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Regional Committee of the United Nations Global Geospatial Information Management for Africa: Road map for implementation, foundational principles 1.0

I. Background and justification

1. Following extensive consultation with geospatial experts from Member States, the Economic and Social Council considered the Secretary General's report on global geospatial information management (E/2011/89) and adopted resolution 2011/24 to create the Committee of Experts on Global Geospatial Information Management. The United Nations Initiative on Global Geospatial Information Management (UN-GGIM) was established to create a formal geospatial information coordination mechanism involving Member States as the key stakeholders.
2. Such initiatives have recognized the significance of geospatial information in almost every area of Government, commerce, academia and societal development. From the most local level, such information contributes to, or has some effect on, a broader scale to subnational events. This in turn influences national and subregional incidents, which continue to the regional level and ultimately contribute to global consequences, otherwise referred to as "the butterfly effect". Geospatial information is a means to track, monitor and analyse any occurrence that has a location or temporal element and, more importantly, to look forward, creating models and analysing potential consequences from policy and events.
3. For optimum results to be achieved from geospatial information, the content must be available in a format that can be consistently applied to datasets at the next level. Interoperable geospatial information relies upon common frameworks, standardization and compliance adopted at every tier. Such a task is beyond any single nation or even region, and it is for these reasons that UN-GGIM was established.
4. To date, regional entities contributing geospatial information to the global level have been initiated for all populated areas except Africa. The creation of the Regional Committee of the United Nations Global Geospatial Information Management for Africa (UN-GGIM: Africa) will build on the important efforts of the Committee on Development Information, Science and Technology (CODIST)-Geo, while simultaneously enriching the development and transparency of individual nations and Africa as a whole. These outcomes will ultimately benefit the African people through, among other things, better health care, infrastructure development and improved education.
5. Strategic guidance extended by the global initiative will be essential in implementing UN-GGIM: Africa, but the African entity will be able to mould policy suited to African issues and ensure that national bodies are capable of dealing with their unique concerns.

6. The African Action Plan on Global Geospatial Information Management (GI4SD) was developed in June 2016, around the following key building blocks:

(a) A policy required to guide Member States' efforts in achieving a better coordination mechanism for geospatial information management is put in place;

(b) Common frameworks and tools for geospatial information management in Africa are developed and answer the questions on how to support geospatial standard-setting processes, and how to explore new data capture and process technologies and tools;

(c) Comprehensive, holistic, vision-driven, long-term transformative development of capacities in Africa is sustained, and the role and responsibilities of stakeholders are outlined;

(d) A mechanism for partnership and collaboration in the global geoinformation community is set up;

(e) Geospatial and statistical information is integrated.

7. The Action Plan was reviewed by an external mechanism to ensure internal and policy consistency, and to harmonize it with global agendas and programmes such as the 2030 Agenda for Sustainable Development and the African Union's Agenda 2063.

II. Summary of the African Action Plan on Global Geospatial Information Management

8. GI4SD is an implementation tool of UN-GGIM: Africa. It responds to the recommendation of the Africa preparatory meeting (GGIM Precom Africa), held in Addis Ababa in August 2011, urging Member States, the Economic Commission for Africa (ECA) and the African Union Commission to finalize and implement an African Action Plan on Global Geospatial Information Management.

9. GI4SD should be seen as a top layer for decision-making, necessary for the translation of the 2030 Agenda for Sustainable Development targets and Agenda 2063 objectives into reality for Africa for the period 2016–2030. As such, it outlines the logical framework of identified priority actions (objectives, results and estimated costs) for UN-GGIM: Africa. This framework shall bring about specific implementation projects to achieve the objectives of the Action Plan over the period 2016-2030 and beyond.

10. The vision of GI4SD for the 2030 horizon on the African continent is “Advancing Africa’s Sustainable Development Agenda through sound Geospatial Information Management”. In this formulation, sound geospatial information management refers to inclusive production and use of geospatial information, including its linkage to other strategies in development sectors such as information and communications technology, and statistics.

11. The mission statement of GI4SD in Africa reads as follows:

Africa produces and uses authoritative and evidence-based geospatial information for the attainment of its sustainable development goals and Agenda 2063 objectives. The authoritative and evidence-based geospatial information refers to rigorously controlled best quality and “official” consensus-based geospatial information, and its attribute of objective, logically led and uncertainty-free or reduced source of decision-making.

12. GI4SD in Africa focuses on five keys areas:

(a) Geospatial information policy and governance;

(b) Common framework and tools;

(c) Capacity-building and knowledge transfer;

(d) International coordination and cooperation in meeting global needs;

(e) Integration of geospatial information and statistics.

13. The last item on the list is very useful in providing decision makers with sound information products and services adapted to the attainment of the Sustainable Development Goals and the objectives of Agenda 2063, based on a National Statistic Spatial Framework.

14. Each focus area, and the chapter on integration of statistical and geospatial information, is detailed in specific objectives, expected results, and estimated budget figures, with an idea of related activities.

15. GI4SD in Africa, the African Action Plan covering the period from 2016 to 2030, requires a total provisional budget of US\$ 154,300,000.

III. Why is the United Nations Initiative on Global Geospatial Information Management important for African countries?

16. The establishment of UN-GGIM: Africa allows for the decisions and discussions held by the global Committee of Experts to be continued at a regional level with a specific focus on the issues facing Member States in the region.

17. There are several examples where the work of the Committee of Experts has helped other Member States overcome issues faced during the development of infrastructures and policies; these include discussions on legal and policy frameworks, and the implementation and adoption of standards for the geospatial information community.

18. This need was already expressed by the Doha Declaration on “Advancing Global Geospatial Information Management”, an outcome document of the second High Level Forum on GGIM, held in Qatar in February 2013, which resolved to “encourage regional collaboration in the promotion and development of geospatial information management and the establishment of appropriate regional coordinating mechanisms and implementation strategies (as exemplified by UN-GGIM Asia-Pacific), and which include the contribution and ongoing role played by international non-governmental organizations, academia and the private sector in supporting this important initiative.”

19. One of the important aspects of UN-GGIM is its ability to provide a platform for knowledge sharing and best practice. The creation of successful spatial data infrastructure to underpin and coordinate all data held on a country is known to lead to economic growth and increased stability of a nation and of regions.

20. Accurate, reliable, maintained location data underpin every aspect of data management from agricultural monitoring, water management and land ownership and management, urban development, transport management and input into the post-2015 agenda of Sustainable Development Goals (now referred to as the 2030 Agenda for Sustainable Development). The task is not just a technical challenge; more importantly, its success depends on the establishment of effective coordination and infrastructure management at the political level.

21. Many countries are developing national policies and practices that formalize the way their geospatial data can be shared, used and disseminated. By using the UN-GGIM Knowledge Base and by discussing best practice, Member States that are in the process of developing or maturing their spatial data infrastructures can gain insight into different approaches used by countries with their established infrastructures. In addition, they can identify and overcome challenges more quickly using knowledge gained from other Member States.

IV. Setting up an overarching governance and policy mechanism

22. Policies related to geospatial information management and governance must be aligned with national efforts, while taking into account international perspectives. Those set by UN-GGIM, regional entities and national sources can be used as examples in this endeavour.

23. Legal issues may have severe ramifications on geospatial governance, and as a consequence, should be monitored closely.

24. The possibility of exploiting public–private partnerships, and utilizing sources such as foreign Governments, United Nations organizations and non-governmental organizations, should be vigorously investigated. Additionally, a fine line may need to be drawn between benefits and conflicts of interest. Copyright and liability issues are of particular concern, requiring careful monitoring.

V. Developing capacity and knowledge transfer

25. The number of people with relevant geospatial skills in Africa and the numbers required are unknown. These details must be determined for planning purposes and establishing strategies.

26. Some institutions in Africa offer high-level geospatial science training, but more need to offer programmes with the highest standards to attract international students at all levels. In concert, geospatial research and development should be raised to an international level to gain such recognition.

27. Awareness training on what geospatial information is and how modern society utilizes it must be provided to all facets of society, beginning in primary school, from the general public to the highest government offices.

VI. Building a common framework and tools

28. Geospatial information products, analysis and applications are essential to African development at all levels and as a contributor to issues from the global perspective. To achieve this requires a coordinated approach adopting common regional standards, in line with international policy. A sound methodology is required, which can be developed by referring to the experiences and efforts of organizations such as UN-GGIM, and building on past efforts such as CODIST-Geo.

29. Geospatial analysis requires sound data to be applied to the situation. As the data feed upwards from one level to the next, several elements must be present:

(a) Useful – the data should be relevant and of a currency functional to the desired application;

(b) Standardized – interoperability of datasets is key to a successful geospatial programme;

(c) Discoverable – users must be able to locate the data to minimize duplication of efforts;

(d) Accessible – once a dataset is identified as potentially useful, it must be available to potential users.

30. To align with and contribute to international efforts, the UN-GGIM fundamental datasets should be adopted. These datasets have already taken into account the work of CODIST-Geo in this area. Additional datasets may be added if proven intrinsic to the African situation. National mapping authorities can similarly expand the number and types of fundamental geospatial datasets based upon national interests, providing that the original list is maintained. Although entirely permissible, caution should be exercised with the addition of datasets, bearing in mind the extra burden that will ultimately be imposed upon individual national geospatial authorities. The existence of freely available definitive datasets negates the need for projects to recollect, collate or create non-authoritative datasets. This saves funds in the tangible sense, but simultaneously yields a superior analysis and therefore facilitates better informed decision-making.

31. Second Administrative Level Boundaries (SALB) are identified by most studies as a fundamental dataset. As such, it would be logical for the African SALB initiative to be incorporated in UN-GGIM: Africa. Similarly, the Gazetteer of the United Nations Group of Experts on Geographical Names can be used as a source for a single definitive dataset covering a theme universally acknowledged as vital.

32. Following the identification of the fundamental datasets, an African inventory should be conducted to ascertain what exists, its currency and the efforts required to align it to the adopted standards, and to appraise the data gap.

33. A functional African geospatial data catalogue requires an application permitting search, discovery and assessment of available datasets. Development and population of the catalogue can only commence once the fundamental datasets are identified, a detailed inventory compiled, required standards are confirmed, and metadata fully populated.

34. Although UN-GGIM: Africa has little influence on the direction or rate of advancement in the technology arena, it should monitor and evaluate such changes to ensure that opportunities are fully exploited. Accordingly, the establishment of a working group to cover this area may be advisable.

35. Robust geodetic infrastructure is intrinsic to ensuring accurate and reliable geospatial data. The African Geodetic Reference Frame initiative, commenced by CODIST-Geo, serves as the foundation for this in Africa and should therefore be incorporated into UN-GGIM: Africa.

36. The adoption of standards is paramount to ensuring compatibility and interoperability between all levels of geospatial information. To fully align with the global initiative and minimize effort, the direct application of internationally agreed standards and protocols to the regional and national levels is a logical path. Standards for both metadata and a searchable data catalogue are required before the task of building appropriate functionality can begin.

VII. Integrating geospatial information and statistics

37. Geography is essential, and has now been acknowledged as needed (and should be incorporated) in all stages of statistical processes. ECA has started the preliminary work to mainstream geospatial technology into national statistics offices. During the next biennium, efforts will be strengthened in: setting the dialogue to ensure that national statistical, planning and cartographic authorities have effective collaboration between them in the development of respective data infrastructure and systems; revisiting the National Strategies for the Development of Statistics (NSDS) to incorporate National Spatial Data Infrastructures (NSDI) with a focus on having National Statistics and Planning Offices represented in the coordination arrangements for NSDI and National Mapping and Planning Agencies represented in the coordination of NSDS; providing technical support for the incorporation of geographic information systems, remote sensing and other geospatial information solutions, tools and techniques (including standard and interoperable common tools) in the analysis and presentation of statistical data to facilitate ECA research and policy analysis work.

VIII. Fostering international coordination and cooperation in meeting global needs

38. A number of solid initiatives pertaining to geospatial information have been initiated in Africa. These initiatives need to be identified to ensure that UN-GGIM: Africa cooperates with them to become more effective in working towards achieving common goals.

39. The most critical point of this, or any effort, is setting realistic goals and achieving them in a timely manner in order to build confidence and gain respect. This will aid in attracting the funding required to drive such effort, maintain support and gather momentum.

40. Although this is a daunting initiative, the effort is not commencing from a base of zero. A number of geospatial programmes from international through to local levels have been, or are being, implemented. Those efforts can also serve as sources of guidance, thereby making the task much less onerous.

41. Several ongoing initiatives are beneficial to geospatial information utilization in Africa. Among them are the United Nations Group of Experts on Geographical Names, the Global Earth Observation System of Systems, and the United Nations Programme on Space Applications, which is being implemented by the United Nations Office for Outer Space Affairs. Collaborating with

these initiatives would greatly enhance the development of geospatial information on the continent. Outdated or sidelined initiatives need to be examined to determine if they have any data, policies or aims that are worth revitalizing.

IX. Mobilizing resources: funding, sustainability and awareness

42. The issues of funding, sustainability and awareness are dependent on one another. Numerous geospatial initiatives have commenced in Africa over the years, with many of them failing to realize their full potential or be sustained. There are many reasons for this, but ultimately it can be attributed to an inability to secure the necessary funding or support, which in part is reliant on making stakeholders aware of the potential benefits.

43. A paradigm for acquiring initial and sustainable funding is important for implementing the initiative. If sufficient support is not secured, UN-GGIM: Africa is in danger of becoming another of those programmes that promises a lot but just fades away, diminishing the significant role geospatial information could provide to the African development agenda. Critical for successful implementation is the setting and achievement of realistic goals, followed by honest reporting and clear explanations as to how they ultimately affect life in Africa. While it is easy to promote what geospatial information can do for Africa or an individual country, the management of expectations in allocated resources must be carefully balanced.

44. Funding is required not only for organizing substantive meetings, but also to work at the grass-roots level to ensure that infrastructure is maintained, education is enhanced and other areas developed.

45. As demonstrated, the presence and utilization of geospatial information at the community level has become extremely pervasive and is growing. It is, therefore, the responsibility of the geospatial community to raise and maintain awareness about where the data come from and why they must be constantly updated to be effective and efficient. The benefits arising from geospatial information must be communicated to feed into the sustainability and funding aspects of the initiative.

X. Establishing working groups

46. The following working groups with their chair and members were established to ensure the implementation of activities on the ground. All African countries and other interested organizations are encouraged to contribute and become active members of any of these working groups in accordance with the Statutes and Rules of Procedure:

(a) Working Group 1 – African Geodetic Reference Frame (WG–AFREF). The terms of reference for WG–AFREF, take into consideration General Assembly resolution 69/266, “A global geodetic reference frame for sustainable development”. The main objective of WG–AFREF is to promote and provide for a regional realization of the Global Geodetic Reference Frame for Africa;

(b) Working Group 2 – Fundamental datasets and standards. The main objective of the working group is to promote the availability of geospatial information for sustainable development, in line with the Mapping Africa for Africa initiative, in particular the Durban Statement on Mapping Africa for Africa (2003);

(c) Working Group 3 – Institutional arrangements and legal frameworks. Effective GGIM requires laws, regulations and policies that guide and encourage the gathering, dissemination and management of geospatial information, while still tackling important challenges. Enabling institutional arrangements and legal frameworks provides a stable basis for the acquisition, management, distribution and dissemination of geospatial data and information. The main aim of this working group is to prepare institutional arrangements and legal frameworks for the operation of UN–GGIM: Africa;

(d) Working Group 4 – Capacity and capability development. The objective of the working group is to strengthen and harmonize human resources development and institutional capability across Africa. The group will endeavour to foster geospatial information literacy,

geospatial information awareness and navigational abilities – promoting infrastructural capabilities;

(e) Working Group 5 – Integration of geospatial and statistical information for sectoral applications. The group will endeavour to establish the political and strategic relevance for the integration of geospatial and statistical data for Africa. The working group identifies key projects or work areas and how they can benefit, with particular focus on the Sustainable Development Goals, Agenda 2063, the 2020 Round of Censuses, and national or regional priorities.

XI. Addressing global issues and challenges

47. In setting the stage for the development and implementation of UN-GGIM: Africa and its formal endorsement at the global level, the continent has fixed a key milestone as a visible sign that Africa will be a strong champion in developing global geospatial information management. The initiative, therefore, should be supported by every African country. Among the various challenges that should be tackled, consensus, leadership, political will and funding, have been deemed critical.

48. The consensus was gained with the formal endorsement of UN-GGIM: Africa by representatives of Member States during the first meeting, held in November 2015.

49. The leadership is also secured with the establishment of the Executive Bureau and the choice of ECA as the Regional Committee’s secretariat.

50. The political buy-in and the funding remain the critical challenge. Accordingly, strategic guidance extended by the global initiative is essential in implementing UN-GGIM: Africa. The strategy can be developed through a political recommendation from the highest legislative organ of Africa – the Conference of Ministers responsible for Economic and Social Development and Planning – in order to ensure that UN-GGIM: Africa can mould policy and strategic actions suited to African issues, and ensure that national bodies are capable of dealing with their unique concerns.

XII. Charting the way forward

51. The following steps forward were considered essential in the implementation of UN-GGIM: Africa:

(a) Establish an ad hoc task force to translate the logical framework of the action plan into concrete projects;

(b) Engage the working groups to take the role of drawing from the action plan some concrete actions they can convert into bankable projects with priority actions, milestones and related costs;

(c) Develop the strategy for resource mobilization (outlining the practical steps for a funding campaign towards the donors and partners such as World Bank, African Development Bank, China Trust Fund, etc.) to ensure the funding of some of the key activities (AFREF, GeoNyms, Spatial Data Infrastructure, Mapping Africa for Africa, and so on).