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Policy issues

Overarching geospatial information governance for Africa

Executive summary

I. Introduction

1. Africa is the second-largest and second-most populous continent: its 30,065,000 km² of land area[1] makes up 20.2 per cent of the global total[2] and its estimated 1.5 billion people represent 18.7 per cent of the world population.[3] It is also the continent with the second-largest amount of agricultural land: 1.1 billion ha.[4] Furthermore, Africa is endowed with abundant natural resources and great ecological, cultural and economic diversity.

2. Despite those resources, Africa remains the least developed continent, with rampant poverty and food insecurity. The region's dire situation is attributable to, among other causes, the inadequate use of appropriate leadership tools and of technology for sustainable development. Accordingly, it is high time for African States to adopt such tools and technology, one of the most important of which is information and communications technology (ICT), in view of the crucial role it plays in supporting decision-making.

3. It is commonly accepted within the geospatial community that 80 per cent of all data have a geospatial component. Geospatial information comprises digital spatial data describing the location of physical features that are situated on, above and below the surface of the Earth. Africa is the least mapped continent, however, as most African Governments lack awareness of the true value of geospatial information, despite the increasing recognition at the global level that such information should be considered part of the national information infrastructure of a country.

4. The present report has been produced with a view to bridging the digital divide as it relates to geospatial information. In section II, the importance of

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

[1] Robert K.A. Gardiner and Davidson S.H.W. Nicol, "Africa", Britannica, 24 September 2024

[2] Michael Pidwirny, "Introduction to the hydrosphere", Fundamentals of Physical Geography, 2006.

[3] Worldometer, Population database. Available at www.worldometers.info/population (accessed on [date]).

[4] Food and Agriculture Organization of the United Nations, "Land statistics, 2001–2022: global, regional and country trends" (Rome, 2024).

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geospatial information for Africa is explained. A brief background to geospatial information governance in Africa to date is given in section III, followed by details of the prevailing overarching issues in geospatial information governance in Africa in section IV. The strategy to be adopted with regard to geospatial information governance in Africa and the manner of its implementation are detailed in sections V and VI, respectively, before a brief conclusion is set out in section VII.

II. Development and economic cases for African investment in geospatial information

5. “Everything happens somewhere” is an expression often used within the geospatial community to illustrate that location is a critical component of all information relating to a geographical space. Geospatial information is recognized by those within the community as fundamental to virtually all programmes and projects across all economic, social and environmental development sectors.

6. Owing to its cross-cutting nature, geospatial information has become a critical component of the national information infrastructure of every State and of the wider knowledge economy. It provides decision makers with data about events and the locations at which they occur, thus enabling them to make timely interventions that contribute to economic growth, sustainable social development, environmental sustainability, peace and national prosperity.

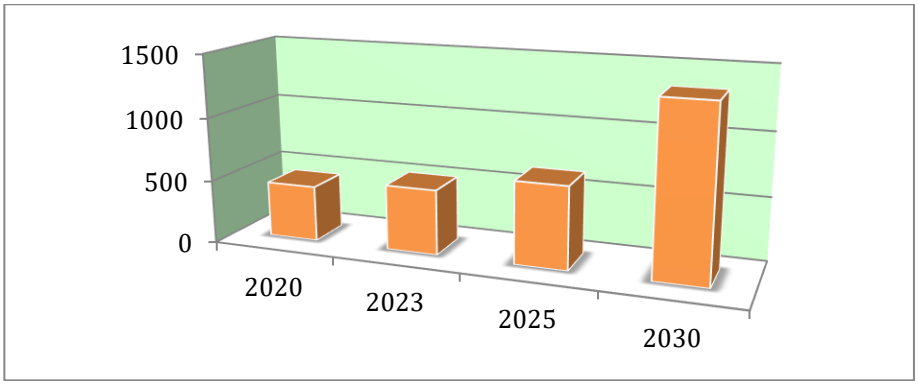
7. The multisectoral uses of geospatial information – which encompass all three pillars of sustainable development: social, economic and environmental development – are depicted in figure I.

Figure I
Multisectoral uses of geospatial information

8. As shown in figure II, the total size of the market for geospatial information is currently in the hundreds of billions of dollars and is projected to increase. The African share of the market is miniscule, however, amounting to a meagre 2.7 per cent.[5] In order for Africa not to be left behind, therefore, its States and institutions need to bridge the geospatial digital divide by increasing its share of the market.

[5] Geospatial Media and Communications, *Geospatial Industry Outlook and Readiness Index, 2018 edition* (Noida, India, 2018).

Figure II
Geospatial information market growth, 2020–2030
(Billions of United States dollars)



Source: Geospatial Media and Communications, *Geospatial Industry Outlook and Readiness Index, 2018 edition* (Noida, India, 2018).

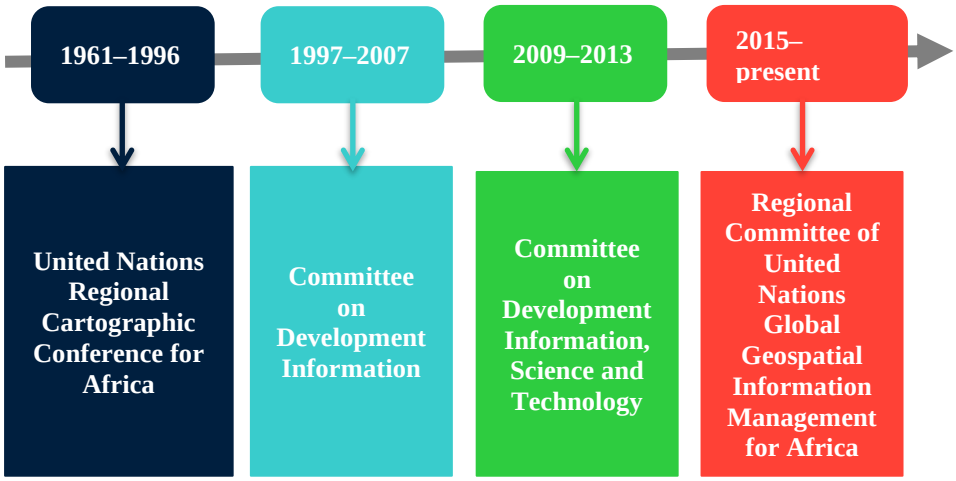
III. Geospatial information governance in Africa: a brief history

9. The Economic and Social Council established the Economic Commission for Africa (ECA) in 1958, as one of the five regional commissions of the United Nations. Since its establishment, ECA has promoted the economic and social development of African countries, fostered intraregional integration and promoted international cooperation on African development.

10. ECA has, since its foundation, recognized the important role geospatial information plays in fostering sustainable development. Consequently, the Commission and its members played a crucial role in instigating the organization of the inaugural United Nations Regional Cartographic Conference for Africa, the continent's first geospatial information governance body, held in Nairobi in July 1963.

11. Since then, the governance body has continued to function, although its name and form have been modified several times, as shown in figure III. The modifications have been made in response to organizational changes within ECA and within the global geospatial information governance bodies.

Figure III
Successive geospatial information governance bodies in Africa, 1961–2024



IV. Overarching issues relating to geospatial information governance in Africa

12. The chief elements of governance include the establishment of policies and regulations and the continuous monitoring of their proper implementation. In Africa, despite the efforts of ECA, it has not been possible to establish an effective continental governance structure for geospatial information, owing to the lack of a binding policy and legal framework at the regional level for such information.

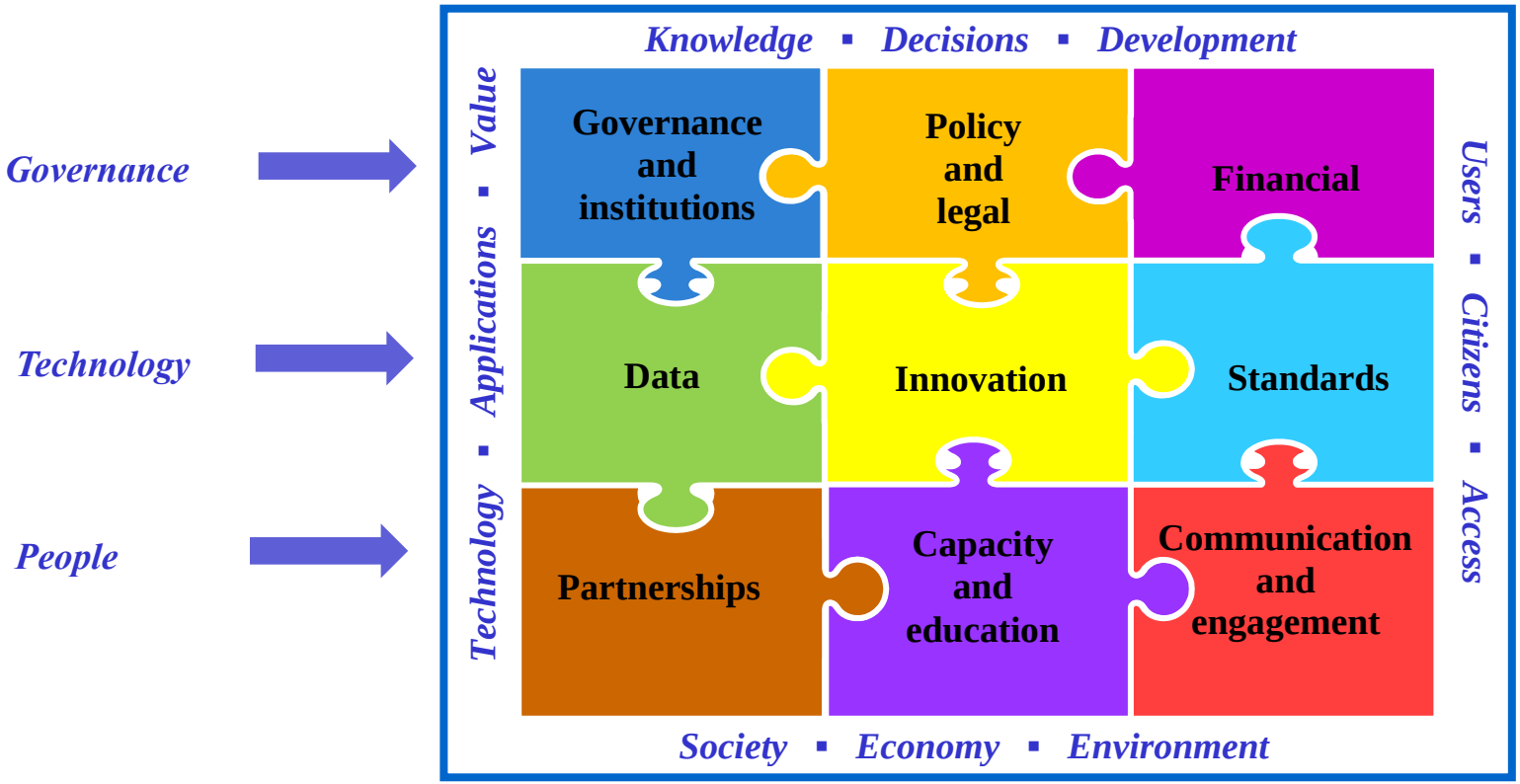
13. As a result, African States and institutions have significant leadership, knowledge and usage shortfalls with regard to geospatial information. In particular, while geospatial information technologies are evolving rapidly, African countries are experiencing shortages of staff with the skills and opportunity to use them, with the result that those countries risk being left behind the rest of the world in this domain.

14. In order for the shortages to be addressed, they must first be identified by means of a comprehensive assessment of the geospatial information governance environment in Africa. The tool that is most widely used for conducting such an assessment is an analysis of the continent's strengths, weaknesses, opportunities and threats in this connection.

15. ECA conducted such an analysis, with a view to assessing the internal and external geospatial information governance environments of Africa. With regard to the internal environment, the 7-S Framework of Peters and Waterman[6] was used, along with related resource-based assessment tools, to conduct an analysis of the nine strategic pathways identified in the Integrated Geospatial Information Framework (see figure IV). For the external environment, the political, economic, social, technological, legal and environmental factors framework was used to identify opportunities and threats.

[6] Lowell Bryan, "Enduring Ideas: The 7-S Framework", McKinsey, 1 March 2008.

Figure IV
Pathways set out in the Integrated Geospatial Information Framework



Source: Regional Committee of United Nations Global Geospatial Information Management for Africa, *Integrated Geospatial Information Framework: A Strategic Guide to Develop and Strengthen National Geospatial Information Management, part one – Overarching Strategic Framework, Second Edition* (Addis Ababa, 2023).

16. As shown in figure V, from the comprehensive assessment of the internal and external geospatial information governance environments of Africa, the following overarching challenges for geospatial information governance in the region have been identified:

(a) Little awareness among political leaders of the role of geospatial information in sustainable development;

(b) Lack of a regional geospatial information policy or strategy for Africa;

(c) Lack of endorsement by the Governments of ECA members of the Regional Committee of United Nations Global Geospatial Information Management for Africa;

(d) Absence of financing mechanisms for geospatial information governance and development in Africa;

(e) Weak ICT infrastructure and Internet penetration, hampering data-sharing opportunities;

(f) Poor capacity and capability for acquiring and disseminating digital geospatial information.

17. On the other hand, African States and institutions are committed to the successful implementation of the 2030 Agenda for Sustainable Development and of Agenda 2063: The Africa We Want, of the African Union, both of which offer Africa unique opportunities to achieve inclusive, transformative and sustainable development. Implementation of the two agendas can enable African countries to join the ranks of the developed world, thereby dispensing with the narrative of a backward and underdeveloped Africa.

18. African States and institutions lack the reliable and timely information that is required for informed decision-making to ensure successful implementation of the 2030 Agenda and Agenda 2063, however. Geospatial information plays a significant role in meeting that need, by making such information available, thereby enabling all stakeholders to measure, monitor and report progress and to make the adjustments that are necessary to ensure success. This has contributed to the significant widening of the geospatial information divide between African countries and the developed world, which can be attributed to the failure of all governance bodies, current and former, to actively engage with African political leaders.

19. African States and institutions therefore need to implement geospatial information governance mechanisms with appropriate policy and legal frameworks, and with institutional arrangements that ensure effective geospatial information management. Such mechanisms must also be aligned with national, regional and global policy frameworks. The strategy set out in the present report will help African States and institutions to meet the overarching and interlinked challenges of geospatial information governance on the continent.

Figure V

Matrix of strengths, weaknesses, opportunities and threats identified in the comprehensive assessment of the internal and external geospatial information governance environments of Africa

	Strengths ▪ The Regional Committee of United Nations Global Geospatial Information Management for Africa has been established as an expert group for coordinating geospatial information management in Africa. ▪ ECA provides support.	**Weaknesses** ▪ There is no regional geospatial information policy or strategy for Africa. ▪ Since the Regional Committee of United Nations Global Geospatial Information Management for Africa is not endorsed by the Governments of ECA members, the Committee's resolutions and recommendations are poorly implemented. ▪ Funding mechanisms for geospatial information are inadequate. ▪ ICT infrastructure and Internet penetration are weak. ▪ Capacity and capability for acquiring and disseminating digital geospatial information are poor.
Opportunities ▪ African political leaders are committed to implementing the 2030 Agenda and Agenda 2063. ▪ The United Nations and the African Union, along with their development partners, are supportive of initiatives that contribute to implementation of Agenda 2063 and the 2030 Agenda.	**Strategy with regard to strengths and opportunities** Enhance the strengths by promoting the opportunities and, in the process, changing the weaknesses into strengths.	**Strategy with regard to weaknesses and opportunities (adopted strategy)** Leverage the commitment of African political leaders to implement Agenda 2063 and the 2030 Agenda (opportunities) and the existence of the Regional Committee of United Nations Global Geospatial Information Management for Africa (strengths) to overcome the weaknesses and threats.
Threats ▪ Political leaders lack awareness of the role of geospatial information in sustainable development. ▪ Advances in geospatial information technology could enable leading global technology companies to undermine the sovereignty of African and other developing countries.	**Strategy with regard to strengths and threats** Develop policies that enable alliances among Governments, industry, universities and other partners to stimulate innovation and to find pioneering new ways of applying geospatial technology on the continent.	**Strategy with regard to weaknesses and threats** Conduct a far-reaching advocacy and awareness-raising campaign.

V. Strategy for geospatial information governance in Africa: the way forward

A. Recommended strategy

20. It is very clear that the relevant decision makers within African Governments are unaware that high-quality and timely geospatial information is essential for good policymaking. That fundamental challenge cuts across the entire issue of geospatial information governance in Africa.

21. Focused on overcoming this challenge, the strategy recommended in the present report is derived from the analysis of strengths, weaknesses, opportunities and threats presented in the previous section. From the analysis, it has been learned that the internal environment presents weaknesses, while the external environment promises opportunities.

22. In the light of the coexistence of internal weaknesses and external opportunities, the recommended strategy is to develop policies that enable alliances among Governments, industry, universities and other partners to stimulate innovation and to find pioneering new ways of applying geospatial technology on the continent. Doing so would create an enabling environment in which geospatial information governance may be fostered in Africa.

B. Vision, mission and goals

1. Vision

23. The vision for geospatial information governance in Africa is derived from the pan-African vision of "an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in the international arena".[7]

24. On the basis of this pan-African vision, the vision for geospatial information governance in Africa is that, by 2030, African States and institutions should have established an effective geospatial information governance structure that enables African States to produce and utilize timely reliable, and authoritative geospatial information. Such information would help African States and institutions to attain the Sustainable Development Goals within Africa, including by realizing the continent's digital transformation.

2. Mission

25. The mission of geospatial information governance in Africa is to provide leadership through the formulation of policies, coordination mechanisms and standards for the delivery of accurate, reliable and authoritative geospatial information to help with implementing the 2030 Agenda and Agenda 2063.

3. Goals

26. The goals for geospatial information governance in Africa are mainly focused on creating an enabling environment for harnessing such information, which is a vital tool for the successful implementation of the 2030 Agenda and Agenda 2063. The goals are intended to correspond with the goals that are set out in *Geospatial Information for Sustainable Development in Africa: African Action Plan on Global Geospatial Information Management, 2016–2030*.[8] The goals are as follows:

[7] African Union Commission, "Agenda 2063: The Africa We Want, popular version", (Addis Ababa, 2015).

[8] ECA, *Geospatial Information for Sustainable Development in Africa: African Action Plan on Global Geospatial Information Management, 2016–2030* (Addis Ababa, 2017).

(a) Goal 1: enact a continental geospatial information policy;

(b) Goal 2: establish a continental geospatial information governance body;

(c) Goal 3: ensure that African States commit themselves to appropriate geospatial information funding mechanisms;

(d) Goal 4: make sure that African States and institutions adopt an effective geospatial information advocacy and communication strategy;

(e) Goal 5: achieve full implementation of the Integrated Geospatial Information Framework by African States;

(f) Goal 6: foster innovation and continuous improvement.

27. As part of achieving goal 1, the following strategic measures should be taken:

(a) Strategic measure 1.1: organize a geospatial information advocacy group, made up of senior figures in geospatial information management;

(b) Strategic measure 1.2: prepare a position paper;

(c) Strategic measure 1.3: identify and nominate one or more geospatial information champions;

(d) Strategic measure 1.4: draft a comprehensive geospatial information governance policy to be adopted at the national level by all African States that recognize geospatial information as constituting critical development infrastructure.

VI. Implementation of the strategy

A. Geospatial information governance policy brief for Africa

28. The focus of a geospatial information governance policy would be to harness the transformative potential of such information for achieving the Sustainable Development Goals and the goals under Agenda 2063. It is believed that doing so would increase efficiency in all aspects of economic, social and environmental development in Africa and would help political decision makers across the continent to make use of geospatial information for informed decision-making.

29. An African geospatial information policy would be aligned with the United Nations Integrated Geospatial Information Framework to ensure the effective management and incorporation of geospatial information, with a view to strengthening the value of the geospatial information sector to support holistic development, economic prosperity, environmental sustainability and a thriving information economy at the regional and national levels.

30. Such a policy would have the following detailed objectives, which are adapted from the *United Nations Integrated Geospatial Information Framework Policy and Legal Resource Kit*:[9]

(a) Effective geospatial information management;

(b) Increased capacity, capability and knowledge transfer;

(c) Integrated geospatial information systems and services;

(d) Economic return on investment;

(e) Sustainable education and training;

[9] United Nations Global Geospatial Information Management, *United Nations Integrated Geospatial Information Framework Policy and Legal Resource Kit* (Addis Ababa, 2022).

(f) Integrated cooperation and partnerships;

(g) Enhanced national engagement and communication;

(h) Enriched societal value and benefits.

31. A geospatial information governance policy for Africa would be underpinned by the following seven principles, which would be directly aligned with the Integrated Geospatial Information Framework:

(a) Strategic enablement;

(b) Transparency and accountability;

(c) Reliability, accessibility and ease of use;

(d) Collaboration and cooperation;

(e) Integrative solutions;

(f) Sustainability and recognition of value;

(g) Leadership and commitment.

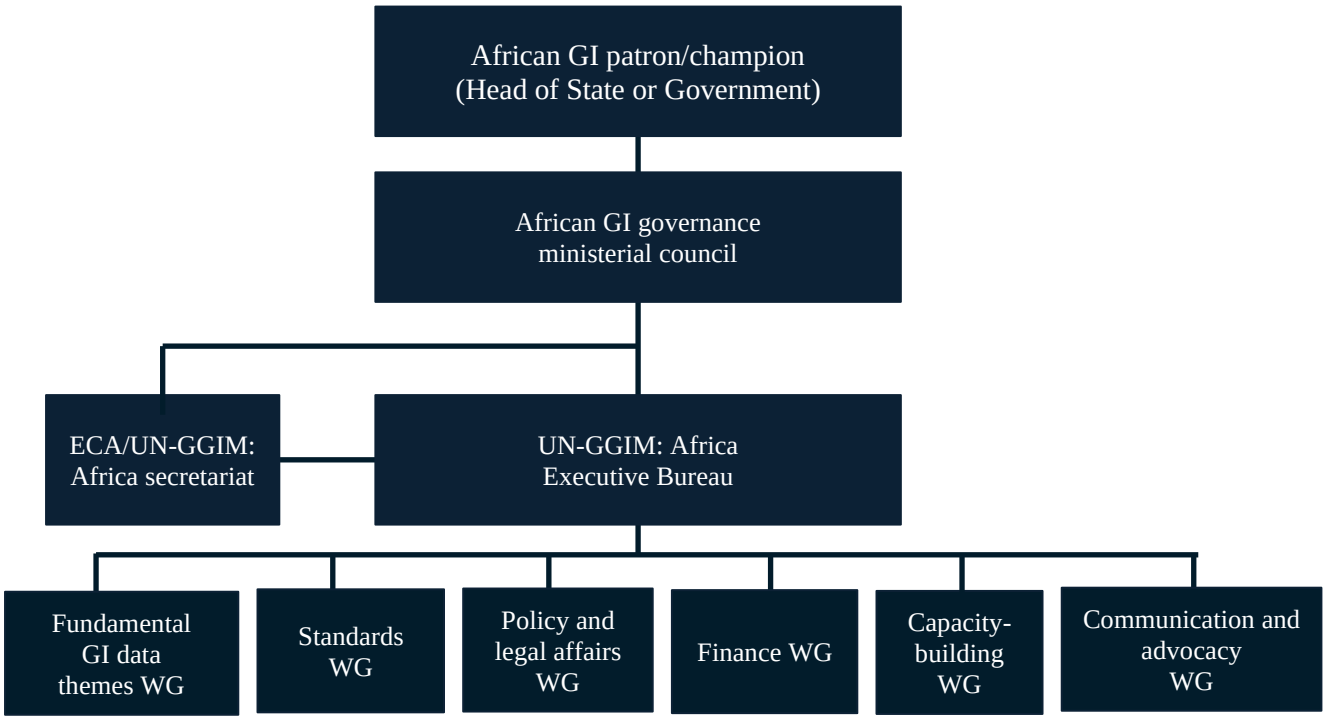
B. Institutional arrangements: governance architecture

32. The successful implementation of a geospatial information policy would be contingent upon the establishment of a commensurate governance body with the requisite institutional mandate.

33. The Regional Committee of United Nations Global Geospatial Information Management for Africa is the continent's current geospatial information governance mechanism. Even though the Committee was established under the auspices of ECA, it has no mandate from the Governments of the Commission's members and, thus, has remained a mere committee of experts. There is, therefore, no mechanism for coordinating and monitoring the effective implementation of its recommendations and resolutions.

34. Accordingly, it is essential to reconfigure the governance structure of the Regional Committee of United Nations Global Geospatial Information Management for Africa, in order to bolster its mandate and increase its role in the governance of geospatial information in Africa. The recommended organizational structure for the governance of geospatial information in Africa, incorporating changes to the Committee's role and mandate, is depicted in figure VI. The various roles shown in figure VI are explained in the subsections that follow it.

Figure VI
Geospatial information governance structure for Africa



Abbreviations: GI, geospatial information; UN-GGIM: Africa, Regional Committee of United Nations Global Geospatial Information Management for Africa; WG, working group.

Source: ECA compilation.

1. African geospatial information patron or champion

35. The patron or champion of geospatial information in Africa would be the Head of State or Government of the country that held the rotating Chair of the Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa.

36. The patron or champion would have the following roles and responsibilities:

(a) Serving as the public face of the African geospatial information governance body, as an expression of support for its vision and mission, thereby increasing the body's credibility, making it better able to raise awareness of geospatial information among the senior public officials of other African countries and, in general, conferring an aura of goodwill on it;

(b) Supporting efforts to raise funds for geospatial information in Africa within the United Nations institutions or African Union, by promoting budget allocations for related activities;

(c) Participating, as a guest of honour and the representative of Africa, in high-level forums on or related to geospatial information held by the United Nations or the African Union;

(d) Contributing to African geospatial information capacity-development programmes, by sharing insights, experiences and other enriching leadership perspectives;

(e) Leveraging his or her networks to encourage other renowned leaders to contribute their time and knowledge to increasing the contribution of geospatial information to African sustainable development.

2. African geospatial information governance ministerial council

37. ECA and the African Union should jointly establish a permanent geospatial information ministerial council, comprising the ministers responsible for economic development, planning and finance in African Governments.

38. Such a council would have the following roles and responsibilities:

(a) Supervising and monitoring implementation of the geospatial information governance policy;

(b) Steering the formulation of any comprehensive directives, laws, standards, manuals and guidelines that are important for the implementation of the policy;

(c) Directing the development of a road map for implementing the geospatial information governance policy;

(d) Establishing working groups and, on the basis of recommendations from the Regional Committee of United Nations Global Geospatial Information Management for Africa, assigning each one a role based on its mission;

(e) Drawing up a budget for the proper implementation of the geospatial information governance policy;

(f) Proposing to members of ECA that they set up new institutions or amend the roles of the existing institutions as they see fit, in order to facilitate the implementation of the geospatial information governance policy.

3. Regional Committee of United Nations Global Geospatial Information Management for Africa

39. In general, the Regional Committee of United Nations Global Geospatial Information Management for Africa would play the role of the lead geospatial information agency at the regional level and would be responsible for planning, leading and coordinating Africa-wide geospatial information governance activities.

40. The Regional Committee of United Nations Global Geospatial Information Management for Africa would have the following roles and responsibilities:

(a) Leading African geospatial information governance, in keeping with the continent’s commitment to following the nine pathways to robust and effective geospatial information management, as set out in the Integrated Geospatial Information Framework;

(b) Ensuring that members of ECA adopt best practice standards and compliance mechanisms that enable legal, data, semantic and technical interoperability, and that provide users with lawful access to and reuse of geospatial information;

(c) Establishing effective cross-sectoral and interdisciplinary collaboration, partnerships between industry, universities and the private sector, and international cooperation, with a view to creating and sustaining the value of geospatial information through a culture based on trusted partnerships and strategic alliances in which both common needs and aspirations, on the one hand, and national priorities, on the other, are recognized;

(d) Encouraging the incorporation of geospatial technologies into such critical sectors as agriculture, health, education, infrastructure and natural resource management.

4. Secretariat of the Regional Committee of United Nations Global Geospatial Information Management for Africa

41. In recognition of the crucial role of ECA in providing a regional focus and leadership for geospatial information activities in Africa, the Commission would serve as the permanent secretariat of the Regional Committee of United Nations Global Geospatial Information Management for Africa. Accordingly, ECA would allocate the resources needed to strengthen the secretariat, in order to continue providing assistance to its members with developing policies and legal frameworks for the effective implementation of the Integrated Geospatial Information Framework.

C. Funding mechanisms

1. Leadership and commitment

42. Any development endeavour requires strong leadership and commitment at the highest level. Such leadership and commitment are crucial, if the long-term investments required for development are to be allocated.

43. Accordingly, realizing and committing the required financial resources is vital to the planning and implementation of successful geospatial information infrastructure. African States would therefore need to commit to allocating the funding required for the successful implementation of the African geospatial information policy.

44. Given that geospatial information falls under the umbrella of science and technology, and since goal 20 of Agenda 2063 is that "Africa takes full responsibility for financing her development",[10] African States would have to fund regional investment in geospatial information in full. Accordingly, African Heads of State and Government would need to honour the commitments that they have made, several times, to allocate at least 1 per cent of gross domestic product (GDP) to research and development. With very few exceptions, African States have failed to meet that target and, as shown in table 1, the continent is still lagging far behind the rest of the world in this regard.

Table 1
Research and development expenditure
(Percentage of gross domestic product)

Country or countries	*Research and development budget*
Africa	0.44
Organisation for Economic Co-operation and Development member States	3.01
China	2.43
World	2.71

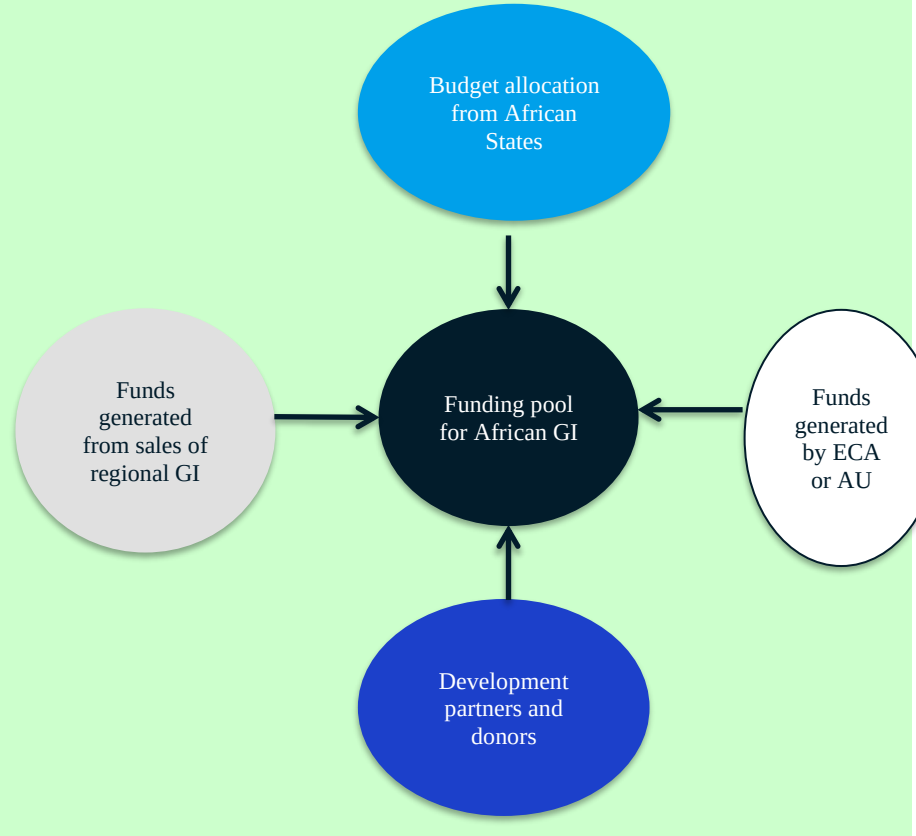
Source: World Bank, "Research and development expenditure (% of GDP)", Science and Technology database. Available at https://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS (accessed on 14 April 2024).

[10] African Union, *Agenda 2063, The Africa We Want: First Ten-Year Implementation Plan, 2013–2023* (Addis Ababa, 2015).

2. Funding model

45. The recommended funding model for geospatial information governance in Africa is depicted in figure VII. The expectation that Africa should bear primary responsibility for funding its own development would be central to the funding model for enhanced geospatial information governance on the continent. African States would therefore need to allocate at least 1 per cent of their GDP to research and development, part of which could constitute a budget allocation to geospatial information governance.

Figure VII
Geospatial information funding model



Abbreviations: AU, African Union; GI, geospatial information.

Source: ECA compilation.

46. The International Monetary Fund estimated African GDP at $2.86 trillion in 2023.[11] If African States allocated just 1 per cent of their GDP to research and development in Africa, those allocations would total $28.6 billion.

47. On the other hand, as shown in table 2, the estimated budget for implementing the African Action Plan on Global Geospatial Information Management, 2016–2030 is approximately $154 million over a five-year period.[12] That amount is a tiny fraction of the recommended research and development budget of African States.

48. Thus, if the geospatial information community in Africa devised a suitable mechanism for garnering the support of the continent's political leaders, as recommended in the present report, funding geospatial information initiatives would not be beyond the means of African States. Nevertheless, the region must,

[11] International Monetary Fund, "Real GDP growth", IMF Datamapper. Available at www.imf.org/external/datamapper (accessed on 4 April 2024).

[12] Regional Committee of United Nations Global Geospatial Information Management for Africa, United Nations Integrated Geospatial Information Framework Policy and Legal Resource Kit (Addis Ababa, 2022).

of course, also look into other sources of funding to supplement the budgetary allocations of African States, as shown in figure VII.

Table 2
Estimated cost of implementing the African Action Plan on Global Geospatial Information Management, 2016–2030
(United States dollars)

Cost item	*Estimated cost*
Governance and policy	3 090 000
Common frameworks	132 086 000
Capacity and capability development	14 100 000
Partnerships	90 000
Integration of geospatial information and other development information systems (statistics)	4 933 000
Total	154 299 000

Source: ECA, *Geospatial Information for Sustainable Development in Africa: African Action Plan on Global Geospatial Information Management, 2016–2030* (Addis Ababa, 2017).

D. Implementation time frame

49. The activities and time frame for implementing the proposals and recommendations included in the present report are summarized in table 3.

Table 3
Time frame for implementing the African geospatial information strategy

Measure	*Responsible person or body*	*Time frame*		
Establish a task team for geospatial information advocacy in Africa, composed of senior figures in ECA, the African Union, the Regional Committee of United Nations Global Geospatial Information Management for Africa, universities and the private sector	Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa	Year 1		
Prepare a position paper with a focus on the importance of geospatial information in guiding policy formulation and implementation, exemplified by expounding the role of geospatial information in implementing the 2030 Agenda and Agenda 2063 and demonstrated with tangible evidence	Task team	Year 1		
Identify and nominate one or more influential leaders or champions who could promote the cause of geospatial information in Africa	ECA, Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa	Year 1		
Present the position paper to the identified leader(s)	ECA, Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa, task team	Year 1		
Gain the support of the identified leader(s) or champion(s) to recommend to African Heads of State and Government to hold a special conference to establish an intergovernmental mechanism (conference of ministers, equivalent to the Statistical Commission for Africa) for geospatial information management in Africa	Identified leader(s) or champion(s), ECA, Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa		Year 2	
Hold the inaugural meeting of the African conference of ministers on geospatial information, which would endorse the geospatial information governance structure, approve the funding mechanisms and allocate the budget	Identified leader(s) or champion(s), ECA, Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa		Year 2	
Provide advice and support for African States on revisiting and enhancing their geospatial information governance bodies: policy and legal frameworks, institutional arrangements and funding mechanisms	ECA, African Union, enhanced Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa		Year 2	
Launch or enhance implementation of the Integrated Geospatial Information Framework in African States	ECA, African Union, enhanced Executive Bureau of the Regional Committee of United Nations Global Geospatial Information Management for Africa			Year 3

VII. Conclusion

50. Geospatial information is widely recognized as a vital tool for the efficient and effective implementation of the Sustainable Development Goals. Furthermore, such information is considered an important component of the fourth industrial revolution, along with artificial intelligence, the Internet of things, autonomous vehicles and the accompanying big data.

51. In order not to be left behind by the fourth industrial revolution, African States and institutions urgently need to adopt and implement policies and legal frameworks pertaining to geospatial information governance that are commensurate with advances in digital technology, with a view to enabling geospatial information agencies in Africa to regulate and produce timely and accurate geospatial information and to share it with all users. Otherwise, such agencies will soon become irrelevant, as their roles will be taken over by major technology companies, potentially resulting in serious violations of the sovereignty of African States.

52. In order to avert this danger, African States and institutions need to take a novel approach to geospatial information governance, which should start with African political decision makers being convinced that geospatial information is like such other forms of information as statistics and digital data, the value of which is widely recognized. To facilitate this approach, the identification and appointment of a prominent African leader (Head of State or Government) to champion the cause of geospatial information in Africa is recommended. The champion's role would be to persuade his or her fellow African leaders to recognize the importance of geospatial information for achieving the sustainable development and digital transformation of Africa, and to promote policy instruments that would ensure a viable geospatial information governance body for the region.

53. Once fully functioning geospatial information governance bodies have been firmly established in all African countries, the continent will start down a path of innovation and continuous improvement in its geospatial information knowledge base, which will help to kick-start the fourth industrial revolution in Africa.