

# Economic and Social Council

2 August 2021

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**Committee of Experts on Global Geospatial  
Information Management  
Eleventh session  
New York, 23, 24 and 27 August 2021  
Item 11 of the provisional agenda\*  
Marine Geospatial Information**

## Marine Geospatial Information

### Note by the Secretariat

#### Summary

The present paper contains the report of the Working Group on Marine Geospatial Information for consideration by the Committee of Experts on Global Geospatial Information Management.

At its tenth session, held virtually on 26 and 27 August and 4 September 2020, the Committee of Experts adopted decision 10/109, in which it noted the progress made by the working group, including the successful completion of its use case exercise on data availability and interoperability, the associated white paper on readily available and accessible marine geospatial information, and the ongoing efforts of the working group to implement the Integrated Geospatial Information Framework in the marine domain, where water is the dominant geographical feature. The Committee also noted that the Working Group was considering integrated ecosystem-based data management practices that would require collaboration across multiple disciplines and institutions, including users and stakeholders, and that the Integrated Geospatial Information Framework provided a coherent mechanism for effective and integrated marine geospatial information management, as well as the means to raise awareness and advocacy and facilitate communication and collaboration between the maritime, terrestrial and cadastral domains. Furthermore, the Committee encouraged the working group to strengthen collaboration with the International Hydrographic Organization, in particular in the areas of capacity development and the application of standards, including the S-121 standard for maritime limits and boundaries, and to consider engaging other international organizations focusing on ocean sciences and observations.

In this present report, the Working Group provides information on its progress and activities, including a review of its workplan and activities for continuing to provide guidance and encourage the availability and accessibility of marine geospatial information for the benefit of society, the environment and the economy. The present report contains the updated workplan of the Working Group for the period 2021–2022 and its proposed activities, including continuing efforts to implement the Integrated Geospatial Information Framework in the marine domain. In that regard, the Working group discusses its considerations aimed at developing recommendations to provide practical and helpful guidance that Member States can leverage to enhance the availability and accessibility of water-related geospatial information and gain the broadest socioeconomic and environmental benefits when implementing the Framework. The present report serves to consider integrated ecosystem-based data management practices and collaboration across institutions and stakeholders and between the maritime, terrestrial and cadastral domains. The Working Group also provides information on its continuing collaboration with the International Hydrographic Organization; its initial considerations on the United Nations Decade of Ocean Science for Sustainable Development; the preparations for

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\* E/C.20/2021/1

its 3rd formal meeting and proposed international seminar focusing on effective and integrated marine geospatial information, which was postponed due to the coronavirus disease (COVID-19) pandemic; and the successful leadership transition of the Working Group.

## I. Introduction

1. The 2030 Agenda for Sustainable Development is a global plan of action for people, planet, prosperity, peace, and partnerships. When realized, the lives of all will be profoundly improved, and the world transformed for the better. Leaving no one behind includes sustainable access to seas and oceans, inland waters and water bodies. The Agenda includes 17 Sustainable Development Goals (SDGs) and 169 targets which measure progress towards global sustainability. Each of the 17 SDGs has a strong relationship with water and requires access to geospatial data that adhere to international standards to make evidence-based decisions and to monitor SDG progress. Furthermore, geospatial data from offshore and inland waters must be interoperable with one another and with terrestrial and atmospheric geospatial data to provide a comprehensive analysis of SDG progress.

2. Approximately seventy percent of the Earth's surface is water – lakes, rivers, tributaries, deltas, seas, and oceans. Water is critical to socio-economic development, energy and food production, healthy ecosystems, and to human survival overall. Water is at the heart of adaptation to climate change and serves as the crucial link between society, the global economy, and the environment. The Food and Agriculture Organization (FAO) (2014) estimated that more than four billion people depend on marine waters for fish as a primary source of protein, and the International Maritime Organization (IMO) (2015) estimated that ninety percent of the world's trade is conducted upon the seas and oceans.

3. Marine geospatial information is needed by governments to support data-driven, evidence-based management and administration of seas, oceans, coastal zones, and inland waters. Knowing where people, marine life, events, and activities are, and their spatial relationships to one another, is essential for informed policy and decision-making. The timeliness of such data is of equal importance. Real-time marine geospatial information (e.g., met-ocean data) is needed to prepare for and respond to emergency situations, such as disasters, but real-time or near real-time data can also help governments develop strategic priorities and measure and monitor outcomes, including the 2030 Agenda for Sustainable Development.

4. At its tenth session, held virtually on 26 and 27 August and 4 September 2020, the Committee of Experts, in making decision 10/109, welcomed the Working Group's white paper on readily available and accessible marine geospatial information. Increasing the availability and accessibility of marine geospatial information benefits many sectors including sustainable access to inland waters and water bodies, coastal zones, seas and oceans as well as in sectors such as commercial shipping and safe navigation, marine spatial planning, management of marine resources, emergency management and response.

5. The Committee of Experts also noted the ongoing efforts of the Working Group to implement the Integrated Geospatial Information Framework (IGIF) within the marine domain, where water was the dominant geographic feature on the Earth's surface, and that the [white paper on readily available and accessible marine geospatial information](#) provided a practical starting point, as data and metadata standards, data collection and management, data-sharing partnerships and the integration of terrestrial and maritime geospatial data were priority areas for many Member States.

6. The Committee also noted that integrated practices would require collaboration across multiple disciplines and institutions, including users and stakeholders, and that the IGIF provided a coherent mechanism for effective and integrated marine geospatial information management, as well as the means to raise awareness and advocacy and facilitate communication and collaboration between the maritime, terrestrial and cadastral domains.

7. This present report informs the Committee of Experts on the considerations, progress and activities of the Working Group, including its review and update of the work plan for the period 2021 – 2022. The report also discusses the Working Group’s efforts and progress to develop practical and helpful guidance for the implementation of the IGIF in the marine domain. A document, provisionally titled as IGIF-Hydro, is being develop in this regard. The Committee of Experts is invited to take note of the report and express its views on the Working Group’s activities and considerations. Points for discussion are provided in paragraph 28.

## **II. Activities during the intersessional period**

8. Following the tenth session of the Committee of Experts, the Working Group agreed on its leadership transition, delayed by a year arising from the coronavirus disease (COVID-19) pandemic. It was agreed that one co-Chair will step aside whilst the other co-Chair remained for a second term to ensure continuity. Therefore, at the Working Group’s eighth online meeting (25 March 2021) Burkina Faso stepped aside as co-Chair, having provided leadership to the Working Group jointly with the United States of America since the establishment of the Working Group. Singapore was confirmed as the new co-Chair and the Working Group expressed its sincere appreciation and thanks to Burkina Faso for its contributions and leadership. Burkina Faso remains a member of the Working Group.

9. During this intersessional period no new Member States joined the Working Group, which presently comprises expert representatives from 24 Member States<sup>1</sup>, the International Hydrographic Organization (IHO), and four relevant organizations from the United Nations system and the Committee’s stakeholder community. The Working Group is presently co-Chaired by Singapore and the United States of America.

10. The Working Group maintained its strong working relationship with the IHO and has reported its activities and progress at several regular IHO meetings, including the IHO regional commissions. The Working Group continues to defer to the IHO with regards to capacity development, particularly for aspects related to national hydrographic offices, nautical charting and bathymetry.

11. An important part of this working relationship is the engagement with the IHO Innovation and Technology Laboratory in Singapore to advance the objectives, functions and work plan of the Working Group and address the sharing, integration and interoperability of terrestrial and marine geospatial information. Initial consideration on areas for collaboration relates to the integration of onshore and offshore datasets (land-sea interface) and the coordination between the maritime, terrestrial and cadastral domains.

12. The Working Group continues to monitor progress on and promotes the General Bathymetric Chart of the Oceans (GEBCO) Seabed 2030 Project and the United Nations Decade of Ocean Science for Sustainable Development (Decade). The IGIF-Hydro (please refer to paragraph will be an important contribution to both the Decade and GEBCO Seabed 2030 through its promotion of the availability and accessibility of timely, reliable and quality marine geospatial information to strengthen the management of our oceans and coasts for the benefit of humanity.

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<sup>1</sup> Algeria, Australia, Brazil, Burkina Faso, Canada, Chile, China, Denmark, Germany, Greece, India, Italy, Jamaica, Republic of Korea, Malaysia, Mexico, Netherlands, New Zealand, Norway, Oman, Singapore, Kingdom of Tonga, United Kingdom, United States of America.

13. The Working Group continued its engagement with the Working Group on Policy and Legal Frameworks on Geospatial Information Management and participated in the virtual expert meetings on policy and legal frameworks<sup>2</sup> (15, 27 and 29 April 2021) that discussed a ‘policy and legal resource kit’ aimed at supporting the implementation of the IGIF at the country-level and to promote data sharing and exchange, and the availability, accessibility and use of geospatial information. The Working Group’s white paper<sup>3</sup> had recommended the development of data-sharing partnerships to facilitate the timely sharing of data between Member States, government agencies, research and academia, private data-providers, and other stakeholders. The Working Group looks forward to the finalization of this ‘policy and legal resource kit’ and will promote its utility. It intends to continue collaborating with the Working Group on Policy and Legal Frameworks including on issues related to authoritative data, authority, and custodianship.

14. The Working Group convened three meetings virtually during this intersessional period, its seventh meeting on 12 November 2020, eighth on 25 March 2021 and ninth on 8 July 2021. The Working Group continued its consideration of the implementation of the IGIF for the marine domain, where water is the dominant geographic feature. The IGIF-Hydro is presently in draft form and is being reviewed by the Working Group and subject matter experts, including from academia, the IHO Marine Spatial Data Infrastructure Working Group and members of the Marine Domain Working Group of the Open Geospatial Consortium (OGC). The Working Group anticipates that the IGIF-Hydro will enter a more regionally focused review and consultation phase later this year.

15. The Working Group at its virtual seventh meeting (12 November 2020) welcomed the views, guidance and decisions of the Committee of Experts at its tenth session and noted three key areas needed the Working Group’s consideration. The areas are: integrating terrestrial and maritime geospatial data; leveraging the IGIF and its implementation guide for effective and integrated marine geospatial information management; and strengthening collaboration and avoiding duplication. The Working Group also reviewed its progress and its work plan, considered these key areas in its deliberation and updated its work plan for 2021 – 2022<sup>4</sup>.

16. Apart from confirming its leadership transition, the Working Group at its virtual eighth meeting (25 March 2021) noted the progress of its work on IGIF-Hydro that had benefitted from a series of inputs and contributions from some members of the Working Group. The Working Group decided that the IGIF-Hydro will benefit from further review and inputs to include ‘multi-dimensional’ considerations beyond aspects of nautical charting, and scientific and technical considerations, including that which may relate to coastal zones, inland waters and water bodies. Members of the Working Group were encouraged to review and provide inputs as well as to reach out to their national subject matter experts and coordinate their respective national inputs and contributions.

17. At its eighth meeting, the Working Group also discussed its postponed third expert meeting. A concept note that was developed was shared where the expert meeting together with an international seminar will be held over five days in the last week of October coinciding with the official launch of the IHO Technology and Innovation Laboratory in Singapore. The Working Group, at its ninth meeting, noting the situation with the coronavirus disease (COVID-19) pandemic, agreed that its third expert meeting be postponed to another time when global conditions permit.

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<sup>2</sup> [http://ggim.un.org/meetings/2021/Policy\\_legal\\_Framework](http://ggim.un.org/meetings/2021/Policy_legal_Framework)

<sup>3</sup> [http://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/E-C.20-2020-31-Add\\_2-White-paper-on-readily-available-and-accessible-marine-geospatial-information-23Jul.pdf](http://ggim.un.org/meetings/GGIM-committee/10th-Session/documents/E-C.20-2020-31-Add_2-White-paper-on-readily-available-and-accessible-marine-geospatial-information-23Jul.pdf)

<sup>4</sup> [http://ggim.un.org/documents/WG-MGI\\_Draft\\_work\\_plan\\_2021-22.pdf](http://ggim.un.org/documents/WG-MGI_Draft_work_plan_2021-22.pdf)

18. During the Working Group's virtual ninth meeting (6 July 2021), apart from deliberating its work on IGIF-Hydro, it was agreed that a series of webinars be jointly organized with the Maritime and Port Authority of Singapore (MPA), the IHO and OGC in conjunction with the official launch of the IHO Innovation and Technology Laboratory in Singapore. The webinars seek to raise awareness on integrated marine geospatial information and the development of IGIF-Hydro. The Working Group also welcomed a briefing from the US National Oceanic and Atmospheric Administration on its Global Extratropical Surge and Tide Operational Forecast System (ESTOFS) and noted that this and similar topics are possible topics for the proposed webinars or future seminar.

### **III. Implementing the IGIF – initial considerations**

19. IGIF-Hydro seeks to present a perspective of the marine domain, where water is the dominant geographic feature on the Earth's surface, as it relates to the IGIF and its operationalization at the country-level. This marine domain includes all water related elements, including oceans and seas, coastal zones, deltas and tributaries, inland water bodies and waterways. IGIF-Hydro seeks to provide practical guidance that countries can use to enhance the availability and accessibility of marine geospatial information and to realize the most benefit from their integrated geospatial information management arrangements for the betterment of society, environment, and economy.

20. The domain being addressed is cross-thematic involving multiple disciplines and branches but underpins the SDGs with integrated and interoperable geospatial information. Disciplines such as hydrography, oceanography, marine geology, marine biology, human related activities, maritime governance and jurisdictions are well represented in this marine domain. A core goal of IGIF-Hydro is to extend the integrated geospatial approach to support the establishment and strengthening of a dynamic, flexible and comprehensive information and knowledge arrangement for this marine domain.

21. The consideration of this domain is far larger and more complex than just for oceans and seas (maritime). The management of the marine domain in a coordinated integrated manner is a significant challenge, coupled with its dynamic nature with temporal, four-dimensional considerations. The IGIF with its nine strategic pathways provides the holistic approach for the marine domain towards nationally integrated geospatial information management arrangements for sustainable national development and priorities.

22. The value proposition for developing, managing and sustaining nationally integrated geospatial information management arrangement that includes the marine domain is extensive. It includes everything from transportation and shipping to basic human needs like clean drinking water. The value of the IGIF and inclusion of the marine domain in any national integrated geospatial information program include: nautical charting, safety of navigation and transportation; maritime resource planning and management; maritime limits and boundaries; subsistence and food security; disaster risk management and emergency response; integrated marine cadastre; sustainable energy; environmental management and protection; climate change; and science, research and knowledge.

23. The vision of IGIF-Hydro is to promote and to advise on practical considerations regarding the inclusion of the marine domain across an entire geospatial ecosystem. The Working Group recognises that pre-existing infrastructures may exist, and in those cases the IGIF strives to promote an integrated approach to future developments and enhancements of that infrastructure. The idea of IGIF-Hydro is not to replicate the IGIF but to,

- (a) Provide practical advice and promote good practices and broad perspectives;
- (b) Support any body, state or organisation;
- (c) Assist marine domain users of the IGIF Strategic Pathways;

- (d) Establish and/or maintain a national integrated geospatial information framework; and
- (e) Ensure the inclusion of the marine domain in that framework.

#### **IV. Summary**

24. Access to marine geospatial information will play a critical role in the global response to all societal, environmental and economic challenges and opportunities. Knowing where people, marine life, events, and activities are, and their spatial relationships to one another, is essential for informed policy- and decision-making. Timely, reliable, quality and integrated geospatial information is needed to prepare for and respond to disasters and crises, and to help governments make data-driven, evidence-based policies and decisions, develop strategic priorities, and measure and monitor outcomes.

25. A significant challenge moving forward is the integration of maritime and terrestrial geospatial data. This integration is a priority for many Member States. Policy-willingness and people-readiness are vital to ensure that institutions collaborate and together consider, develop, and build interoperable frameworks, standards, and infrastructures for the integration of all types of geospatial information. A helpful next step is the development of an integrated policy and operational framework, the IGIF-Hydro, leveraging the IGIF and its nine strategic pathways to facilitate rapid acceptance, qualification, ingestion, and use of relevant marine geospatial information from a range of providers (e.g., government, commercial providers, and users), and deliver marine geospatial information for the land-sea interface, integrated ecosystems management practices, and a multiplicity of applications.

26. The proposed webinars organized in conjunction with the official launch of the IHO Technology and Innovation Laboratory in Singapore this October will provide a forum for further dialogue and engagement to address the above challenges and opportunities.

27. The Working Group would benefit further from and welcomes additional participation from Small Island developing States and from Africa. The third expert face-to-face meeting and international seminar of the Working Group has had to be postponed repeatedly. However, the Working Group greatly appreciates Singapore's continuing commitment to hosting key events and looks forward to convening its third expert meeting together with an international seminar in person in April 2022, or as soon as the global situation permits.

#### **V. Points for discussion**

28. **The Committee of Experts is invited to:**
- (a) Take note of the present report, express its views and provide guidance to the Working Group on its progress, activities and next steps;**
  - (b) Take note of the leadership transition, express its appreciation to Burkina Faso for its leadership of the Working Group and welcome Singapore as the new co-Chair;**
  - (c) Express its views and provide guidance on efforts to leverage the Integrated Geospatial Information Framework and develop an integrated policy guidance and operational framework for the marine domain, the IGIF-Hydro; and**
  - (d) Take note that the third expert meeting of the Working Group, together with an international seminar, is expected to be convened in Singapore in April 2022.**