Period	2000-01-01 to XXXX-XX-XX
Unit type	Zoba (Regions)
	ADM1NM
Unit names	Anseba
	Debub
	Debubawi Keih Bahri (Southern Red Sea)
	Gash-Barka
	Maekel
	Semienawi Keih Bahri (Northern Red Sea)
Number of units	6 units

Period	2000-01-01 to XXXX-XX-XX
Unit type	Sub-Zoba (Sub-regions) 50
	ADM2NM
	Adi Tekeliezan
	Asmat
	Elabered
	Gheleb
	Habero
	Hagaz
	Halhal
	Hamelmallo
	Keren
	Kerkebet



Geospatial.Africa | ACTIVE QUICK WIN: GEODATA

- Several regional geospatial databases being developed to support regional initiatives.
- Programme of Infrastructure Development in Africa (PIDA) databases: covering all existing and planned infrastructure facilities in the continent.
- Agricultural Commodity Value-Chain Database to support agriculture production analysis
- African Climate Policy Centre (ACPC) Climate Change Database.
- e-Health : geodatabases on health facilities
- Second Administrative Level Boundary (SALB). A comprehensive digital database subnational limits.
- A repository of 25,000 Historical Hardcopy Maps

From: **Just-in Case** Infrastructure
To: **Just-in Time** Frameworks

- 1.** The ECA Africa Geoportal
 - <https://uneca-powered-by-esri-africa.hub.arcgis.com/>
 - Web Apps (Static browsing):**
<https://ecageoinfo.maps.arcgis.com/home/gallery.html?sortField=relevance&sortOrder=desc>
 - Web Map (Custom mapping):**
<https://ecageoinfo.maps.arcgis.com/apps/mapviewer/index.html?webmap=c3c4863c681045b29c0c8a9b1c6f47b4>
- 2.** The GSGF | Integration of Geospatial and Statistical
<https://experience.arcgis.com/experience/38b5f808b69a4bdfa65592af84183457/>
- 3.** The UN-PDF Datasets
<https://ecageoinfo.maps.arcgis.com/apps/MapSeries/index.html?appid=0378b9179c164726897f448cd3e431ae>
- 4.** Story maps on Poverty
<https://ecageoinfo.maps.arcgis.com/apps/MapSeries/index.html?appid=5117cdca0f404b43b72369e252f145aa>
- 5.** The COVID-19 Dashboard
<https://arcg.is/5LCSa>



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Africa.Geospatial Infrastructure | ACTIVE QUICK WIN: FGDT

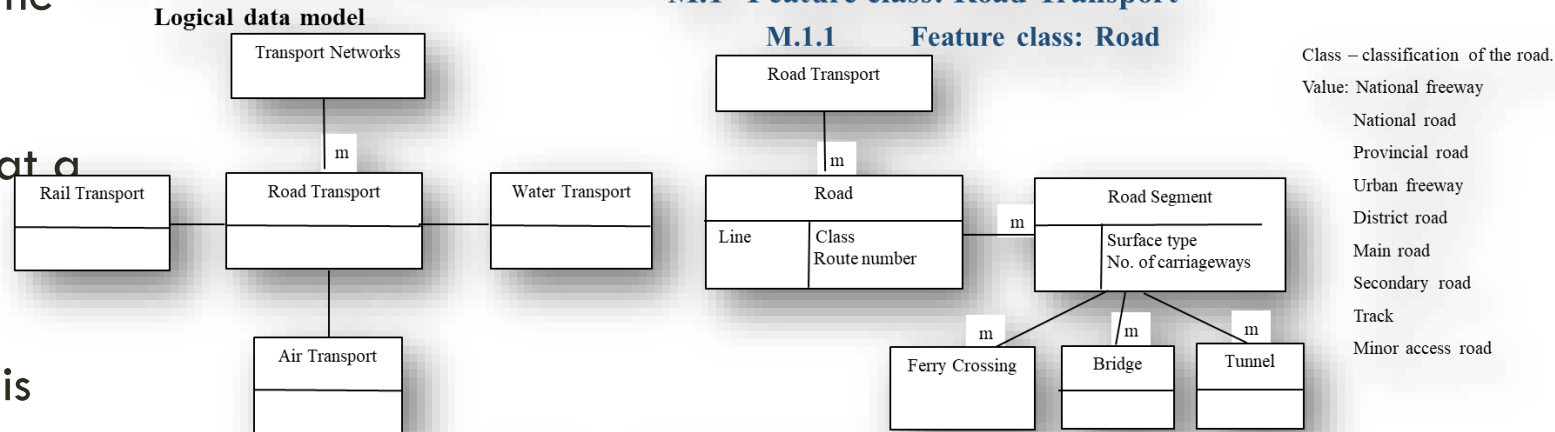
FDS | Geospatial Data Taxonomy identified

- The geospatial data taxonomy describes the geospatial data themes using logical data model,
- All geospatial information are organized at a feature class level for each of the global fundamental geospatial data themes of UN-GGIM
- Each fundamental geospatial data theme is specified using logical data model
- Feature classes further specified with their attributes
- Each feature class from the logical data model is described using their attributes
- The Taxonomy comprises the technical specifications for each geospatial data /feature class

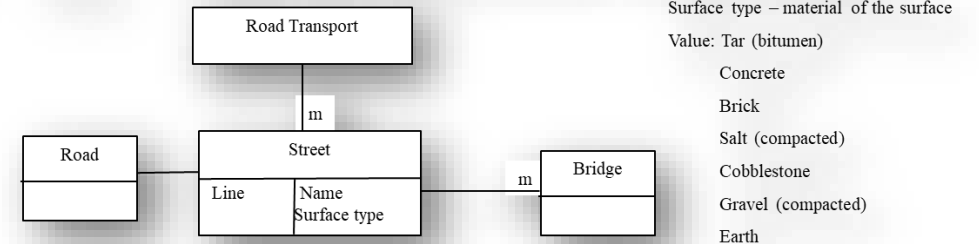
M. Fundamental geospatial data theme: Transport Networks

M.1 Feature class: Road Transport

M.1.1 Feature class: Road



M.1.2 Feature class: Street



Africa. Geospatial Infrastructure | ACTIVE QUICK WIN: GEOCODING

Common Geographies

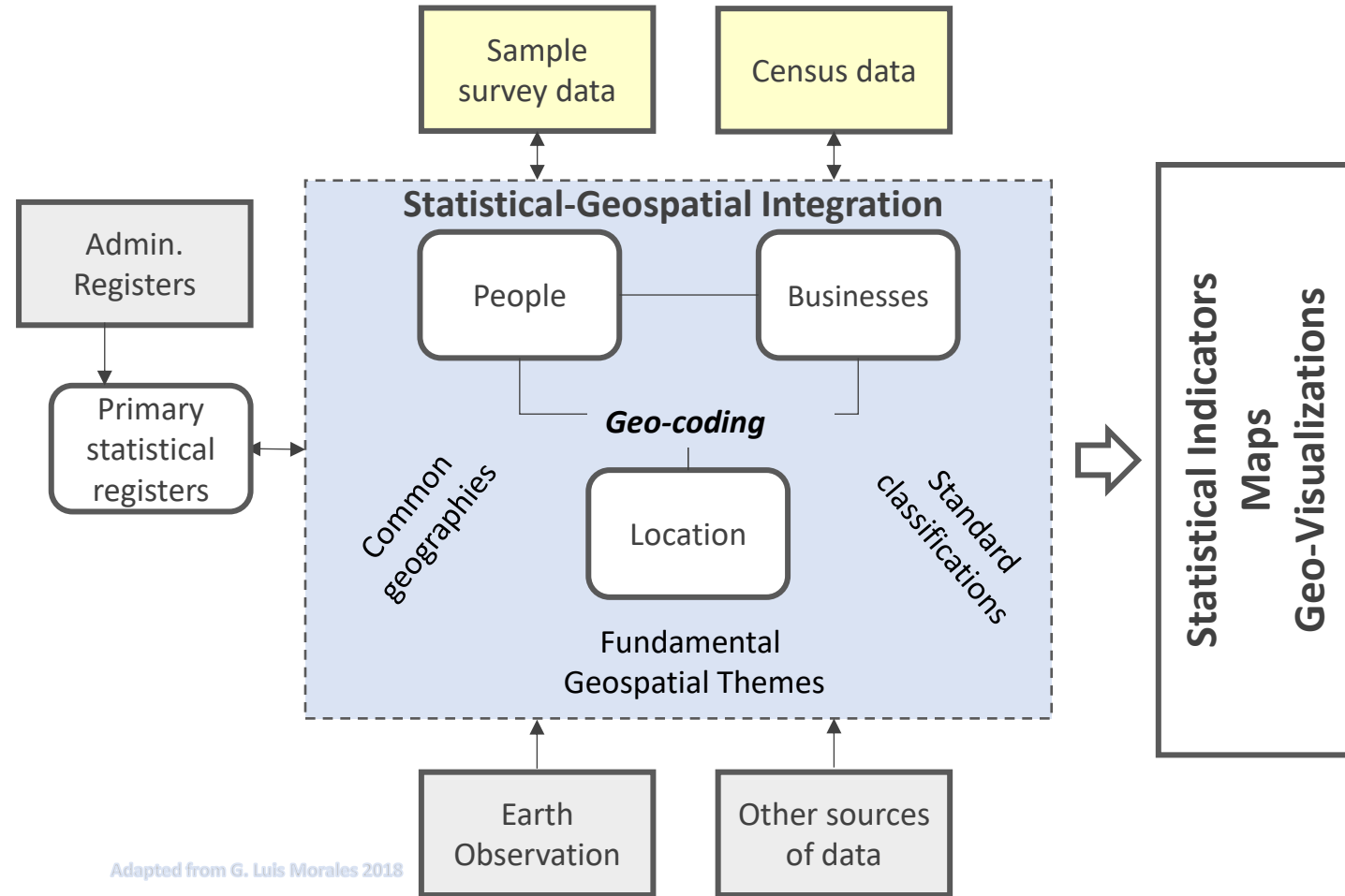
- Updating and sharing common administrative boundaries
- Creating Geocoding Schemes

Responding to the SDG

- Building, Holistic, Active, All-inclusive Information
- Enriching statistical data

2020 Round of Censuses

- Fostering geospatially-enabled censuses.
- Building geo-referenced dwelling frames





Engage

Principle of integration.

- Promote synergistic approaches over the current isolated and piece-meal initiatives, projects and programmes.
- Advocacy and strengthening capacity, particularly in UN-IGIF CAP implementation; Promoting knowledge and innovation; and Communication and knowledge management
- We need to start engaging the political leadership/policy decision makers in the country : Establishing an overarching arrangement for Geospatial information



Collaborate

Principle of Subsidiarity.

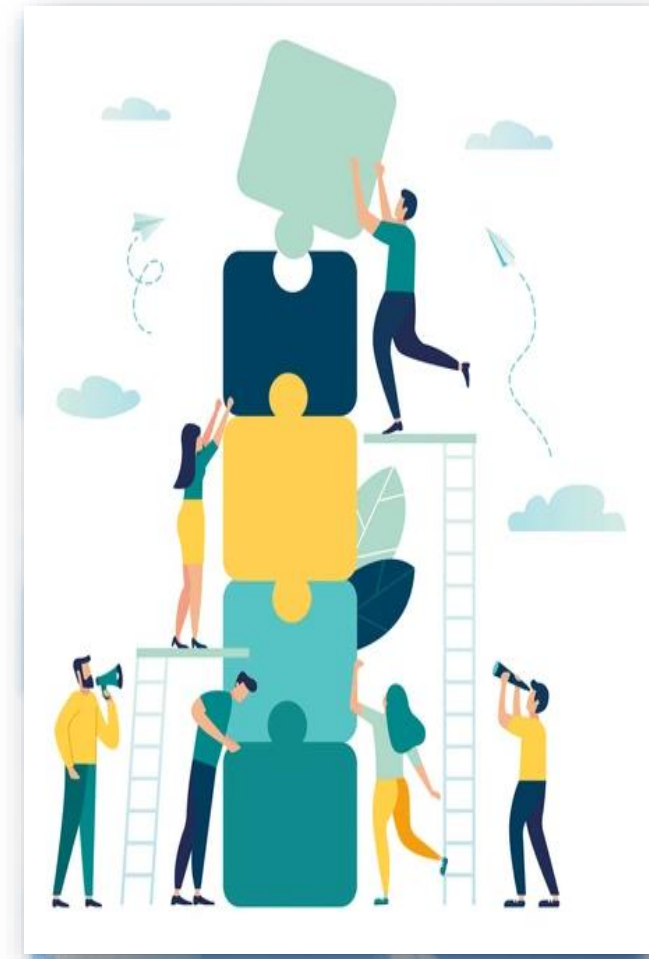
- If we know what we need to achieve, then the duty of the higher order is to provide assistance to the lower order when appropriate.
- Joint development project in common standards and best practices and resources mobilization.



Sustain

Principle of internalization and ownership.

- Responsibility and accountability for national-global compatibility (e.g. regulatory frameworks, national action plans)
- More support to member States. With more geospatial knowledge infrastructures



✦ Organizing the plenary meeting of the Regional Committee

- ✦ 11th Session - Date: 17-21 November
- ✦ 11th Session - Venue: Accra, Ghana

✦ Establishing the overarching geospatial governance

- ✦ Appointing a high-level advisory committee
- ✦ Identifying an African geospatial champion and/or influential leaders
- ✦ Preparing a Policy Brief that expounds the role of geospatial information
- ✦ Achieving the financial engagement of the members

✦ Developing and Implementing UN-IGIF by African Countries

- ✦ Fast-tracking the support to the full implementation of national action plans
- ✦ Fostering the integration of geospatial and statistical information

✦ Fostering Innovation and Continuous Improvement

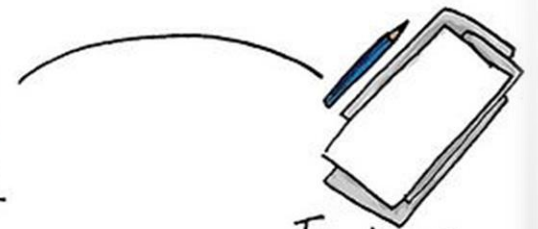
- ✦ Appraising emerging trends and advancements such GeoAI, etc...



The eternal struggle.



*getting stuff
from here*



To here.

KNOW MORE...

The African Action Plan

English |

www.uneca.org/sites/default/files/PublicationFiles/un-ggim_-_geospatial_information_for_sustainable_development_in_africa-20171115.pdf

French |

www.uneca.org/sites/default/files/PublicationFiles/geospatial_information_for_sustainable_development_in_africa_fre-20171115.pdf

 United Nations
Economic Commission for Africa

Geospatial information for sustainable development in Africa

*African Action Plan on Global Geospatial
Information Management*

2016-2030

