

Department of Economic and Social Affairs

Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific

Jeju Island, Republic of Korea, 6-9 October 2015

Report of the Conference



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Note

Symbols of United Nations documents are composed of letters combined with figures.

The proceedings of the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific, held on Jeju Island, Republic of Korea from 6 to 9 October 2015, are being issued in one volume as the report of the Conference.

The proceedings of the previous United Nations regional cartographic conferences for Asia and the Pacific were issued under the following symbols and sales codes: [E/CONF.18/6](#) (Sales No. 55.I.29) and [E/CONF.18/7](#) (Sales No. 56.I.23) for the First Conference; [E/CONF.25/3](#) (Sales No. 59.I.9) and [E/CONF.25/4](#) (Sales No. 61.I.8) for the Second Conference; [E/CONF.36/2](#) (Sales No. 62.I.14) and [E/CONF.36/3](#) (Sales No. 64.I.17) for the Third Conference; [E/CONF.50/4](#) (Sales No. 65.I.16) and [E/CONF.50/5](#) (Sales No. 66.I.3) for the Fourth Conference; [E/CONF.52/4](#) (Sales No. E.68.I.2) and [E/CONF.52/5](#) (Sales No. E.68.I.14) for the Fifth Conference; [E/CONF.57/2](#) (Sales No. E.71.I.15) and [E/CONF.57/3](#) (Sales No. E.72.I.20) for the Sixth Conference; [E/CONF.62/3](#) (Sales No. E.74.I.7) and [E/CONF.62/4](#) (Sales No. E.74.I.25) for the Seventh Conference; [E/CONF.68/3](#) (Sales No. E.77.I.12) and [E/CONF.68/3/Add.1](#) (Sales No. E.78.I.8) for the Eighth Conference; [E/CONF.72/4](#) (Sales No. E.81.I.2) and [E/CONF.72/4/Add.1](#) (Sales No. [E/F.83.I.14](#)) for the Ninth Conference; [E/CONF.75/5](#) (Sales No. E.83.I.18) and [E/CONF.75/5/Add.1](#) (Sales No. [E/F.86.I.11](#)) for the Tenth Conference; [E/CONF.78/4](#) (Sales No. E.87.I.13) and [E/CONF.78/4/Add.1](#) (Sales No. [E/F.88.I.18](#)) for the Eleventh Conference; [E/CONF.83/3](#) (Sales No. E.91.I.42) and [E/CONF.83/3/Add.1](#) (Sales No. [E/F.94.I.11](#)) for the Twelfth Conference; [E/CONF.87/3](#) (Sales No. E.94.I.19) for the Thirteenth Conference; [E/CONF.89/5](#) (Sales No. E.97.I.12) for the Fourteenth Conference; [E/CONF.92/1](#) (Sales No. E.01.I.2) for the Fifteenth Conference; [E/CONF.95/7](#) (Sales No. E.04.I.11) for the Sixteenth Conference; and [E/CONF.97/7](#) for the Seventeenth Conference (Sales No. 06.I.39); [E/CONF.100/9](#) for the Eighteenth Conference (Sales No. E.10.I.2); and [E/CONF.102/8](#) for the Nineteenth Conference (Sales No. E.12.I.14).

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Chapter I

Organization of the Conference

A. Introduction

1. In accordance with Economic and Social Council decision 2014/252 of 17 November 2014, the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific was held at the International Convention Centre on Jeju Island, Republic of Korea, from 6 to 9 October 2015.

B. Opening of the Conference

2. Li Pengde (China), temporary President, opened the Conference and made welcoming remarks.

3. Opening statements were made by Greg Scott of the United Nations Statistics Division, Hyung-Ku Yeo, Vice Minister, Ministry of Land, Infrastructure and Transport of the Republic of Korea, and Hee-ryong Won, Governor of Jeju Special Self-Governing Province, Republic of Korea.

C. Attendance

4. The Conference was attended by 125 representatives of 27 countries and 10 specialized agencies as well as international scientific organizations and other entities. The list of participants is contained in document [E/CONF.104/INF/2](#) and is available from <http://unstats.un.org/unsd/geoinfo/RCC/unrccap20.html>.

D. Election of officers

5. At its 1st plenary meeting, on 6 October 2015, the Conference elected the following officers by acclamation:

President:

Mr. Hiroshi Murakami (Japan)

Vice-Presidents:

Mr. Choe Byong-Nam (Republic of Korea)

Mr. Khurelshagai Ayurzana (Mongolia)

Rapporteur:

Mr. Li Pengde (China)

E. Organizational matters

1. Adoption of the rules of procedure

6. At its 1st plenary meeting, on 6 October 2015, the Conference adopted its provisional rules of procedure, as contained in document [E/CONF.104/2](#).

2. Adoption of the agenda and organization of work of the Conference

7. At its 1st plenary meeting, on 6 October 2015, the Conference adopted its provisional agenda, as contained in document [E/CONF.104/1](#). The agenda was as follows:

1. Opening of the Conference.
2. Election of the President and other officers of the Conference.
3. Adoption of the agenda and other organizational matters:
 - (a) Adoption of the agenda and organization of work of the Conference;
 - (b) Adoption of the rules of procedure;
 - (c) Establishment of technical committees and election of the Chair of each committee;
 - (d) Credentials of representatives to the Conference.
4. Report of the Committee of Experts on Global Geospatial Information Management.
5. Report of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific.
6. Report on the implementation of resolutions adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific.
7. Conference papers:
 - (a) Country reports;
 - (b) Invited papers on achievements and developments in geospatial information management in addressing national, regional and global issues.
8. Reports of the technical committees of the Conference.
9. Provisional agenda for the Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific.
10. Adoption of the report of the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific.

8. At the same meeting, the Conference approved its draft work programme as contained in document [E/CONF.104/L.1](#).

3. Establishment of technical committees and election of the Chair of each committee

9. At its 1st plenary meeting, on 6 October 2015, the Conference established the following four technical committees and elected their chairs as follows:

- Committee I: Geodetic reference frame
Chair: Mr. John Dawson (Australia)
- Committee II: Disaster risk management
Chair: Mr. Toru Nagayama (Japan)

Committee III: Regional spatial data infrastructure

Chair: Ms. Jiang Jie (China)

Committee IV: Cadastre and land management

Chair: Mr. Sanghoon Lee (Republic of Korea)

4. Credentials

10. At the 6th plenary meeting, on 9 October 2015, the President of the Conference reported that, in accordance with rule 3 of the rules of procedure of the Conference, the credentials of representatives had been reviewed and found to be in order.

5. Documentation

11. A list of the documents submitted to the Conference is contained in annex VI and is available from <http://unstats.un.org/unsd/geoinfo/RCC/unrccap20.html>.

Chapter II

Plenary session

12. At its 1st plenary meeting, on 6 October 2015, the Conference began its consideration of agenda item 4, “Report of the Committee of Experts on Global Geospatial Information Management” (E/CONF.104/3). Greg Scott, secretariat of the Committee of Experts on Global Geospatial Information Management reported on the main agenda and the considerable achievements of the fifth session of the Committee of Experts, held in New York in August 2015. He presented the programme review of the work of the Committee of Experts during the period 2011-2015, in accordance with resolution 2011/24 of the Economic and Social Council, in which the Council requested a comprehensive review of all aspects of the work and operations of the Committee, in order to allow Member States to assess its effectiveness. Mr. Scott stated that the report was discussed at the fifth session of the Committee of Experts, in which the members recognized that the submission of the review report to the Council in 2016 would provide a unique opportunity to strengthen the mandate of the Committee and the subsidiary machinery of the Council in the area of geospatial information. He pointed out that aligning the role of the United Nations Regional Cartographic Conference for Asia and the Pacific with the mandate of the Committee of Experts would streamline the overall work in the geospatial information field and would contribute to the proposal to be submitted to the Economic and Social Council. The representatives of Australia and the Republic of Korea made statements.

13. At the same meeting, the Conference began its consideration of agenda item 5, “Report of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific” (E/CONF.104/4). Mr. Li Pengde, President of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, reported on its activities in response to the resolutions adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific in 2012. He highlighted the main projects and achievements of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, formerly the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific (PCGIAP) (see chap. IV.B, resolution 5), during the past three years. They included its 2nd and 3rd plenary meetings, its Executive Board meetings, and capacity-building under the Regional Committee framework. Introducing the contributions made towards the Committee of Experts and a series of activities, including the Chengdu Forum on United Nations Global Geospatial Information Management, the International Workshop on Integrating Geospatial and Statistical Information and the Third High-Level Forum on United Nations Global Geospatial Information Management, he stressed the commitment of the Regional Committee to implement the global agenda in further perspective.

14. Also at the same meeting, continuing its consideration of agenda item 5, John Dawson, Chair of Working Group 1 on the geodetic reference framework for sustainable development, reported on its activities during the past three years in response to the resolutions adopted at the nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific in 2012 (E/CONF.104/5). He highlighted the development and achievements of the Asia-Pacific Regional Reference Frame project and the activities of the Asia-Pacific Regional Geodetic

project campaign, the Asia-Pacific Regional Height System Unification project led by the Republic of Korea and the Asia-Pacific Geodetic Capacity-Building project. He also reported on the cooperation of the Working Group with the Committee of Experts, which included the preparation of a draft resolution for submission to the General Assembly on a global geodetic reference frame for sustainable development and assistance to the Committee of Experts in drafting a series of documents.

15. At its 2nd plenary meeting, on 6 October 2015, the Conference continued its consideration of agenda item 5. Lee Sangho, representing Peyman Baktash, Chair of Working Group 2 on data sharing and integration for disaster management, presented the main activities of the Working Group in response to the resolution adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific in 2012 ([E/CONF.104/6](#)). As a main activity for data sharing and disaster management, a disaster management Geoportal was designed and applied to disaster relief for earthquakes and flooding. In addition, research was conducted into the collection of data through volunteer geospatial information (VGI). A pilot phase was carried out, and analysis of the questionnaire, the pilot VGI portal and the case study of its use were completed.

16. At the same meeting, Jiang Jie, Chair of Working Group 3 on place-based information management for economic growth, introduced and summarized the main activities of the Working Group in response to the resolution adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific in 2012 ([E/CONF.104/7](#)). As one of the main activities, a questionnaire was designed to investigate the status of development of place-based information management, and the analysis and results were reported at the meeting. In addition, she introduced and summarized a series of case studies, including a pilot study on the acquisition and maintenance of place-based information in Australia, a study on the fast acquisition and updating of place-based data in Malaysia and a case study on web-based distributed geodata management and online services in China. Comments were made and questions raised by the representatives of India and Brunei Darussalam.

17. Also at the same meeting, the Conference considered agenda item 6, “Report on the implementation of resolutions adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific” ([E/CONF.104/8](#)). Toru Nagayama of the secretariat of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific presented a report, jointly prepared by the United Nations Statistics Division and the Regional Committee, on the actions taken during the past three years in response to the resolutions adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific. He highlighted the work and activities conducted by the Regional Committee and its working groups and member countries, and reported that most of the relevant actions had been achieved.

18. Also at the 2nd plenary meeting, chaired by Choe Byong-Nam, the Conference began its consideration of agenda item 7 (b), “Invited papers on achievements and developments in geospatial information management in addressing national, regional and global issues”. Greg Scott, Interregional Adviser for the Committee of Experts, presented a keynote paper entitled “Integrating geospatial information into the 2030 Agenda for Sustainable Development” ([E/CONF.104/IP.1](#)), introducing the achievements and developments in geospatial information management from a

global perspective. He reported that, according to *The Millennium Development Goals Report 2015*, geospatial data can support monitoring in many aspects of development, and stated that the 2030 Agenda for Sustainable Development (General Assembly resolution 70/1) would provide the global geospatial information community a unique opportunity to integrate geospatial information into the global development agenda. He introduced further directions for national geospatial communities to achieve the outcome of the 2030 Agenda, emphasizing that sustainable data for sustainable development would require the integration of statistics, earth observation and geospatial information, and that better fundamental data would contribute to decision-making and policymaking.

19. At the same meeting, Donovan Storey, Chief of the Sustainable Urban Development Section of the Economic and Social Commission for Asia and the Pacific (ESCAP), delivered a keynote paper entitled “Regional urban transformations: land and the new urban agenda” (E/CONF.104/IP.2). He pointed out that the Asia and Pacific region is urbanizing rapidly; therefore, management of that transformation would be critical for the region’s development prospects. He explained land-use planning in the context of the region’s urbanization and pointed out challenges and actions towards the sustainable development of land, cities and regions. Comments were made and questions raised by the representative of the Republic of Korea.

20. Also at the 2nd plenary meeting, Hiroshi Murakami, Deputy Director-General of the Geospatial Information Authority of Japan, delivered a keynote paper entitled “National Perspectives: Japan’s view” (E/CONF.104/IP.3). He outlined the common core mission of most national geospatial information authorities and the challenges they are facing. He pointed out that those authorities should interact with policymakers and find out what they need to assist them in their decision-making. He also introduced the experience of the Geospatial Information Authority of Japan (GSI) in actively contributing to disaster risk reduction through the application of geospatial information technologies, as well as its cooperation with government offices concerned with disaster management. Comments were made and questions raised by the representatives of China and the Republic of Korea.

21. Also at the same meeting, Monica Aguayo, Executive Secretary, United Nations Global Geospatial Information Management for the Americas (UN-GGIM: Americas), delivered a presentation entitled “Geospatial information for the global development agenda-UNGGIM: Americas” (E/CONF.104/IP.4). She presented an overview of the organizational structure of UN-GGIM: Americas, which currently consists of 38 member States, and its five working groups. She also introduced the project for the strengthening of spatial data infrastructures in the Caribbean region, led by Mexico. As part of the working group on regional cooperation and coordination, UN-GGIM: Americas is developing a project with 19 Caribbean countries with the aim of promoting the development of spatial data infrastructure, to strengthen the generation, use and sharing of geospatial information in the region. Comments were made and questions raised by the representatives of Japan and China.

22. At its 3rd plenary meeting, on 7 October 2015, John Dawson, Section Leader, Geodesy, Geoscience Australia, presented a paper entitled “Geodetic reference frame: Australia” (E/CONF.104/IP.6). He discussed the ways in which the Government of Australia supports the Global Geodetic Observing System, and the precise positioning technology which contributed to economic growth through efficient transportation, geospatial data management and industrial automation. He

suggested that the global navigation satellite system (GNSS) would be the common device for everyone in the coming few years, while geodesy would be promoting the industry of agriculture, mining and geospatial technology worldwide. He also introduced Australian national positioning infrastructure development and applications, including the new Australian GNSS network, improved very long baseline interferometry (VLBI) and satellite laser ranging, and the combined technology of GNSS and interferometric synthetic aperture radar (InSAR). Lastly, he highlighted future plans for geodetic activities in Australia. Comments were made and questions raised by the representatives of China, Japan, India and the Republic of Korea.

23. At the same meeting, Gary Johnston, Branch Head, Geodesy and Seismic Monitoring, Geoscience Australia, delivered a report entitled “The global geodetic reference frame: an International Association of Geodesy perspective” (E/CONF.104/IP.7). He briefed the participants on the structure of the International Association of Geodesy (IAG) and its general goals, and introduced the application of the Global Geodetic Observing System, which would not only support scientific applications, but also improve geodesy outcomes for the wider community. He stressed that sustainability and enhancement were contingent on greater involvement in geodesy by all nations and the role nations could play as part of the geodetic observing system. Comments were made and questions raised by the representatives of China, India, Japan and the Republic of Korea.

24. Also at the same meeting, David Chang, Surveyor General, Ministry for Lands and Mineral Resources of Fiji, delivered a presentation entitled “Modernization of Fiji’s geodetic datum” (E/CONF.104/IP.8). He presented the history and the current status of the geodetic datum in Fiji. The Fiji Geodetic Datum 1986 (FDG 86) is a local reference datum based on World Geodetic System 1972 (WGS 72). The Fiji Geodetic Datum 1986 is not compatible with modern technology, and Fiji has an urgent need to adopt an internationally recognized geodetic datum.

25. Also at the 3rd plenary meeting, Enkhuya Sodnom, Head of the Geodesy and Cartography Department, Administration of Land Affairs, Geodesy and Cartography of Mongolia, delivered a presentation entitled “Mongolian geodetic reference system” (E/CONF.104/IP.9). She presented the history and current status of the geodetic network in Mongolia, and the steps the Government of Mongolia has taken to update the geodetic reference system. Lastly, she explained additional tasks and workplans in regard to capacity-building, technology development and increasing financial investment. Comments were made and questions raised by the representative of Japan.

26. At the same meeting, Basara Miyahara, Geospatial Information Authority of Japan, delivered a presentation entitled “Geodetic reference frame of Asia and the Pacific assimilating VLBI observation” (E/CONF.104/IP.10). He highlighted the active participation of Japan in building the Asia-Pacific Reference Frame, in establishing network stations and in organizing capacity-building training courses. He also identified the members of the Asia-Oceania VLBI Group for Geodesy and Astrometry and its observation network, as well as its function to enhance consistency between the Asia-Pacific Reference Frame and the International Terrestrial Reference Frame.

27. Also at the same meeting, Azhari bin Mohamed, Department of Survey and Mapping of Malaysia, presented a paper entitled “The revision of geocentric datum

of Malaysia 2000 (GDM 2000)” (E/CONF.104/IP.11). He covered the history and status of their coordinate reference system, and the effects of three major earthquakes on the Malaysian Real-Time Kinematic GNSS Network (MyRTKnet). The examples showed that the GDM 2000 coordinates could not be utilized for a high precision survey owing to the earthquakes, and needed to be revised. In conclusion, he described the procedures for the revision of GDM 2000.

28. Also at the 3rd plenary meeting, Toru Nagayama, Executive Officer for Research Planning, Planning Department, Geospatial Information Authority of Japan, presented a paper entitled “Countermeasures against disasters in Japan and promotion of approaches for disaster risk reduction in each member country of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific” (E/CONF.104/IP.12). He reported on the significance of geospatial information in reducing disaster risks on the basis of case studies in Japan, and pointed out activities that could be undertaken and contributions that national geospatial information authorities could make with regard to disaster risk reduction. He proposed that the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific should clarify the possibilities of contributions by national geospatial information authorities to disaster management through collaboration with member States, and he looked forward to closer collaboration between the Regional Committee and its working groups regarding emergency response and disaster risk reduction.

29. At the same meeting, Tae Hyung Kim, Economic Affairs Officer, ESCAP, presented a paper entitled “Regional cooperation on space technology applications for disaster risk reduction and sustainable development” (E/CONF.104/IP.13). He explained that ESCAP operated as a regional hub for harnessing the latest advances in space technology and Geographic Information System (GIS) applications to address the challenges of disasters and support risk identification, early warning, response, and post-disaster damage and loss assessment. He called for creating partnerships for capacity-building in the areas of space technology and geographic information systems for disaster risk reduction, research and mobile geospatial information applications, as well as for setting long-term goals for the funding system and a ministerial conference on space technology and the geographic information systems. Comments were made and questions were raised by the representatives of Brunei Darussalam, China and Japan.

30. Also at the same plenary meeting, Priyadi Kardono, Head of the Geospatial Information Agency, Indonesia, presented a paper entitled “Geospatial information for disaster risk reduction: Indonesia plan for 2015-2019” (E/CONF.104/IP.14). He reported that Indonesia is a country frequently attacked by disasters, which urgently requires geospatial information for disaster management. The Government has realized the need for geospatial information and has therefore established the “One map policy”, a strategy for geospatial information management. He provided brief updates and an overview of the vision of Indonesia on promoting geospatial information for national development and sustainable regional prosperity. Comments were made and questions raised by the representative of Bangladesh.

31. At its 4th plenary meeting, on 7 October 2015, Ruel Belen, Director, Mapping and Geodesy Branch, National Mapping and Resource Information Authority, Philippines, presented a paper entitled “Mapping of the Typhoon Haiyan-affected areas in the Philippines using geospatial data and very high resolution satellite

images” (E/CONF.104/IP.15). He introduced the activities the Authority undertook after Typhoon Haiyan attacked the Philippines. A multi-year unified mapping project which aimed to produce new topographic base maps at scale 1:10,000 for the entire country was implemented to assess the damage. He emphasized some of the key lessons that emerged during the project. Comments were made and questions raised by the representatives of India, Japan and the Republic of Korea.

32. At the same meeting, Robert Deakin, Chief Steward, National Spatial Data Infrastructure (SDI), New Zealand, presented a paper entitled “Canterbury SDI: lessons learned from post-earthquake recovery” (E/CONF.104/IP.16). He reported that the city of Canterbury in New Zealand had suffered many earthquakes in the past few years. He introduced eight SDI-focused projects that had been implemented to support the recovery, and noted some high-level problems that were identified, such as a lack of preparation that inhibited data sharing and integration, the lack of a central, authoritative property data framework, and inappropriate risk management procedures. He shared some of the key lessons that emerged from the projects and discussed what they could mean for other organizations wishing to implement SDI solutions in a similar national context. Comments were made and questions raised by the representatives of the Republic of Korea and Viet Nam.

33. Also at the same meeting, Kyoung-Soo Eom, United Nations Geospatial Information Section, delivered a presentation entitled “Geospatial information and services for disasters” (E/CONF.104/IP.17). By conducting surveys of people in disaster-affected areas and government agencies, it was found that the main challenges existed in accessing geospatial information and using or sharing geospatial data. He presented some outcomes and proposed a strategy framework to prevent and reduce the human and economic impact of disasters. He updated the participants in the Conference on progress since the 7 August 2015 meeting of the Committee of Experts and presented the way forward. Comments were made and questions raised by the representatives of China, Japan and the Republic of Korea.

34. Also at its 4th plenary meeting, on 7 October 2015, Jiang Jie, Division Director of the National Administration of Surveying, Mapping and Geoinformation, China, delivered a presentation entitled “Upgrade the datasets in national spatial data infrastructure (NSDI) for smarter services — with the cases of China” (E/CONF.104/IP.18). She reported on the development of NSDI in China. By providing some examples, she made the point that NSDI should be regularly updated to provide better and smarter services, including data harmonization and re-modelling as well as cartography for online services. She stressed that comprehensive and reliable NSDI depends on cooperation between individuals and agencies, and suggested, therefore, that regional SDI should be established for sustainable development of the Asia and Pacific region. Comments were made and questions raised by the representatives of Japan and New Zealand.

35. At the same meeting, Lee Sangho, Geographic Information Division, National Geographic Information Institute, Republic of Korea, presented a paper entitled “Renovation of the national geospatial dataset in the Republic of Korea” (E/CONF.104/IP.19). He presented the advantages and limitations of the establishment of a Government-led spatial information infrastructure and suggested a solution through the development of national geospatial framework data. He stressed that national geospatial framework data could contribute to the consistency, updating, openness, expansion, standardization and sharing of geospatial information.

36. Also at the same meeting, Bayarmaa Enkhtur, Head, Geospatial Information and Technology Division, Administration of land affairs, geodesy and cartography, Mongolia, presented a paper entitled “Mongolian NSDI development” (E/CONF.104/IP.20). She reported on the components of Mongolian NSDI and the actions Mongolia is carrying out to build its national spatial data infrastructure. She provided information on the policy and legal framework and the draft national spatial data infrastructure Act, including the Terelj Declaration on National Spatial Data Infrastructure and its Applications, with emphasis on the NSDI data framework, standardization and architecture, as well as NSDI applications and capacity-development. She also outlined future goals and spatial data infrastructure development steps.

37. Also at the same session, Gary Johnston, Branch Head, Geodesy and Seismic Monitoring, Geoscience Australia, presented a paper on “The Australian and New Zealand Foundation Spatial Data Framework: a spatial data infrastructure for the twenty-first century” (E/CONF.104/IP.21). He highlighted the developments and innovative solutions for the building of the Australian and New Zealand geospatial infrastructure, to address the emerging demands of geospatial information in the various sectors of intelligent transport, precision agriculture, water and energy security, border protection, environmental management, public safety and sustainable global development. He stressed that maintaining interoperability with other important datasets and maximizing the value of foundation spatial data were key in the development of the Australian and New Zealand Foundation Spatial Data Framework. Comments were made and questions raised by the representatives of Japan and the United Arab Emirates.

38. At its 5th plenary meeting, on 8 October 2015, the Conference continued its discussion of regional spatial data infrastructures. Krishna Raj, Executive Director, Land Management Training Centre, Ministry of Land Reform and Management of Nepal, presented a paper entitled “National spatial data infrastructure and sustainable development” (E/CONF.104/IP.22). He explained the importance of geospatial information in the planning, management and sustainable development of the country. He also highlighted current issues impacting national geospatial information infrastructure development in Nepal. In addition, he listed the initiatives taken to further enhance national geospatial information infrastructure. Comments were made and questions raised by the representative of Japan.

39. At the same meeting, Do Thi Thu Thuy, Department of Survey and Mapping, Viet Nam, delivered a presentation entitled “Plan on establishment of a national committee on geographical names and spatial data infrastructure in Viet Nam” (E/CONF.104/IP.23). She reported that the e-Government programme had been established as an effective mechanism for increasing governmental productivity and efficiency and as a key enabler of citizen-centric services. The Government realized the importance of national spatial data infrastructure and would use it as a core platform for policymaking and decision-making. She stated that a national committee on spatial data infrastructure had been established to support the construction of NSDI in Viet Nam. Comments were made and questions raised by the representatives of Japan and the United Arab Emirates.

40. Also at the same meeting, Sanghoon Lee, National Geographic Information Institute, Republic of Korea, delivered a presentation entitled “Strengthening sustainable land administration and management through geospatial information in

the Asia and Pacific region” (E/CONF.104/IP.24). He reported that since Asia and the Pacific was the largest region, its very diverse economic, cultural and environmental characteristics were reflected in its complex land systems and their arrangements. He introduced some solutions to cope with the land administration challenges of urbanization by using spatial data infrastructure, including introducing the Land Administration Domain Model of the International Organization for Standardization (ISO), in adopting the fit-for-purpose approach and the information approach as well as the SDI approach in land administration. He welcomed member countries’ participation and working together with the Working Group. Comments were made and questions raised by the representatives of China and Japan.

41. Also at the 5th plenary meeting, Danilo Antonio, United Nations Human Settlements Programme (UN-Habitat), presented a paper entitled “Fit-for-purpose land administration tools and approaches” (E/CONF.104/IP.25). His presentation provided examples and figures showing that conventional land systems could not deliver tenure security at scale, and that the Global Land Tool Network is necessary to respond to the global land challenge. He introduced the work of the Network and its rationale for recognizing the continuum of land rights approach and for developing fit-for-purpose land administration tools and approaches. He also introduced some of those tools, their relevance, their key features, some examples of their implementation and their potential contributions towards addressing emerging land governance challenges. He urged land institutions and professionals to rethink their existing strategies and the way they do their current business in the sector and encouraged them to move towards more sustainable, inclusive and innovative land administration solutions. Comments were made and questions raised by the representatives of Brunei Darussalam and Singapore.

42. At the same meeting, Kat Sagdiyev, Project Officer, National Information Technologies, Kazakhstan, presented a paper entitled “Addressing land administration and management opportunities: A landlocked country’s perspective” (E/CONF.104/IP.26). He reported on the current situation of land cadastre in the country and described the development and application of space technology. He further explained the problems his Government is facing in land mapping and the way forward, including the integration of existing systems, interdepartmental cooperation and the development of the national geographic information system operation chart.

43. Also at the same meeting, Luu Van Nang, General Department of Land Administration, Viet Nam, presented a paper entitled “Land administration and land registration and the relationship among government bodies in Viet Nam” (E/CONF.104/IP.27). He introduced the history of land administration in Viet Nam and provided an overview of its current development. He also reported the further tasks of Viet Nam, including finalizing the land administrative policy framework, upgrading modern infrastructure and building e-Land registration. He responded to questions about land classification types and land policy, land survey and registration procedures in Viet Nam. Mr. Luu explained that a foreigner could own estate property in Viet Nam, but could not own land. Comments were made and questions raised by the representatives of Brunei Darussalam, China, Fiji and Mongolia.

44. Also at the 5th plenary meeting, Kheng Peng Soh, Chief Surveyor/Director, Land Survey Division, Singapore Land Authority, presented a paper entitled “Leveraging three-dimensional (3-D) mapping for planning and land management” (E/CONF.104/IP.28). He reported on the necessity of three-dimensional mapping

owing to the rapid development of underground facilities. He presented some examples to illustrate how the creation of three-dimensional maps would significantly improve planning operations and existing workflows. Visualization and integration of such maps with planning data had become possible and those capabilities would enable assessment of phenomena and urban planning in 3-D. The main focus of the next stage would be topics in integration with three-dimensional property information and building information modelling, intelligent geospatial data for the Smart Nation initiative of Singapore, accurate indoor mapping and underground mapping. In response to a question about the accuracy of the digital terrain model for three-dimensional mapping, Mr. Soh stated that the model was acquired from Lidar data with accuracy of 0.5-1 metre. Comments were made and questions raised by the representative of Bangladesh.

45. At the same meeting, Teng Chee Hua, Cadastral Division, Department of Surveying and Mapping, Malaysia, delivered a presentation entitled “Leveraging e-Cadastre for national economic transformation” (E/CONF.104/IP.29). He explained how e-Cadastre had helped boost the Malaysian economic programme and its role in aiding land administrators and project managers in land-based project management. He expressed the view that the implementation of e-Cadastre would benefit the nation’s economy in the long run and support sustainable growth and development for the country.

46. In the afternoon of 8 October 2015, the four technical committees established at the 1st plenary meeting met in parallel sessions to discuss relevant topics and work on the texts of draft resolutions to be submitted to the Conference plenary for its consideration and adoption.

Chapter III

Conclusion of the Conference

47. At its 6th plenary meeting, on 9 October 2015, under agenda item 8, the Conference heard the reports of the technical committees. The Chairs (Committee I, John Dawson (Australia); Committee II, Toru Nagayama (Japan); Committee III, Jiang Jie (China); and Committee IV, Sanghoon Lee (Republic of Korea)) reported orally on the work undertaken by their respective committees (see annexes I, II, III and IV).

48. At the same meeting, under agenda item 9, the Conference adopted the provisional agenda for the Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific, which was circulated in an informal paper (see annex V).

49. Also at the same meeting, the Conference discussed and adopted six draft resolutions: four resolutions recommended by the technical committees; one resolution proposed by the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific; and a resolution on the holding of the Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific (see chapter IV).

50. Also at the 6th plenary meeting, under agenda item 10, “Adoption of the report of the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific”, the Rapporteur introduced the draft report of the Conference as contained in an informal paper. The Conference adopted the draft report and authorized the Rapporteur to finalize the report, in consultation with the secretariat, with a view to submitting it to the Economic and Social Council for appropriate action.

51. At the same meeting, the President of the Conference made a statement and declared the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific closed.

Chapter IV

Resolutions adopted by the Conference

A. List of resolutions

1. Geodetic reference frame
2. Disaster risk management
3. Regional spatial data infrastructure
4. Cadastre and land management
5. Strengthening the subsidiary machinery of the Economic and Social Council in the area of geospatial information
6. Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific

B. Texts of resolutions

1. Geodetic reference frame

The Conference,

Recognizing that the geodetic reference frame underpins satellite positioning technology, provides the framework for all geospatial activity and is a key enabler of spatial data interoperability, disaster risk reduction and land management, and supports sustainable development,

Recognizing also resolution 69/266, adopted by the General Assembly on 26 February 2015, on a global geodetic reference frame for sustainable development,

Recognizing further the importance of data-sharing to enable global and regional products and services to be related to the needs of individual countries to support decision makers in addressing such global issues as sea level change,

Noting the significant progress made by the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific and its Working Group 1 on the geodetic reference framework for sustainable development in improving the geodetic reference frame for Asia and the Pacific,

Noting further the challenges of building technical capacity in developing countries to develop national infrastructure and/or national datums, particularly in the context of the complex crustal dynamics of Asia and the Pacific,

Recommends that the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific:

(a) Contribute to the development of the global geodetic reference frame road map which is being developed for tabling at the sixth session of the Committee of Experts on Global Geospatial Information Management;

(b) Participate in the development of the Global Geodetic Observing System to ensure its long-term sustainability;

(c) Encourage multilateral cooperation between nations to address infrastructure gaps regionally while avoiding unnecessary duplication;

(d) Support the adoption of the International Terrestrial Reference Frame by participating in regional geodetic programmes such as the Asia-Pacific Regional Reference Frame and the Asia Pacific Regional Geodetic Project;

(e) Support the observation, analysis and development of national global navigation satellite systems, satellite laser ranging and very long baseline interferometry infrastructure and their interconnection for reference frame improvement, and provide an Asia and the Pacific perspective to the global geodetic community;

(f) Support working together with organizations such as the International Federation of Surveyors and the International Association of Geodesy to develop common approaches to crustal deformation monitoring and modelling and its application to geodetic control networks in the region;

(g) Highlight the need for member States to develop and maintain national geodetic infrastructure as a contribution to the Global Geodetic Observing System;

(h) Urge member States to share geodetic data openly and freely to support, for example, the connection of national height datums to global systems so that decision makers can address such global issues as sea level change through the use of global and regional products and services;

(i) Urge member States to consider sharing real-time geodetic observations to support disaster risk reduction;

(j) Encourage technical capability development through training and cooperation in global navigation satellite system data processing, geoid determination, the use of open geodetic software and the sharing of best practice examples and use cases;

(k) Encourage member States to participate proactively in communication and outreach activities to raise the profile of geodesy as a service to society;

(l) Support the attendance of geodetic experts from member States at appropriate regional forums, such as the relevant working group meetings of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific.

2. Disaster risk management

The Conference,

Bearing in mind that the Asia-Pacific region is prone to many natural hazards and devastating disasters, and that geospatial information plays a very important role in making timely information available to prepare for, support and respond to emergency situations,

Taking note of paragraph 187 of the outcome document of the United Nations Conference on Sustainable Development, “The future we want”,¹ in which the Conference specifically recognized the importance of comprehensive hazard and

¹ General Assembly resolution 66/288, annex.

risk assessments, and knowledge- and information-sharing, including reliable geospatial information,

Noting that the Chengdu Forum on United Nations Global Geospatial Information Management, with the theme “Development and applications in urban hazard mapping”, in 2013 concluded that geospatial information contributes to disaster preparedness and building resiliency,

Noting also the Beijing Declaration on Sustainable Development with Geospatial Information, which was adopted in 2014 at the Third High-Level Forum on Global Geospatial Information Management, resolved to promote the greater use and application of geospatial information for disaster management,

Recognizing that the Sendai Framework for Disaster Risk Reduction 2015-2030,² which was adopted at the World Conference on Disaster Risk Reduction in March 2015, made a clear call for developing, updating and disseminating location-based disaster risk information, including risk maps, by using geospatial information technology,

Recognizing also that international efforts are underway to identify a set of indicators for the implementation of the Sendai Framework and the 2030 Agenda for Sustainable Development,³ and the potential contribution geospatial information will be able to provide in measuring and monitoring those indicators,

Recognizing further that national geospatial information authorities have the responsibility to engage in contributing to disaster risk reduction through the use of geospatial information and relevant technologies in the implementation of the Sendai Framework and the 2030 Agenda,

Recalling that, at its fifth session, the Committee of Experts on Global Geospatial Information Management strongly supported the proposal to establish a working group to further develop and implement a strategic framework that would be aligned with the outcome and follow-up to the Sendai Framework and its implementation which, once established, will need to cooperate closely with the member States, particularly those in the disaster-prone Asia and Pacific region, to make progress and achieve its objective of improved international activities for emergency response and disaster risk reduction,

Recommends that the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific:

(a) Identify the potential areas for national geospatial information authorities to contribute, through the use of geospatial information, to the effective implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030;²

(b) Identify the potential areas of future cooperation with the Working Group on disasters, of the Committee of Experts on Global Geospatial Information Management, to be established in accordance with the decision of the fifth session of the Committee, initially through the focal point in the Secretariat of the Committee;

(c) Investigate the present roles of disaster management authorities and national geospatial information authorities, and find potential areas for extended

² General Assembly resolution 69/283, annex II.

³ General Assembly resolution 70/1.

roles of national geospatial information authorities and collaborations with disaster management authorities through the use of geospatial information;

(d) Collect best practices of the use of geospatial information for disaster risk reduction in the Asia and Pacific region;

(e) Compile a guideline to promote the contribution of national geospatial information authorities through geospatial activities to the effective implementation of the Sendai Framework and the 2030 Agenda for Sustainable Development,³ on the basis of the results of the activities prescribed in paragraphs (a)-(d);

(f) Encourage member States to share earth observation infrastructure, technology and data resources for disaster management on a voluntary basis.

3. Regional spatial data infrastructure

The Conference,

Recognizing the increasing regional issues and challenges that require improved access to and sharing of geospatial information among member States for regional sustainable development,

Recognizing also the increasing demand for effective online location-based web services from Governments, professional agencies and the general public,

Noting that much progress has been made in the establishment of national geospatial data infrastructures in some member States of the region, while there are limited levels of national spatial data infrastructure development among other member States,

Noting also that national geospatial portals have been established in some member States to improve the accessibility, use and application of geospatial information, although their interoperability still remains to be achieved,

Noting further that there still exist persistent difficulties regarding availability, quality, interoperability, accessibility and sharing of geospatial data among the countries of the region,

Recommends that the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific:

(a) Conduct a survey to investigate and assess the current status of national spatial data infrastructure development in member States, with focus on access, management, update, web-based services and sharing of data/services;

(b) Identify the common data standards, including data themes, specifications and metadata catalogue for regional spatial data infrastructure, while keeping the efforts technical in nature so as not to raise political concerns, as well as common service standards, including interfaces and specifications for the interoperability of portals, on the basis of the results of the survey;

(c) Draft data- and service-sharing rules based on common data/service standards;

(d) Conduct pilot projects with a number of member States to test the mechanisms of sharing data under pre-drafted rules and integrate web-based services/portals for improved interoperability;

(e) Refine the data/service standards and data/service-sharing rules on the basis of the results of the pilot projects, develop guidelines on the use of those standards and rules for regional spatial data infrastructure, and disseminate the guidelines to the member States of the region;

(f) Develop an action programme for the provision of education and training for data sharing, portal development and applications for regional spatial data infrastructure.

4. Cadastre and land management

The Conference,

Recalling the report of the Secretary-General on strengthening and coordinating United Nations rule of law activities,⁴ in which he states that improved security of tenure for land and property can make a critical contribution to ensuring social and economic progress in rural and urban settings, supporting poverty reduction and furthering gender equality and peace and security, and that land tenure, including a range of tenure types appropriate to local conditions and needs, such as community property rights and the protection of resource commons, creates certainty about what can be done with land or property and its use and can increase economic opportunities and benefits through investment,

Recalling also the Beijing Declaration on Sustainable Development with Geospatial Information, adopted in 2014 at the Third High-Level Forum on Global Geospatial Information Management, which affirmed an urgent need for sustainable actions that address global humanitarian, environmental and economic challenges with innovative, affordable and fit-for-purpose solutions that are based on knowledgeable choices derived from current, comprehensive and credible geospatial information, the recognition of the importance of good land administration, management and governance and specifically, support for the development of fit-for-purpose land administration;

Recalling further resolutions of the Third Plenary of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific that encourage national geospatial information authorities to engage and contribute towards effective national land information, administration and management systems with their fundamental data leading towards better governance, management and administration of land;

Noting decision 5/105 of the fifth session of the Committee of Experts on Global Geospatial Information Management, in which the Committee acknowledged the importance and need for geospatial information as an essential base for an effective and efficient land information system to support the administration of land policy frameworks, customary rights, security of tenure, property rights, sustainable development and overall environmental, economic and social well-being, and endorsed the establishment of an expert group to undertake the work needed to advance the activities related to land administration and management, and recommended that the group collaborate with other professional bodies and experts working in the field, including United Nations entities and other international organizations,

⁴ [A/68/213/Add.1](#).

Recognizing that the Asia and Pacific region, covering approximately 30 per cent of the global land mass and home to two thirds of the world's population, with increasing levels of urbanization where 7 of the world's 10 largest cities are expected to be located by 2025, of differing levels of economic development where incidences of undernourishment and poverty remain high, and where the impact of climate change is of increasing visibility is more prone to natural disasters from climate phenomena and variability,

Recognizing also that there are significant global developments in land tenure issues, including voluntary guidelines on the responsible governance of tenure, fit-for-purpose land administration and the continuum of land rights, as well as in geospatial and communications technologies, sensors and systems, and that the progress achieved has provided alternatives and the hope that lingering land issues can now be attended to, thus providing a feasible path towards making tenure systems work for all citizens,

Expressing its appreciation to the Economic and Social Commission for Asia and the Pacific and the Global Land Tool Network, facilitated by the United Nations Human Settlements Programme (UN-Habitat), for their support and contribution towards an informative and successful half-day workshop on land administration and management,

Affirming that geospatial information that is current, comprehensive and credible is essential for knowledge-based choices leading to better governance, management and administration of land,

Bearing in mind that the 2030 Agenda for Sustainable Development³ unequivocally calls for partnerships, coordinated actions and appropriate approaches in employing geospatial information for sustainable development,

Recommends that the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific:

(a) Establish a working group on cadastre and land management to promote knowledge-sharing and good practices, capacity-development, cooperation and partnership to improve national and provincial land governance, management and administration in the region, and to liaise with the newly established expert group on land administration and management of the Committee of Experts on Global Geospatial Information Management;

(b) Invite the Economic and Social Commission for Asia and the Pacific, the Global Land Tool Network, as facilitated by UN-Habitat, international organizations and the member States of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific to participate in and contribute to the working group with their geospatial knowledge, technologies, information and fundamental data, leading towards better and more effective governance, management and administration of land in the region;

(c) Address the considerable land sector data and information deficit in existing geospatial information and national spatial data infrastructures, and consider innovative, participatory and affordable approaches, including volunteered information, and promote fit-for-purpose data acquisition processes and technologies, to better identify, record and map people-to-land relationships leading towards the security of tenure for all;

(d) Convene regional workshops and learning events to support capacity-development, and promote the sharing of knowledge and good practices;

(e) Participate in the activities of and partner with the Economic and Social Commission for Asia and the Pacific and the Global Land Tool Network, as facilitated by UN-Habitat and initiated by the Land Tenure Initiative for Asia and the Pacific.

5. Strengthening the subsidiary machinery of the Economic and Social Council in the area of geospatial information

The Conference,

Recalling the adoption by the Economic and Social Council in July 1954 of resolution 556 (XVIII), in which the Council established the United Nations Regional Cartographic Conference for Asia and the Pacific in order for Governments of member States to stimulate the surveying and mapping of their national territories, and that the convening of a regional cartographic conference every three years was seen as an effective means to attain those objectives,

Recalling also the adoption by the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific of resolution 16, in which the Conference decided to form a permanent committee to discuss and agree on, inter alia, geographical information system standards, geographical information system infrastructure and institutional development, and linkage of the prospective committee with related bodies in the world, and the subsequent establishment of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific in 1995,

Recalling further the adoption by the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific of resolution 7, in which the Conference requested the Secretary-General and the Secretariat to initiate discussions and prepare a report, for a future session of the Economic and Social Council, on global coordination of geospatial information management, including consideration of the possible creation of a United Nations global forum for the exchange of information between countries and other interested parties, and recognized the absence of a United Nations consultation process led by member States, which deals with global geospatial information management,

Reaffirming Economic and Social Council resolution 2011/24 of 27 July 2011, in which the Council established the Committee of Experts on Global Geospatial Information Management to provide a forum for coordination and dialogue among Member States, and between Member States and relevant international organizations, including the United Nations regional cartographic conferences and their permanent committees on spatial data infrastructures, on enhanced cooperation in the field of global geospatial information,

Reaffirming also resolution 8, adopted at the Nineteenth United Nations Regional Cartographic Conference, which recommended that the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific enhance its role in regional and global geospatial information management, in close cooperation and coordination with the Committee of Experts, on Global Geospatial Information Management, among others, with a new name that represents the renewed mandate, and regularly report its progress to the Conference,

and noting the subsequent establishment of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific,

Reaffirming further decision 3/114 of the third session of the Committee of Experts on Global Geospatial Information Management, in which the Committee of Experts welcomed the creation of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, and invited the Regional Committee to regularly report to the Committee of Experts,

Acknowledging that all regions in the world have now established their regional global geospatial information management bodies, as initiated by the Asia-Pacific region with the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, and that the regional bodies have been successfully and seamlessly integrated into the global architecture of the United Nations Global Geospatial Information Management to address their regional issues in the global context, and formally report to the Committee of Experts at its annual session,

Noting that the Economic and Social Council, in its resolution 2011/24, decided that the Committee of Experts was to be established and administered within existing resources and organized accordingly, and requested the Committee to present to the Council in 2016 a comprehensive review of all aspects of its work and operations, in order to allow Member States to assess its effectiveness,

Taking note of decision 5/113 of the fifth session of the Committee of Experts, in which it recognized that the submission of the comprehensive review report to the Council in 2016 would provide a unique opportunity to strengthen the subsidiary machinery of the Council in the area of geospatial information, and requested the Bureau to reach out to the other subsidiary bodies of the Council, including the regional cartographic conferences, to engage in a joint reflection over the coming months, with a view to presenting a common proposal in 2016,

Recognizing that the United Nations Regional Cartographic Conference for Asia and the Pacific, through its nearly 60 years of activities, has fulfilled its mandate in facilitating regional cooperation on cartography, surveying and mapping, while noting the rapid technological developments and paradigm shift towards the broader field of geospatial information and related disciplines, and has contributed significantly to the economic and social development of the member States in the region and to the methodological development at the global level,

Recognizing also the considerable achievements and progress made by the Committee in the area of global geospatial information management since its establishment in 2011, and that with the establishment of the Committee of Experts as a global platform, the role of the regional bodies has been transformed, in that they now contribute to global methodological development and implement and follow-up on the global agenda, allowing them to focus more on region-specific themes,

Recognizing with appreciation that the Committee of Experts has drawn much support and participation from the member States, relevant international and regional organizations, academia and the industry since its establishment, and has made a significant contribution to and progress in international cooperation in the geospatial information community,

Bearing in mind that the 2030 Agenda for Sustainable Development³ and the Sendai Framework for Disaster Risk Reduction 2015-2030² unequivocally call for globally coordinated actions in new data acquisition and integration approaches and in employing geospatial information for sustainable development and disaster risk reduction,

Recommends that the Economic and Social Council consider strengthening its subsidiary machinery in the area of geospatial information in the following respects:

(a) Support the mandate of the Committee of Experts on Global Geospatial Information Management to enhance its role and increase its contribution to the work of the United Nations, especially in the context of the implementation of the 2030 Agenda for Sustainable Development³ and the Sendai Framework for Disaster Risk Reduction;²

(b) Optimize the activities of existing regional and relevant international bodies on geospatial information under the auspices of the United Nations including the United Nations Regional Cartographic Conference for Asia and the Pacific, and align them with those of the Committee of Experts so that the implementation of the global agenda, including the 2030 Agenda and the Sendai Framework, will be fully and efficiently supported by the Committee and its regional entities;

(c) Agree that the formal United Nations Regional Cartographic Conference format is no longer a requirement, and consider removing the Conference from the United Nations calendar of conferences and meetings, with its mandates and obligations assumed by the Committee of Experts at the global level, and its technical and substantive activities at the regional and national levels assumed by the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific;

(d) Acknowledging the successful establishment and integration of the regional architecture of the Committee of Experts, encourage the Regional Committee to continue to convene an annual plenary meeting in the Asia and Pacific region to address technical and substantive activities, and to continue to report its outcomes to the Committee of Experts;

(e) Support the United Nations regional commissions, including the Economic and Social Commission for Asia and the Pacific, in providing relevant support to the work of the respective regional bodies of the Committee of Experts so that the geospatial information activities within the United Nations can be streamlined and coordinated, and the outcomes and benefits of the Committee of Experts' activities can be equally disseminated to the member States in each region.

6. Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific

The Conference,

Noting the progress made in geospatial information, at the national, regional and global levels, by States Members of the United Nations,

Noting also the essential role played therein both by the present Committee of Experts on Global Geospatial Information Management and by the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific,

Noting further that the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, in its previous form as the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific, was established in 1994 pursuant to resolution 16 of the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held in Beijing,

Recognizing that the Conference has requested that the Economic and Social Council consider strengthening its subsidiary machinery in the area of geospatial information,

Recommends to the Economic and Social Council that the Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific be convened in 2018 only if it remains on the United Nations calendar of conferences and meetings.

Annex I

Technical Committee I: Geodetic reference frame

1. Committee I, Geodetic reference frame, met on the afternoon of 8 October 2015. The meeting was attended by representatives of Australia, Brunei Darussalam, China, Fiji, India, Japan, Malaysia, Mongolia, New Zealand, Republic of Korea and Viet Nam. The Committee was chaired by John Dawson (Australia) and the Rapporteur was Basara Miyahara (Japan).
2. The Committee discussions highlighted the importance of geodetic infrastructure, products and services, as they underpin satellite positioning technology, provide the framework for all geospatial activity and are a key enabler of spatial data interoperability, disaster risk reduction, land management and sustainable development.
3. The Committee discussed General Assembly resolution 69/266 on a global geodetic reference frame for sustainable development and emphasized the importance of aligning the efforts of Asia and the Pacific with the global agenda.
4. The Committee noted the importance of data-sharing between countries to enable global and regional products and services to be related to the needs of individual countries to support decision makers in addressing global issues such as sea level change.
5. The Committee discussed at length the challenges of building technical capacity in developing countries.
6. Members emphasized the need to develop national infrastructure and/or national datum, particularly in the context of the complex crustal dynamics of Asia and the Pacific.
7. Members agreed on the importance of contributing to the development of the global geodetic reference frame road map, which is being developed for tabling at the sixth session of the Committee of Experts on Global Geospatial Information Management, and on participating in the development of the Global Geodetic Observing System to ensure its long-term sustainability.
8. The importance of supporting the adoption of the International Terrestrial Reference Frame and participating in such regional geodetic programmes as the Asia-Pacific Regional Reference Frame and the Asia-Pacific Regional Geodetic project was highlighted.
9. The Committee noted the importance of supporting the observation, analysis and development of national global navigation satellite system, satellite laser ranging and very long baseline interferometry infrastructure and their interconnection for reference frame improvement and for providing an Asia and Pacific perspective to the global geodetic community.
10. The participants agreed to work together with organizations such as the International Federation of Surveyors (FIG) and the International Association of Geodesy (IAG) to develop common approaches to crustal deformation monitoring and modelling and its application to geodetic control networks in the Asia and Pacific region.

11. It was agreed that member States should be encouraged to share geodetic data openly and freely, to support for example the connection of national height datums to global systems, so that decision makers can address such global issues such as sea level change through the use of global and regional products and services.

12. The Committee discussed the importance of sharing real-time geodetic observations to support disaster risk reduction.

13. The participants highlighted the importance of technical capability development through training and cooperation in global navigation satellite system data processing, geoid determination, the use of open geodetic software and the sharing of best practice examples and use cases. It was suggested the developed countries should do more to assist developing countries.

14. The participants briefly discussed the workplan for the Geodetic Working Group 1 of the Committee of Experts on Global Geospatial Information Management for Asia and the Pacific during its next term, 2015-2018. It was agreed that the Working Group should continue to focus on reference frame development through the Asia-Pacific Regional Reference Frame and the Asia-Pacific Regional Geodetic project, height system unification and capacity-building with a focus on global navigation satellite system data processing, geoid determination and the use of open geodetic software.

15. The Committee developed a draft resolution on the geodetic reference frame for adoption by the Conference.

Annex II

Technical Committee II: Disaster risk management

1. Technical Committee II met in the afternoon of 8 October 2015. Toru Nagayama (Japan) chaired the Committee and Robert Deakin (New Zealand) was the Rapporteur for the Committee. Nine participants, including representatives from China, Indonesia, Japan, New Zealand and the Republic of Korea and from the United Nations Geospatial Information Section, discussed the issue on the basis of a memo prepared by the chair for discussion by the Committee.
2. Opening remarks were made by the Chair. He welcomed the participants and offered for their consideration the proposed working items of Working Group 2 on data sharing and integration for disaster management and a draft resolution from the Committee for adoption by the Conference.
3. The participants confirmed the nominations of the officers for the Committee and Working Group 2 for the next term, 2015-2018.
4. The Committee discussed the following issues:
 - (a) The participants considered the working items of Working Group 2 for the next term and reached a basic agreement on the items. Five items were identified: (i) preparing an activity list of the contribution by national geospatial information authorities towards the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030; (ii) studying current disaster-related activities of the authorities; (iii) collecting best practices of geospatial information use for disaster risk reduction; (iv) compiling guidelines for the activities of the national geospatial information authorities for disaster risk reduction towards the implementation of the Sendai Framework; and (v) identifying potential areas of cooperation with the Working Group on disasters of the Committee of Experts on Global Geospatial Information Management;
 - (b) The participants considered the draft resolution before the Technical Committee and on the basis of discussions agreed on the text. In its preamble, the resolution referred to the Asia and Pacific context; the significance of geospatial information; important policy documents for the Committee's theme; the responsibility of national geospatial information authorities for disaster risk management; and the establishment of the Working Group on disasters of the Committee of Experts. The operational part of the resolution consisted of the five working items set out in paragraph (a).
5. The Working Group submitted a draft resolution on disaster risk management for adoption by the Conference.

Annex III

Technical Committee III: regional spatial data infrastructure

1. Technical Committee III met in the afternoon of 8 October 2015. Jiang Jie (National Administration of Surveying, Mapping and Geoinformation, China) chaired the meeting and Lee Sangho (National Geographic Information Institute, Republic of Korea) was the Rapporteur. Hiroshi Murakami (Geospatial Information Authority, Japan), Amor Laaribi (United Nations Statistics Division), Bayarmaa Enkhtur (Administration of Land Affairs, Geodesy and Cartography, Mongolia), Do Thi Thu Thuy (Department of Survey and Mapping, Viet Nam), Yusita Permana and Dini Nuraeni (Geospatial Information Agency, Indonesia). Muntasir Mamun (Survey of Bangladesh) joined the meeting.

2. Opening remarks were made by the Chair. She welcomed the participants and expressed the hope that there would be further cooperation on the resolutions in the coming term.

3. The Committee discussed the following issues:

(a) The participants discussed the background requirements of regional spatial data infrastructure and reached a common understanding on the concepts, components and mechanism of interoperation of regional spatial data infrastructure;

(b) The participants worked together to draft a resolution on regional spatial data infrastructure, which mainly considered the increasing requirements arising from regional issues and location-based services on the access and sharing of geospatial information among countries for regional sustainable development. It also addressed the problems regarding availability, quality, interoperability, accessibility and sharing of geospatial data/services among the countries. It included recommendations to conduct a survey to investigate and assess the current status of national spatial data infrastructure development in the member countries, to identify the common data/service standards for regional spatial data infrastructure, to draft data- and service-sharing rules, and to conduct a pilot project with some countries to test the mechanisms of sharing data under pre-drafted rules and integrate web-based services/portals for the interoperation of national spatial data infrastructures. Joint action programmes for the provision of education and training for data sharing, portal construction and applications for regional spatial data infrastructure were also recommended;

(c) The participants also drafted the workplan and targeted goals for the coming three years. Six items were identified, namely, to conduct a survey on the status of national spatial data infrastructure development in the member countries, with a focus on access, management, updates, web-based services and sharing of data/services; to identify common data/service standards and draft data/service-sharing rules; to conduct pilot projects between countries, including China, Indonesia, Mongolia, Republic of Korea and Viet Nam; to organize training on the regional spatial data infrastructure, portal/platform and application; and to co-organize workshops/seminars on the regional spatial data infrastructure with other international organizations.

4. The Committee submitted a draft resolution and a workplan on the regional spatial data infrastructure for adoption by the Conference.

Annex IV

Technical Committee IV: cadastre and land management

1. Technical Committee IV met in the afternoon of 8 October 2015, under the chairmanship of Sanghoon Lee (Republic of Korea) and Teo Che Hai (Malaysia) as Rapporteur. A total of 22 participants, including representatives from 12 member countries (Brunei Darussalam, China, Fiji, Japan, Madagascar, Malaysia, Mongolia, Nepal, Republic of Korea, Singapore, Sri Lanka and Viet Nam) and two United Nations entities (UN-Habitat/Global Land Tool Network and the United Nations Statistics Division) shared experiences and knowledge, and discussed the issue based on the outcome of the joint workshop attended by representatives of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific, ESCAP, and UN-Habitat/Global Land Tool Network on 5 October 2015. The Committee also discussed the Rapporteur's summary.

2. The Committee discussed the following issues:

(a) The participants confirmed that diversity in Asia and the Pacific region should be respected, and strong land administration and management with geospatial information could be an effective entry point to achieve sustainable development;

(b) The participants addressed the considerable land sector data and information deficit in the existing geospatial information and national spatial data infrastructures;

(c) The participants considered innovative, participatory and affordable approaches, including volunteered information and promotion of fit-for-purpose data acquisition processes and technologies to better identify, record and map people-to-land relationships, leading towards the security of tenure for all;

(d) The Committee adopted the work programme for the activities to be undertaken in the coming three years. Three items were identified, namely, identifying land issues in the Asia and Pacific region; proposing an affordable framework and good practices for the Asia and Pacific region; and disseminating good practices and enhancing training and capacity-development;

(e) Nine member countries from Brunei Darussalam, China, Fiji, Kyrgyzstan, Malaysia, Mongolia, Singapore, Sri Lanka and Viet Nam confirmed the nominations of candidates for vice-chair of the established Working Group 4, and UN-Habitat/Global Land Tool Network expressed its support for those activities;

(f) The participants confirmed the liaison with the expert group on land administration and management of the Committee of Experts on Global Geospatial Information Management, and the delegation of Malaysia expressed interest in holding a regional workshop on land management at the next plenary meeting of the Regional Committee.

3. The working group submitted a draft resolution on cadastre and land management for adoption by the Conference.

Annex V

Provisional agenda for the Twenty-first United Nations Cartographic Conference for Asia and the Pacific

1. Opening of the Conference.
2. Election of the President and other officers of the Conference.
3. Adoption of the agenda and other organizational matters:
 - (a) Adoption of the agenda and organization of work of the Conference;
 - (b) Adoption of the rules of procedure;
 - (c) Establishment of technical committees and election of the Chair of each committee;
 - (d) Credentials of representatives to the Conference.
4. Report of the Committee of Experts on Global Geospatial Information Management.
5. Report of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific.
6. Report on the implementation of resolutions adopted at the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific.
7. Conference papers:
 - (a) Country reports;
 - (b) Invited papers on achievements and developments in geospatial information management in addressing national, regional and global issues.
8. Reports of the technical committees of the Conference.
9. Provisional agenda for the Twenty-second United Nations Regional Cartographic Conference for Asia and the Pacific.
10. Adoption of the report of the Twenty-first United Nations Regional Cartographic Conference for Asia and the Pacific.

Annex VI

List of documents

<i>Number</i>	<i>Title</i>
E/CONF.104/1	Provisional agenda
E/CONF.104/2	Provisional rules of procedure
E/CONF.104/INF/1	Documentation for the Conference
E/CONF.104/INF/2	List of participants
E/CONF.104/L.1	Organization of work
E/CONF.104/3	Report of the United Nations Committee of Experts on Global Geospatial Information Management
E/CONF.104/4	Report of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific
E/CONF.104/5	Report of Working Group 1: Geodetic reference framework for sustainable development
E/CONF.104/6	Report of Working Group 2: Data sharing and integration for disaster management
E/CONF.104/7	Report of Working Group 3: Place-based information management for economic growth
E/CONF.104/8	Report on the implementation of resolutions adopted at the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific
E/CONF.104/IP.1	Integrating geospatial information into the 2030 Agenda for Sustainable Development
E/CONF.104/IP.2	Regional urban transformations: land and the new urban agenda
E/CONF.104/IP.3	National perspectives: Japan's view
E/CONF.104/IP.4	Geospatial information for the global development agenda: Americas
E/CONF.104/IP.5	Maps in today's world (cancelled)
E/CONF.104/IP.6	Geodetic reference frame: Australia
E/CONF.104/IP.7	The global geodetic reference frame: an International Association of Geodesy perspective
E/CONF.104/IP.8	Modernization of Fiji's geodetic datum
E/CONF.104/IP.9	Mongolian geodetic reference system
E/CONF.104/IP.10	Geodetic reference frame of Asia and the Pacific assimilating very long baseline interferometry observation
E/CONF.104/IP.11	The revision of geocentric datum of Malaysia 2000

<i>Number</i>	<i>Title</i>
E/CONF.104/IP.12	Countermeasures against disasters in Japan and promotion of approaches for disaster risk reduction in each member country of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific
E/CONF.104/IP.13	Regional cooperation on space technology applications for disaster risk reduction and sustainable development
E/CONF.104/IP.14	Geospatial information for disaster risk reduction: Indonesia plan for 2015-2019
E/CONF.104/IP.15	Mapping of the Typhoon Haiyan-affected areas in the Philippines using geospatial and very high resolution satellite images
E/CONF.104/IP.16	Canterbury spatial data infrastructure: lessons learned from post-earthquake recovery
E/CONF.104/IP.17	Geospatial information and services for disasters
E/CONF.104/IP.18	Upgrade the datasets in national spatial data infrastructure for smarter services — with the cases of China
E/CONF.104/IP.19	Renovation of the national geospatial dataset in the Republic of Korea
E/CONF.104/IP.20	Mongolian national spatial data infrastructure development
E/CONF.104/IP.21	The Australian and New Zealand Foundation Spatial Data Framework: a spatial data infrastructure for the twenty-first century
E/CONF.104/IP.22	National spatial data infrastructure and sustainable development
E/CONF.104/IP.23	Plan on establishment of a national committee on geographical names and spatial data infrastructure in Viet Nam
E/CONF.104/IP.24	Strengthening sustainable land administration and management through geospatial information in the Asia and Pacific region
E/CONF.104/IP.25	Fit-for-purpose land administration tools and approaches
E/CONF.104/IP.26	Addressing land administration and management opportunities: A landlocked country's perspective
E/CONF.104/IP.27	Land administration and land registration and the relationship among government bodies in Viet Nam
E/CONF.104/IP.28	Leveraging three-dimensional mapping for planning and land management
E/CONF.104/IP.29	Leveraging e-Cadastre for national economic transformation
E/CONF.104/CRP.1	Country report of Thailand
E/CONF.104/CRP.2	Country report on the status of geospatial information activity of Japan

