
Economic and Social Council

20 August 2021

Committee of Experts on Global Geospatial Information Management Eleventh session

New York, 23, 24, and 27 August 2021

Item 10 of the provisional agenda*

Geospatial information and services for disasters

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Note by the Secretariat

Summary

The present paper contains the report of the Working Group on Geospatial Information and Services for Disasters 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 10/108, in which it welcomed the report of the Working Group in advancing critical issues related to geospatial information and services for disasters, and expressed its appreciation for the comparative assessment between, and mutually compatible alignment of, the Strategic Framework on Geospatial Information and Services for Disasters and the Integrated Geospatial Information Framework. Furthermore, the Committee endorsed the revised terms of reference of the Working Group and approved the preparation of an updated work plan that would include existing and future work items. The Committee also acknowledged that the coronavirus disease (COVID-19) pandemic had demonstrated the critical importance of access to available and trusted geospatial information to support decision-making during all phases of disaster risk management, commended the continued efforts of the Working Group to facilitate the implementation of the Strategic Framework and urged Member States to consider implementing the Strategic Framework.

In this present report, the Working Group provides information on its intersessional activities, including on the development of its work plan for the period 2021–2023 and the progress of its task teams. Moreover, the Working Group highlights awareness raising and collaborative activities pursued with other complementary working groups and disaster programmes of national and international bodies, including the Committee on Earth Observation Satellites, the Group on Earth Observations, and the National Aeronautics and Space Administration of the United States of America. The Working Group indicates that its activities are aimed at identifying mutually beneficial areas of work to provide and expand on the availability of geospatial information and services that cover all dimensions of disaster risk, including hazard, exposure and vulnerability.

This report serves to highlight collaborative and capacity-development initiatives pursued by the working group with the Regional Committee of United Nations Global

* E/C.20/2021/1

Geospatial Information Management for the Americas, including the Caribbean Geospatial Development Initiative for expanding the use of the Caribbean geoportal to support the provision of disaster-related geospatial information and real-time analysis to aid response mechanisms. In addition, this report includes a summary of the recommendations and results emanating from the globally administered assessment survey on the Strategic Framework, with further details provided in a background document to the report.

I. Introduction

1. Since the onset of the coronavirus disease (COVID-19) and its widespread global impact, resulting in the World Health Organization's (WHO) subsequent classification of the virus as a pandemic on March 11, 2020, there has been over 196 million reported cases and 4.2 million deaths. The pandemic has been an unprecedented globally-shared phenomenon that has impacted the way we live, travel, work, conduct business, and socialize. The level of disruption to lives and economies of countries has resulted in a downturn of -3.4% to -7.6% in the global economy for 2020, with a projected recovery of 4.2% to 5.6% for 2021¹. The unprecedented global economic and social impact has seen trillions of dollars in economic losses, and "extreme poverty back up to levels not seen in a generation", as stated by the UN Secretary-General².

2. The fundamental importance of geospatial information, and its supporting tools, to all phases of disaster risk management, has been evidenced over the past year and a half since the advent of the COVID-19 pandemic. Governments, at national and local levels, the private sector, academia, civil society and citizens continue to knowingly and unknowingly use geospatial information to map the spread of the disease, predict the behaviour of humans to determine intervention strategies, design response and mitigation measures, visualize its impacts and plan and implement vaccination distribution programmes among other actions.

3. In addition to the COVID-19 pandemic, the period 2020 - 2021 was dominated by over 389 recorded climate-related disaster events which caused over 15,080 deaths, affected 98.4 million people, and amounted to economic losses of at least US\$ 171.3 billion. Higher than average recorded events, resultant deaths, level of destruction and economic losses have occurred during this period (2020 – 2021), in comparison to the previous two decades (2000 - 2019). Therefore, during 2020-2021, there were 26% more storms than the annual average of 102 events, 23% more floods than the annual average of 163 events, and 18% more flood deaths than the annual average of 5,233 deaths (Source: [OCHA Services Relief Web](#)).

4. The COVID-19 pandemic exacerbated by the many climate-related disasters, has emphasized the need to strengthen the efforts of the Working Group on Geospatial Information and Services for Disasters (Working Group) to support the creation and use of quality geospatial information and services that are available and accessible in a timely and coordinated manner across all levels of government to support decision-making throughout all phases of disaster risk management. Further, it has been a call to action for Member States to implement the [Strategic Framework on Geospatial Information and Services for Disasters 2016 - 2030](#) (Strategic Framework), which contributes to the implementation of the [Sendai Framework on Disaster Risk Reduction 2015-2030](#). The Strategic Framework is also fundamental to the achievement of the 2030 Agenda for Sustainable Development, in particular: Goal 1 - no poverty; Goal 2 - zero hunger; Goal 11- sustainable cities and communities; and Goal 15 - life on land.

5. At its tenth session, held virtually on 26 and 27 August and 4 September 2020, the Committee of Experts adopted decision 10/108, in which it welcomed the report of the Working Group ([E/C.20/2020/30/Add.1](#)) in advancing critical issues related to geospatial information and services for disasters, and expressed its appreciation for the comparative assessment between, and mutually compatible alignment of, the Strategic Framework and the Integrated Geospatial Information Framework (IGIF). Further, the Committee endorsed the revised terms of reference of the Working Group and approved the preparation of an updated work plan that would include existing and future work items. The Committee also

¹ Congressional Research Service. Global Economic Effects of COVID-19. Updated July 9, 2021. Available at: <https://fas.org/sgp/crs/row/R46270.pdf> (Accessed on July 26, 2021)

² OCHA Services Reliefweb. "2020: the non-COVID Year in Disasters - Global Trends and Perspectives". Available at: <https://reliefweb.int/report/world/2020-non-covid-year-disasters-global-trends-and-perspectives> (Accessed on July 26, 2021)

acknowledged that the COVID-19 pandemic had demonstrated the critical importance of access to available and trusted geospatial information to support decision-making during all phases of disaster risk management, commended the continued efforts of the Working Group to facilitate the implementation of the Strategic Framework and urged Member States to consider implementing the Strategic Framework.

6. The Committee of Experts noted the efforts of the Working Group to forge synergies with UN-GGIM regional committees, United Nations entities and international technical organizations to leverage the work of organizations undertaking disaster risk management activities, and expressed its appreciation for the efforts to continue, together with the statistical community, to provide and expand on the availability of geospatial information and disaster-related statistics covering all dimensions of disaster risk. The Committee also encouraged Member States and disaster experts to engage with the Working Group through membership and active contribution, in particular from the regions of Africa and the Arab States.

7. 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. These include the development of its work plan for the period 2020 - 2023, the progress of its Task Groups, and an overview of awareness raising and collaborative activities pursued with other complementary working groups and disaster programmes of national and international bodies. In addition, an update on collaborative and capacity-development initiatives pursued, and a summary of the recommendations and results emanating from the globally administered assessment survey on the Strategic Framework, are provided.

8. The Committee of Experts Committee of Experts is invited to take note of the report and to express its views on the activities of the Working Group, including its work plan for the period 2020 - 2023 and the background document entitled "Assessment 2020 Results - Strategic Framework on Geospatial Information and Services for Disasters". Points for discussion and decision are provided in paragraph 75.

II. Activities of the Working Group

Working Group meetings

9. During the intersessional period, the Working Group convened three virtual meetings, on 21 October 2020, 19 April 2021, and 16 June 2021. The Working Group's meetings primarily focused on advancing items emanating from decision 10/108, adopted by the Committee of Experts at its tenth session. The items addressed were: the preparation of the Working Group's work plan, strategies for engagement and forging synergies with other disaster related entities, supporting the work being done by the Inter-Agency and Expert Group on Disaster-related Statistics (IAEG-DRS), awareness raising interventions, implementing the Strategic Framework and preparing for this eleventh session of the Committee of Experts.

10. Post the tenth session of the Committee of Experts, the Working Group convened its first virtual meeting on 21 October 2020. There were 27 participants representing: Armenia, China, Jamaica, Japan, Kyrgyzstan, the Philippines, Sweden, Thailand, the United Kingdom, the United States of America, Uzbekistan, UN-GGIM Academic Network, the International Hydrographic Organization (IHO), the Committee on Earth Observation Satellites (CEOS), Esri, MapAction, GeoThings, and the UN-GGIM Secretariat. Items discussed were the preparation of the Working Group's work plan, updates from the four Task Groups, and possible new work items, including strengthening communication and collaborating with other disaster risk management bodies. A highlight of the discussions was the need to expand the Group's membership to be geographically balanced with more representatives from the

Africa and Arab States regions. To address this issue, the Working Group's participation and interventions at UN-GGIM Africa and UN-GGIM Arab States Regional Committee meetings and events was to be encouraged.

11. The second Working Group meeting held on 19 April 2021, was attended by 47 participants from 14 Member States and eight other entities from the UN system and international organizations. The participants were: Algeria, Armenia, China, Indonesia, Jamaica, Japan, Kyrgyzstan, New Zealand, the Philippines, Poland, Sweden, Thailand, the United Kingdom, Uzbekistan, UNECA, UNESCAP, UNITAR-UNOSAT, UN-GGIM Academic Network, CEOS, MapAction, GeoThings, and the UN-GGIM Secretariat. There was a 74% increase in participation over the October 2020 meeting, due largely to new members from Indonesia and the UN-GGIM Academic Network. Items discussed were the preparation of the work plan, the initiation of a project to create a disaster risk reduction inventory, disaster-related statistics, and preparation for the eleventh session of the Committee of Experts. Further to discussions at the October 2020 meeting, activities for enhancing synergies with other entities, including presentations at UN-GGIM regional committees' events and contribution to the UN Global Assessment Report 2022, were reported. In addition, the Working Group took note of the progress of the new disaster-related statistics initiative as a possible future collaboration, and the draft work plan, prepared by the Bureau, was first introduced to the participants for their review.

12. The third online meeting of the Working Group was held on 16 June 2021, and attended by 41 participants from Algeria, Armenia, China, Indonesia, Jamaica, Japan, Kyrgyzstan, Mozambique, New Zealand, Philippines, Sweden, Thailand, the United States of America, UN-GGIM Academic Network, UNESCAP, GEO, CEOS, Esri, MapAction and the UN-GGIM Secretariat. This meeting continued the discussions from the April 2021 meeting, which included finalizing the work plan and preparations for the eleventh session, specifically the Working Group's annual report and convening one or two side events. Recent and future collaborations with UN-GGIM: Americas' Caribbean Geospatial Development Initiative (CARIGEO), CEOS, the Group on Earth Observations (GEO), and the National Aeronautics and Space Administration (NASA) of the United States of America were also discussed, including the upcoming "CARIGEO Caribbean Geoportals webinar #2 on Disasters" collaboration. A presentation was received on the GEO Disaster Risk Reduction Working Group - its mandate, purpose, structure, work programme and how this aligns with the Sendai Framework and Strategic Framework. Additionally, the two Disaster Risk Reduction (DRR) Inventory surveys developed by Task Group C to capture DRR organizations and geospatial information and services platforms, towards facilitating the future development and maintenance of inventory listings that will be hosted on UN-GGIM WG Disasters webpage, were introduced to the Working Group for review. Participants were also encouraged to register and pursue the CEOS Massive Open Online Course (MOOC): "Geospatial Applications for Disaster Risk Management Phase 2", having a registration period of June 1, 2021 - August 25, 2021. At this meeting, the participants also shared updates on their own disaster risk reduction initiatives and related activities.

13. The Working Group's objectives are accomplished through the work undertaken by its four Task Groups. The Task Groups are: A) Implementation and monitoring of the Strategic Framework; B) Design and implementation of scenario-based exercises on different hazards, including predictive modelling to test and improve the Strategic Framework per country and/or region; C) Foster Communication and Awareness Raising; and D) Support the preparation of the Integrated Geospatial Information Framework (IGIF). The following paragraphs provide a brief highlight of the activities performed by the Task Groups during the intersessional period.

Development of the work plan

14. The preparation of the Working Group's three-year work plan was one of the major priority tasks coming out of the tenth session. Over the period December 2020 to April 2021, the Working Group's Bureau comprising its two co-Chairs and four Task Group leads, with the assistance of the UN-GGIM Secretariat, guided the design and development of the work plan. It identifies and defines the practical actions by which all collaborating DRR organizations, UN entities and international technical organizations should be encouraged to support the goals and policy directives of the Strategic Framework.

15. The development process commenced in November of 2020, with the preparation of an outline comprising four overarching goals, strategic objectives and related activities, and the duration of the plan (2020-2022). It was recognized and acknowledged early in the development process that global priorities such as the 2030 Agenda for Sustainable Development and the Sendai Framework, and the fundamental UN-GGIM frameworks: the IGIF and the Strategic Framework, were all to be taken into consideration in the preparation of the work plan. The Bureau, with the support of the four Task Groups, thereafter, prepared a breakdown of the activities to address each goal in the work plan. Further, a complete draft was developed, followed by a series of reviews, consultations and refinement.

16. The 36 work items in the work plan are derived from four overarching goals shown in Table 1. These four goals were formulated to capture the decisions and recommendations from the Group's terms of reference and decisions 9/109 and 10/108 from the ninth and tenth sessions of the Committee of Experts respectively.

GOAL 1	GOAL 2	GOAL 3	GOAL 4
Foster Communication and Awareness Raising	Implement the Strategic Framework for Disasters	Design and prepare scenario-based exercises on different hazards	Provide a forum for dialogue, coordination and capacity building

Table 1: Work plan Goals

17. An integral component of the work plan development was the consultation process, which was undertaken among Task Groups and Working Group members. Task Group leads spearheaded the formulation of tasks/activities through informal meetings and engagement with their team members and representatives from disaster related entities. This was supported by an examination of the mandate, objectives and current initiatives of the Working Group; in addition to current and future plans of disaster related entities; coupled with local, regional and international needs for geospatial information and services to support disaster response initiatives. The first major draft of the work plan was completed in April 2021, and included mechanisms, strategies and activities needed to execute the Working Group's mandate.

18. A thorough review, consultation and refinement process was undertaken from May to July 2021, towards finalization of the work plan. Given the review process that was conducted and the generation of multiple iterations of the draft two-year (2020 - 2022) work plan, the Working Group subsequently decided to expand the work plan to reflect a three-year duration (2020 - 2023). The new time frame should be sufficient for the successful execution and achievement of the proposed activities.

19. The work plan is provided as a background document to this present report for noting by the Committee of Experts.

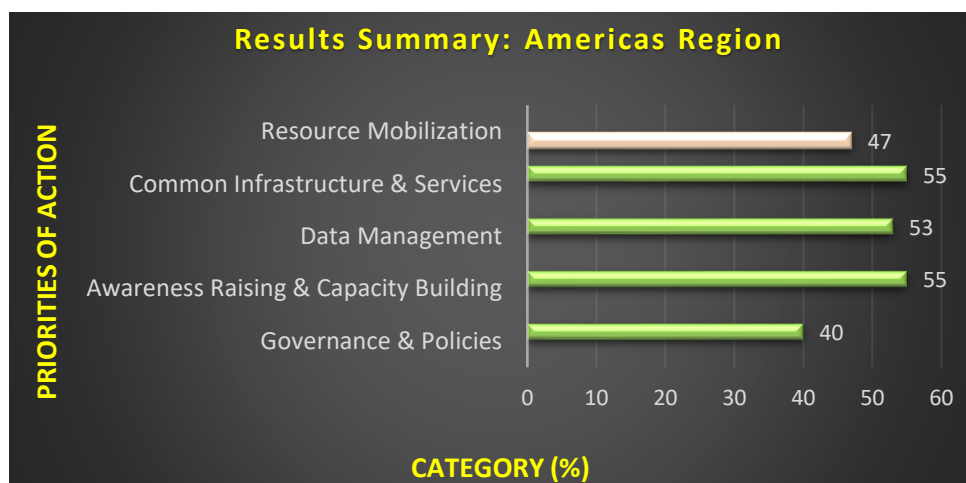
Activities Task Group A - Implementation and monitoring of the Strategic Framework

20. The implementation and monitoring of the Strategic Framework, while a major work item for the Working Group, has been designated the responsibility of Task Group A. An element of the implementation and monitoring of the Strategic Framework is the execution of the Assessment Survey. Over the period June to August 2020 Task Group A, assisted by the UN-GGIM Secretariat, globally administered the “Strategic Framework on Geospatial Information and Services for Disasters Assessment Survey”.

21. National mapping agencies and geospatial data management organizations, with the assistance of focal organizations with mandates for disaster risk reduction and management, were invited, by letter of 3 June 2020, to complete on-line the [Assessment Survey](#). The objectives of the exercise were to assist the Working Group to better understand the status of the national geospatial information and services landscape across all phases of disasters, and to determine mechanisms and strategies to support the implementation of the Strategic Framework.

22. Before the analysis of the results of the Assessment Survey was completed, the Working Group was invited to share its work on the status of disaster risk management within the Americas region, at the seventh session of the UN-GGIM Americas Regional Committee on 10 September 2020. In response to the request, Task Group A analysed the findings for 16 responses from 12 countries within the Americas - North, Central, South and the Caribbean. An overwhelming majority of the respondents indicated achieving level 3 (geospatial information and services enabled DRR initiatives currently being implemented in country with major tasks still needing to be done) for priority areas one to four of the Strategic Framework. See Figure 1 for percentage figures.

Figure 1: Strategic Framework Assessment Tool Results Summary - Americas Region



23. The results indicate that countries are aware of and have started to implement actions towards ensuring the use of geospatial information (including Earth Observation technology and products) and related services in response to disasters. On the other hand, forty seven percent (47%) reported attaining level two for Resource Mobilization, which indicates that utilizing geospatial information and services activities have not yet been implemented.

24. The analysis of the responses for the Americas also revealed that countries were experiencing challenges or gaps in leveraging geospatial information and related

infrastructures. This included a lack of sufficient financial resources or that financial support for DRR is decentralized at local levels and some communication channels rely on personal network contacts rather than institutional arrangements. In other cases, communication channels exist but their maturity and operation needed improvement. A lack of or outdated DRR policies and laws were other challenges identified. In addition, the analysis showed that DRR related actions exist but are ad hoc, diffused, intermittent and not systematized in a road map. Many countries have coordination and collaboration mechanisms led by a National Disaster Committee. These gaps and challenges provide opportunities for DRR bodies to collaborate with stakeholders towards improving their readiness in utilizing geospatial information and services for disasters.

25. A summary of the results, findings and recommendations from the Assessment Survey is provided in Section VI of this report.

26. Additionally, Task Group A executed various awareness raising and forging collaborative initiatives that are respectively outlined in Sections III and IV of this report.

Activities Task Group B - Design and implementation of scenario-based exercises

27. The design and implementation of scenario-based exercises on different hazards, including predictive modelling to test and improve the Strategic Framework per country and/or region, is being coordinated by Task Group B. In line with the work plan development of the working group, Task Group B has been discussing the online platform and assessing possible responses to disasters that actually happened.

Activities Task Group C - Foster communication and awareness raising

28. Task Group C was accorded the responsibility for fostering communication and awareness raising initiatives in support of the Strategic Framework uptake and implementation, in addition to promoting collaboration and coordination initiatives on geospatial information activities for disaster risk management. Task Group C's leadership and execution of awareness raising initiatives, in addition to forging collaborative initiatives are outlined in sections III and IV respectively.

29. In line with the Working Group's work plan, Task Group C initiated Disaster Risk Reduction (DRR) Inventory Surveys. The objective of the surveys is to create a geospatial resource inventory that informs on existing DRR organizations, geospatial DRR tools, solutions, methodologies and good practices to accelerate solution- and demand-driven DRR for decision making. The Task Group developed two Survey 123 for ArcGIS based surveys to collect the data needed for this work item. These included: a) DRR organization inventory; and b) DRR geospatial information and services platform inventory. Both surveys will be globally administered after this eleventh session of the Committee of Experts, and the data collected used to develop the inventory hubs to be accessible from the Working Group's UN-GGIM webpage. It is expected to serve as a one stop resource for anyone wishing to access this vital information to aid their disaster planning, mitigation and response efforts.

Activities Task Group D - Support the preparation of the IGIF

30. Further to the review of the alignment of the IGIF and Strategic Framework as reported at the tenth session of the Committee of Experts, Task Group D has prepared a work plan which will focus on supporting Member States in the use of the IGIF to implement the Strategic Framework. This will be guided using the Assessment Survey to identify priority areas for support and an assessment of early use cases of the IGIF. Task Group D will report back on the detail of its findings ahead of the twelfth session of the Committee.

III. Increasing awareness of disaster risk management and geospatial information

Conferences and webinars

31. For the reporting period, Task Groups A and C made a significant contribution towards increasing awareness on the work of the Working Group, the Strategic Framework and the importance of reliable, current and accurate geospatial information in disaster risk management. As part of the awareness raising efforts, the Working Group delivered three presentations at regional meetings in the Americas and Africa.

32. At the 7th Plenary Meeting of UN-GGIM Americas, convened virtually on 10 September 2020, the Working Group delivered a presentation entitled "[Geospatial Information and Services for Disasters](#)". The presentation examined the vulnerability level of the Americas region, the mandate of the Working Group, the Strategic Framework, and the status of Strategic Framework implementation within the Americas, using the results from the globally administered assessment in 2020. Additionally, opportunities presented by the COVID-19 pandemic, and an examination of COVID-19 geospatial response efforts within the Americas, were also captured in the presentation.

33. At the Americas Symposium, convened virtually on 8 September 2020, the Working Group delivered the presentation entitled "[Geospatial Information supporting disaster risk management decision making in the Americas](#)". The presentation examined the global impact of disasters, the disaster vulnerability level of the Caribbean, the background and history of the Working Group, and the Strategic Framework, in addition to examining Jamaica's geospatial response to disasters. Also covered were, Jamaica's geospatial response efforts to the COVID-19 pandemic by their National Emergency Response GIS Team (NERGIST) and challenges and opportunities presented by the pandemic. Significant focus was placed on the various geospatial information captured, tools and technologies utilized, applications developed, and analysis conducted to support the efforts of Jamaica's National Emergency Operations Centre (NEOC) operated by the Office of Disaster Preparedness & Emergency Management (ODPEM) and that of Jamaica's Ministry of Health and Wellness (MOHW).

34. At the 6th Plenary Meeting of UN-GGIM Africa, convened virtually on 1 December 2020, the Working Group delivered a presentation entitled "[Geospatial Information and Services for Disasters](#)". The presentation examined the vulnerability level of the Africa region, the mandate of the Working Group, the Strategic Framework, and the status of Strategic Framework implementation within Africa, based on the outcomes of the globally administered assessment in 2020. Also addressed were opportunities presented by the COVID-19 pandemic to advance the use of geospatial information in support of Disaster Risk Management (DRM), outcomes from the tenth session of the Committee of Experts, including encouraging African Member States to become active members of the Working Group. At this meeting, African Member States were encouraged to leverage the COVID-19 pandemic as the ideal opportunity to monitor and track their progress for each of the five priority areas of the Strategic Framework.

35. The Working Group encourages Member States to consider the adoption of similar approaches and methodologies shared during the preceding presentations. The knowledge transfer, awareness raising, and strategies employed should strengthen the use of geospatial information and tools for their COVID-19 and other DRR related response efforts.

IV. Collaboration with other bodies

36. In keeping with decision 10/108, which noted the Working Group's efforts to forge synergies with other international initiatives in disaster risk reduction and management, during the reporting period the Working Group continued to pursue partnerships and collaborations with significant DRR and/or DRM entities. Collaboration meetings were held with the United Nations Office for Disaster Risk Reduction (UNDRR), GEO, CEOS Working Group Disasters, NASA, and CARIGEO. These discussions, led by Task Groups A and C, examined strategies and potential work areas that could be pursued to provide and expand on the availability of geospatial information and geospatial services to cover all dimensions of disaster risk, including hazard, exposure and vulnerability. Additionally, opportunities for awareness raising and capacity building initiatives were explored.

37. **The Committee on Earth Observation Satellites (CEOS) Working Group on Disasters and Group on Earth Observations (GEO) DRR Working Group:** The Working Group has recognized that Earth observation (EO) data can importantly complement existing geospatial information in assessing risk trends over time, through collaboration with various international bodies such as CEOS and GEO. As such, significant effort has been made to initiate and promote dialogue with these bodies to better understand and appreciate how EO are being utilized and can be further employed to strengthen disaster risk reduction and management (DRRM).

38. Through Task Groups A and C, the Working Group participated in multiple virtual meetings held by the CEOS Working Group Disasters between September 2020 and July 2021. During these meetings presentations were delivered on the Working Group's activities, and collaborative and potential partnership initiatives were discussed. The outcomes from these discussions have been included in the work plan of the Working Group for the period 2020 - 2023. The Working Group participated and made presentations at the following three meetings:

- (i) CEOS WG Disasters Telecon 29 Meeting, 3 June 2021, presentation entitled "[UN-GGIM WG Disasters Update](#)"
- (ii) CEOS WG Disasters Meeting, March 2021, presentation entitled "[UN-GGIM WG Disasters Update](#)"
- (iii) CEOS WG Disasters 14 Meeting, 1 September 2020, presentation entitled "[UN-GGIM WG Disasters, Overview & CEOS Collaboration](#)"

39. Targeted collaboration areas with CEOS Working Group Disasters and GEO DRR Working Group have included, and will continue to include, supporting the drafting of DRR related publications and capacity building and awareness raising initiatives. A key focus going forward will be the determination of geospatial information necessary to support examination of each hazard, their availability and the most suitable geospatial tools and procedures to aid analysis and better decision making. Another potential area of collaboration involves pursuing initiatives that promote sharing of data and knowledge to improve DRR through good practices. Additionally, facilitating the showcasing of how EO data can complement existing geospatial information used by governments to assess risk and risk trends over time is to be considered.

40. In order to support opportunities that facilitate awareness raising, the CEOS Working Group Disasters and GEO DRR Working Group incorporated updates on the importance and activities of the Working Group and its Strategic Framework, during presentations delivered at the following conferences and meetings:

- (i) UN-GGIM Asia and the Pacific ninth session, November 3, 2020, during the GEO DRR Working Group presentation.
- (ii) Global Flood Partnership Virtual Conference 2020, November 4, 2020, during the "GEO & CEOS Flood Community Developments" presentation.

41. **UN Global Assessment Report on Disaster Risk Reduction 2022:** The CEOS Working Group Disasters invited the Working Group to collaborate in producing a chapter/section on “Earth Observations in the Context of National Risk Reduction Decision Structures Leveraging Geospatial Solutions” of the “UN Global Assessment Report 2022 Earth Observations into Action” publication.

42. A five-page document was drafted and submitted in February 2021. It provided background and context on the Strategic Framework. It spoke to the Strategic Framework’s strong alignment with relevant global policy frameworks including the 2030 Agenda for Sustainable Development and the Global Statistical Geospatial Framework. Additionally, it highlighted that the Strategic Framework comes with an Assessment Survey aimed at gauging the level and status of implementation of geospatial information and services for disasters initiatives relative to the Strategic Framework among countries.

43. Additionally, highlights of the Strategic Framework Assessment Results for the Americas Region were presented and the Working Group’s support of [The Aguascalientes Declaration, “Better Together: Geospatial Information for decision making in the Americas”, September 2020](#), as a regional initiative which aims to strengthen and improve collaboration among regional bodies in the Americas on the use of Earth Observation, geospatial, statistical and other information to support national development priorities. The final contributing paper will be published in 2022 when the UNDRR releases the Global Assessment Report on Disaster Risk Reduction (GAR) 2022.

44. **Group on Earth Observations - GEO Virtual Symposium 2021:** The Working Group delivered a presentation on [“Expanding Data Democracy for Disaster Resilience: UN-GGIM WG Disasters & UN-GGIM Americas CariGEO”](#) during the GEO Virtual Symposium 2021 on June 22, 2021. This presentation examined data democracy for disaster resilience, the mandate of the Working Group, its Strategic Framework, the disaster vulnerability levels of the Caribbean region, the CARIGEO initiative and collaborations with CARIGEO and NASA, including the hosting of a webinar to raise awareness of how the Caribbean Geoportal, as a geospatial service can significantly aid disaster response efforts in the region by hosting geospatial information and facilitating the provision of analytical tools that will aid decision making.

45. **CARIGEO Geoportal Webinar #2: “Leveraging the Caribbean Geoportal for Disaster Planning and Management”:** The CARIGEO Steering Committee, through the support of Esri, facilitated the development and provision of the Caribbean Geoportal platform for the benefit of Caribbean Member States and territories. The Geoportal promotes data sharing and makes analytical tools and web services freely accessible. It supports open data hosting for governments that wish to contribute their data to the community at no cost. These functions support disaster and other sustainable development initiatives within the Caribbean.

46. CARIGEO, Esri, NASA and the Working Group successfully collaborated and convened the “CARIGEO Geoportal webinar #2: Using the Caribbean GeoPortal for Disaster Management and Response,” as an awareness raising and educational initiative on June 22, 2021. This webinar focused on assisting Caribbean countries to first understand, and support their utilization of this major geospatial resource, to be better prepared to take action in disaster planning for any hazard within the region, especially given the threats posed by the recently commenced Atlantic Hurricane Season in June 2021.

47. Additionally, data needs for various hazards and types of data accessible on the geoportal from sources such as NASA and the National Oceanic and Atmospheric Administration (NOAA) were also explored. Special focus was also placed on the St. Vincent & the Grenadines (SVG) La Soufrière volcanic eruptions of April and May 2021, related impacts on SVG and Barbados (ashfall) and the use of GIS and other forms of geospatial

technology to address disaster planning and response efforts. The Caribbean GeoPortal, products, tools and presentations are accessible here: [Visit the Caribbean Geoportal/webinar recording/presentations](#).

48. During the CARIGEO Geoportal Webinar #2, the Working Group delivered the presentation “[Leveraging the Caribbean Geoportal for Disaster Planning and Management](#)”, which examined the Sendai Framework, the genesis of the Working Group, its development of the Strategic Framework and its alignment with the Sendai Framework. The presentation examined the disaster risk levels within the Caribbean and emphasized the importance of geospatial information and relevant statistical information to better understand policies formulation and the management of the risks and impacts of these disasters. This presentation placed in context the mandate of the Working Group and how it aligns with the CARIGEO Caribbean Geoportal that provides a geospatial platform with geospatial information and tools to support response efforts within the region, thereby substantiating the collaboration between both bodies.

49. **OGC Disaster Pilot Project and Stakeholder Community Coordination Group (SCCG):** Participation in the Open Geospatial Consortium (OGC) Disaster Pilot Project is the most recent activity of the Working Group. An invitation was extended by CEOS and OGC for the Working Group to become a part of a Stakeholder Community Coordination Group (SCCG) associated with the OGC Disaster Pilot 2021 initiative which is currently underway. The Coordination Group will serve to inform the stakeholder community of the objectives, progress and outcomes of the Pilot. More importantly, the SCCG will be a forum for members of the stakeholder community to help inform the Pilot process in terms of community requirements, new sources of data for potential use in the pilot, and coordination of demonstrations and evaluations of resulting capabilities. It is believed that by directly engaging the stakeholder community in this way, useful technology and interoperability advancements we can be transitioned to practical implementation more quickly.

50. The goal of the OGC Disaster Pilot 2021, which will run from mid-June 2021 through December 2021, focuses on ways in which the incredible volume and diversity of location information can be captured, integrated and made ready for use by first responders during a disaster event. The vision is to bring the technological pieces together that increase stakeholder engagement by reducing the preparation time when rapid response is essential, and to transform data into useful knowledge to help answer decision makers' questions almost as fast as they can be posed. This will require bridging the divides between providers, responders and other stakeholders, forming a connected ecosystem of data and technologies, and developing the capacity to produce decision ready information.

51. Jamaica, as Task Groups A and C Lead, serves as the Working Group's direct Observer on the project. By participating in the SCCG, the Working Group looks forward to gaining insight on progress of the Pilot, help to promote Pilot use cases, assist in the identification of useful data for use in the Pilot, and support evaluation/ demonstration of Pilot outcomes.

52. **National Aeronautics and Space Administration (NASA) Disasters Programme:** The Working Group collaborated with NASA and CARIGEO in facilitating the development of an article published by NASA entitled “[Caribbean GeoPortal Integrates NASA Geospatial Products](#)”. This article provides background and context on the heightened tectonic and tropical cyclone setting of the Caribbean region and associated hazards that annually impact these countries. The article focused on building awareness of the Caribbean GeoPortal, its development, purpose, functionalities and potential areas for use. Special focus was placed on how the geoportal can significantly aid DRR/DRM initiatives throughout the region, given the provision of geospatial information and tools that can significantly aid the decision making process.

53. A key focus of CARIGEO has been the forging of partnerships and collaborations to support upload and maintenance of EO and other geospatial information and products on the geoportal for use by Caribbean countries. This strategically aligns with the NASA Disasters Program's focus of placing resources and information into the hands of those who need them the most was emphasized. Given the partnership, this publicly accessible platform will now allow users to interact with NASA data, curated maps, and custom-built mapping applications relevant to the Caribbean region and access Earth Observing products from other agencies and countries to improve situational analysis and awareness.

54. The Working Group's co-Chair from Jamaica emphasized that "We cannot underestimate the vulnerabilities of our systems, infrastructure, people and our economies to various potential hazards" and how lessons learned are very critical to shaping this global space of knowledge on how geospatial data and associated technology can better aid our response efforts". Task Groups A and C Lead Jamaica, spoke to "geo-enabling countries, especially developing states, into necessary action and the importance of collaborations and partnerships in capacity building and awareness raising initiatives at all phases of disaster risk management".

V. Support a statistical framework on disaster-related statistics

55. Further to the March 2019 decision 50/116³ of the fiftieth session of the United Nations Statistical Commission, which called for the development of a common framework for disaster-related statistics, and decisions 9/019 and 10/108 of the Committee of Experts at its ninth and tenth sessions respectively, which expressed their commitment to continue together with the statistical community to provide and expand on the availability of geospatial information and disaster-related statistics, a core group comprising of: the Statistics Division of the Department of Economic and Social Affairs of the Secretariat, the Economic and Social Commission for Asia and the Pacific (ESCAP), the Economic Commission for Europe (ECE), the Economic Commission for Latin America and the Caribbean (ECLAC), and the United Nations Office for Disaster Risk Reduction (UNDRR), was tasked to prepare a terms of reference to create a formal mechanism and network.

56. A number of major milestones were accomplished under this work item during the reporting period. First, the terms of reference for an Inter-Agency and Expert Group on Disaster Related Statistics (IAEG-DRS) was approved, which included modalities for its composition and methods of work, the IAEG is currently co-chaired by the Statistics Division of UNESCAP and UNDRR with secretariat support provided by UNDRR. In addition, the first meeting of the IAEG-DRS was convened over 25-26 May 2021. Discussed were the main functions of the group. These include to provide guidance on the production, dissemination and use of disaster related statistics to inform national DRR policies and plans and to facilitate reporting to internationally agreed development agenda as they relate to DRR, proposals on the process for developing a common statistical framework for disaster-related statistics, preparations for its first expert forum, and the identification of research topics for a common statistical framework for disaster related statistics. Also accomplished was the staging of the First Expert Forum for Producers and Users of Disaster-related Statistics. See table 2 for chronological list of activities completed by the core group and IAEG-DRS.

³ <https://unstats.un.org/unsd/statcom/50th-session/documents/Report-on-the-50th-session-of-the-statistical-commission-E.pdf>

Date	Activity
April 2019	<ul style="list-style-type: none"> • First informal meeting of the Core Group to begin the work to establish the IAEG
September 2020	<ul style="list-style-type: none"> • The Core Group finalizes the terms of reference for the IAEG
October 2020	<ul style="list-style-type: none"> • A call for nominations to the IAEG sent to Governments • Bureau of the Statistical Commission approves the terms of reference
November 2020 - February 2021	<ul style="list-style-type: none"> • 90 countries respond to call, nominating 165 experts to the IAEG
March 2021	<ul style="list-style-type: none"> • The IAEG/Core Group reported to the Statistical Commission
May 25- 26, 2021	<ul style="list-style-type: none"> • First meeting of IAEG-DRS convened
June 7, 8 & 10, 2021	<ul style="list-style-type: none"> • First Expert Forum for Producers and Users of Disaster-related Statistics

Table 2: Chronological List of Activities Completed by Core Group & IAEG-DRS

57. Further, the Working Group notes that the IAEG-DRS has a large and extensive representation across the DRR landscape. The Working Group also recognizes that its exact role and support to be provided needs to be clearly defined and remains committed to supporting the work of the IAEG-DRS. The Working Group will primarily be represented by Japan at future IAEG-DRS meetings and engagements, with the support of other identified members.

VI. Summary of findings Assessment Survey

58. The “UN-GGIM Strategic Framework on Geospatial Information and Services for Disasters Assessment Survey” has been prepared as a tool to assist Member States in determining their capacity to implement the Strategic Framework, with a view to provide further guidance to identify gaps within priority areas for action as defined by the Strategic Framework. The assessment survey is intended to be a simple and practical assessment tool to assist Member States and the UN-GGIM regional committees to evaluate and develop national implementation plans, and also serve as a mechanism to establish the status of the interlinkages between national geospatial information and services for disaster management.

59. The Assessment Survey, the proforma of which was adopted at the ninth session of the Committee of Experts in August 2019, consists of the five sections focusing on the respective Strategic Framework priority areas, namely: A) governance and policies; B) awareness raising and capacity building; C) data management; D) common infrastructure and services; and E) resource mobilization. A rating scale from one to five, “unaware” to “fully implemented”, is applied to each question, and respondents were asked to select the most applicable category on the scale. Given that the assessment is subjective, respondents were asked to submit additional remarks, and supporting document/s to make the results as factual and comparable as possible.

Category	Description
5	The initiative is fully implemented in my country
4	The initiative is currently being implemented in my country, with minor tasks still need to be done
3	The initiative is currently being implemented in my country, with major tasks still need to be done
2	The initiative is not yet implemented in my country
1	Unaware of the initiative, and its implementation in my country

Table 3: Assessment Survey Rating Scale

60. The survey was prepared as an online form and circulated to the UN-GGIM participating organizations in June 2020, with a closing date of October 2, 2020. Responses were received from 43 Member States, 1 non-member state, and 6 non-governmental organizations. At the regional level, there were five responses from Africa, 12 from the Americas, 14 from Asia and the Pacific and 12 from Europe. The analysis was undertaken using the 43 responses from Member States and assessment executed for three regions namely the Americas, Europe and Asia and the Pacific. An analysis was not undertaken for Africa and the Arab States given the low number of responses, that would not allow for a true representative sample and related results.

61. Based on the analysis, it was found that the DRM status across responding countries differed, as was expected. The differences also imply that Members States are at various phases of the Strategic Framework implementation. The results also showed that many countries had previously developed their own disaster management framework to enhance the use of geospatial information and services for disaster before becoming aware of the Strategic Framework.

62. It should be noted that given the subjective methodology applied in the Assessment Survey, it is difficult to make a true quantitative evaluation of the scores assigned to each question. Notwithstanding, a number of trends were identified in the each of the five sections of the survey. A few of these trends are provided as follows.

63. For **priority A, governance and policy**, most counties scored a high of four and five, which indicated currently being implemented and full policy and leadership support, open channels of communication and the plans and programs aiming at making available and accessible all quality geospatial information and services. On the other hand, scores for monitoring and evaluation program to track the country's progress, mutual learning and exchange of good practice and effective channels where Member States and others can share technical knowledge were relatively low.

64. In terms of **priority B, awareness raising and capacity building**, there were no significant differences among the rating accorded to each question. It was also found that many countries had difficulties in encouraging active and inclusive role of media and benchmarking and cascading good practices from other Member States and institutions.

65. For **priority C, data management**, almost half the responding countries, with a score of five or four, indicated having satisfactory implementation of common and accessible database systems of baseline geospatial information and services requirement, hazard, vulnerability and disaster risk assessment maps, and common contact databases of national and local emergency responders. In addition, the data showed relatively low scores for humanitarian profiling and incident scenario building, business use cases and data product template to aid decision making needs, integration of geospatial data and statistics in DRM

plans and programs, in addition to adopting and cascading good practices from other Member States and international organizations locally.

66. An analysis of the ratings accorded to the questions under **priority D, common infrastructure and services**, showed that many countries have a common infrastructure and facility such as a national operation's centre. However, in terms of interoperability of all systems and processes, integrity of established common infrastructures and services, and technical assistance from other Member States and international organizations received a relatively low score of one and two on the rating scale.

67. For **priority E, resource mobilization**, the funding situation of the DRM organizations and academic institutions differed from country to country. However, it was found that encouraging the private sector to invest and ease of access to funding to support the five priorities for actions were accorded relatively low scores in many countries.

68. The regional comparison among the Americas, Asia and Europe, revealed some difference among the regions. For the Americas, most priority areas were accorded category four - currently being implemented, as compared to Asia and the Pacific that reflected category three and four - currently being implemented and being implemented, for most of the five priority areas. On the other hand, Europe's respondents primarily assigned categories four and five- being implemented and fully implemented, for most of the five priority areas. This is an indication of a need for more DRM interventions and support for countries in the Americas and the Asia and the Pacific.

69. The complete report, "Assessment 2020 Results - Strategic Framework on Geospatial Information and Services for Disasters" is provided as a background document to this present report. It should be noted that the main results and additional findings of the globally administered Assessment Survey will be further discussed at a dedicated side event scheduled to be convened on the margins of this eleventh session of the Committee of Experts.

VII. Considerations going forward

70. Acknowledging the fundamental importance of geospatial information and services in support of the current COVID-19 pandemic, coupled with the challenges to be identified from the Assessment Survey and responses to pre COVID-19 webinar surveys conducted by the UN-GGIM Regional Committees for Africa, the Americas and Asia and the Pacific, the Working Group has prepared a work plan that includes existing and future work items. The work plan has been reviewed and approved by the Working Group members effective 14 July 2020. Comments received from the final consultation indicated that the work plan has clear goals and activities, was very comprehensive and well written, and in a very good way described the way forward.

71. A major area of work pursued by the Working Group has been stimulating public awareness, increasing sensitization and communication initiatives, including collaborations to convene forums that will showcase the relevance and applicability of the Strategic Framework. Consideration will now be given to pursue the implementation and monitoring of the activities identified through the many collaborative efforts during the reporting period, in addition to the related activities outlined in the work plan. The Working Group's Bureau calls upon its members and other Member States who may be interested, to support these activities.

72. The Working Group acknowledges its mandate, recognizes that there are many organizations undertaking disaster risk management activities, and the need to avoid duplication of effort. There is therefore a need to identify these organizations and maintain a register of them and their activities. Further, the Working Group calls upon regional and

global organizations within the United Nations System, Non- Government Organizations (NGO), the private sector and academia to pursue collaborative and partnership initiatives to support Member States in using geospatial information and services for disasters, including their COVID-19 response and recovery efforts. Leveraging the use of geospatial information, enabling tools and services is even more critical, as many countries are still grappling with the continued detection, prediction and impact analysis on the spread of the virus. Continued collaborations, awareness raising, sharing and exchange of geospatial information policies, standards, methods, models and good practices will be needed to assist governments as they reopen their borders and implement social and economic recovery measures.

73. The Working Group recognizes the need to promote greater awareness of the many existing organizations undertaking disaster risk management activities, in addition to existing geospatial information, tools and platforms that can aid DRRM activities on national, regional and international levels. The Working Group will therefore facilitate the global administration of both DRR Inventory surveys following the eleventh session of the Committee of Experts. The data collected will subsequently be utilized to develop the inventory hubs that will be accessible from the Working Group's UN-GGIM webpage. Member States, DRR/DRM organizations, academia, private sector, the UN System, etc., are encouraged to contribute to completing these surveys to facilitate this information being made readily available for those in need.

74. Central to the Working Group achieving its objectives is the active contribution and support of its members. Given the scope of work and relevance of disaster risk management to daily lives and to a country's economic prosperity, the membership is comprised of a broad cross-section of experts from Member States' geospatial, risk reduction and statistical communities, international organizations, non-governmental organizations, academia, and the private sector. The membership records indicate that there are 22 Member States, seven international organizations, 17 from academia organizations/institutions, two private sector companies and eight from the United Nations System. The co-Chairs note however, that increasingly Member States representation at the Working Group's virtual meetings range on average from nine to thirteen, this is an increase over the 2020 intersessional period which had six to eight Member States. However, the Working Group encourages and welcomes increased representation and participation from the regions of Africa and the Arab States. Member States are invited to become members of the Working Group, to contribute to raising awareness on the need for geospatial data in support of disasters, to support the development and promotion of common standards, protocols and processes for improving data quality and interoperability, and to promote the development and implementation of related policies.

VIII. Points for discussion

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

- (a) Take note of the present report and work undertaken by the Working Group during the reporting period, and express its views and provide guidance on the continued efforts to implement the Strategic Framework on Geospatial Information and Services for Disasters;**
- (b) Take note of the Working Group's Work Plan 2020-2023, that will guide the activities and operations of the Group;**
- (c) Take note of the results and recommendations included in the "Assessment 2020 Results - Strategic Framework on Geospatial Information & Services for Disasters".**

(d) Encourage Member States, DRR/DRM organizations, and relevant academia, private sector and UN System organizations, to participate in the global administration of the DRR inventory surveys following this session of the Committee of Experts; and

(e) Encourage Member States to become members of the Working Group and actively contribute to the mandate of expanding the use of geospatial information and services for disaster response initiatives.