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Report on UN-GGIM Regional Activities in Africa

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1. Introduction

1. The African caucus of the United Nations Global Geospatial Information Management (UN-GGIM: Africa) was set up to address the issues of developing the capacities of African nations in the generation and dissemination of authoritative, accurate and maintained geospatial information in the continent. UN-GGIM: Africa is a formal intergovernmental mechanism to discuss, enhance and coordinate geospatial information activities on a global level by involving all African nations.
2. UN-GGIM: Africa plays a leading role in making joint decisions and setting directions on the use of geospatial information within national, regional and global policy frameworks. It also works with Governments to improve policy, institutional arrangements and legal frameworks, addressing global issues, contributing to the collective knowledge as a community with shared interests and concerns. It facilitates and advocates the availability and capability of geospatial information as well as proposes work-plans and guidelines to promote awareness of how geospatial information can contribute to regional and global agenda, as well as on, common principles, policies, methods, mechanisms and standards for geospatial information interoperability. UN-GGIM: Africa also works to develop effective geospatial capacity in African countries and promote the use of spatially-enabled information to meet key global challenges such as sustainable development.
3. Over the last four years UN-GGIM: Africa has developed regional frameworks to deal more particularly with relevant issues at various levels and support geospatial information development including: spatial data infrastructures, unified geodetic reference, integration of geospatial and statistical information, fundamental geospatial datasets, adoption of common framework and standards, etc.
4. This report covers activities carried out by UN-GGIM: Africa since the eighth session of the Committee of Experts of UN-GGIM. It includes actions taken as a follow-up of resolutions adopted and other activities considered as being of interest to Member States and partners.

2. Objectives

5. UN-GGIM: Africa is established with the aim of coordinating African geospatial development and contributing to the wider global initiative. In the last couple of decades, UN-GGIM: Africa has set realistic approaches to ensure that systematic and comprehensive frameworks are put in place with related policies, resources and structures that make geospatial information technologies easily accessible to decision makers and the community in a coordinated way. To ensure that appropriate geospatial information products are used in decision making, UN-GGIM: Africa supports its Member States to advance holistic vision that fosters the effective use of geospatial products and resources in support of emerging global challenges and various socio-economic sectors in Africa:
 - Articulating policies, strategies with appropriate guidelines for the establishment of local, national, regional and global spatial data infrastructures and their linkages with other plans and strategies.
 - Building comprehensive, holistic, vision-driven, long-term transformative development of capacities and capabilities that increase spatial literacy, spatial awareness and navigational abilities.
 - Maintaining authoritative repository of data (fundamental and thematic), information and knowledge resources, tools, applications and services with more

and more use of common standards and interoperability on metadata, naming, coordinate reference, etc.

- Encouraging and facilitating the integration of statistics with geospatial information to attain viable and meaningful outcomes, analysis and visualization of data in supporting and tracking progress of the sustainable development goals.
- Strengthening and aligning specific the needs and interests of Africa with international mechanisms.

3. Activities, Areas of Work – Achievements

3.1. Organisation of the Fourth meeting of UN-GGIM: Africa.

6. The Fourth Meeting of the Regional Committee of UN-GGIM: Africa was also held as a back-to-back event with the Sixth StatCom Africa Meeting held from 1-4 October 2018, in Addis Ababa at the United Nations Conference Centre. The meeting of the Regional Committee was organized in plenary sessions, workshops and a technical exhibition. The structure of the sessions allows a mix of parliamentary oversight work (the sessions on procedural issues) and exchange of ideas and learning (the sessions on partners and industry and other special topics).
7. The meeting was attended by over 70 participants, including delegates from 18 African countries, as well as observers from international and regional organizations such as the Economic Commission for Africa (ECA), the African Union Commission (AUC), the UN-GGIM Secretariat, academia, industry organisations and the private sector.
8. The meeting offered the opportunity to share knowledge and best practices on the development of geospatial information in the continent; raise awareness on the benefits to be derived through the utilization of geospatial information for sustainable development; look at policies, measures and steps that African countries could take to ensure a successful implementation of the UN-GGIM: Africa activities in the region.
9. The meeting discussed and reached a consensus to renew the Executive Board of UN-GGIM: Africa. In accordance with the disposition in the Statutes of UN-GGIM: Africa, the following Executive Board members were elected through a vote by the national representatives that were present:
 - Chair: Senegal
 - 1st Vice-Chair: Botswana
 - 2nd Vice-Chair: Algeria
 - 1st Rapporteur: Cameroon
 - 2nd Rapporteur: Uganda
10. The meeting also proposed and elected Ethiopia as an ex-Officio member of the Bureau, without voting rights.
11. The United Nations Economic Commission for Africa (ECA) continues to be the Secretariat of UN-GGIM: Africa.
12. Working Groups: The meeting also discussed and agreed on the membership and composition of the Working Groups. New chairs and membership for all working groups were elected and established as follow:

Working Group	Chair	Members	Non-Voting Members
WG1: African Geodetic Reference Frame	1. Kenya	2. Burkina Faso 3. Morocco 4. Botswana 5. Cameroon	<ul style="list-style-type: none"> • Madagascar • Nigeria • Senegal • South Africa • AFRIGIST • RCMRD • UNECA
WG2: Fundamental Geospatial datasets and Standards	1. South Africa	2. Cameroon 3. South Sudan 4. Burkina Faso 5. Algeria	<ul style="list-style-type: none"> • Côte d'Ivoire • Madagascar • Mali • Niger • Nigeria • Senegal • UNECA
WG3: Institutional arrangements and Legal frameworks	1. Algeria	2. Nigeria 3. South Africa 4. Ethiopia 5. Central Africa [TBD]	<ul style="list-style-type: none"> • Burkina Faso • Morocco • UNECA
WG4: Capacity and capability development	1. Nigeria	2. Kenya 3. Eswatini 4. Côte d'Ivoire 5. Central Africa [TBD]	<ul style="list-style-type: none"> • South Africa • Burkina Faso • AFRIGIST • RCMRD • AARSE • UNECA
WG5: Integration of Geospatial and Statistical Information for Sectoral Applications	1. South Sudan	2. Namibia 3. Mali 4. Cameroon 5. North Africa [TBD]	<ul style="list-style-type: none"> • Burkina • Kenya • Niger • Senegal • Togo • UNECA

3.2. Geospatial Information Policies

13. Development of guidelines for the development and implementation of national spatial data infrastructures (NSDI) in Africa. ECA has developed a white policy document on the principles for implementation of NSDI in African countries. The document offers a stepwise approach to develop and implement NSDI in African nations. It includes the following: i) review the current status of NSDI in African countries; ii) identification of current best practices in Africa and other regions; iii) definition of the different steps required to initiate the NSDI process; iv) putting forward recommendations for the fast track progress in the implementation of NSDI; v) proposal on how to articulate the NSDI with the Integrated geospatial information framework (IGIF) and develop the options to be taken in implementing both infrastructures.
14. Organization of a Regional Workshop for Eastern African countries on the Implementation of National Spatial Data Infrastructure in Africa. The workshop was held in Addis Ababa on 22-25 April 2019 and is the first in the series of sub-regional workshops to be organized this year in the five sub-regions of Africa. It aimed to discuss the stepwise guidelines for the development and implementation of national spatial data infrastructures in African Countries. This first workshop was conjoined with an expert consultation and meeting on the development of the implementation guide of an Integrated Geospatial Information Framework (IGIF), an initiative ported by the United Nations Global Geospatial Information Management (UN-GGIM), the World Bank, Member States and regional entities.

3.3. Integrated Geospatial Information Framework

15. UN-GGIM: Africa in collaboration with the Secretariat has organised an expert consultation and meeting on the development of the implementation guide of an Integrated Geospatial Information Framework (IGIF), an initiative ported by the United Nations Global Geospatial Information Management (UN-GGIM), the World Bank, Member States and regional entities. The workshop provided the opportunity to expert representatives from Member States and stakeholders to review, refine, improve and make ready the draft Implementation Guide for consideration by the UN-GGIM Committee of Experts at its forthcoming session in August 2019. The participants discussed on how African countries can take steps towards articulating the NSDI with the IGIF and the desirable options to be considered in implementing both infrastructures.
16. Member States are expected to consider re-aligning and prioritizing their geospatial information activities within the nascent framework as well as developing sound strategies for its implementation at national level.

3.4. Fundamental geospatial data themes, products and services

17. Several initiatives were taken by UN-GGIM: Africa to ensure that geospatial data (core fundamental and thematic datasets) and information services are readily available and easily accessible. Furthermore, spatially-enabled decision support systems (online applications, clearinghouse services, spatially-enabled government services, etc.) are developed for various socio-economic sectors in the continent.
18. The Digital Earth Africa programme. It's an initiative building on the Africa Regional Data Cube and the Digital Earth Australia program, to develop a series of data structures and tools that organize and enable the analysis of large Earth observation satellite data collections. Digital Earth Africa will continually synthesize satellite images collected over the last 30 years (taken every two weeks at 25 metre squared resolution), and future images (taken every 5 days at 10 metre squared resolution) for the entire African continent. It will provide these images and derived products freely in a platform that can be accessed by any user, and will deliver a unique capability to process, analyse and present this data in response to specific issues; for example water quality, land use, and forest cover. Although Digital Earth Africa will contain trillions of individual observations, a database will be used to track every observation back to the point of collection. The project will use open source code and applications developed by the Open Data Cube community. The Economic Commission for Africa (ECA) serves as the institutional host for the program.
19. Development of Atlas of Spatial Statistics of various indicators (statistical and thematic) to provide a visual analysis to help better understand and develop spatially connected information for planning and sound decision-making. Each atlas is an attempt to exploit the enabling capabilities of geovisualization to complement traditional forms of data presentation and analysis. Some of the Atlases focusing on spatial relationships and patterns include: i) The Atlas of Country Preparedness for the 2020 Round of Population and Housing Census in Africa. It provides a snap shot status of census readiness of countries preparedness for the 2020 round of Population and Housing Census; ii) Poverty mapping informs on the spatial representation of indicators of poverty and its determinants to provide decision makers with options to suitable intervention; iii) African infrastructures atlas is currently in preparation and is intended to give an overview of the knowledge of all existing and planned infrastructure facilities (transport, energy and telecommunication) and their connectivity in Africa, at different levels; national, regional, continent-wide..

3.5. Integration of statistical and geospatial information

20. The SDGs demands the need for new data acquisition and integration approaches to improve the availability, quality, timeliness and disaggregation of data. Geospatial information management is increasingly contributing to build the data foundation that is required and thus, creating understanding and solving problems.
21. The African statistical spatial framework being developed was reviewed and the five overarching principles of the integration endorsed. The framework is articulated around the following dimensions: Scale; Policy; Institutional; Modelling. Both national statistical

offices and national mapping agencies can adapt, adopt, and apply the statistical framework to their national context, for instance in geo-enabling the national strategies for statistical development; in ensuring effective collaboration between statistical and geospatial community; in building basic data themes and use of common specifications and standards; and making geospatial analysis a core competency in any Census Office.

22. During the fourth session of the Regional Committee, African nations were urged to leapfrog and embrace revolutionary new data frontier cloud based imagery solutions to address statistical challenges, develop smart spatially-enabled census and improve the reporting on SDG in Africa.

3.6. Legal and Regulatory Framework for Geospatial Information Utilisation

23. Geo-information is a double-edged sword, regarding its powers in providing instant access to vast amounts of data and the opportunity to abuse, misinform, and invade the privacy of individuals on a greater scale than ever before [Cho, 1998: 22]. On the other hand, the value of geospatial information comes from its use [Onsrud and Rushton, 1995]. Therefore, access, sharing and re-use of geospatial information has become an essential issue on the arrangement of its legal aspects, particularly those that are related to public access and ownership of geospatial information and its intellectual property rights. Access and sharing of spatial data will ensure the continuation of the enhancement of the quality of geospatial information resources.
24. With ECA support, UN-GGIM: Africa has organised an expert group to prepare some guiding principles on enabling legal and regulatory frameworks for geospatial information utilization in Africa. The meeting discussed the overarching topic of enabling legal and regulatory frameworks and made several recommendations to guide member States efforts in achieving a better coordination mechanism for geospatial information management.
25. A white paper is now being finalised to provide an assessment of: i) critical aspects of setting an enabling legal framework for geospatial information management in Africa ii) need for establishing legislative frameworks; iii) data access/sharing/re-use policies (national and international levels), licensing models, intellectual property rights (IPR), copyright, liability, security and privacy issues. It also identified the key stakeholders. The document further outlined the desirable steps to develop a logical framework of identified priority actions (objectives, responsibilities/tasks, results, activities, chronogram and related costs where applicable), etc...

3.6. Capacity Development

26. Under the 2030 Agenda for Sustainable Development Sub-Fund United Nations Trust Fund for Peace and Development (UN-PDF) programme, UN-GGIM: Africa is closely working with ECA in strengthening the capacities of selected African countries (including Comoros, DR Congo, Eswatini, Kenya and Niger), to develop geospatial information resources and services in support of the implementation and monitoring of the sustainable development goals. Within this capacity building action, it's expected that the selected countries must be able to put in place an institutional setup, including inter-institutional arrangements, within an existing national framework to support geospatial data and information services.

3.7. Contribution to UN-GGIM Activities

27. The Africa region participated in the following UN-GGIM related events and activities:
 - Participation and contribution to the Eighth Session of the Committee of Experts of GGIM and its side events, held in New York in 1 – 3 August 2018. As it has been in the past, the session offered good opportunity for many formal and informal contacts with various interlocutors on common interests and to learn from the experience of other regions.
 - Contribution to the work of the United Nations Expert Group on the Integration of Statistical and Geospatial Information (UN EG-ISGI).

- Participation and contribution to the work of United Nations Fifth Expert Meeting of the Working Group on Geospatial Information of the IAEG-SDGs and the International Seminar on the United Nations Global Geospatial Information Management, held in Nairobi on 4-8th December 2018, Kenya.
- Participation and contribution to the work of the First Expert Consultation and Meeting on the Development of the Implementation Guide of the Integrated Geospatial Information Framework, held on 22-25th March 2019, at the World Bank HQ in Washington DC, USA.
- Participation and contribution to the work of the Second Expert Consultation and Meeting on the Development of the Implementation Guide of the Integrated Geospatial Information Framework, held on 22-25th April 2019, Addis Ababa, Ethiopia.
- Participation and contribution to the Expanded UN-GGIM Bureau Meeting that was held on 1-4th April 2019, in Amsterdam, The Netherlands.
- Participation and contribution to the first United Nations World Geospatial Information Congress (UNWGIC) on 18-22th November 2018, in Deqing, China.

3.8. Partnerships, Regional & International Collaboration

28. UN-GGIM: Africa collaborate and coordinate its activities with international and regional initiatives and programmes, and other partners. In addition to its involvement and participation in various activities related to the global UN-GGIM, the Regional Committee continues to be fully involved in the following major regional initiatives:
29. African Union Commission Global Monitoring of Environment and Security (GMES) Programme: Provision of advisory services to oversee and steer the GMES Action Plan to ensure that it responds to global needs and is linked with other global initiatives such as the Group on Earth Observation (GEO) and UN-GGIM: Africa.
30. African Space Agency: Support to develop the governance mechanism of the African Space Agenda. This collaborative work contributed to the definition of a number of institutional arrangements and organizational frameworks that need to be put in place for an inclusive continental outer-space programme that engages national and regional institutions in a collective effort.
31. GEOSS: Contribution to the implementation of AfriGEOSS, an initiative to strengthen the link between the current GEO activities with existing capabilities and initiatives in Africa.

4. Priority Issues and Challenges

32. Un-GGIM: Africa continues to face a host of challenges that hamper the full implementation of its agenda. Member States are called to give close attention to the following matters:
 - (a). Strengthening of their participation to their fullest extent in the meetings and activities of international and regional initiatives and programmes, importantly in UN-GGIM: Africa activities.
 - (b). Reinforcing their active participation in the ISO/TC211 – Geographic Information/Geomatics meetings and activities, and endeavoring to appraise the relevant standards to the geospatial information community and implement them at national level.
 - (c). Capacity development continues to be the critical issue for African countries. The gap between the developed and developing countries has continued to widen, and contrary to the motto, “No one shall be left behind” of the SDGs, Africa continues to be left behind in this regard. Member States should commit to provide more resources for the capacity development of their national mapping authorities.

5. Perspectives/Outlook, Future Plans

5.1. Fifth meeting of UN-GGIM: Africa

33. The region plans to organize the fifth meeting of UN-GGIM: Africa in conjunction with the AfricaGIS 2019 Conference. The meeting is tentatively scheduled for 22-27 November 2019 in Kigali, Rwanda. The fifth session will continue to discuss on issues related to sharing knowledge and best practices on the development of geospatial information in the continent; raise awareness on the benefits to be derived through the utilization of geospatial information for sustainable development; look at policies, measures and steps that African countries could take to ensure a successful implementation of the UN-GGIM initiative in the region.

5.2. Assessment of African nation's readiness in developing and implementing NSDI

34. With the support of ECA, UN-GGIM: Africa is carrying out an assessment and gap analysis of the implementation of spatial data infrastructures in Africa. For each African country a gap analysis indicating the difference between the desired level of available spatial data infrastructures and the actual state will be performed. It is obvious that it is not useful to simply inform countries of their gap in having the desired level of available spatial data infrastructures as most of these countries are not in a position to do much about it. This assessment and gap analysis will also propose a set of key indicators one can use for further tracking of NSDI status in the continent. The assessment will identify the variables to be used and produce a questionnaire for data collection and assessment on current status in the implementation of NSDI, as well as any existing effort to integrate with other national strategies.

5.2. Developing a Financial Appropriation Framework and Assessing the Economic Benefit of Geospatial Information Management in Africa

35. The Africa Region would like to produce a comprehensive financial appropriation framework, assess the state of implementation of African countries, and establish the economic viability (benefits) of geospatial information in Member States, represented as tangible relatable factors for investors and government budgeters to increase buy-in and interest in geospatial information. It's expected that the findings of the study will guide Member States efforts in the budgeting, funding and resource distribution of geospatial information projects and programs from at each stage. The establishment of the economic viability of new technologies and substantial implementations of geospatial information technology is important to ensure proper planning and management of information for sustainable development. The study will use multiple methods (qualitative and qualitative research methods) to:

- Conduct a comprehensive literature review (identifying the research questions)
- Perform a cost-effective analysis (ROI)
- Establish gaps survey and problem identification through a case by case analysis within selected African countries.
- Examine and assess the economic implications to the various economies in Africa if the geospatial technology was not deployed in the various developmental activities in the continent.
- Develop a workable solution of financial appropriation framework and resource mobilization strategy.