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Geospatial information and services for disasters

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Note by the Secretariat

Summary

The present paper contains the report prepared by the Working Group on Geospatial Information and Services for Disasters, for consideration by the Committee of Experts on Global Geospatial Information Management.

At its twelfth session, held in New York from 3 to 5 August 2022, the Committee of Experts adopted Decision 12/110, in which it acknowledged that the Working Group, through the implementation of its work plan for the period 2020–2023, sought to identify and provide solutions through geospatial data and services to assist in addressing cascading and systemic risk, fostering communication and awareness raising, designing and preparing scenario-based exercises on different hazards, and providing a forum for dialogue, coordination and strengthening capacity-building. The Committee also noted the many exchanges and collaborative engagements with related disaster risk reduction bodies in advancing the work plan of the Working Group, strengthening national and regional capacities, raising awareness of disaster risk reduction and management using accurate and reliable geospatial data, tools and services and, importantly, ensuring coherence and avoidance of duplication of effort, therefore creating synergies among disaster risk reduction organisations.

In the report, the Working Group provides information on its progress and intersessional activities, including how it has raised awareness and assisted in the monitoring and implementation of the Strategic Framework for Geospatial Information and Services for Disasters. The Working Group also discusses the progress on its work plan 2020 - 2023, and options and recommendation for the Working Group's future.

* E/C.20/2023/1

I. Introduction

1. The Working Group on Geospatial Information and Services for Disasters is guided by the vision of quality geospatial information and services being made available and accessible in a timely and coordinated way to support decision-making and operations within and across all sectors and phases of disaster risk management. Additionally, the Working Group provides a forum for dialogue and coordination among Member States, their relevant government bodies, the United Nations system, international disaster risk and emergency response organisations, non-government organisations (NGOs), private sector bodies, academia, other international organisations and experts, and donors with responsibility for Disaster Risk Reduction (DRR) and management.

2. The Working Group encourages Member States and other stakeholders to improve access to geospatial information and services to address cascading and systemic risks. The guiding framework of the Working Group is the [Strategic Framework on Geospatial Information and Services for Disasters \(2016 – 2030\)](#). The Strategic Framework was developed to directly enable the implementation of the [Sendai Framework on Disaster Risk Reduction \(2015-2030\)](#) using geospatial information. Moreover, the Strategic Framework is also fundamental to achieving the [2030 Agenda for Sustainable Development](#).

3. At its twelfth session, held in New York from 3 - 5 August 2022, the Committee of Experts adopted decision 12/110, in which it acknowledged that the Working Group, through the implementation of its workplan for the period 2020 - 2023, sought to identify and provide solutions through geospatial data and services. This included to assist in addressing cascading and systemic risk, fostering communication and awareness-raising, designing and preparing scenario-based exercises on different hazards, and providing a forum for dialogue, coordination and strengthening capacity-building. Furthermore, the Committee noted the many exchanges and collaborative engagements with related DRR bodies in advancing the workplan of the Working Group, strengthening national and regional capacities, raising awareness of DRR using accurate and reliable geospatial data, tools and services and, importantly, ensuring coherence and avoidance of duplication of effort, therefore creating synergies among DRR organisations.

4. In this present report, the Working Group provides information on its intersessional activities and achievements under the leadership of its co-chairs, Jamaica and Japan and its three Task Group Leads (Jamaica, Japan and New Zealand). These include the implementation of activities of its work plan for the period 2020 - 2023, measured against its four goals and priority areas. The report outlines progress made concerning: 1) fostering greater awareness of DRR organisations, geospatial information and services; 2) administration and the development of an inventory hub towards further expansion; and 3) collaboration efforts with various bodies.

5. The report also provides an overview of awareness raising and activities considered with other subsidiary groups of the Committee of Experts, regional and international disaster bodies, and other stakeholders. The report also highlights the status and detailed stocktaking of the Working Group's work plan activities and progress, with the objective of identifying available resources to support its work, including resources from Member States. It considers the need to highlight the role of National Geospatial Information Agencies (NGIAs) in the DRR domain and explore how case studies of the use of geospatial information in disasters or the use of geospatial information to support the achievement of Sendai inventory of activities can be developed.

6. The Working Group convened both virtual and in-person meetings to facilitate a detailed stocktaking of the progress made under all four goals of the

workplan. The Working Group also identified the unique needs of Member States that could be better supported by the Working Group, in addition to tasks to be included in a new work plan for 2024 - 2026. The Working Group leadership team (comprising the co-Chairs and Task Group leads, supported and guided by the Secretariat) held regular meetings to review progress on the work plan and the way forward.

7. Given decision 12/110 by the Committee of Experts at its twelfth session in August 2022 regarding the current and future work of the Working Group, a revised 2023 terms of reference has been proposed to guide the Working Group's work for the next three years (2023 - 2026).

8. The Committee of Experts is invited to take note of the present report and stock-taking undertaken by the Working Group during the reporting period, including the proposed 2023 terms of reference, and express its views and provide guidance on the continued efforts to implement the Strategic Framework on Geospatial Information and Services for Disasters. Points for discussion are provided in paragraph 22.

II. Activities of the Working Group

Twelfth Session of the Committee of Experts

9. On the margins of the twelfth session of the Committee of Expert, the Working Group convened a side event entitled "Geospatial Information and Services for Disasters". The side event enabled the members of the Working Group to share case studies that demonstrate how geospatial information and services are utilised to aid in response to disasters at various stages. The side event also examined case studies within which geospatial information and services were integral in driving support to civil societies for long-term vulnerable people in cities, supporting Non-Government Organisations (NGOs), and facilitating rapid response, aid planning and delivery; in addition to examining the application of the Earth Observation Risk Toolkit for various types of disasters at the country level (see Figure 1, Annex 1). Finally, the newly developed [Global DRR Organizations, Geospatial Information and Services Inventory Hub](#) was officially launched and demonstrated at the side event. Eventually, it is hoped that the Hub will be used by Member States, DRR organisations, NGOs, Academia, and general users.

Working Modalities of the Working Group

10. Taking advantage of the first in-person convening of the Committee of Experts since its ninth session in August 2019, the Working Group informally met on the margins of the Committee's twelfth session, with members present. At this meeting, the Working Group co-Chairs facilitated an examination of the Working Group's work plan towards determining the initial status of the activities, and discussed the next steps towards completing its activities.

11. During the intersessional period, the Working Group convened two virtual meetings with its members (on 27 October 2022 and 24 May 2023) alongside eight leadership meetings:

- (a) At its virtual meeting on 27 October 2022, the Working Group focused on the outcomes of the twelfth session, guided by the Committee's decision 12/110. Additionally, Working Group discussed the advancements of the Global DRR inventory hub and considered recommendations for its advancement, promotion and utilisation. Updates were received from each Task Group regarding progress made on the four priority areas. Task Groups were encouraged to have regular meetings to proceed with executing the workplan. Collaboration

and partnerships forged that advanced the Working Group's activities were also discussed;

(b) At its virtual meeting on 24 May 2023, the Working Group promoted discussion on its progress against its work plan. The Working Group considered options on how it can better support the disaster-related work of Member States; in this regard, the Working Group noted several experiences of using geospatial information and services in the DRR lifecycle and encouraged the increased involvement of Member States representatives;

(c) Between February and June 2023, the co-Chairs and Task Group leads, supported by the Secretariat, met virtually eight times. At these meetings, the work plan and the activities that need to be completed were reviewed, in addition to new areas for synergies among DRR, Climate Change Adaptation (CCA) and geospatial information generation, accessibility and utilisation.

III. Taking stock of the work plan 2020-2023

12. At its eleventh session in 2021, the Committee Experts endorsed the Working Group's work plan 2020 – 2023. Annex 1 takes stock of progress against the work plan 2020 - 2023. To date, the primary mechanism used by the Working Group to make progress is through its four Task Groups:

(a) **Task Group A - Implementation and monitoring of the Strategic Framework.** Task Group A, under the leadership of Jamaica, is responsible for Goal 2 of the work plan, with a significant supporting role in enabling the implementation of Goal 1. During the intersessional period, this Task Group maximised opportunities to create greater awareness of the importance, implementation and monitoring of the Strategic Framework. Presentations, webinars, conferences, publications and other opportunities were utilised for raising awareness and sensitisation focused on the strategic framework among Member States, the United Nations system and regional stakeholders and other international technical organisations. On evaluation, the work accomplished represents over 80 % of the tasks outlined in the work plan.

(b) **Task Group B - Design and implementation of scenario-based exercises.** Task Group B, under the leadership of Japan, is responsible for Goal 3 of the work plan. In the intersessional period, the Task Group has invested significant time and effort to examine the design and preparation of disaster scenario exercises for regions. The Task Group found that no single scenario or model could be adopted for all hazards. In working through the challenges faced by the Task Group, several options to progress on this goal were discussed. The Task Group is seeking wider participation to build a community of practice and to learn and develop various scenario options from experts within the different regions. The Task Group is of the view that based on its technical expertise, other considerations, such as predictive modelling and a common operational picture, is needed to advance the use of standard templates and best practices as key contributors to achieving improved DRR outcomes. Expanding the Task Group to include other experts from Member States was also explored to support the work of the Task Group. It also supported the successful development of the Global DRR inventory on organisations, services and platforms along with Task Group C. Task Group B spearheaded the development of the Global DRR inventory hub from the data collected from the DRR Organizations Inventory and DRR Geospatial Information and Services Inventory surveys.

(c) **Task Group C - Foster communication and awareness raising.** Task Group C, under the leadership of Jamaica, is primarily responsible for goal 1 of the work plan and also supports the work to be done for goals 3 and 4. The Task Group has continued to engage in various initiatives that promoted increased communication and awareness-raising opportunities on the visibility and work of

the Working Group and the importance and the implementation of the Strategic Framework; the Task Group continued to promote the contribution of current information to the both previously developed [DRR Organizations Inventory Survey](#) and the [DRR Geospatial Info & Services Platforms Inventory Survey](#) that support the maintenance of the Global DRR inventory platform/hub, so that the wider DRR community can benefit from increased access to information to aid their efforts pre, during and post-disaster phases. The Inventory platform was developed in 2022 to promote greater awareness and provide a platform for DRR organisations, academia and other relevant stakeholders to access data on the many existing organisations undertaking disaster risk reduction and management activities. Annex 2 provides a detailed elaboration on the various communication and awareness-raising activities undertaken by Task Group C.

(d) **Task Group D - Support the use of the Integrated Geospatial Information Framework** The Task Group D, under the leadership of New Zealand, aimed to focus on the intersection of the Strategic Framework on Geospatial Information and Services for Disasters and its alignment with the United Nations Integrated Geospatial Information Framework (UN-IGIF).

IV. Collaboration with other bodies

13. The Working Group extends sincere gratitude to the following bodies and organisations through whom partnerships and collaborations have significantly aided the achievement of tasks completed or in progress during the 2020-2023 work plan period. This includes but is not limited to the regional committees of UN-GGIM, other regional collaborations including the Caribbean Geospatial Development Initiative (CARIGEO), the United Nations Economic Commission for Latin America and the Caribbean (UNECLAC), and the AmeriGEO Working Group Disasters. Additionally, the Working Group offers its appreciation to other stakeholders, including the Geospatial Information Authority of Japan, the Group on Earth Observation's (GEO) DRR Working Group, the Committee on Earth Observation Satellites (CEOS) Working Group Disasters, the United States of America's National Aeronautics and Space Agency (NASA), MAPACTION and the World Geospatial Industry Council (WGIC) Disaster Resilience Working Group, among others.

14. The Working Group looks forward to advancing existing partnerships and collaborations, in addition to forging new partnerships and collaborations towards achieving our mandate, given the need for increased access to geospatial information and services in response to the increased occurrence and increasingly devastating impact of disasters due to climate change.

V. Considerations going forward

15. **Refocussing the work and direction of the Working Group:** The Working Group recognises the need to reformulate itself and revitalise its membership to expand and incorporate both disaster and geospatial / mapping representatives from the Member States and other disaster stakeholders for greater collaboration so that the interest and needs of the DRR community are adequately met and supported by geospatial expertise.

16. **Defining a new work plan:** The Working Group has made significant efforts to achieve the goals outlined in its work plan 2020-2023. To date, over 80 % of the outlined activities have been completed and/or are in progress, given their ongoing status and new areas to be addressed. The Working Group recognises the need and continues to examine its mandate towards defining a new 2024-2026 work plan. In a new work plan, it will also seek to globally re-administer the Assessment tool to garner an understanding of the progress made by Member States in implementing the Strategic Framework, in addition to challenges faced towards supporting the identification of solutions that can aid their

efforts. Efforts will also be made to examine the relevance and utility of the Strategic Framework every three to five years.

17. Expanding partnerships to strengthen geospatial information and services, DRR and CCA: The nexus between DRR and CCA continues to evolve towards greater harmonisation. It is therefore important for the Working Group to expand its geospatial partnership to enhance geospatial enablement and synergies to collectively foster geo-enabled climate actions and integration of geospatial information and services use and application of data tools, standards and practices.

18. Maintenance of the DRR Inventory Hub: The Working Group encourages Member States, disaster risk reduction and management organisations and relevant academia, private sector and United Nations system organisations to continue collaborating by contributing to the maintenance of the global DRR inventory hub via the active DRR surveys, whenever new information becomes available. We encourage its wide-scale use by various stakeholders in the DRR community and will seek to promote new value-added features to include on the Hub.

19. An interdisciplinary community of practice: Core to the Working Group's achievement of its Goals is the active contribution and support of its members and the wider geospatial community. Considering the scope of disaster risk reduction work, the Working Group comprises a wide range of experts from geospatial, disaster risk reduction and statistical communities, international organisations (global organisations), non-governmental organisations, academia and the private sector in Member States.

20. Forging potential collaborations with the High-Level Group on the Integrated Geospatial Information Framework (HLG-IGIF). The Working Group looks forward to forging potential collaborations between the HLG-IGIF towards supporting the mutual implementation of both the Strategic Framework and the UN-IGIF.

21. The Working Group encourages and welcomes the participation of more experts towards achieving its mandate and proposes that its efforts be conducted in collaboration with the Working Group on Policy and Legal Frameworks for geospatial information management. This is with a view to leveraging its expertise to support knowledge sharing, advancing technologies, and showcasing innovative science and technology advancements supporting risk-informed decision-making for Member States.

VI. Points for discussion

22. The Committee of Experts is invited to:

(a) Take note of the present report and work undertaken by the Working Group during the intersessional period, and express its views and provide guidance on the continued efforts to implement the Strategic Framework on Geospatial Information and Services for Disasters by Member States at the country level and by regional subcommittees at the regional level;

(b) Take note of the efforts of the Working Group to revise its 2020 Terms of Reference as an ongoing process towards finalizing a revised 2023 version.

(c) Provide continuous updates and actively utilise the resources available on existing DRR organisations, geospatial information and services platforms via the Global DRR inventory hub towards supporting national, regional and international disaster initiatives.

(d) Consider the Working Group's direction to reformulate its approach, aiming to enhance its contribution to the mandate of expanding the use of geospatial information and services for disaster response initiatives, to attract more Member States' participation, and to address emerging challenges such as climate resilience.

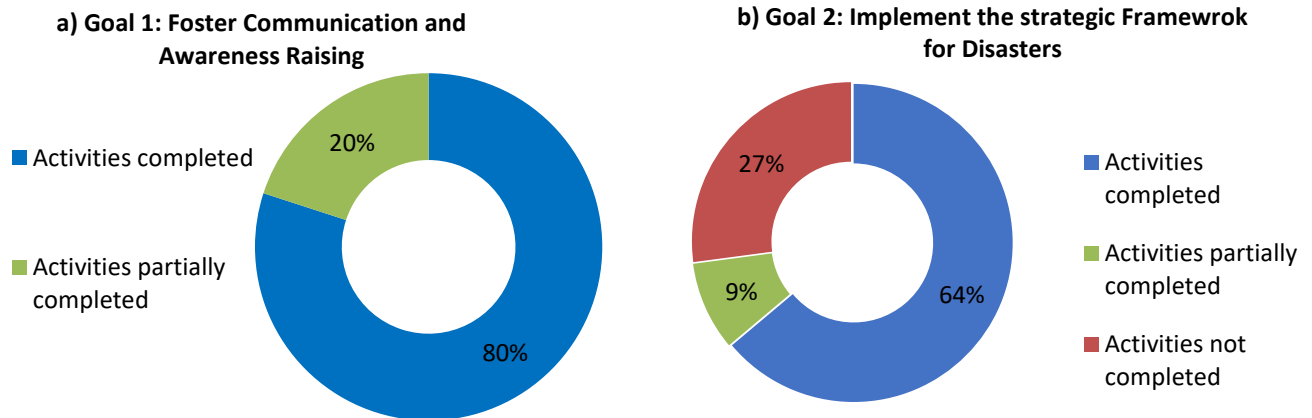
Annex 1:



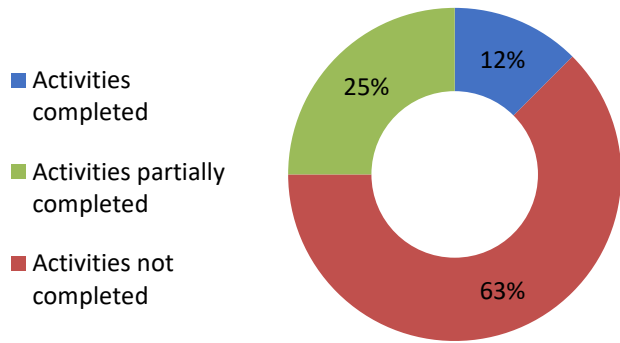
Figure 1: Global Disaster Risk Reduction Organisations, Geospatial Information Services and Platforms Inventory Hub

The outcomes of the stock-taking exercise are displayed in the pie charts and bar graph reflected in Figures 2 and 3.

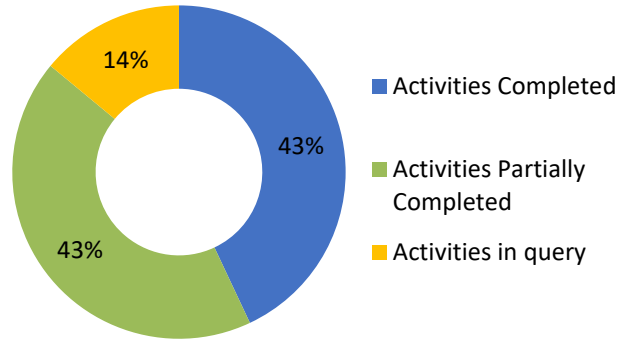
Figure 2. a) – d): Status of Workplan via Goals 1-4



c) Goal 3: Design and Prepared Scanner Based Exercises on different Hazards

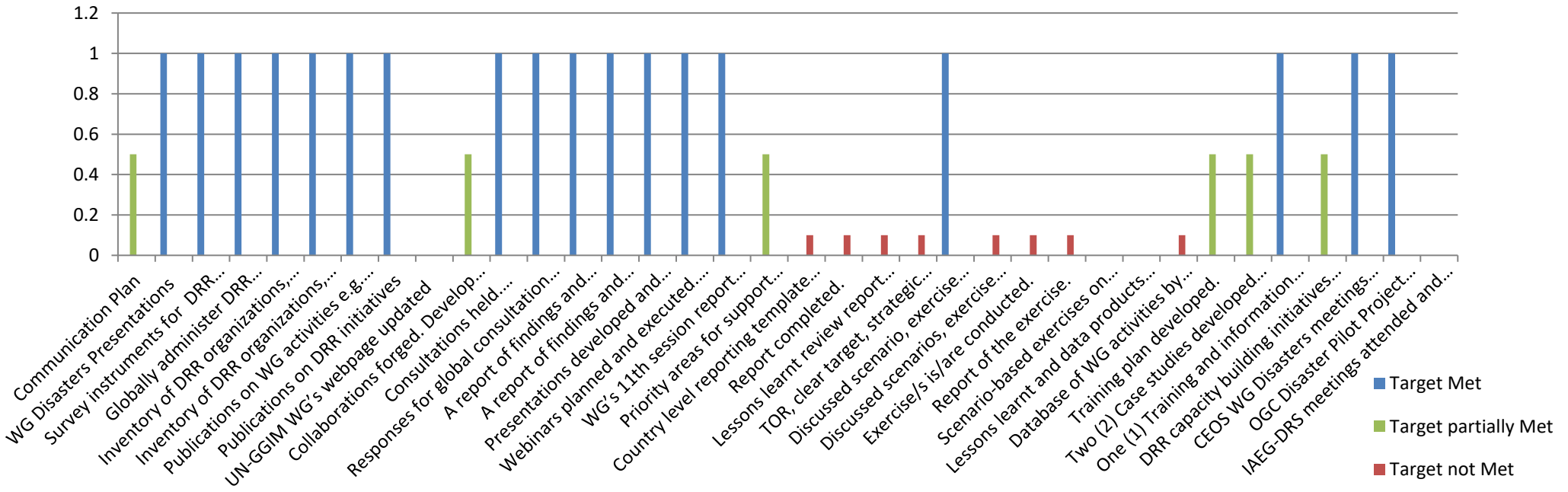


d) Goal 4: Provide a forum for Dialogue, Coordination and Capacity Building



1. For Goals 1, 2 and 4, 43% to 80% of the tasks were totally completed, with 9 % to 43% of activities being partially completed and/or in progress., For Goals 1, 2 and 4, only 27% of activities for Goal 2 were not completed. Goal 3 on the other hand has 63% of activities not completed, with 12% being completed.

Figure 3: Overall Status of Workplan Goals



Annex 2:

Further Promotion Activities of the Working Group

The Working Group encourages the active utilisation of the wealth of information presented on the DRR inventory hub in pre, during and post-disaster activities. The representatives of the Working Group have also participated at several events to promote and raise awareness of the Strategic Framework, including:

- During its side event at the twelfth session of the Committee of Experts, presentations were delivered on “Applying Geospatial Information Across Complex Humanitarian Problems” by MapAction and “Earth Observations Risk Toolkit: Honduras and Haiti use cases” by GEO DRR WG Disasters. Additionally, a panel discussion was held that focused on applying geospatial information, and earth observation data in response to disasters. The panel comprised representatives from Mozambique, South Africa, MapAction and GEO DRR WG Disasters.
- During the International Federation of Surveyors (FIG) Working Week held in Orlando, United States of America, on 29 May to 1 June 2023, Jamaica represented the Working Group and that of the UN-GGIM: Americas’ Working Group on Geospatial Information and Services for Disasters by presenting on the genesis of the Working Group(s), its mandate, the Strategic Framework and the efforts of Regional Committees such as the UN-GGIM: Americas Working Group on Disasters in promoting the implementation of the Strategic Framework. In addition to outlining the 2023 workplan of the UN-GGIM: Americas Working Group on Disasters. Given the representation at FIG Working Week, presentations delivered and discussions held at this forum, awareness was raised among over 1,000 land surveyors, geospatial experts, land administrators and other relevant specialisations, from over 120 countries, from national surveying and mapping agencies, national, regional and international surveying organisations etc. Initial discussions were held on potential collaborative efforts that can benefit SIDS, such as those within the Caribbean region. Specific avenues of impact include:
 - The Caribbean Small Island Developing States (SIDS) convened a workshop held on 29-30 May 2023, under the theme “Serving Society for the benefit of people and planet; Facing the global challenges in Small Island Developing States: The Role of Land Professionals”. The workshop focused on knowledge sharing, promoting understanding, enhancing cooperation, and fostering discussions on the vulnerabilities, as well as the challenges, associated with geospatial information management, land governance, land administration and land management within the Caribbean region. The Orlando Statement on Caribbean SIDS was drafted as a major outcome of the two-day workshop, with special reference made to the Strategic Framework as an international framework that addresses some of the various challenges faced by Caribbean SIDS¹.
 - Jamaica delivered a keynote presentation² during the “Tackling Global Challenges” plenary on 31 May 2023. During this presentation, an overview was provided of the disaster risk levels and impact in the Caribbean region; an overview of the Sendai Framework and the Strategic Framework and the mandate of the Working Group; efforts made by Jamaica to upgrade its national tidal gauge system to support better monitoring, and provision of, geospatial information management for effective DRR.

¹ “Recognized various international programmes, conventions and frameworks that address the various challenges being faced by Caribbean SIDS eg. Integrated Geospatial Information Framework (IGIF), Global Geodetic Reference frame (GGRF), UNDRR) Sendai Framework for Disaster Risk Reduction, UNGGIM Strategic Framework on Geospatial Information and Services for Disasters.”

² Land Administration and Land Management Role in Tackling Disaster Management / Sea Level Rise, with a Special Focus on the Sustainability of Island States (SIDS)