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### Committee of Experts on Global Geospatial Information Management

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Item 4 of the provisional agenda<sup>1</sup>

#### Contribution of regional committees to the global geospatial information agenda

### Economic Commission for Africa

#### Regional Committee of United Nations Global Geospatial Information Management for Africa

Tenth meeting

Addis Ababa, 28 October – 1<sup>st</sup> November

Item 3 of the provisional agenda\*\*

#### Presentation of reports

## United Nations Global Geospatial Information Management

### Report on regional activities in Africa

#### I. Introduction

1. The Regional Committee of United Nations Global Geospatial Information Management for Africa aims to be a leading role in setting the agenda for global geospatial information development and promotion of its use to address key global challenges in the continent. It provides a liaison and coordination forum among Member States, and between Member States and international organizations, fostering global policy development, maintaining skills, knowledge, standards and data, and building synergies that facilitate quick responses to concerns and emergencies.

2. The work programme of the Regional Committee of United Nations Global Geospatial Information Management for Africa is designed and articulated: (a) to promote and support technical activities for the development of standards, interoperability and streamlined electronic services delivery, in such a way as to anticipate the potential use of geospatial information resources on the continent; (b) to strengthen and align the specific needs and interests of Africa with international mechanisms; and (c) to encourage and facilitate the integration of statistics with geographies to help to monitor and track progress towards the attainment of the Sustainable Development Goals.

3. Strategic guidance extended by the global community of experts will be essential in implementing UN-GGIM: Africa, but the African entity is earnestly striving to mould policy suited to African issues and ensure that national bodies can address their unique concerns.

<sup>1</sup> E/C.20/2024/1.

\*\* E/ECA/GGIM-A/10/1.

4. The Economic Commission for Africa (ECA), as the secretariat of the Regional Committee, is pleased to submit for consideration the report on the activities carried out by the Regional Committee since the thirteenth session of the Committee of Experts on Global Geospatial Information Management. The report includes a description of actions taken in response to the decisions adopted at the twelfth session, and other activities considered to be of interest to States Members of the United Nations and other partners. The report is articulated around policy and technical issues, capacity and outreach, and international cooperation and liaison.

## II. Objectives

5. The current scope of work of UN-GGIM: Africa is in line with the Regional Committee position to support regional priorities and initiatives. The objective is to encourage and continually increase the use of geospatial information resources (data, information, services) in the decision-making processes for sustainable development, economic growth, resource exploitation, environmental protection, exploitation and management, and social progress and to make appropriate geospatial data and information available and easily accessible to the entire community of users in many ways:

- (a) Harnessing and building purpose-oriented geospatial information resources including spatial data, common standards, applications and services to support regional initiatives and improve availability and use of spatially-enabled data for informed decision-making for Africa's development agenda.
- (b) Supporting the implementation, tracking and monitoring of the SDGs from which more than two-thirds indicators require geospatial datasets (such as remote sensing and earth observation data) that may constitute the basis for evidence-based decision-making, monitoring and accountability.
- (c) Assisting Member States, sub-regional and regional institutions on the development and implementation of spatial data infrastructures and integrated geospatial information frameworks at regional and national levels.
- (d) Fostering the linkage between statistics and geospatial information through mainstreaming the enabling capabilities of geospatial technology into statistical processes. The SDGs demands the need for new data acquisition and integration approaches to improve the availability, quality, timeliness and disaggregation of data. UN-GGIM: Africa is building the Global Statistical and Geospatial Framework (GSGF) that will outline how geospatial information can be implemented and integrated into the SDGs indicator framework.
- (e) Providing technical support to member States for the incorporation of GIS, Remote Sensing and other geoinformation solutions, tools and in the analysis and presentation of socio-economic data to facilitate their national research and policy analysis work.
- (f) Advancing holistic geospatial information strategies that enable and encourage the linkages with international programs and initiatives and partnership and collaboration within the geospatial information community in Africa and globally, opening the opportunities to harness various supports including data, policy inputs, technical expertise, advice on strategies, funding, etc.

### III. Integrated Geospatial Information Framework

6. Although progress has been slow, countries are continued to make effort on the development of their country-led action plans according to their national circumstances. The following countries have gained tangible results: Cameroon, Mali, Mozambique, Rwanda.

7. Cameroon has made substantive progress and has now completed the development of the country-led action plan and launched the development of the country data hub.

8. Mali has organised several national stakeholders engagement workshops to provide national key actors from various Ministries, Government Offices, Academia, Private Sector an opportunity to review, refine, improve and make ready the steps towards the development of the Country-level Action Plan on IGIF. The consultative meetings reached the consensus on the detailed steps towards achieving the short-term and long-term strategic goals for strengthening integrated geospatial information management in the country. The workshops also offered the opportunity to: i) Broaden and deepen the consultations among the national stakeholders so as to collect and review relevant inputs and schedule desired working groups(s); ii) Elaborate a detailed diagnosis on actors, needs and priorities as well as on standards and interoperability; iii). Identify geospatial data custodian institutions in the country; identify fundamental datasets in the country; arrange visits to geospatial data custodian institutions and collect additional data; iv). Determine the necessary linkage of the IGIF with other national strategies such as the national spatial data infrastructures and statistical development strategies.

9. Rwanda has elaborated its 5-year 2024 – 2029 Strategic plan for Surveying, geographic information systems and Mapping. This strategy will form the basis for the development of the country-led action plan on IGIF.

10. The other countries are still in the early stages of the need's assessment and situational analysis.

11. Nonetheless the Regional Committee has contributed to the work of the High-Level group on UN-IGIF. In collaboration with the United Nations Global Geospatial Information Management (UN-GGIM: Africa) and the UN Statistics Division, ECA held a trailblazing expert consultation and meeting in Addis Ababa, Ethiopia from October 23-28, 2023. The purpose of this meeting was to engage geospatial leaders from invited African Member States (including Burkina Faso, Cameroon, Côte d'Ivoire, Ethiopia, Mozambique and South Africa), in discussions to enhance their geospatial information management capacities and implement the United Nations Integrated Geospatial Information Framework (UN-IGIF). The meeting reviewed and refined current approaches to these efforts, emphasizing an inclusive, integrated, self-paced, and country-led approach to harnessing the enabling capabilities of geospatial technology for the sustainable development.

### IV. Integration of geospatial and statistical information

12. The 2020 round of the Population and Housing census has observed a significant increase in the use of geographic coordinates during census operations in Africa. This advancement has been attributed to the integration of geography with statistics.

13. In the Region, the merging of geospatial data with socioeconomic and other information has been identified as a top priority by UN-GGIM: Africa. To this end, the Regional Committee has established a working group dedicated to developing an African action plan for the integration of geospatial and statistical data. The momentum towards incorporating geography into statistics is gaining

traction, and it is evident that this integration will play a crucial role in shaping and informing future policies and decisions on a global scale.

14. As a result, national statistical agencies have made significant efforts to bridge the gap between statistical and geospatial data, emphasizing the importance of knowledge and implementation of frameworks as essential components to achieve the integration. Many countries are now using geospatial information technology for various purposes such as demarcating enumeration areas (using centroid and/or boundary), determining the locations of buildings and housing units, and identifying and mapping roads and other important features like railroads, water bodies, facilities, and landmarks. These results indicate the widespread use and importance of geospatial information technology in Africa for data collection and analysis. It also shows the continent's growing appreciation for technology and its role in driving development and progress.

15. UN-GGIM: Africa through the Economic Commission for African, in partnership with the Kenya Bureau of Statistics, Togo's National Statistics Office, the Office for National Statistics of the United Kingdom (ONS-UK), and the United Nations Population Fund (UNFPA) has organised several capacity building workshops to empower attendees with the skills and knowledge necessary to develop geocoding schemes for spatial analysis of census data in Africa. Through hands-on training using tools like ArcGIS Desktop, participants learned how to analyse and disseminate georeferenced census data to identify spatial variations in SDG indicators and other census thematic areas. These training helped to enhance member States abilities in mapping, analysing, and combining geolocation or geocoded data with other census data to achieve a more detailed analysis. Additionally, participants had the opportunity to learn from country-specific data and exchange experiences in geospatial mapping and analysing census data, ultimately improving their understanding of the methods and software involved. Countries like: Zimbabwe, Malawi, have now developed their coding schemes for spatial analysis of their census data.

## **V. Policy and legal frameworks**

16. In response to a resolution taken by member States during its ninth plenary session in 2023, the Regional Committee has carried out a study to develop the overarching mechanism for holistic geospatial information governance in Africa. The overall objective is to attain high level political endorsement of geospatial information in Africa.

17. The preliminary findings of the study identify the following avenues of action: (i). Determine the vision for effective global geospatial information management in Africa with its set of associated long-term goals; (ii). Develop a policy brief that expounds the role and importance of geospatial information in sustainable development and the African Union Agenda 2063 (the Africa We Want) with demonstrated tangible evidence; (iii). Appoint a high-level committee for geospatial information advocacy in Africa; (iv). Engage African Heads of State to hold a special conference for the establishment of an intergovernmental mechanism (African Conference of Ministers on geospatial information); (v). Engender the financial engagement of the members of the Regional Committee.

18. It has become critical for African countries to urgently draft and implement geospatial information management policies and legal frameworks that are commensurate with advances in technology, especially in the wake of artificial intelligence, to enable geospatial information authorities in Africa to regulate, produce and share timely and accurate geospatial information to all users. Otherwise, geospatial information authorities in Africa could soon

become irrelevant as their roles will be taken over by large high-tech companies with the grave consequence of breaching the sovereignty of member States.

## **VI. Knowledge generation, outreach and capacity-building**

19. Collaboration has continued with the Geospatial Information Section of the United Nations Headquarters to provide assistance to African nations to edit, update and validate national geodatabases on second administrative level boundaries.

20. Through the Economic Commission for Africa, the Regional Committee has finalized a compendium of data sources for monitoring climate change impacts in Africa. The compendium highlights the need for a comprehensive and accessible set of data sources to monitor and analyse the impact of climate change in Africa and is useful for policymakers, researchers and other stakeholders. Developing the compendium involves identifying relevant data sources, harmonizing data and ensuring data accuracy and accessibility. The objective of the compendium is to provide an evidence-based approach to addressing climate change challenges in Africa and promoting sustainable development initiatives.

21. In addition, the Regional Committee has started a study on making urbanization work for Africa with the aim of developing an Urban Spatial Frameworks for Africa. The framework is a guide on using geospatial data sources to map and monitor urbanization in Africa. It includes reliable data sources and is aimed at helping urban planners and policymakers to make informed decisions about managing urban growth and development in Africa. With rapid urbanization and its associated challenges, there is a pressing need for sustainable and equitable urban planning in African cities. As such, the study utilized geospatial and statistical data and techniques such as Small Area Estimation (SAE) and spatial suitability analysis to undertake a suitability study for the development of an urban spatial framework. The main objective of urban spatial framework is to create economically vibrant, resilient, connected, and socially equitable cities by establishing a compact, polycentric urban model that promotes mixed land use, affordable housing, social equity, connectivity, mobility, resilience, economic growth, and innovation. By using the power of geospatial intelligence and in-depth spatial analysis, the study provides valuable direction for shaping the future of urban development in Africa. The resulting blueprint for urban spatial frameworks, as exemplified by the case study of Luanda, serves as a model for sustainable and inclusive urban development in African cities, with outputs and recommendations that can be replicated by other cities on the continent.

22. A study is carried out to encourage the integration of geospatial data in Small Area Estimation (SAE) in the health sector. By incorporating geographical coordinates, an Empirical Bayesian Kriging (EBK) regression effectively accounted for spatial autocorrelation and variations in health outcomes, resulting in more precise predictions in the case of Luanda (Angola). Moreover, the inclusion of spatial covariates in the model allows for a comprehensive spatial analysis, highlighting local trends and patterns that may be missed by traditional regression models without spatial information. For researchers and policymakers tackling health issues in African countries, the use of this methodology offers a game-changing solution.

23. The SDG Data Hubs. Through the SDG Data Alliance many countries have taken the steps to share and publish their national geospatial datasets that critical to the tracking of progress in the implementation of the Agenda 2030. The SDG Data Alliance was created only two years ago but has already made great strides in understanding the needs of countries and providing the resources

they lack. However, we recognize that there is still much to be done in order to effectively support countries. To build capacity and capability, the United Nations Centres of Excellence could be instrumental in introducing resources and initiatives. These resources will focus on skills and expertise, rather than funding for institutions. For instance, the development of Country-led Action Plans (CLAPs) of the IGIF is an ongoing process, aimed at understanding the value proposition and messaging. Therefore, each country recognizes that learning and progress are constant, and if the momentum is sustained in the right direction, everyone will be better off in the future.

## **VII. Partnerships and regional and international collaboration**

24. The Regional Committee had been actively involved in various initiatives, ensuring that substantive progress was made for Africa. In particular, the Regional Committee had been involved in activities related to the SDG Data Alliance and the implementation of the Integrated Geospatial Information Framework. Weaknesses in the geospatial knowledge infrastructure, however, had been highlighted, suggesting that capacity-building efforts and improvements in that area were needed. Despite those challenges, the Regional Committee remained dedicated to achieving its objectives to the best of its abilities.

25. The Regional Committee participated in or contributed to the following events and activities:

(a) The thirteenth session of the United Nations Committee of Experts on Global Geospatial Information Management and its side events, which took place from 3 to 5 August 2023 in New York, in which participants had a good opportunity to make contact with various interlocutors on common interests and to learn from the experience of representatives of other regions.

(b) The work and meetings of various expert groups and working groups, including the Expert Group on the Integration of Statistical and Geospatial Information, the working group on geospatial information and services for disasters and the Inter-Agency and Expert Group on Disaster-related Statistics.

(c) The work of the High-level Group of the Integrated Geospatial Information Framework.

(d) The work of the Subcommittee on Geodesy, with the election of Côte d'Ivoire to the International Advisory Committee of the United Nations Global Geodetic Centre of Excellence.

(e) The FIG Working Week 2024 held in Accra (Ghana) from 19 to 24 May 2024. The agenda of the Conference was predicated upon three key underlying streams that are about connectivity: attracting and retaining youth; embracing geoinformatics; and purposeful spatially enabled data for climate action. The meeting underscored that the paths to sustainable development in Africa rely upon the effective use of innovation and technology that unavoidably requires comprehensive geodetic infrastructure, and integrated geospatial information frameworks with related policies, institutional arrangement, seamless integration of data. We had the opportunity to underscore that if geocoding is a standardized component in data collection from existing survey tools, this will greatly improve the tracking and monitoring of the SDGs for a better decision making.

(f) The meeting of the expanded Bureau of the Committee of Experts.

(g) The 2024 edition of Geospatial Week, sponsored by the International Society for Photogrammetry and Remote Sensing, held from 2–7

September 2023 in Cairo, Egypt. During Geospatial Week, a combination of workshops was convened by some 30 working groups of the International Society. The event provided a platform for international scholars, graduate students, future scientists and representatives of industrial sectors to learn and exchange knowledge and experience of using geospatial technology for sustainable development and a better quality of life for people around the world.

26. The participation of the Regional Committee in those various programmes and initiatives helped to build a consensus in strengthening partnership and inspired international collaboration for space development in Africa in line with the implementation of the African space policy and strategy.

## **VIII. Ninth meeting of the Regional Committee**

27. The ninth plenary meeting of the Regional Committee of United Nations Global Geospatial Information Management for Africa was held back-to-back with the 31st International Cartographic Conference (ICC 2023) in Cape Town, South Africa from 14th to 18th August 2023.

28. The meeting was attended by more than 80 participants, including members of the Regional Committee and its Executive Board, and representatives of national authorities for mapping, cartography, surveying and statistics. Experts from academia, research institutes, government, civil society, industry organizations and the commercial sector, and representatives of subregional and regional organizations participated in meeting.

29. Delegates from the following 25 African countries participated in the meeting: Botswana, Burkina Faso, Burundi, Cameroon, Comoros, Congo, Côte d'Ivoire, Djibouti, Eswatini, Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Mali, Morocco, Mozambique, Namibia, Nigeria, Senegal, South Africa, Togo, Tunisia, Uganda and Zimbabwe.

30. Resource persons and observers from the following non-African countries were present: France, Iran (Islamic Republic of), Japan, Netherlands (Kingdom of the), Pakistan, Thailand, Türkiye, United Kingdom of Great Britain and Northern Ireland, United States of America and Yemen.

31. Representatives of the following organizations were also in attendance: African Association of Remote Sensing of the Environment; African Regional Institute for Geospatial Information Science and Technology; Afroleadership; AIC Mindful; Bill and Melinda Gates Foundation; Central Statistical Agency of Ethiopia; Centre for Study, Research and Production of Information for the Environment and Sustainable Development; ConsultingWhere; Digital Earth Africa; Esri; Esri Eastern Africa; Geomatics, Topography, Engineering, Advice; Geospatial Initiatives; Geospatial World; International Cartographic Association; International Federation of Surveyors; Network of African Professionals in Geomatics; Pasco Corporation; Place; PVBLIC Foundation; Technical University of Kenya; and World Geospatial Industry Council.

32. Representatives of the following United Nations entities were in attendance: ECA; Statistics Division of United Nations Headquarters; Geospatial Information Section of United Nations Headquarters; World Food Programme; and Office of the Resident Coordinator in Nigeria.

33. In recognition of the dual role of the Plenary session as both a parliamentary process and a forum for intellectual exchange, the meeting featured some formal technical presentations, reports of selected countries experience on best approaches and methodologies in various domains. This provided an unparalleled opportunity to gain an increased level of advocacy towards using geospatial technology for policymaking in the African.

34. Member States requested the Economic Commission for Africa and the Executive Board of the Regional Committee of United Nations Global Geospatial Information Management for Africa: to appoint a high-level advisory committee with the responsibility for helping to steer collective, strategic thinking towards the establishment of an overarching mechanism for geospatial information management in Africa, including, but not limited to, a conference of ministers, a summit of Heads of State and Government; to engage the process of identifying an African geospatial champion; to carry out a review of the mechanism for achieving the financial engagement of members of the Regional Committee and setting the criteria for contributions;

35. The meeting further urged members States to embrace technological advances, such as artificial intelligence, data analytics and machine learning, to automate and enhance the process of integrating geospatial and statistical information in the continent.

36. The meeting agreed that the Executive Board elected during the previous meeting in Addis Ababa, in 2022, would remain the same for the ninth meeting. In Uganda, a new commissioner of the Uganda Survey Department had been appointed as the country's representative to the Regional Committee. The following countries comprised the Executive Board:

- Chair: South Africa
- First Vice-Chair: Cameroon
- Second Vice-Chair: Morocco
- First Rapporteur: Uganda
- Second Rapporteur: Burkina Faso
- Ex officio member: Ethiopia
- Secretariat: Economic Commission for Africa

## **IX. Perspectives, outlook and future plans**

37. The Africa Region needs to position itself strategically in relation to the major initiatives being implemented at the global level, considering that the future of geospatial information in Africa could not be met without establishing an overarching continental mechanism such as a geospatial conference of ministers, engaging with champions at the level of Heads of State and Government, and fostering a commitment from national leaders.

38. The Regional Committee will carry out or will participate in the following activities during the upcoming reporting period:

(a) Organising the tenth meeting of the Regional Committee of United Nations Global Geospatial Information Management for Africa, to be held in conjunction with the ninth Statistical Commission of Africa. The meeting is scheduled to take place from 28<sup>th</sup> October to 1<sup>st</sup> November 2024 in Addis Ababa, Ethiopia. The scheduling of the meetings of the Regional Committee to coincide with other relevant geospatial events on the African continent helps to increase attendance and the sharing of knowledge and experience, which results in more effective meeting inputs and outputs. Participants in the tenth meeting will have the opportunity to assess the advancements made regarding the suggestions put forth and initiatives taken during past sessions of the Regional Committee. The assembly will also offer a platform for attendees to exchange knowledge and exemplary practices in the advancement of geospatial data in Africa, increase consciousness of the advantages to be gained from utilizing geospatial information for sustained progress, and deliberate on policies, measures, and actions that African nations could undertake to guarantee the effective execution of the United Nations Initiative on Global Geospatial Information Management within the region.



(b) The 2024 conference of the African Association of Remote Sensing of the Environment. The biennial international conferences are held across Africa and have grown in stature and size, increasingly attracting hundreds of participants from Africa and abroad, to become the premier event in remote sensing in Africa. The next conference will take place in November 2024, and the Regional Committee will be a key partner, through sponsorship grants and the organization of technical side-event workshops.

(c) Considering the current trends of the geospatial information ecosystem with rapid changes in technological innovations and advancements, and the pervasiveness of digital transformation, the Regional Committee intends to undertake research studies in a view of appraising the newly emerging trends and advancements in the realm of geospatial information, such as geospatial artificial intelligence; the growing adoption of cloud-based geospatial solutions and data standards; increasing use of geospatial for climate change adaptation and mitigation; geospatial and disaster risk management; etc. This will help UN-GGIM: Africa advise and inform member States on the strategic pathways that can be used by National mapping agencies to continue auditing and upgrading their geospatial strategies and operations, in order to remain effective and efficient.

## **X. Conclusion**

39. Geospatial information products, analysis and applications are essential to African development at all levels. Achieving optimum results from geospatial information requires a coordinated approach and the adoption of common frameworks, along with standardization and compliance at every tier. Such a task is beyond the capacity of any single nation or even region, this forms the basis of the work of the Regional Committee of the United Nations Geospatial Information Management for Africa (UN-GGIM: Africa).

40. UN-GGIM: Africa develops and implements a continued strategy to ensure that national and regional wide spatial data and technology are available to as many potential users as possible and are developed, managed, procured, and coordinated according to best practices. Efforts are being continued to develop and manage geospatial data in a coordinated manner by establishing standards, adopting or developing best practices, forming mechanisms for supporting collaborative data initiatives, providing a unified data clearinghouse, and facilitating the completion of continent-wide frameworks and infrastructures. The Strategy should expand and improve the use and awareness of geospatial technologies through increased collaborative educational opportunities and outreach. Equally, the strategy amongst others should identify and secure sustainable funding sources used to support ongoing member States geospatial programs and operations.