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Committee of Experts on
Global Geospatial Information Management
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Item 6 of the provisional agenda*
The future geospatial information ecosystem

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Note by the Secretariat

Summary

The present paper contains the report of the Bureau of the Committee of Experts and the writing team on the future geospatial information ecosystem that was convened by the Bureau for consideration by the Committee of Experts on Global Geospatial Information Management.

At its thirteenth session, held from 2 to 4 August 2023, the Committee adopted decision 13/104, in which it welcomed efforts at continuing to discuss and explore the future geospatial information ecosystem to assist Member States and national geospatial information agencies in their thinking on current and future geospatial environments, in which technological developments and innovative applications would play a crucial role. The Committee of Experts noted that new and emerging technologies and the growth of wider digital and data ecosystems, of which geospatial data and services are a part, provided further opportunities to create, manage and access geospatial information in innovative ways, and that geospatially integrated data would support the immediacy of the United Nations global digital compact and, in the future, provide critical context to the sustainable development frameworks beyond the 2030 Agenda for Sustainable Development.

The Committee of Experts agreed that the definition and development of future geospatial ecosystems was an opportune activity for the Committee of Experts to undertake but that it required further scoping and consensus to identify and describe what the foundations of future geospatial information ecosystems would encompass within the purview of the Committee, and in that regard suggested that further structure and detailed work on defining the Committee's understanding could take place and progress into general principles, and that the further work on the concept should emphasize that geospatial information is an integrated component in different digital ecosystems and in many cases is not an ecosystem in itself. In that regard, the Committee supported the proposals to entrust the Bureau, supported by a writing team, with developing a position paper on determining the scope and an outline on the fundamental elements and principles of the future geospatial information ecosystem for the consideration of the Committee of Experts at its fourteenth session. The Committee further reiterated the need to reduce the growing geospatial digital divide between developed and developing countries and to ensure that the future geospatial ecosystem gives priority to the needs of developing countries and small island developing States, including to keep promoting the systematic and comprehensive frameworks that make geospatial data, services and technology available to decision makers.

In this present report, the Secretariat and Bureau report on their efforts to update the Committee of Experts on the development of the position paper, aimed at defining the scope and outline the fundamental elements and principles of the future geospatial information ecosystem. The report

* *E/C.20/2024/1.

includes information on a series of virtual meetings and discussions held to explore and consider the various dimensions of this future state. The Bureau and its writing team have focused on identifying and embracing the nexus of policies, actors, users, standards and practices that contribute to the future geospatial information ecosystem. They aim to leverage opportunities associated with the latest trends, rapid technological developments and innovations affecting the wider digital ecosystem, which forms the foundation of the geospatial information ecosystem.

In this report, the Secretariat and Bureau present the initial work on defining the scope and outlining the fundamental elements and principles of the future geospatial information ecosystem for the Committee's consideration. They also highlight the need for this future ecosystem to strengthen the delivery of current and future global development agendas, provide insights to national geospatial information agencies on the latest technology trends and address the growing geospatial digital divide.

The global geospatial information community should be well prepared to adapt to the rapidly changing landscape of geospatial information management and its operating environment. The United Nations Integrated Geospatial Information Framework offers a forward-looking strategy and approach that fosters an enabling environment, allowing Member States to collaborate on, develop, enhance and advocate for the efficient production and effective utilization of geospatial information. Such information is crucial for formulating policies on the basis of evidence, making informed decisions and fostering innovation. This is particularly relevant in the current context with the emergence of new geospatial applications powered by machine learning, deep learning techniques and artificial intelligence.

I. Introduction

1. The Committee of Experts continues to consider future trends and opportunities in the application and use of geospatial technologies and applications amid the rapid pace of change in technology, operating environment and interconnectedness, particularly within the wider digital ecosystem. This forward-looking activity has greatly benefited from insights from the three editions of the reports entitled Future Trends in Global Geospatial Information Management, the most recent in 2020.

2. In 2021, at its Eleventh session, the Committee of Experts established the agenda item on the future geospatial information ecosystem, as initiated from discussions under the agenda item on the United Nations Integrated Geospatial Information Framework (UN-IGIF), to address the importance of the interlinkages of the Framework with other emerging trends and initiatives. The initial considerations on the future geospatial information ecosystem were highlighted in a background paper entitled "Towards a sustainable geospatial ecosystem beyond spatial data infrastructures".

3. The report of the Committee at its Twelfth session noted that "technology is transforming almost every aspect of our lives, and all sectors of industry and the economy, at an unprecedented pace and scale […] having a major impact on the geospatial industry, creating innovative technological enablers and applications, and generating previously unimaginable amounts of location-referenced information, obtaining a clear understanding of what the future geospatial information ecosystem beyond the Framework (UN-IGIF) might look like, one in which almost all data will relate to a location in some way, may be difficult for some of the sectors involved, especially in developing countries." The substantive report under Agenda item 4 – Determining the future geospatial information ecosystem was accompanied by two background documents entitled "Future Geospatial Information Ecosystem: From SDI to SoS and on to the Geoverse" and "Future National Geospatial Information Ecosystem" to further assist Member States and national geospatial information agencies in their thinking on technological trends and future geospatial environments.

4. In making decision 12/102, the Committee of Experts acknowledged "that determining the future geospatial information ecosystem was a timely and strategically important topic to consider […] and to understand how the future ecosystem would link to the work already carried out by the Committee, including the Integrated Geospatial Information Framework". It further noted that "the concept of the 'geoverse,' while interesting at the concept level, is not the right definition for the future geospatial ecosystem" and that "continuing discussion on 'geospatial information ecosystem' was necessary for the global community, with the aim of explaining and expanding the role of geospatial information in technological advancements and society in general".

5. Emerging technologies, particularly the fast-paced advent of new applications and innovation powered by machine learning, deep learning techniques and artificial intelligence, seem to have increased the pace of change and triggered a profound and lasting impact on the wider digital ecosystem, which forms the foundation of the geospatial information ecosystem. In parallel, addressing global challenges call for more scientific backed and data-driven decisions which require vast amounts of data and analytics. The geospatial community and national geospatial information agencies must prepare themselves to adapt to the latest trends, to manage and leverage a wider range of data and data sources, to keep up with rapid technological developments and innovations and to use these opportunities to provide insights to address national development priorities, global agendas and to bridge the growing geospatial digital divide. The Committee of Experts has an important role in providing forward-looking and strategic guidance for

Member States, and the global geospatial community must harness technological capabilities and tackle the ever-increasing pace of how data and analytics evolve, as well as its volume.

6. At the Thirteenth session, in making decision 13/104, the Committee "agreed that the definition and development of future geospatial ecosystems was an opportune activity to undertake but that it required further scoping and consensus to identify and describe what the foundations of future geospatial ecosystems would encompass within the purview of the Committee […]". The Committee further supported the proposal to "entrust the Bureau, supported by a writing team, with developing a position paper on determining the scope and an outline on the fundamental elements and principles of the future geospatial information ecosystem for the consideration of the Committee of Experts at its Fourteenth session, and welcomed the multiple offers by Member States to support the Bureau".

7. In the present report, the Bureau and its writing team on the future geospatial information ecosystem provide information on efforts and steps taken with regard to exploring the geospatial landscape, determining the future geospatial information ecosystem and preparing a position paper on determining the scope which includes an outline on the principles and fundamental elements of the future geospatial information ecosystem. These efforts, as captured in this present report, comprise three parts: the convening of a series of online meetings to discuss and consider the future of the geospatial information ecosystem; the results of the survey for positioning the future geospatial information ecosystem; and the proposed next steps to gather feedback, mature, and evolve the concept of the future geospatial information ecosystem in considering the wider digital ecosystem.

8. The Committee of Experts is invited to take note of the report, and to express its views on determining the future geospatial information ecosystem. Points for discussion and decision are provided in paragraph 23.

II. Activities and discussions

9. During the intersessional period, the Bureau and the Secretariat convened ten short and focused online meetings to establish the writing team[1] and to conceptualize and scope the work of the writing team on the future geospatial information ecosystem. At the first online meeting, participants endorsed the terms of reference for the writing team (annex to this report), noted its composition, and recalled the views and decisions of the Committee on this agenda item. The decision was "developing a position paper on determining the scope and an outline on the fundamental elements and principles of the future geospatial information ecosystem for the consideration of the Committee of Experts at its Fourteenth session" and welcomed the offer by Saudi Arabia to co-convene the effort.

10. During the series of online meetings, held from February to June 2024, the writing team engaged in insightful discussions on various topics related to the future geospatial information ecosystem including the need to embrace an advanced vision of a globally interconnected digital ecosystem supporting intelligent interactions among diverse entities to extend beyond traditional three-dimensional environments into predictive analytics and delivery of real-time knowledge. The participants considered that the future geospatial information ecosystem should integrate traditional geospatial infrastructures, such as the spatial data infrastructure (SDI), with emerging concepts and technologies, creating a multifaceted ecosystem for automated geospatial data exchange and utilization, including a collaborative assembly of independent yet interoperable systems (Systems of systems, SOS) enhancing capabilities for applications like smart cities and intelligent transport systems. The discussions further highlighted the critical role of the UN-IGIF as an essential guide for developing Country-level Action Plans and which provides strategic orientations and

[1] The writing team compose of representatives from Belgium, Côte d'Ivoire, Mexico and Morocco (Bureau of the Thirteenth session) together with Australia, Canada, Chile, Colombia Denmark, The Netherlands, Saudi Arabia, South Africa, the United Kingdom of Great Britain and Northern Ireland, and UN-GGIM's Geospatial Societies and Private Sector Network.

conceptual components to consider, foster and nurture the future geospatial information ecosystem.

11. During the series of online meetings, considerations of the writing team also included envisioning the future geospatial information ecosystem to serve a wide array of users by providing them with reliable, accurate, and timely geospatial information, and to be designed to uphold values such as diversity, equality, inclusivity, sustainability, interoperability, interconnectivity and innovation. The series of online meetings underscored the need for robust future geospatial information ecosystems that support evidence-based decision-making, planning, and policy formulation at local, national, and global levels for addressing local, national, regional and global challenges, such as climate change, global migrations, urbanization, health care planning, biodiversity, economic growth, agriculture, and disaster management. Further, the future geospatial information ecosystem must facilitate seamless interactions between global, national and local geospatial infrastructures, and as noted, in previous considerations by the Committee of Experts, must reduce the growing geospatial digital divide.

12. The writing team considered four perspectives that could be incorporated as core concepts or principles of the future geospatial information ecosystem:

(a) Biological concept: Drawing from the biological concept and characteristics of an ecosystem is critical to defining the future geospatial information ecosystem, in particular by recognizing deep interlinkages and integration within the wider digital ecosystem.

(b) Community engagement: Embracing a wider community that spans beyond geospatial experts to include stakeholders and experts from data, policy, artificial intelligence, statistics, information technologies and other related digital ecosystems is crucial to adequately map and depict the wider digital ecosystems, and therefore the role of the future geospatial information ecosystem in its wider interactions and context.

(c) Systemic reciprocity: Facilitating reciprocity and mutual benefits for all users, actors and elements within and external to the ecosystem should be considered when developing the future geospatial information ecosystem, elements should be harmonious and interdependent.

(d) Data values: Incorporating recognized data values and properties is essential for ensuring responsible and effective data management and utilization, and in this context, using the FAIR (Findable, Accessible, Interoperable, Reusable) and CARE (Collective benefit, Authority to control, Responsibility, Ethics), and the DEI (Diversity, Equality, and Inclusion) principles for the future geospatial information ecosystem.

13. The writing team also concluded the need to identify and embrace the nexus of policies, actors, users, standards and practices that contribute to the future geospatial information ecosystem and enable efficient data sharing and utilization. The writing team noted the future geospatial information ecosystem would require the active participation of various actors, including government bodies, mainly around establishing legal, regulatory and policy frameworks serving authoritative data; the private sector, as a purveyor of technological innovations and services; academia, bringing creativity, research and development; and civil society, to ensure community needs and perspectives are included in this future geospatial information ecosystem. The writing team also considered the importance of diversity, equality and inclusion as an overarching consideration of the future geospatial information ecosystem.

14. Beyond these general considerations on the future geospatial information ecosystem, the writing team also rapidly decided to conduct an online survey that would help to brainstorm, define sets of core concepts, elect initial principles and fundamental elements,

and further scope the future geospatial information ecosystem. The survey was constructed around the strategic pathways of the UN-IGIF to provide a logical and comprehensive approach to the survey. The survey also built on concepts and considerations on the previous work of the Committee of Experts and its Member States including the publications on Future Trends and background documents of UN-GGIM on the future geospatial information ecosystem. The result of the survey enabled the writing team to establish an initial position on the fundamental elements and principles of the future geospatial information ecosystem, to be considered and augmented by the Committee of Experts, which are presented in the following part.

III. Positioning the future geospatial information ecosystem

15. During the series of online meetings the writing team agreed to enshrine the principle of the constantly **evolving nature of the future geospatial information ecosystem**. This approach was chosen as the future geospatial information ecosystem was deemed to be a "moving target" that represents a journey and would require agility for adapting to the rapid changes and require constant incorporation of new ideas, principles and elements as the concept, technologies and roles evolve within the wider digital ecosystem. Another critical element agreed by the writing team was to **center the future geospatial ecosystem around purpose**. As the ecosystem will be shaped by global circumstances, it is imperative to consider how geospatial data and technologies can contribute to overcoming global challenges and embracing emerging opportunities. Aligning the future geospatial information ecosystem with delivering the Sustainable Development Goals (SDGs) and the post-2030 Agenda can establish such a stronger connection.

16. As the traditional custodians and curators of national geospatial information, national geospatial information agencies (NGIAs) are the essential institutions to propel the geospatial community and actors leveraging the rapidly evolving technology advancements and help bridge the 'digital' and 'geospatial' divide, including between developed and developing countries. National agencies must evaluate their roles and responsibilities in line with the new and emerging opportunities, adapt to the rapidly changing digital landscape and develop effective strategies to contribute and integrate their data and knowledge to enable the wider ecosystem. In this regard, recalling the **three drivers**, already presented in the report to the Thirteenth session (E/C.20/2023/8/Add.1), is essential including:

(a) **The need for solutions to global problems**. Our world is at a critical moment with countries and communities experiencing the dire consequences of climate change, conflicts and political instability, lingering economic impact of COVID-19. As presented in the latest SDG report (2024), with an alarming stagnation in global progress, with only 17% of the goals on track, it is clear that global challenges will require everyone's contributions and the involvement of the wider digital and data community where geospatially integrated data will have a key role to help accelerate progress towards the 2030 Agenda;

(b) **The need for equitable access to knowledge.** The digital economy has increased the ability of our populations to access data, enabling to be (re)used across sectors and for many other purposes, and to create knowledge and insights from it. This provides context and meaning to different domains, enhancing the value proposition of geospatial information.

(c) **The need to bridge the geospatial digital divide**. The overriding goal of the 2030 Agenda is to ensure that 'no one is left behind', but despite our technological progress and the seemingly limitless potential of geospatial technologies, populations are still marginalized, and these technologies are not universally available.

17. Geospatial data, information, knowledge and technologies must be available and accessible to everyone, everywhere, embracing diversity and equality of use and inclusion of

society as a whole to bridge the geospatial digital divide. The writing team designed its survey to tease out initial principles as a starting point to provide the Committee of Experts "further structure and detailed work on defining the Committee's understanding […] and progress into general principles". The survey aimed to sketch out what processes and outcomes would look like and to harvest initial considerations on principles and fundamental elements of the future geospatial information ecosystem. Following the survey, the general principles could include:

(a) **Purpose-driven:** Delivers value, and insights for decision-making processes leading to positive social, economic, and environmental to address national development priorities, accelerate the achievement of the Sustainable Development Goals (SDGs) and prepare for future global development agendas.

(b) **Transformative:** Embraces innovative approaches, technologies and the power of data to drive significant improvements and advancements in geospatial information capacities that help transform society and bridge the geospatial digital divide.

(c) **Agile:** Adapts dynamically to the continuously evolving and expanding nature of the wider digital ecosystem by incorporating new ideas, concepts, and elements as technologies and the role of the geospatial information ecosystem change within the broader digital landscape.

(d) **Interoperable:** Promotes the development and use of independent yet interoperable systems that enable seamless data exchanges and compatibility across different platforms, applications, and jurisdictions. Interoperability is a key principle of the future geospatial ecosystem in enabling effective collaboration and maximizing the use and potential of geospatial information, as identified in the previous report of the Committee of Experts (see E-C.20-2023-8-Add_1, paragraph 14)

(e) **Sustainable:** Develops practices, capacities and systems that ensure efficient resources investments and sustainable efficiency gains.

(f) **Automated:** Leveraging automation to enhance efficiency, accuracy, and scalability in geospatial information management systems of systems approach, building on SDIs.

(g) **Inclusive:** Foster an environment that values and incorporates diverse perspectives and stakeholders and ensures universal and equitable access to geospatial data and information that empowers communities.

(h) **Reliable:** Promotes authoritative sources and reliable data, services, metadata, knowledge, insights and foresight, and an open, safe and secure ecosystem for the public good.

(i) **Collaborative:** Encourages cooperation and partnership among various entities while considering the different roles various entities play within the ecosystem, to facilitate the development and availability of geospatial services, knowledge and insights for the benefit of the community, fostering participatory approach, multi-stakeholder and user feedback.

(j) **Integrated:** Prioritizes interconnectivity and integration weaving together the multifaced of different systems and ecosystems and facilitating the mutual benefits and interlinkages for the benefits of all users, actors, and reciprocity of services.

18. To understand and scope components related to the future geospatial information ecosystem, the survey included sets of fundamental elements structured around the strategic pathways of the UN-IGIF. The structuring around the strategic pathways of the UN-IGIF was decided based on the outcomes of the global seminar on the future geospatial information ecosystem (June 2023) that reiterated the significance of the UN-IGIF as an anchoring Framework and as the cornerstone of any future geospatial information ecosystem. The

survey included several options and the preferred two (main) fundamental elements of the future geospatial information ecosystem for each strategic pathway, as follows:

- **Governance:**
  - Inclusivity: Ensuring that all stakeholders, regardless of their background or resources, have equal opportunities to participate in and benefit from the geospatial information ecosystem.
  - Collaborative direction setting: Facilitating joint decision-making and consensus-building among all stakeholders to guide the development and direction of the ecosystem.
- **Policy and legal:**
  - Ethical data and artificial intelligence: Developing policies, regulations and laws that ensure the ethical use of data and artificial intelligence in geospatial information management.
  - Data governance: Establishing comprehensive frameworks and roles for the management, use, and sharing of geospatial data.
- **Financial:**
  - Sustainable funding models: Developing long-term financial strategies that ensure continuous support for the ecosystem.
  - Innovative investments: Encouraging investments in new and emerging technologies that enhance the ecosystem.
- **Data:**
  - Open data: Making geospatial data widely and freely available and accessible to all users.
  - Data integration and management: Integrating data from various sources and managing it effectively to provide comprehensive and accurate information.
- **Innovation:**
  - Emerging technologies integration: Embracing and incorporating new technologies into the geospatial information ecosystem.
  - Technology adaptation: Continuously adapting to technological changes to maintain the ecosystem's relevance and effectiveness.
- **Standards:**
  - Interoperable protocols: Establishing standards that ensure data can be easily shared and used across different systems and platforms.
  - FAIR and CARE data principles: Adopting principles that make data widely available, accessible and applicable.
- **Partnerships:**
  - Multi-stakeholder collaboration: Engaging a diverse range of stakeholders in collaborative efforts to advance the ecosystem.
  - Public-private partnership: Forming partnerships between public institutions and private companies to drive innovation and investment.
- **Education and capacity:**
  - Professional training: Providing education, training and continuing development that enhances the skills and knowledge of geospatial professionals.
  - Skill development: Fostering continuous learning and development of new competencies and skills to keep pace with technological advancements.
- **Communication and awareness:**
  - Strategic communication: Implementing communication strategies that raise awareness of the ecosystem's value and benefits.

- Stakeholder engagement: Actively involving stakeholders in the ecosystem's development and activities.

19. The discussions and survey sketch out both a process and initial results for scoping the future geospatial information ecosystem. The initial results show a close relationship between the discussions, principles and fundamental elements that outline the characteristics of the future geospatial information ecosystem. Further work and scoping to embrace the wider considerations by the Committee of Experts and relevant stakeholders together with considerations on the wider digital ecosystem is still required.

IV. Next steps

20. The initial scoping and positioning by the writing team sketch out a process and outcomes that could support the Committee in defining a process and establishing general principles and fundamental elements of the future geospatial information ecosystem. The writing team notes that:

(a) The series of online meetings with transparent and open-minded considerations enriched perspectives on the future geospatial information ecosystem such as the potential for bringing biological concepts, community engagement, systemic reciprocity, and data values;

(b) The discussions provided the basis for two critical foundational characteristics of the future geospatial information ecosystem which include the constantly evolving nature of the future geospatial information ecosystem (e.g., "moving target") and to center the future geospatial information ecosystem around purpose, shaped by global circumstances and goals, such as the Sustainable Development Goals and the post-2030 Agenda;

(c) The proposed process and initial survey results could help position and scope the future geospatial information ecosystem with general principles such as purpose-driven, transformative, agile, interoperable, sustainable, automated, inclusive, reliable, collaborative, and integrated principles. The approach could also provide fundamental elements tightly associated with the general principles and structured around the umbrella framework of the Committee of Experts, the UN-IGIF.

21. The considerations and work of the writing team have proved invaluable to further the understanding, and to consider and advance the Committee's effort to scope and position the future geospatial information ecosystem. The Committee is invited to express its view and provide guidance for the next steps to address this item of work. The Committee could:

(a) **Option 1:** The Committee takes an active role in determining the future geospatial information ecosystem and its scope, fundamental elements and principles and to position the future geospatial information ecosystem within the wider digital ecosystem. The writing team will present a report on these activities at the Fifteenth session of the Committee of Experts..

(b) **Option 2:** The Committee takes a passive approach in determining the future geospatial information ecosystem and takes note of the scope, fundamental elements and principles as discussed. It accepts the current report as is and postpones the task of determining the future geospatial information ecosystem.

22. Should the Committee decide to proceed with option 1 to develop further the positioning of the future geospatial information ecosystem, the proposed next steps could include:

(a) **Foster dialogue on the future digital and geospatial information ecosystem:** Productive discussions were held online within the writing team and earlier within the geospatial community on the future geospatial information ecosystem. As noted earlier, the active participation of various actors from government, private sector, academia, the civil society, is key to considering the needs and

perspectives of the wider community on the future geospatial information ecosystem. Leverage available opportunities, including plenary and expert meetings of the Committee's regional committees and functional groups, international seminars and high-level forum to foster dialogue with the wider community and understand the ramifications, complexities, and multifaceted aspects and further advance the determination of the future geospatial information ecosystem, and its role within the wider digital ecosystem.

(b) **Mapping the wider geospatial information ecosystem via a survey:** Build upon the survey undertaken, expand and extend the survey to support determining the future geospatial information ecosystem and its scope, characteristics, fundamental elements and principles and to position the future geospatial information ecosystem within the wider digital ecosystem.

(c) **Mapping and considering the wider digital ecosystem:** As noted previously, the Committee of Experts is well aware "that geospatial information is an integrated component in different digital ecosystems and in many cases is not an ecosystem in itself" (decision 13/104 (c)), as such, a subsequent step should include to consider different digital ecosystems and to go beyond the geospatial information community to include stakeholders, actors and experts from data, policy, artificial intelligence, statistics, information technologies and other related digital ecosystems in order to consider the wider digital ecosystems, and the role of the geospatial information ecosystem within this wider digital ecosystems.

V. Points for discussion

23. **The Committee of Experts is invited to:**

(a) Take note of the present report and express its views and perspectives on how the global geospatial information community should be prepare and adapt to the rapidly changing landscape of geospatial information management and its operational environment;

(b) Express its views and provide further substantive inputs and feedback on the proposed principles and fundamental elements that would form the basis for determining the future geospatial information ecosystem, including the evolving concept and scope of this ecosystem; and

(c) Provide its views on the proposed options suggested for determining the future geospatial information ecosystem, and if option 1 is preferred, provide guidance on next steps as outline in paragraph 22 above.

WRITING TEAM ON THE FUTURE OF GEOSPATIAL INFORMATION MANAGEMENT

TERMS OF REFERENCE

1. Background

Determining the Future Geospatial Information Ecosystem was included at the Eleventh session of the Committee of Experts in the provisional agenda for its upcoming Twelfth session following the considerations on the United Nations Integrated Geospatial Information Framework and on the importance of the interlinkages of the Framework with other emerging and complementary initiatives that would ultimately extend the Framework's relevance in the future geospatial information ecosystem. The complexity of the future geospatial information ecosystem, and thus the need to give consideration thereto, was highlighted in a background paper entitled "Towards a sustainable geospatial ecosystem beyond spatial data infrastructures".

In 2022, the Report of the Committee on its Twelfth session noted that "obtaining a clear understanding of what the future geospatial information ecosystem beyond the Framework (UN-IGIF) might look like, one in which almost all data will relate to a location in some way, may be difficult for some of the sectors involved, especially in developing countries." The substantive report under Agenda item 4 – Determining the future geospatial information ecosystem was accompanied by two background documents entitled "Future Geospatial Information Ecosystem: From SDI to SoS and on to the Geoverse" and the "Future National Geospatial Information Ecosystem". These background documents explored the geospatial landscape and determined the future geospatial information ecosystem to assist Member States and national geospatial information agencies in their thinking on future geospatial environments in which technological developments will play a crucial role.

In making decision 12/102, the Committee of Experts acknowledged "that determining the future geospatial information ecosystem was a timely and strategically important topic to consider […] and to understand how the future ecosystem would link to the work already carried out by the Committee, including the Integrated Geospatial Information Framework". It further noted that a "continuing discussion on 'geospatial information ecosystem' was necessary for the global community, with the aim of explaining and expanding the role of geospatial information in technological advancements and society in general".

At the Thirteenth session, the Committee considered the future geospatial information ecosystem will be greatly influenced by the world around us, and how geospatial data and technologies can enable the global community to overcome challenges facing the world and embrace the opportunities that arise, in the delivery of the 2030 Agenda for Sustainable Development and other global development agendas.

In making decision 13/104, the Committee "agreed that the definition and development of future geospatial ecosystems was an opportune activity to undertake but that it required further scoping and consensus to identify and describe what the foundations of future geospatial ecosystems would encompass within the purview of the Committee […]".

2. Aim

In making decision 13/104, the Committee supported the proposals to progress the option to "entrust the Bureau, supported by a writing team, with developing a position paper on determining the scope and an outline on the fundamental elements and principles of the future geospatial information ecosystem for the consideration of the Committee of Experts at its Fourteenth session, and welcomed the multiple offers by Member States to support the Bureau".

The aim of the Writing Team is to prepare a position paper on determining the scope and an outline on the fundamental elements and principles of the future geospatial information ecosystem. To achieve this, following the decision by the Bureau on 24 January 2024, the objectives of the Writing Team include to:

- Compose the Writing Team with membership by the Bureau and Member States who offered to support.
- Convene the first virtual meeting of the Writing Team
- Review and agree on its Terms of Reference.

- Prepare a timeline with milestones for the preparation of the position paper.
- Deliver and report on the position paper to the Fourteenth session under the Agenda item 6 – The future geospatial information ecosystem.
- Recall and deliberate decision 13/104 on the need "to consider the establishment of a working group on the future geospatial ecosystem that could build upon the fundamental elements and principles of the future geospatial ecosystem" as provided for in the position paper.

3. Governance, Membership, and Reporting

The Writing Team will be composed of the Bureau and the representatives of the Member States and Chairs of the Thematic Network who have expressed willingness to support the preparation of the position paper on determining the scope and an outline of the fundamental elements and principles of the future geospatial information ecosystem. The members of the Writing Team are annexed to the present Terms of Reference.

The Writing Team on the Future geospatial information ecosystem will, at its first meeting, agree on two representatives from Member States as Co-Convenors, preferably with diversity considerations. The Co-Convenors play an important role in leading discussions, scheduling meetings, providing orientations of the work and building consensus. The Co-Convenors will hold the pen for the proposed position paper.

4. Secretariat

The Secretariat of the Writing Team will be the Global Geospatial Information Management Section, Statistics Division which will coordinate and assist with the preparation of the agenda, the organization of the meetings, the issuance of notices and updates, and the maintenance of the position paper document, including relevant updates by members, and any other relevant activities.

5. Methods of Work and Duration

The Writing Team on the Future Geospatial Information Ecosystem will work through electronic mail exchanges and regular virtual meetings in an open, inclusive and transparent manner. The Writing Team will conclude its work at the Fourteenth session and it is expected that one of the Co-Convenors will orally introduce the position paper to the Committee of Experts.