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Programme review of the work of the Committee of Experts during the 2011-2015 period

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Note by the Secretariat

Summary

The present paper contains the report of the Secretariat on the programme review of the Committee's work during the 2011-2015 period for consideration by the Committee of Experts on Global Geospatial Information Management.

Taking into account the urgent need to take concrete action to strengthen international cooperation in the area of global geospatial information, the Economic and Social Council decided to establish the Committee of Experts on Global Geospatial Information Management on 27 July 2011 (see Council resolution 2011/24). The Committee of Experts was established to serve as a formal intergovernmental mechanism to coordinate global geospatial information management activities among Member States, and with the provision that it would function within existing resources. The Council requested the Committee of Experts to present to it in 2016 a comprehensive review of all aspects of its work and operations, in order to allow Member States to assess its effectiveness. In this report, the Secretariat provides the Committee with some suggestions of elements that will need to be covered in the comprehensive review report to be presented to ECOSOC in 2016. This report also outlines a mechanism and a time-plan to finalize the ECOSOC report by the deadline of January 2016 including extensive consultations among Member States and relevant international organizations and United Nations entities. The Secretariat suggests that the assessment of the effectiveness of the Committee of Experts be based on the terms of reference agreed by the Council. It is also suggested to include in the ECOSOC report, a description of the Committee of Experts' initiatives and accomplishments to date, as well as specific recommendations on the future modalities of the Committee of Experts and a way forward for the global geospatial information community.

I. Introduction

1. Geospatial information has increasingly been recognised as an important aspect of the national, regional and global information infrastructure. Geospatial information technologies, services and platforms have become critical tools to support national development, economic growth, improved decision making and policy formulation, and have enhanced the capability for governments, international organizations and researchers to analyse, model, monitor and report on humanitarian, peace and security, sustainable development, climate change, disasters, and other global development challenges. However, it is also recognised that major barriers and impediments exist – not just technical, but rather institutional and organisational – to building and sustaining geospatial information infrastructures and capabilities to address these national to global challenges. In order to build sustainable and resilient societies, policy-makers, the public and the private sector must have access to the right geospatial data and information to provide the evidence to inform good decisions; decisions such as how to build safer communities, protect infrastructure against climate change, sustainably manage forests and water resources, and protect coastal cities against sea level rise and future climate impacts.

2. The global importance of geospatial information was recognised by the United Nations in July 2011 when, at its 47th plenary meeting on 27 July 2011, the Economic and Social Council (ECOSOC), recognizing the urgent need to take concrete action to strengthen international cooperation in the area of global geospatial information management, established the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) in accordance with the terms of reference contained in the annex to the resolution¹. The concepts and application areas of ‘geospatial information’ are multifaceted and cross-cutting, and are able to be applied in all areas of government and walks of life, with the potential for many actors from Member States being able to participate in and contribute to global dialogues. Therefore, in making its decision, ECOSOC stipulated that the Committee be (at least initially) “established and administered within existing resources and organized accordingly” and requested it to present to ECOSOC in 2016 “a comprehensive review of all aspects of its work and operations, in order to allow Member States to assess its effectiveness.”

3. The creation of the Committee of Experts was the culmination of efforts borne out of an extensive three year consultative process with geospatial information experts from Member States of all regions. Decisions from the 18th United Nations Regional Cartographic Conference for Asia and the Pacific, convened in October 2009, and the 41st United Nations Statistical Commission, convened in February 2010, requested the United Nations Secretariat to address the issue of how to better coordinate the various regional and global activities on geospatial information and the related management issues. Following the recommendations of these processes, and after a series of preparatory meetings, the United Nations Secretariat was requested to initiate discussions with Member States and relevant stakeholders, and prepare a report for the approval of ECOSOC on global coordination of geospatial information management. The subsequent report² paved

¹ ECOSOC resolution 2011/24 of 27 July 2011 on the “Committee of Experts on Global Geospatial Information Management”, <http://www.un.org/en/ecosoc/docs/2011/res%202011.24.pdf>.

² Report of the Secretary-General on Global Geospatial Information Management, E/2011/89,

the way for the ECOSOC resolution establishing the Committee of Experts on Global Geospatial Information Management in 2011.

4. As a formal inter-governmental mechanism to coordinate global geospatial information management, the Committee consists of government experts (in almost all cases, from the national geospatial information authorities) from United Nations Member States as well as experts from relevant international organizations, who participate as observers. The Committee is served by the Statistics Division of the Department of Economic and Social Affairs (DESA) and the Geospatial Information Section (formerly the Cartographic Section)³ of the Department of Field Support (DFS), which function jointly as the UN-GGIM Secretariat.

5. Over the past five years, the Committee of Experts has established itself as the apex global entity in geospatial information management, bringing together government experts from more than 100 Member States, relevant international organizations, the private sector, and other major global stakeholders from the geospatial information industry and civil society. The importance of this global mechanism, and the impact it has had around the globe on geospatial information management issues, is reflected in the increased levels of participation and engagement by country representatives for the Committee's work items on critical topics, as well as through considerable feedback received from participants at the Committee's annual sessions, the three High Level Forums that have been convened, and a number of international technical capacity development workshops and related fora.

6. The present report suggests elements of an initial draft of the requested comprehensive review to ECOSOC. The report describes the considerable achievements of the Committee of Experts, identifies the challenges it faces, and proposes specific recommendations for consideration for the future modalities and programme of work of the Committee of Experts. The Committee of Experts is invited to take note of the report and the initial draft, and to express its views on the way forward for the submission of the review to ECOSOC in 2016. Points for discussion and decision are provided in paragraph 52.

II. Initial Work Programme of the Committee of Experts

7. The terms of reference⁴ of the Committee of Experts described in very broad terms the objectives and functions of the Committee, and provided an important starting point from which the Committee could define its future work programme. As defined in its terms of reference, the Committee was tasked with making joint decisions and setting directions on the production and use of geospatial information within national and global policy frameworks. The Committee promotes common principles, policies, methods, mechanisms and standards for the interoperability of geospatial data and services. It also provides a platform for the development of effective strategies on how to build and strengthen national capacity concerning geospatial information, especially in developing countries, and to compile and disseminate best practices and experiences of national,

http://www.un.org/ga/search/view_doc.asp?symbol=E/2011/89

³ On 25 June 2015, the General Assembly approved the renaming of the Cartographic Section to the Geospatial Information Section (see A/RES/69/308), effective as of 1 July 2015, as part of the approved budget for the support account for peacekeeping operations.

⁴ Terms of reference are annexed to ECOSOC resolution 2011/24 of 27 July 2011 on the "Committee of Experts on Global Geospatial Information Management", <http://www.un.org/en/ecosoc/docs/2011/res%202011.24.pdf>

regional and international bodies on geospatial information related, inter alia, to legal instruments, management models and technical standards.

8. At its first session, held in October 2011, and in order to concretely plan and prepare future sessions, the Committee agreed that it should compile an ‘inventory of issues’ derived from the Committee’s terms of reference and based on a broad global consultation process, engaging not only Member States but also the relevant international organizations and the private sector. A working group was established in order to elaborate a detailed inventory of issues and a proposed work plan of actions to be implemented in the next few years for the Committee’s consideration.

9. At its second session, held in August 2012, the Committee considered and agreed on the inventory of issues⁵ as a means to inform the scope and possible timing of the work plan of the Committee in coming years. The inventory has since guided the Committee’s focus on a number of critical technical topics, including: the future trends in geospatial information management; a global geodetic reference frame; a global map for sustainable development; the adoption and implementation of international geospatial standards; determining global fundamental datasets; geospatial information to support the sustainable development goals and the post-2015 development agenda; development of a knowledge base for geospatial information; identification of trends in national institutional arrangements in geospatial information management; integrating geospatial, statistics and other information; legal and policy frameworks; development of a statement of shared guiding principles; and land administration and management.

III. Major Accomplishments of the Committee of Experts

10. From the Committee’s establishment in 2011 through to the fifth session in 2015, in less than five years, the Committee of Experts has made a significant global impact in the area of geospatial information management. In step with ECOSOC’s request to “present to it in 2016 a comprehensive review of all aspects of its work and operations, in order to allow Member States to assess its effectiveness”, this section provides a brief overview of some of the major accomplishments of the Committee, and demonstrates how effective the Committee has been in setting the global geospatial architecture for Member States, and in assisting developing countries in building and strengthening their national capacities in this complex and diverse field. These accomplishments are documented more fully in Annex I to this report. As the official ECOSOC report will have a word-limitation, according to UN rules, it will be necessary to use this format of an executive short section highlighting the accomplishments, accompanied by a more technical detailed description in an Annex.

11. Annual sessions of the Committee of Experts and High Level Forums: In establishing the Committee of Experts, ECOSOC encouraged Member States to hold regular high-level, multi-stakeholder discussions on global geospatial information, including through the convening of global forums, with a view to promoting a comprehensive dialogue with all relevant actors and bodies. The Committee has met every year since its establishment and has made considerable progress on a comprehensive work programme, and gained strong support and

⁵ Report of the Secretary-General on “The Inventory of Issues to be addressed by the Committee in Future Sessions, E/C.20/2012/5/Add.1, <http://ggim.un.org/2nd%20Session/E-C20-2012-5%20Inventory%20of%20Issues%2012%20June-pc.pdf>

momentum in carrying out activities to meet its stated objectives. The Committee has also convened three High Level Forums on Global Geospatial Information Management, in October 2011, February 2013 and October 2014, designed to promote a comprehensive dialogue with all relevant actors and bodies related to geospatial information management. The Fourth High Level Forum will be convened in Addis Ababa, Ethiopia, in April 2016.

12. UN-GGIM global-regional coordination architecture: A primary motivation for the establishment of the Committee of Experts by ECOSOC was an acknowledgement that there was no global Member State driven mechanism to discuss critical issues on geospatial information management. In order to create a UN-GGIM architecture able to capture ‘national to regional to global’ issues and perspectives, the Committee considered it a priority to build consensus towards a global regional UN-GGIM architecture, and strongly linked to the mandates of the Committee of Experts. This architecture will be completed during the Committee’s fifth session when the regional committee for Africa is expected to be formally established. The creation of five regional UN-GGIM committees in Asia and the Pacific, the Americas, the Arab States, Europe and Africa, with each playing a vital role in advocacy efforts, will provide a strong mechanism to promote, discuss and enhance coordination among Member States within the regions on issues of importance to the Committee, and to liaise with the Secretariat on major developments in the intervening periods between sessions of the Committee of Experts.

13. The role of geospatial information in sustainable development: The report of the Secretary General which led ECOSOC to establish the Committee of Experts in July 2011⁶ explicitly mentioned the role of geospatial information in informing sustainable development policies and their monitoring and implementation. With the growing recognition of the importance of an integrated approach to sustainable development, as well as the need for quality data and information for decision making and measuring and monitoring the goals and targets on sustainable development, the Committee at its first session stressed its commitment to the evolving United Nations sustainable development process, and the post-2015 development agenda in particular. Concerted and ongoing efforts have been made by the Committee of Experts in increasing the visibility and awareness of geospatial information, as an essential integrative tool to monitor and measure sustainable development, to policy and decision-makers and the diplomatic community. Additional effort has been made by the Committee to leverage existing partnerships and user communities of geospatial information, in such areas as disaster risk reduction, earth observations and information communication technologies.

14. A global geodetic reference frame for sustainable development: One of the most significant accomplishments of the Committee of Experts has been the formulation and endorsement of a resolution on “A Global Geodetic Reference Frame for Sustainable Development” in a landmark decision by the United Nations General Assembly on 26 February 2015⁷. Adopted by ECOSOC in November 2014⁸ and subsequently referred to the General Assembly, the resolution calls for

⁶ Report of the Secretary-General on Global Geospatial Information Management, E/2011/89, http://www.un.org/ga/search/view_doc.asp?symbol=E/2011/89

⁷ A/RES/69/266: http://ggim.un.org/docs/A_RES_69_266_E.pdf

⁸ ECOSOC resolution 2014/31 adopted on 17 November 2014 on a global geodetic reference frame for sustainable development: http://www.un.org/ga/search/view_doc.asp?symbol=E/RES/2014/31

greater multilateral cooperation on geodesy, including the open sharing of geospatial data, further capacity-building in developing countries and the creation of international standards and conventions. The resolution outlines the value of ground-based observations and remote satellite sensing when tracking changes in populations, ice caps, oceans and the atmosphere over time. Such geospatial measurements can support sustainable development policymaking, climate change monitoring and natural disaster management, and also have a wide range of applications for transport, agriculture and construction and other areas of national economies.

15. Future trends in geospatial information management: At its first meeting, the Committee of Experts decided that there was a need to document major trends that were expected to impact the global geospatial information management community in the coming five to ten years. The result was the convergence of issues and trends as outlined in the strategic report "Future trends in geospatial information management: the five to ten year vision"⁹ which brought together contributions from recognised experts from across the world. Endorsed by the Committee at its third session in 2013, the report is now available in eight languages and has been used as a leading resource document by many policy and decision makers around the world. It provides a detailed analysis of the main themes and trends that will impact the geospatial information management industry in the coming years, and also serves as a technical guide for Member States in the preparation of their national geospatial information strategies and plans. The Future Trends report will have been reviewed and updated by the Committee in 2015 as a means to inform the present review to ECOSOC.

16. Capacity development in geospatial information management: Under the framework of the Committee of Experts, efforts have been underway in different regions to support capacity development in geospatial information management in developing countries to strengthen the position of national institutions to engage the relevant stakeholders at the national level, including establishing spatial data infrastructures. In 2012, the People's Republic of China, through the National Administration of Surveying, Mapping and Geoinformation (NASG), has initiated an international cooperation project titled 'Geospatial Information Management Capacity Development in China and other Developing Countries 2013-2017' (China Trust Fund Project) with the UN-GGIM Secretariat. The objective is to strengthen the production, management, and dissemination capacity of geospatial information in China and other developing countries, with particular focus on: (1) enhancing the institutional and organizational framework of National Geospatial Information Management Systems; (2) improving dissemination of geospatial data to policy makers and other users; and (3) increasing capacity of the national geospatial information management system to produce better quality and more relevant geospatial data for policy makers and other users.

17. In Latin America, the Government of Mexico is taking the lead in providing financial and technical support to the Caribbean region through the 'Strengthening of Spatial Data Infrastructures in Member States and Territories of the Association of Caribbean States' project (Caribbean Project). The overarching objective of this project is to promote Spatial Data Infrastructures (SDI) in Member States of the Association of Caribbean States (ACS) in order to strengthen the generation, use and sharing of geospatial information.

⁹ See: <http://ggim.un.org/docs/Future-trends.pdf>

18. Coordination of United Nations activities related to geospatial information management: The Committee of Experts has forged valuable partnerships within the United Nations system and with international bodies such as the Group on Earth Observations (GEO), the International Federation of Surveyors (FIG), the International Cartographic Association (ICA), Technical Committee 211 of the International Standards Organisation (ISO/TC 211), the Open Geospatial Consortium (OGC), and others. These partnerships have ensured ECOSOC's requirement for the Committee to engage, as appropriate, with relevant actors beyond the Member States. Within the United Nations system, coordination of geospatial information has been facilitated primarily through two engagements. The first is the intergovernmental mechanism of the United Nations Group of Experts on Geographical Names (UNGEGN) which brings geographical names experts from Member States and, as observers, for instance from the academic community together. The second is the inter-secretariat mechanism of the United Nations Geographic Information Working Group (UNGIWG) which comprises an ad-hoc technical group of geospatial practitioners of the United Nations system who meet on an annual basis to address common operational geospatial issues – maps, boundaries, data exchange, standards – that affect the work of the United Nations Organizations and Member States

19. Whilst there is continued expectation for United Nations activities on geospatial information management to increase, many of the collaborative geospatial activities occurring within the United Nations have for many years been carried out on a 'best efforts' basis. The Committee may want to express its opinion whether the UN internal coordination mechanisms are sufficient and sustainable. Generally, a concerted effort to increase the awareness and value of geospatial information, and where it is being applied, within the Member States and United Nations system, will need to continue in the coming period, especially in messaging the usefulness of geospatial information management in measuring and monitoring issues for evidence-based decision and policy making, and in ensuring there is no duplication of effort. In this regard, the Committee of Experts, together with the concerned geospatial experts, could address the coordination and consolidation of geospatial information interests and actors in the United Nations system if ECOSOC considers this valuable.

20. Information and knowledge management: In establishing the Committee of Experts, ECOSOC emphasised the importance of promoting national, regional and global efforts to foster the exchange of knowledge and expertise, to assist developing countries in building and strengthening national capacities in geospatial information management. The UN-GGIM knowledge base¹⁰ has been developed for this purpose, and to facilitate the sharing of experiences and best practices in the management and development of national spatial data infrastructures and arrangements. It has been designed to optimize data and information collection, organization, and retrieval in such areas as: the status of national geospatial information management and systems; global geodetic information management; the status of mapping in the world; the integration of geospatial and statistical information; geospatial information management best practices and case studies in countries; training manuals; and publications on geospatial information; among others. The knowledge base provides easy access to a global repository of information and knowledge to support the management of global geospatial information by the national geospatial information authorities and the geospatial information community at large.

¹⁰ UN-GGIM Knowledge Base: <http://ggim.un.org/knowledgebase/Knowledgebase.aspx>

21. **Integration of geospatial information and statistical information:** In 2013, the Committee of Experts and the UN Statistical Commission recognised the clear need for and value of linking geospatial information and statistical information to improve the relevance of the evidence on which decisions will be made. Towards this end, the Expert Group on the Integration of Statistical and Geospatial Information, composed of national experts from both the statistical and geospatial communities, was created to address “the critical importance of integrating geospatial information with statistics and socio-economic data and the development of a geospatial statistical framework, especially in the context of the on-going debate on the post-2015 development agenda”¹¹.

22. Although, predominantly with different national mandates, both the statistical and geospatial professional communities are dealing with new and richer data, including Big Data, and commensurate analytical tools. The integration processes now taking place provides an opportunity to communicate to decision-makers the advantages of having multi-sourced and multi-scaled evidence-based data and information for decision and policy making. These two communities, under the guidance of the Committee of Experts and Statistical Commission, are addressing the challenges in coordinating and integrating their data and information effectively to demonstrate how their activities can provide the appropriate tools and data in a timely manner, and demonstrating the applicability in contributing to the implementation of the sustainable development goals, targets and indicators. In this regard, the development of the geospatial statistical framework is expected to be submitted to the Committee of Experts and Statistical Commission in 2016.

IV. Challenges

23. ECOSOC established the Committee of Experts as the apex inter-governmental mechanism for making joint decisions and setting directions with regard to the production and use of geospatial information within national, regional and global policy frameworks. The previous section (and Annex I) demonstrates clearly the major global accomplishments by the Committee in a very short period of time. Despite these early accomplishments, much remains to be done by the Committee to enhance the understanding of the critical role and value of geospatial information in addressing local to global issues and challenges; at the technical and institutional level for the developing countries, and at the policy level influencing the decision-makers and embedding geospatial information into national policy. It must be noted that the Committee is still very young and has taken on the task of addressing issues and challenges that have, in some cases, been in existence for many years. Therefore, it is appropriate that this section focuses on the challenges that face the Committee of Experts, and analyses those areas of its mandate at the, global, regional and national levels, that have yet to be fully addressed.

24. **Global challenges:** Although fundamental to measuring and monitoring the targets and indicators of the SDGs, the reality is that the science-policy-data nexus, and related understanding, still poses challenges for the geospatial community in Member States, particularly on how best to consolidate efforts in demonstrating how and where geospatial information can contribute to efforts in national agendas. Arguably, the role of geospatial information in contributing to

¹¹ Committee of Experts on Global Geospatial Information Management, Report on the third session (24-26 July 2013), E/2013/46-E/C.20/2013/17(http://ggim.un.org/docs/meetings/3rd%20UNCE/Report%20of%20the%20third%20session_en.pdf), Decision 3/107 on Linking of geospatial information to statistics and other data.

sustainable development is not yet adequately captured or described by the sustainable development policy practice, national geospatial information policy arrangements, or by the professional geospatial community.

25. The outcome document of the United Nations Conference on Sustainable Development (Rio+20) ‘The future we want’ contained clear and practical measures for implementing sustainable development, including setting the path to develop a set of sustainable development goals and to converge with the post-2015 development agenda. The outcome document captured two critical references to geospatial information: in the area of disaster risk reduction “We further recognize the importance of comprehensive hazard and risk assessments, and knowledge- and information-sharing, including reliable geospatial information”; and in the area of means of implementation – technology “We recognize the importance of space-technology-based data, in situ monitoring and reliable geospatial information for sustainable development policymaking, programming and project operations”.¹²

26. The synthesis report of the Secretary-General on the post-2015 sustainable development agenda¹³, calls for “an evidenced-based course for realizing sustainable development” that is “grounded in the data revolution”. The report of the Secretary-General’s Independent Expert Advisory Group on a Data Revolution for Sustainable Development “A World That Counts”¹⁴ suggests that, in order to mobilise the data revolution for sustainable development a comprehensive strategy and roadmap towards a new ‘Global Consensus on Data’ must be developed by the United Nations, inclusive of the need to “accelerate the development and adoption of legal, technical, geospatial and statistical standards”.

27. The report of the Open Working Group of the General Assembly on Sustainable Development Goals¹⁵ noted that “to monitor the implementation of the sustainable development goals, it will be important to improve the availability of and access to data and statistics disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts. There is a need to take urgent steps to improve the quality, coverage and availability of disaggregated data to ensure that no one is left behind”. The zero draft of the outcome document for the UN Summit to adopt the Post-2015 Development Agenda¹⁶ contains similar wording (Section III, Paragraph 3e).

28. Although recognising the obvious importance and need, these global policy documents, agreed by Member States, do not articulate how geospatial information, including data, methodologies, capacities and technologies, would be integrated into the many sustainable development policy and practice processes. Location and geography matters to all and this notion is now universal due to advances in mobile technology and the global saturation of devices. Geospatial technologies and location-aware devices have revolutionized the availability and volume of location-based information. While being disruptive, it is important to harness the value of geospatial information and apply greater efforts to increase

¹² The Future We Want (A/RES/66/288, para. 187 and 274): <https://sustainabledevelopment.un.org/futurewewant.html>

¹³ Synthesis report of the Secretary-General on the post-2015 sustainable development agenda (A/69/700): http://www.un.org/ga/search/view_doc.asp?symbol=A/69/700&Lang=E

¹⁴ A World That Counts: <http://www.undatarevolution.org/report/>

¹⁵ A/68/970: http://www.un.org/ga/search/view_doc.asp?symbol=A/68/970&Lang=E

¹⁶ See: <https://sustainabledevelopment.un.org/content/documents/7261Post-2015%20Summit%20-%20%202%20June%202015.pdf>

awareness of the use of geospatial information in addressing the challenges for measuring and monitoring progress over time, including of the sustainable development goals. The Committee of Experts may wish to resolve, in its report to ECOSOC, to deploy their collective competencies and capacities to advance the critical role of geospatial information into the post-2015 development agenda, particularly with regard to measuring and monitoring SDG targets and indicators consistently over space and time.

29. Whilst much of the technology, data and information exist to support the many areas of key global challenges such as peace and security, climate change, sustainable development, humanitarian and emergency response, etc. understanding of the challenges in integrating science, different business models, methodologies, inter-agency cooperation, etc. gaps remain and vary amongst the different stakeholders and actors. This provides an opportunity for the Committee of Experts to inform policy makers at the national and global level on the aforementioned topics, as well as mechanisms such as global fundamental geospatial data themes, the global geodetic reference frame, data interoperability and standards, legal and policy issues, the advancements and trends in geospatial information and technology, and means of data and information management in particular application areas. Whilst awareness-raising at the highest levels of decision and policy making needs to continue, capacity development and education and awareness on how to better use geospatial information science and technology to meet emerging requirements, would also need to increase.

30. **Regional challenges:** While the Committee has noted that there are cross-cutting issues that need to be addressed at the global level, there is recognition that there is regional specificity that needs to be accommodated when addressing geospatial information management issues. Each region differs in its challenges due to their regional geographic and geospatial characteristics, modalities, areas of priorities, stages of development, and implementation of geospatial information management for their national to regional development. One enormous advantage in the application of geospatial information management and technology is that it can quickly provide great paradigm shifts and leaps in development, but in order to do so the underlying institutional governance mechanisms need to be in place for an effective national geospatial information management strategy. The Committee of Experts has observed that whilst some regions may have pockets of geospatial information management implementation, there may also be sub-regional differences, as seen in the cases of the Caribbean countries in the region of the Americas, or the small island Pacific states in the region of Asia and the Pacific. In such cases, inter-regional coordination and cooperation amongst the Small Island States may provide better dialogue opportunities due to their commonalities of issues and challenges. However, one area which is a cross-cutting challenge in all of the regions concerned is capacity building. As the area of geospatial technology is dependent on the advances of information communication technologies in general, the speed and scope of adoption and implementation demands the global geospatial community to be continuously agile.

31. **National challenges:** A common challenge that national geospatial information authorities face within their countries is the (lack of) policy awareness of the paradigm shift of geospatial information management from just a visualisation and mapping tool to a fundamental evidence-based decision making solution due to its ability to integrate multi-scale, multi-sectoral geospatial, statistical and other data and information to provide a common operating picture. Understanding the shift from a map to an integrated decision making tool provides challenges unless there are legal, policy and institutional frameworks in place

which allow effective and efficient interoperability of data and information across the different national institutions which leverage geospatial information. While the situation and level of maturity is often nationally specific, the over-riding lack of the awareness needs to be addressed at the highest level for both strategic and operational contexts in national development. Although the recognised maturity of these frameworks is cornerstone for any successful national geospatial information strategy, any sustainable implementation needs to cater for institutional, financial, methodological and technical supporting mechanisms to ensure appropriate delivery of services by the respective national geospatial information authorities.

32. **Secretariat challenges:** As the Committee continues to become more established and expand its role and mandate as the apex global geospatial organ in contributing to the global agenda, the expectation of increased support by the global UN-Secretariat also continues to grow. The establishment of the Committee of Experts by ECOSOC, with DESA and DFS to function jointly as the substantive UN-GGIM Secretariat within existing resources, served well initially. However, the growing work programme of the Committee has resulted in a commensurate workload for the very small Secretariat resources, which are faced with challenges in meeting the Secretariat role and function to serve the increasing meeting and coordination activities of the Committee and Member States.

33. Although considerable and generous support has been provided by the UN Conference Management Services at UN Headquarters in New York, the Committee of Experts, and thereby the UN-GGIM Secretariat, does not presently have formal and fully resourced UN Conference Management Services for the annual sessions of the Committee of Experts. In accordance with the relevant oral statement of programme budget implications issued when the Committee was established by ECOSOC in 2011, conference services are presently only provided during the “low activity” periods (January or August) and on an “as available” basis.

34. As the issues addressed by the Committee have increased in volume and diversity, the expertise required to respond to the increased expectation has provided internal coordination and priority challenges. With the existing resources, areas such as communication strategies, information management – including reports and the knowledge base, and focused reviews and analysis have been areas which have not been provided as dedicated services. If such areas are expected to meet the necessity and functions of the Committee, the appropriate resources need to be in place to provide continued and sustainable Secretariat support to the Committee of Experts.

V. Considerations going forward

35. With very limited resources but, importantly, with strong engagement and commitment by Member States and the international geospatial community, the Committee of Experts has established and organised itself quickly and delivered concrete results towards achieving its mandate. The Committee has gained universal recognition as the global mechanism for deliberating on the major issues in geospatial information management. Member State participation in each successive Committee meeting since 2011 has increased, and the momentum generated from the establishment of the five UN-GGIM regional committees provides a positive reflection of the importance given by Member States to unifying the global geospatial community. With these logistical arrangements now firmly in place, and with location information more important than ever for

providing the content and context for understanding natural and human systems, what is the role of the Committee going forward?

36. The challenges described in the previous section indicate that there is still much to do – from global, to regional, to national levels. In order to successfully accomplish the Committee’s forward work programme, this five-year progress review provides an opportunity for the Committee of Experts to consolidate its mandate and consider its future modalities. At this critical stage in the global development cycle, Member States have specified that they are not ready to reduce the significant momentum initiated by the Committee of Experts but, rather, seek to further expand the mandates of the Committee to enable it to function as the global governing body on all issues related to geospatial information. In this regard, at this five-year review there are a number of practical options which ECOSOC could immediately consider concerning the future modalities of the Committee of Experts.

37. **Option 1: No Change.** Request that the Committee of Experts continues to operate and function as it has for the past five years – administered within existing resources, serviced by the very small substantive Secretariat provided by Statistics Division, DESA and Geospatial Information Section, DFS, supported by Conference Services on an ‘as available’ basis and organized in accordance with its present terms of reference.

38. **Option 2: Confirmation.** Decide to formally recognise the integral role and contribution of the Committee of Experts in the UN system, and in the post-2015 development agenda in particular, and establish it within the regular UN calendar of conferences and meetings under ECOSOC, inclusive of provision of dedicated UN Conference Management Services and support for the annual sessions of the Committee of Experts.

39. **Option 3: Strengthened Mandate.** Agree to Option 2 and, in addition, agree that the mandates and terms of reference of the Committee of Experts are revised and strengthened in order to enable it to function as the peak inter-governmental organ reporting to ECOSOC on all matters relating to geography, geospatial information and related topics, and as the governing Member State and UN system body on geospatial information.

40. **Option 4: Strengthened Mandate and Resources.** Agree to Option 3 and, in addition, support an annual budget allocation, to be determined and tabled at an appropriate time within the UN budget cycle, which will enable the Committee of Experts to operate with the applicable substantive Secretariat support and services on global geospatial information management activities and issues.

41. Establishing the Committee on the regular UN calendar of conferences and meetings (Option 2) would ensure its long-term basic regular functioning. However, going forward Options 1 and 2 would not be sustainable and realistic with the growing demands and programme of work of the Committee. That said it must also be recognised that in order for Options 3 and 4 to be viable and realised, this comes at an additional cost to the UN system and Member States. In this context the Committee may want to consider the impact a number of ‘offsets’ that would significantly minimise the effect of any foreseeable budget implications, including consideration for a consolidation of the various inter-governmental geospatial organs within the UN system.

42. A primary motivation for the establishment of the Committee of Experts by ECOSOC was an acknowledgement that there was no global Member State driven mechanism to discuss critical issues on geospatial information management. Now that the Committee of Experts is well established, and has set the mandate and framework for each of the UN-GGIM regional committees, the Committee views this review to ECOSOC as an opportunity to examine the inter-governmental geospatial organs that now exist within the UN system, namely – UN-GGIM, UNRCC-AP¹⁷, UNRCC-Americas¹⁸, and UNGEGN¹⁹ – particularly in recognition that the Member State delegations that attend each of these meetings are from the national geospatial information agency, and in many cases, the same representatives.

43. The UNRCC-AP was established by ECOSOC in July 1954 (resolution 556(XVIII)) in order for governments of Member States to stimulate surveying and mapping of their national territories. The convening of a regional cartographic conference every three years was seen as an effective means to attain these objectives. The first UNRCC-AP was convened in 1955. Similarly, the UNRCC-Americas, taking note of the success of the regional cartographic conferences held in the region of Asia and the Pacific since 1955, was established by ECOSOC at its 56th session in 1974 (resolution 1839(LVI)). The first UNRCC-Americas conference was convened in 1976 and operates on a four year meeting rhythm.

44. In order to take necessary actions on resolutions determined by the UN Regional Cartographic Conferences, the Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP), and the Permanent Committee for the Infrastructure of Geospatial Data of the Americas (PC-IDEA), were established and operated under the purview of the Regional Cartographic Conferences. As described in Annex I to this report, PCGIAP and PC-IDEA have been renamed UN-GGIM-AP and UN-GGIM: Americas, in 2012 and 2013 respectively and now report formally to the Committee of Experts.

45. The setting of the architecture for each of the UN-GGIM regional committees has provided an opportunity for rationalisation of the UN Regional Cartographic Conferences, which are convened every 3 and 4 years for five days, but which have only been catering for two geographic regions and not others. Consensus among the relevant Member States is that the Regional Cartographic Conferences, although critical to regional cartographic and geospatial development for many years, have served their purpose and have now become redundant since the establishment of the Committee of Experts and with the global regional UN-GGIM architecture now in place. With UN-GGIM regional committee meetings occurring in all five UN regions at least annually, and all five formally reporting to the Committee of Experts, the UN Regional Cartographic Conferences are no longer required and could be removed from the UN calendar of conferences and meetings, with their mandates and obligations assumed by the Committee of Experts.

46. As detailed in Annex I to this report, UNGEGN was established by ECOSOC in 1959 (resolution 715A (XXVII)) following recommendations from the first UNRCC-AP held in 1955. UNGEGN has responsibility for encouraging the standardization of geographical names, and promoting the national and

¹⁷ United Nations Regional Cartographic Conference for Asia and the Pacific: <http://unstats.un.org/unsd/geoinfo/RCC/unrccap.html>

¹⁸ United Nations Regional Cartographic Conference for the Americas: <http://unstats.un.org/unsd/geoinfo/RCC/unrcca.html>

¹⁹ United Nations Group of Experts on Geographical Names: <http://unstats.un.org/unsd/geoinfo/UNGEGN/default.html>

international benefits to be derived from standardization. The Group of Experts convenes two 5-day sessions during a five-year period, while the United Nations Conference on the Standardization of Geographical Names is convened every 5 years for 10 days, inclusive of 2 days for the technical session of UNGEGN. Discussions between the UN-GGIM Bureau and UNGEGN Bureau are in the early stages to consider how meetings can be better incorporated into the global architecture and rationalised in the interests of the Member States.

47. In terms of UN Conference Management Services under ECOSOC, taking into account the rhythm and cycles for each of the UN meetings dedicated to geospatial information over a ten year period (2009-2018), the following days are in the calendar of formal UN conferences and meetings on an annual basis: the Committee of Experts, 3 days (partial service); the UN Regional Cartographic Conference for Asia-Pacific, 1.66 days; the UN Regional Cartographic Conference for the Americas, 1.25 days, the UN Group of Experts on Geographical Names (including sessions and conference), 4 days. This equates to 10 days per year of conference management and services dedicated to geospatial information topics, and reporting directly to ECOSOC. A consolidation of the various inter-governmental geospatial organs within the UN system, including ceasing the UN Regional Cartographic Conferences, could provide sufficient 'offsets' to ensure there is no extra budget implication, with respect to conference services, in establishing the Committee of Experts within the regular UN calendar of conferences and meetings under ECOSOC.

VI. Submission to the Economic and Social Council in 2016

48. The Committee of Experts has before it a report that captures the main elements of the initial draft of the requested comprehensive review to ECOSOC. The report describes the considerable achievements of the Committee of Experts, assesses the effectiveness of the Committee, identifies the challenges it faces, and proposes specific recommendations for consideration for the future modalities and programme of work of the Committee of Experts. The Committee of Experts is invited to take note of the report, and to express its views and provide inputs regarding future modalities and if key elements are missing and need to be incorporated.

49. Following discussions and inputs from the Committee at this fifth session, the draft review document will be updated by the Secretariat and circulated for global consultation among Member States and relevant international organizations and United Nations entities, anticipated to be during September-October 2015. The Committee Bureau and Regional Committee Chairs will meet during the first week of December 2015 to review the draft document and any additional inputs and finalise it. The final report will be submitted to ECOSOC in January 2016 for tabling at its session in April 2016. In parallel, the final report will be circulated to all Member States and the global geospatial community. It is anticipated that the report will identify a number of key messages and recommendations for ECOSOC to consider. During the January to April 2016 period, it will be very useful for national geospatial information management officials to seek a dialogue with their counterparts in the Permanent Missions to the UN, in order to seek their agreement and endorsement of the report and recommendations contained therein.

50. Endorsement of the report by ECOSOC will enable the Committee to continue with its programme of work with all countries around the world, and to be anchored more securely in the UN system. The growing recognition of the global importance

of UN-GGIM and the value added of geospatial information across many sectors reinforce the need to formalize the Committee of Experts as a permanent inter-governmental mechanism for coordinating authoritative geospatial information in the world with an appropriately funded structure.

51. Streamlining the various currently existing subsidiary bodies of ECOSOC in the geospatial information area, such as referenced above, will also establish the Committee of Experts as the peak intergovernmental entity reporting to ECOSOC on all matters relating to geography, geospatial information and related topics..

VII. Points for discussion

52. The Committee is invited to:

(a) Take note of the present report and of the considerable and tangible progress made by the Committee of Experts in the area of global geospatial information management since its establishment in 2011;

(b) Take note of the progress and status of the initial draft of the comprehensive review to be tabled to ECOSOC in April 2016, and of the elements presently captured, and provide suggestions and inputs to ensure that any key elements are not overlooked;

(c) Express its views on the practical options for the expanded mandate and functioning of the Committee of Experts going forward; and

(d) Express its views on the suggestions to rationalise and consolidate the various inter-governmental geospatial organs within the UN system;

ANNEX I: Major Accomplishments of the Committee of Experts

Annual Sessions of the Committee of Experts and High Level Forums

The inaugural session of the Committee of Experts²⁰, convened in conjunction with the First High Level Forum on Global Geospatial Information Management²¹, was held in October 2011 in the Republic of Korea, and brought together 280 experts from 88 Member States, United Nations entities, relevant international organisations and the private sector. At that meeting, the Committee of Experts adopted its Terms of Reference, reviewed its Rules of Procedure²², and considered an inventory of critical issues to be addressed by the Committee for future sessions, including its contribution to the United Nations Conference on Sustainable Development (Rio+20). It discussed the importance of collaboration among Member States in developing common frameworks, tools and procedures, the need to share best practices on the impact and usefulness of well-implemented national spatial data infrastructures.

The second session of the Committee of Experts was convened in New York in August 2012, and brought together 182 experts from 61 Member States, United Nations entities, relevant international organisations and the private sector. The Committee noted the importance of the inventory of issues as a guideline for its work, and identified issues such as: global geodetic reference systems; a shared statement of principles; a knowledge base for geospatial information; the status of mapping in the world; developing a global map for sustainable development; and the importance of geospatial information in the sustainable development agenda. Of particular note was the Committee's contributions to Rio+20 in organizing two important side events, and in providing inputs to the drafting of the outcome document "The future we want", in which the importance of reliable geospatial information in sustainable development was acknowledged, thereby raising global awareness of the role of geospatial information in sustainable development agenda setting and monitoring.

The third session of the Committee of Experts was convened in Cambridge, the United Kingdom, in July 2013, and brought together 238 experts from 66 Member States, United Nations entities, relevant international organisations and the private sector. The third session was convened back-to-back with the Cambridge Conference, and made considerable progress in fulfilling the Committee's mandate to enhance collaboration and support the use of geospatial information to promote sustainable development globally. The concerted efforts by the Committee led to the publication of "Future trends in geospatial information management: the five to ten year vision"²³ in July 2013 for the global geospatial community to use as a blueprint for decision makers. The Committee also agreed that actions should be taken to facilitate the submission of a resolution to the UN General Assembly in order to seek commitment at the highest level on the global geodetic reference frame.

The fourth session of the Committee of Experts was convened in New York in August 2014, and brought together 281 experts from 84 Member States, United Nations entities, relevant international organisations and the private sector. The fourth session was

²⁰ Inaugural session of Committee of Experts in 2011: http://ggim.un.org/ggim_committee.html

²¹ First High Level Forum on Global Geospatial Information Management: <http://ggim.un.org/forum1.html>

²² Rules of Procedure of the Committee of Experts on Global Geospatial Information Management, E/C.20/2011/3: <http://ggim.un.org/docs/meetings/Forum2011/E-C20-2011-3-Rules%20of%20procedure.pdf>

²³ See: <http://ggim.un.org/docs/Future-trends.pdf>

preceded by a UN Global Forum on the Integration of Statistical and Geospatial Information and a number of technical side events. The Committee endorsed a draft resolution on the global geodetic reference frame and recommended it to ECOSOC for adoption and further referral to the UN General Assembly. The Committee also agreed on the development of a statement of shared guiding principles for geospatial information management, and the implementation and adoption of standards for the global geospatial community.

The Committee has convened three High Level Forums, designed to promote comprehensive dialogue with all relevant actors and bodies. The First High Level Forum²⁴ was convened in the Republic of Korea, back-to-back with the inaugural meeting of the Committee of Experts in October 2011. The Forum's Ministerial Segment brought Ministers from eight countries to exchange their views on the role of geospatial information in national development, and stressed the importance of working together across borders. On the margins of the Forum, an Exchange Forum with Business Leaders was organised in order to provide a platform for dialogue between geospatial industry leaders and national geospatial information authorities to seek solutions to global socio-economic challenges.

The Second High Level Forum²⁵, convened in Qatar in February 2013, again brought together Ministers from eight countries to share their views on the role of geospatial information in national development, and noted the critical importance of coordination at all levels as a critical success factor to establish a coherent national geospatial information system to integrate, coordinate, manage, and deliver geospatial information for timely and authoritative decision making and policy development. An Exchange Forum with Business Leaders was also organised on the margins of the Forum.

The Third High Level Forum²⁶ was convened in China in October 2014, where the agenda integrated participation by Ministers, national geospatial information authorities and geospatial business leaders on the same platform, while topics discussed were in the context of sustainable development, as the main over-riding theme was "Sustainable Development with Geospatial Information".

The Fourth High Level Forum will be convened in Addis Ababa, Ethiopia in April 2016.

UN-GGIM global-regional coordination architecture

A primary motivation for the establishment of the Committee of Experts by ECOSOC was an acknowledgement that there was no global Member State driven mechanism to discuss critical issues on geospatial information management. While established regional mechanisms existed in the form of the Permanent Committee on GIS Infrastructure for Asia and the Pacific (PCGIAP), the Permanent Committee for the Infrastructure of Geospatial Data of the Americas (PC-IDEA), and the Geo-information sub-committee of the Committee on Development Information, Science and Technology (CODIST-Geo) of the Economic Commission for Africa, there was no global forum to report issues. Further, the remaining geographic regions of the world, where such mechanisms did not exist, had no substantive voice from the Member States. In order to create a UN-GGIM architecture able to capture 'national to regional to global' issues and perspectives, the Committee considered it a priority to build consensus towards a global regional UN-GGIM architecture, and strongly linked to the mandates of the Committee of Experts. The role

²⁴ See: <http://ggim.un.org/forum1.html>

²⁵ See: <http://ggim.un.org/2nd%20HLF.html>

²⁶ See: <http://ggim.un.org/3rd%20HLF.html>

of the associated United Nations Regional Cartographic Conferences for Asia-Pacific (UNRCC-AP) and for the Americas (UNRCC-Americas), as established regional United Nations convening mechanisms on cartography and geospatial technologies, was a valuable and enabling factor in the process.

To align with the global architecture, in November 2012 PCGIAP was renamed the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP) in accordance with a resolution²⁷ adopted at the 19th UNRCC-AP in Bangkok. This was quickly followed by PC-IDEA which expressed the wish to “enhance its role in regional and global geospatial information management by realigning itself with the global architecture, efforts and vision of the UN-GGIM”. At the 10th UNRCC-Americas, convened in New York in August 2013, PC-IDEA was renamed the Regional Committee of United Nations Global Geospatial Information Management for the Americas (UN-GGIM: Americas)²⁸

At the fourth session of the Committee of Experts, held in New York in August 2014, noting the significant contributions and achievements by the regional entities, the Committee endorsed the establishment of the Regional Committee of United Nations Global Geospatial Information Management for Europe (UN-GGIM: Europe)²⁹ and the Regional Committee of United Nations Global Geospatial Information Management for the Arab States (UN-GGIM: Arab States)³⁰, and noted the progress being made towards establishing a regional committee on geospatial information for Africa³¹.

At the fifth session of the Committee of Experts, the global architecture of UN-GGIM is expected to be complete following the endorsement of the Regional Committee of United Nations Global Geospatial Information Management for Africa (UN-GGIM: Africa). The creation of five regional UN-GGIM committees in Asia and the Pacific, the Americas, the Arab States, Europe and Africa, with each playing a vital role in advocacy efforts, will provide a strong mechanism to promote, discuss and enhance coordination among Member States within the regions on issues of importance to the Committee, and to liaise with the Secretariat on major developments in the intervening periods between sessions of the Committee of Experts.

The role of geospatial information in sustainable development

At its first session, the Committee of Experts stressed its commitment to the United Nations Conference on Sustainable Development (Rio+20) discussions, and agreed to create a task force to prepare a written contribution for Rio+20. There was consensus that the Committee of Experts is in a unique position to act as a coordinating mechanism to ensure all Member States benefit from the value of geospatial information applied to sustainable development and other areas of human and global challenges.

In line with with the request of the Committee, a background paper entitled ‘Monitoring Sustainable Development: Contribution of Geospatial Information to the Rio+20

²⁷ Resolution 8 of the 19th UNRCC-AP, 29 October-1 November 2012, E/CONF.102/8:

http://unstats.un.org/unsd/geoinfo/RCC/docs/rccap19/reports/19th_UNRCCAP_E_Conf.102_8_e.pdf

²⁸ Resolution 7 of the 10th UNRCC-Americas, New York, 19-23 August 2013, E/CONF.103/46:

http://unstats.un.org/unsd/geoinfo/RCC/docs/rcca10/E%20Conf_103_46_Report%20of%20the%20Conference_e.pdf

²⁹ See: <http://un-ggim-europe.org/>

³⁰ See: <http://ggim.un.org/Arab%20States.html>

³¹ Report of the Fourth Session of the Committee of Experts on Global Geospatial Information Management, 6-8 August 2014, E/2014/46-E/C.20/2014/15, decision 4/111: http://ggim.un.org/docs/meetings/GGIM4/GGIM4%20Report_en.pdf

Processes³² was prepared and provided. It elaborated on the advancement of geospatial policies, practices, and technologies since Rio+10, and suggested a central role for the Committee in the implementation of the follow-up action plan, which might be determined by the Conference. Within this context, the paper made several specific recommendations including: (i) continued consideration and development of geography as an integrative framework for sustainable development applications, decision support, and policy development; (ii) identification of new and emerging technologies and how these technologies can enhance our ability to better respond to sustainable development issues; (iii) consideration of legal and ethical issues such as privacy, security, intellectual property and liability; (iv) engagement with the scientific and research community in the development of sustainability science; (v) providing guidance and a discussion framework for how the numerous regional and global remote sensing portals and dissemination networks can be integrated to create a network of networks; (vi) providing guidance on geospatial standards best practice; and (vii) facilitating cooperation among the major players involved with geospatial information at the global level.

In addition to the preparation of this technical document, numerous informal consultations among Member States took place in the lead up to the Conference in order to discuss strategies on how to highlight the support geospatial information tools and methodologies can provide to assess progress in the cross-sectoral areas impacting sustainable development. As a result of these informal consultations many experts expressed their commitment to reach out to their respective country representatives in Rio in order to sensitize them to the important role that geospatial information can and must play in the follow-up phase to the Conference decisions. In this context, the UK Deputy Prime Minister, in his speech to the Rio+20 Plenary, stated: “I am also pleased to see that the importance of reliable, trusted geographic information is now recognized. The United Nations has now established a Committee of Experts of Member States, which the UK co-chairs, to move this agenda forward”.³³

The comprehensive outcome document of Rio+20 ‘The future we want’³⁴ makes several references in general terms with respect to the need to enhance evidence-based decision making, and to strengthen capacity building for data collection and analysis. Moreover, in paragraphs 187 and 274, the document specifically recognizes the importance of “reliable geospatial information for sustainable development policy-making, programming and project operations.” This recognition was a major milestone for the Committee of Experts. Geospatial information is essential to support strategic priorities and decision-making, and governments are increasingly relying on geospatial information technologies to support every aspect of national development, including development and planning, agriculture, disaster risk reduction and climate change, land management, natural resource management, crime management, business, and education among other areas.

Concerted and ongoing efforts have been made by the Committee of Experts in increasing the visibility and awareness of geospatial information, as an essential integrative tool to monitor and measure sustainable development, to policy and decision-makers and the diplomatic community. During the Seventh Session of the Open Working Group (OWG) on Sustainable Development Goals (SDGs), a side event titled “The Role of Geospatial Information in Measuring and Monitoring the Sustainable Development Goals: Disaster

³² See: http://ggim.un.org/2nd%20Session/GGIM%20paper%20for%20Rio_Background%20paper_18May%202012.pdf

³³ See: <http://98.139.236.92/search/srpcache?p=UK+speech+Rio%2B20+plenary&ei=UTF-8&hsimp=yhs-001&hspart=mozilla&fr=yhs-mozilla-001&u=http://cc.bingj.com/cache.aspx?q=UK+speech+Rio%2b20+plenary&d=4698463764753514&mkt=en-US&setlang=en-US&w=90FSGFEM-9BYnXrf3ij9ixyVQ6376SzL&icp=1&.intl=us&sig=rOvvk27GEZxH57Bu8udwgg-->

³⁴ See: <http://www.uncsd2012.org/content/documents/727The%20Future%20We%20Want%2019%20June%201230pm.pdf>

risk reduction, sustainable development, and global urbanisation”³⁵ was convened on 10 January 2014. This side event allowed the diplomatic community to understand why location matters, and why reliable geospatial information is necessary in the context of monitoring sustainable development. During the High Level Political Forum on Sustainable Development in July 2014, the co-chair of the Committee of Experts presented the same message to the Ministerial Segment in order to convey the importance of geospatial information management in the context of evidence-based decision making³⁶. In his keynote remarks, Dr. Li Pengde stressed that all human activities happen somewhere and sometime, and that the new development agenda needed not only economic, social and environmental information, but also required precise location and temporal reference.

In order to initiate the global debate on the role of geospatial information in sustainable development, the Third High Level Forum (HLF) was convened in Beijing, China in October 2014³⁷. With the theme “Sustainable Development with Geospatial Information”, the HLF was attended by 261 participants from 44 countries, along with nine United Nations representatives and 27 representatives from international organizations and the private sector. At the Forum, different issues ranging from sustainable cities, land administration and management, climate change and disaster mitigation, science, technology and innovation were discussed from a geospatial context, envisioning how geospatial information management could provide tools for monitoring and measuring the implementation of the sustainable development goals. In the outcome document, the Beijing Declaration on Sustainable Development with Geospatial Information³⁸, participants “urged Member States to develop more effective communication and mechanisms to demonstrate how geospatial information can contribute to sustainable development” and resolved to “develop practical means to transform geospatial information (data and themes), and its ability to define relationships and linkages across multiple variables and communities, into relevant targets and indicators that will contribute to the sustainable development agenda as a framework for measuring and monitoring their results.” Furthermore, the Forum affirmed the importance of closing the geospatial information gap between developing and developed countries, stressing the importance of collaboration at global, regional and national levels, and partnerships with inter-governmental organizations, international non-government organizations, academia and industry, as well as leveraging the global framework under the Committee of Experts and the new data and technology revolution, for measuring and monitoring sustainable development.

During the post-2015 inter-governmental negotiations, in April 2015, the Committee convened a side event titled “Unleashing the power of ‘Where’ to make the world a better place: How geographic information contributes to achieving the sustainable development goals”³⁹. The event, sponsored by the Permanent Mission of Denmark to the United Nations, UN-GGIM: Europe, the UN-GGIM Secretariat and the Group on Earth Observations (GEO), included country presentations by Indonesia, Jamaica and the United States, with the objective to demonstrate the importance of geospatial information and earth observations in measuring and monitoring the implementation of the SDGs. A video was also launched during the event to showcase the value of geographic location in showing where social, environmental and economic conditions occur; and how having reliable and authoritative geographic information provides the framework for measuring,

³⁵ See: <http://ggim.un.org/OWG.html>

³⁶ See: <https://sustainabledevelopment.un.org/hlpf/2014>

³⁷ See: <http://ggim.un.org/3rd%20HLF.html>

³⁸ See: <http://ggim.un.org/docs/meetings/3rd%20HLF/Beijing%20Declaration%2024Oct2014%20FINAL.pdf>

³⁹ For information on the side event, see: <http://ggim.un.org/Unleashing%20the%20Power.html>

monitoring and achieving the SDGs, enables better decision-making by providing information about people and the planet, and contributes to tackling global problems such as poverty, hunger, disease, deforestation, land management, climate change, improving people's lives and protecting the planet.

Whilst increasing the awareness of geospatial information at the policy level, additional effort has been made by the Committee of Experts to leverage existing partnerships and user communities of geospatial information, in such areas as disaster risk reduction, earth observations and the information communication technologies. The Third World Conference on Disaster Risk Reduction, convened in Sendai, Japan in March 2015, led to the adoption of the Sendai Framework for Disaster Risk Reduction 2015-2030⁴⁰ in which it recognised the importance of developing, updating and disseminating location-based disaster risk information, including risk maps, to decision makers by using geospatial technology, and how technology such as geographic information systems (GIS) can be useful to measure, collect, analyse and disseminate relevant data. The global geospatial community has been encouraged to promote real-time access to and provide timely evidence-based data and information for sustainable decision making and policy making for the future.

A global geodetic reference frame for sustainable development

One of the most significant accomplishments of the Committee of Experts has been the formulation and endorsement of a resolution on “A Global Geodetic Reference Frame for Sustainable Development” in a landmark decision by the United Nations General Assembly on 26 February 2015⁴¹. The Global Geodetic Reference Frame (GGRF), describing the framework which allows users to precisely determine and express locations on the Earth, as well as to quantify changes of the Earth in space and time, was seen as a fundamental need by the Committee of Experts when considering its inventory of issues and programme of work in 2012. Providing a uniform and consistent platform for comparing positional measurements, the GGRF is particularly important for the collection of homogenous geospatial data, and for measuring change through time. However, its need and sustainability was not well understood.

Adopted by ECOSOC in November 2014⁴² and subsequently referred to the General Assembly, the resolution, led by Fiji with 52 co-sponsoring Member States⁴³, was the first of its kind on geospatial information. Member States have called for greater multilateral cooperation on geodesy, including the open sharing of geospatial data, further capacity-building in developing countries and the creation of international standards and conventions. The resolution outlines the value of ground-based observations and remote satellite sensing when tracking changes in populations, ice caps, oceans and the atmosphere over time. Such geospatial measurements can support sustainable development policymaking, climate change monitoring and natural disaster management, and also have a wide range of applications for transport, agriculture and construction. The Committee of Experts is now developing a roadmap for the implementation of the General Assembly resolution on geodesy.

Capacity development in geospatial information management

⁴⁰ A/RES/69/283: http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/69/283

⁴¹ A/RES/69/266: http://ggim.un.org/docs/A_RES_69_266_E.pdf

⁴² ECOSOC resolution 2014/31 adopted on 17 November 2014 on a global geodetic reference frame for sustainable development: http://www.un.org/ga/search/view_doc.asp?symbol=E/RES/2014/31

⁴³ For a list of the co-sponsors, see A/69/L.53/Add.1: http://ggim.un.org/docs/A_69_L53_Add1_E.pdf

Under the framework of the Committee of Experts, efforts have been underway in different regions to support capacity development in geospatial information management in developing countries to strengthen the position of national institutions to engage the relevant stakeholders at the national level, including establishing spatial data infrastructures. Under the auspices of the China Trust Fund Project, the Third High Level Forum (described earlier in this report), and three international geospatial capacity development workshops have been convened by the Committee.

The Hangzhou Forum⁴⁴ was convened in Hangzhou in May 2012, and discussed priority issues for the regional implementation strategy of the UN-GGIM initiative. During the meeting, the following issues were considered: (i) the necessary institutional arrangements at national level with an emphasis on how to promote a greater coordination within the government; (ii) issues of data accuracy and quality given the emergence of crowd sourcing, open street map and VGI; (iii) GNSS, GPS, and Geodetic systems related issues; and (iv) the preparation of a Statement of Ethics for the global geospatial community. Also discussed were the emerging trends in geospatial information technology.

The Chengdu Forum⁴⁵ was convened in Chengdu in October 2013, and brought together more than 180 experts from 40 countries to discuss the theme “Development and Applications in Urban Hazard Mapping” and share experiences and methodologies in the production, management, analysis, and modelling and dissemination capacity of hazard related geospatial information. The Forum concluded that geospatial information has a vital role to play in all phases of hazard and disaster risk management and reduction, and it extends the ability for nations to not only map their geography and topography, but also those areas that are vulnerable to natural hazards, particularly in urban environments.

The International Workshop on Integrating Geospatial and Statistical Information⁴⁶ was convened in Beijing in June 2014, and was attended by 147 participants from 41 countries to advance the global consultation and communication with relevant experts about the development of a global statistical-geospatial framework. The Workshop also enabled participants to engage with leading international experts to discuss and share experiences and methodologies, including in the following areas: (i) Country experiences in the integration of socio-economic and environmental information using geography; (ii) Approaches to determine and represent geographical units, including geocoding, for statistical purposes; (iii) Grid-based and administrative approaches to the collection, compilation and dissemination of statistics; (vi) Statistical analysis of geospatial information, and relevance of spatial data infrastructures (SDIs) and international standards; and (v) Positioning for the future: Trends in technology, big data, 2020 Round of Population Censuses, and the post-2015 Development Agenda.

In Latin America, the Government of Mexico is taking the lead in providing financial and technical support to the Caribbean region through the ‘Strengthening of Spatial Data Infrastructures in Member States and Territories of the Association of Caribbean States’ project (Caribbean Project). The overarching objective of this project is to promote Spatial Data Infrastructures (SDI) in Member States of the Association of Caribbean States (ACS) in order to strengthen the generation, use and sharing of geospatial information.

⁴⁴ Hangzhou Forum on UN-GGIM: <http://ggim.un.org/Hangzhou%20forum.html>

⁴⁵ Chengdu Forum on UN-GGIM, Development and Applications in Urban Hazard Mapping: <http://ggim.un.org/Chengdu%20Forum.html>

⁴⁶ International Workshop on Integrating Geospatial and Statistical Information: <http://ggim.un.org/International%20Workshop.html>

These projects have provided opportunities for geospatial experts in developing countries in the regions of the Americas, Africa, Asia and Pacific and Europe to participate in international technical capacity development workshops, the sessions of the Committee of Experts, regional meetings, High Level Forums and expert group meetings, and to contribute to further enhancement of geospatial information capabilities both at the strategic and operational levels.

Another trend that has been observed by the Committee in the context of capacity building, is intra-regional cooperation among the Regional Committees in the areas of knowledge transfer and sharing of experiences. At the inception meetings of UN-GGIM: Arab States and UN-GGIM: Africa, participation by UN-GGIM: Asia-Pacific, UN-GGIM: Americas and UN-GGIM: Europe was welcomed as it provided an opportunity to share their views on the mechanism and process of how they transformed or established their regional committees and their regional work programmes, which were used as a baseline for discussions in the newly established regional committees. Another development was the consensus among the regional committees to share experiences on cross-cutting issues such as the global geodetic reference frame, which has become a work programme item in all the regions. These initiatives reflect the usefulness of having a global architecture in which regional committees are able to leverage their work programmes in a coordinated manner.

Coordination of United Nations activities related to geospatial information management

The Committee of Experts has forged valuable partnerships within the United Nations system and with international bodies such as the Group on Earth Observations (GEO), the International Federation of Surveyors (FIG), the International Cartographic Association (ICA), Technical Committee 211 of the International Standards Organisation (ISO/TC 211), the Open Geospatial Consortium (OGC), and others. In partnership with these entities, the Committee has prepared a number of technical papers including 'A Guide to the Role of Standards in Geospatial Information Management' and a 'Guide to the Role of Standards in Geospatial Information Management: Companion Document on Standards Recommendations by Tier' which have been endorsed by the Committee as methodological guidelines to assist Member States in implementing and adopting international geospatial standards within their national frameworks.

Within the United Nations system, the Committee's coordination of geospatial information has been facilitated primarily through two engagements; the United Nations Expert Group on Geographical Names (UNGEGN), and the United Nations Geographic Information Working Group (UNGIWG).

UNGEGN was established by ECOSOC in 1959⁴⁷, with responsibility for encouraging the standardization of geographical names, and promoting the national and international benefits to be derived from standardization. Geographical names are essential elements on geospatial information products and services, and bring together components of geography, history, cartography, language, culture, oral tradition, psychology and politics, and identify places locally, nationally and globally. Through their Conferences and working groups and publication of the Bulletin, UNGEGN continues to communicate the importance of geographical names. One of the opportunities that UNGEGN is realising is that through the increased interest and involvement in the activities of the Committee of Experts, UNGEGN is increasingly noting the consolidation efforts being made by the

⁴⁷ See: Economic and Social Council (ECOSOC) resolution 715 A (XXVII) in 1959...needs reference!!

different regional entities within the geospatial community, and are currently aspiring in emulating such practices.

UNGIWG is a voluntary network of United Nations professionals formed in 2000, and working in the fields of cartography and geographic information science. Whilst the demand for geospatial activities within the United Nations is increasing rapidly, the coordination efforts through UNGIWG have been somewhat limited and 'invisible' at the strategic level, as their activities predominantly take place at the operational level depending on the requirements by the different departments, offices and agencies. Many of the collaborative geospatial activities occurring within the United Nations have for many years been carried out on a 'best efforts' basis. The Committee of Experts acknowledges that this model poses challenges in terms of sustainability and operability in the future, and that a sustainable governance structure may require to be visited in the near future. The Committee of Experts, together with the concerned geospatial experts, may provide a comprehensive review of the arrangements pertaining to UNGIWG and the United Nations Spatial Data Initiative (UNSDI) at both strategic and operational levels, to meet the requirements of the United Nations activities and the national geospatial authorities on cross-cutting issues such as data provision, exchange and standards.

United Nations regional entities such as the Economic Commission for Africa (UN-ECA), the Economic and Social Commission for Asia and the Pacific (UN-ESCAP), the Economic and Social Commission for Western Asia (UN-ESCWA), the United Nations Human Settlements Programme (UN-HABITAT), the United Nations Office for Outer Space Affairs (UN-OOSA), and the World Bank Group have had meaningful and productive interactions with the Committee of Experts since its inception in 2011. Due to areas of common interests and issues, the Committee and Secretariat, and regional commissions such as UN-ECA, UN-ESCAP and UN-ESCWA have collaborated in the establishment of the regional UN-GGIM architecture as detailed earlier in this report. The interaction with UN-HABITAT and the World Bank Group has been on the common interests in the area of land administration and management, where the two entities are focusing on the substantive areas, whereas the Committee is interested in how to link the geospatial information management component as fundamental data requirements. Interactions with UN-OOSA have been on issues pertaining to UN-Space, UN-SPIDER and Global Navigation Satellite Systems (GNSS) where coordination of space related activities and tools to support space technology and disaster risk reduction is complementary to geospatial information management. This inter-office cooperation has provided opportunities to strengthen the programme activities and coordination within and amongst the relevant actors.

Integration of geospatial information and statistical information

An International Workshop on Integrating Geospatial and Statistical Information, convened by the Committee of Experts in Beijing, China, in June 2014, made a significant contribution to the global consultation and communication with relevant experts towards the development of a global statistical-geospatial framework. The Workshop discussed and demonstrated the importance of geography and geospatial information to census activities, and for collecting, processing, storing, integrating, aggregating, and disseminating the data on appropriate platforms. The Workshop also provided the opportunity for participants to share country experiences of the benefits that national geospatial information authorities have derived from meeting the specific needs of census geography/cartography and statistical analysis, and their overall cooperation with national statistical offices.

The Committee then convened a Global Forum on the Integration of Statistical and Geospatial Information in New York in August 2014, in conjunction with the fourth

session of the Committee of Experts. In pursuance of its objectives to reach out and develop best practices and to bring together both the statistical and geospatial professional communities, the Global Forum brought together more than 200 participants from 73 countries to discuss the strategic vision and goals for the integration of statistical and geospatial information. Participants stressed the fact that institutional integration within a country to support statistical and geospatial integration requires a strong political commitment. In this regard, advocacy of the benefits of linking socio-economic data to a location, and the value proposition of integrating statistical and geospatial information, should be conveyed to decision and policy makers, allowing them to understand the need of national institutions for adequate resources to achieve the integration.