United Nations

Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific

Bangkok, 26-29 October 2009

Report of the Conference

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Department of Economic and Social Affairs

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United Nations • New York, 2009

Note

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

The proceedings of the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held at Bangkok from 26 to 29 October 2009, 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).

Contents

Chapter I
Organization of the Conference

A. Introduction

1.   In accordance with Economic and Social Council decision 2007/275 of 4 October 2007, the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific was held at the United Nations Conference Centre of the Economic and Social Commission for Asia and the Pacific in Bangkok from 26 to 29 October 2009. The theme of the Conference was "Spatial enablement and the response to climate change and the Millennium Development Goals".

B. Opening of the Conference

2.   Li Weisen (China), temporary President, opened the Conference.

3.   Paul Cheung, Director of the United Nations Statistics Division, made an opening statement on behalf of the Secretary-General.

C. Attendance

4.   The Conference was attended by 149 representatives of 37 countries and 12 specialized agencies and international scientific organizations. The list of participants (E/CONF.100/INF/2) is available from http://unstats.un.org/unsd/ methods/cartog/Asia_and_Pacific/18/18th-UNRCC-AP-Docs.htm.

D. Election of officers

5.   At its 1st plenary meeting on 26 October 2009, the Conference elected the following officers by acclamation:

President:
      Greg Scott (Australia)

Vice-Presidents:
      Li Weisen (China)
      Kheng Peng Soh (Singapore)

Rapporteur:
      Hiroshi Murakami (Japan)

E. Organizational matters

1.   Adoption of the rules of procedure

6.   At its 1st plenary meeting, on 26 October 2009, the Conference adopted its provisional rules of procedure, as contained in document E/CONF.100/2.

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

7. At its 1st plenary meeting, on 26 October 2009, the Conference adopted its provisional agenda as contained in document E/CONF.100/1. 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 rules of procedure;

        (b) Adoption of the agenda and organization of work of the Conference;

        (c) Establishment of technical committees and election of the Chairperson of each committee;

        (d) Credentials of representatives to the Conference.

    4. Objectives of the Conference.

    5. Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific.

    6. Report on the implementation of resolutions adopted at the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific.

    7. Conference papers:

        (a) Country reports;

        (b) Invited papers on achievements and developments in geographical information in addressing national, regional and global issues including:

            (i) Strategy, policy, economic and institutional issues;

            (ii) Spatial data infrastructure and spatially enabled Government;

            (iii) Geospatial data collection, management and dissemination;

            (iv) Best practices and applications;

            (v) Disaster management.

    8. Reports of the technical committees of the Conference.

    9. Provisional agenda for the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific.

    10. Adoption of the report of the Eighteenth 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 an informal paper.

3. **Establishment of technical committees and election of the chairperson of each committee**

9.   At its 1st plenary meeting, on 26 October 2009, the Conference established the following three technical committees and elected their chairpersons as follows:

Committee I: Geographic Information System (GIS), remote sensing and geodesy for disaster management

Chairperson: John Dawson (Australia)

Committee II: Spatial data infrastructure and spatially enabled Government

Chairperson: Manoj Tayal (India)

Committee III: Geospatial data collection, management and dissemination

Chairperson: Bebas Purnawan (Indonesia)

4. **Credentials**

10.   At the 6th plenary meeting, on 29 October 2009, 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. **Objectives of the Conference**

11.   At its 1st plenary meeting, on 26 October 2009, the representative of the United Nations Statistics Division reported that the primary objective of the Conference was to provide a regional forum where Government officials, planners, scientists and experts from the Asia and Pacific region and from other regions of the world could meet to report on the efforts being accomplished in the development and implementation of national and regional spatial data infrastructures in the region and in other parts of the world and to address common needs, problems, experiences and best practices in the field of cartography and geographic information, including educational and training aspects, scientific and technological requirements, implementation issues and benefits.

6. **Documentation**

12.   A list of the documents submitted to the Conference is contained in annex V and is available from http://unstats.un.org/unsd/methods/cartog/Asia_and_Pacific/ 18/18th-UNRCC-AP-Docs.htm.

Chapter II
Plenary session

13.   At its 1st plenary meeting, on 26 October 2009, the Conference began its consideration of agenda item 5, "Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific". Greg Scott, President of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific (PCGIAP), presented a summary of the activities of PCGIAP (E/CONF.100/3), highlighting the challenges facing national mapping organizations owing to rapid technological changes, and emphasizing the importance of applying those technologies to outstanding problems in the region. He also acknowledged three people who were leaving PCGIAP, Peter Holland, Ian Williamson and Abbas Rajabifard, for their significant contribution to PCGIAP over a number of years.

14.   At the same meeting, the Conference considered the report (E/CONF.100/4) of the PCGIAP Working Group on Regional Geodesy (Working Group 1), presented by Shigeru Matsuzaka, Chairman of Working Group 1. Mr. Matsuzaka reported on the activities of Working Group 1 during the past three years in response to the resolutions adopted at the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific in 2006. The main activity of the Working Group continued to be the Asia Pacific Regional Geodetic Project (APRGP). He emphasized that geodetic techniques, including satellite radar and Global Positioning System (GPS) observations, had been successfully applied to recent disasters caused by earthquakes and had contributed to the understanding of the resulting damages. Future activities of Working Group 1 were also proposed, including the Asia-Pacific Reference Frame (APREF) project as a natural extension of the current APRGP.

15.   Also at the same meeting, Bebas Purnawan, Chairperson of PCGIAP Working Group 2 on Fundamental Dataset, reported on the three main activities of the Working Group (see E/CONF.100/5), namely, framework data set development, regional metadata profile development and data node network development. Significant progress was made during the past three years in respect of all those activities. He drew attention to the fact that the framework data sets that cover 22 countries in the region had been successfully prepared.

16.   Also at the 1st plenary meeting, Ian Williamson, Chairperson of PCGIAP Working Group 3 on Land Administration, reported that the Group had successfully established an annual forum on land administration based on the discussions held at a number of meetings and seminars organized by the Working Group (see E/CONF.100/6). In view of the importance of involving experts on land administration for the development of spatially enabled Government, he mentioned that such experts needed to be involved in future United Nations Regional Cartographic Conferences for Asia and the Pacific and PCGIAP activities.

17.   At the same meeting, Manoj Tayal, on behalf of the Chairperson of PCGIAP Working Group 4 on Institutional Strengthening, reported on the Group's activities on institutional strengthening, highlighting the training programmes held in India that focused on National Spatial Data Infrastructure (NSDI) training (see E/CONF.100/7). He also introduced future programmes for NSDI training.

18.   At its 2nd plenary meeting, on 26 October 2009, the President drew the attention of the Conference to documents submitted under agenda item 7 (a), "Country reports" (see E/CONF.100/CRP.1-18). He informed the Conference that, following the practice at previous conferences, the country reports and other papers identified as CRPs would not be presented in the Conference.

19.   At the same meeting, the Conference considered agenda item 6, "Report on the implementation of resolutions adopted at the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific". Hiroshi Murakami, representing Kazuo Komaki, Vice-President of PCGIAP, introduced a report (E/CONF.100/8), jointly prepared by the United Nations Statistics Division and PCGIAP, on the actions taken during the past three years in response to the resolutions adopted at the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific. He reported that most of the relevant actions had been taken by the PCGIAP working groups and member countries.

20.   Also at the same meeting, the Conference began its consideration of agenda item 7 (b), "Invited papers on achievements and developments in geographical information in addressing national, regional and global issues". Stig Enemark, President of the International Federation of Surveyors (FIG), presented a keynote paper entitled "Spatial enablement and the response to climate change and the Millennium Development Goals" (E/CONF.100/IP.6). The importance of land administration was emphasized since it played a key role in adaptation to climate change and in the prevention and management of natural disasters. He noted that mapping and cadastral agencies should have a key role to play in developing spatially enabled Government by merging large-scale maps into small-scale ones.

21.   Also at the 2nd meeting, John Schneider, Group Leader of the Risk and Impact Analysis Group in the Geospatial and Earth Monitoring Division of Geoscience Australia, presented a keynote paper entitled "The role of spatial information in understanding climate change risk" (E/CONF.100/IP.10). By referring to two of the recent disasters in Australia (related to wildfires and floods) and showing the detailed analyses on how geospatial information can contribute to risk reduction, he explained the importance of employing geospatial information in measuring and assessing disaster risks. He reaffirmed that spatial and mapping agencies played a vital role in disaster risk reduction.

22.   At the same meeting, Abbas Rajabifard, President of Global Spatial Data Infrastructure (GSDI), presented a keynote paper entitled "Realizing spatially enabled societies: a global perspective in response to the Millennium Development Goals" (E/CONF.100/IP.4). He stressed that while spatial data infrastructures are important to leverage geospatial data, they have no value without business applications. He also emphasized the importance of spatial enablement in Governments and in society, for which cadastre plays a crucial role. The development of a spatially enabled Government and society will require a wide range of experiences and disciplines, including surveying and mapping, land administration, GIS, information and communications technology, computer science and legal and public administration.

23.   Also at the same meeting, Kheng Peng Soh, Vice-President of the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific, briefed the Conference on the sixteenth PCGIAP meeting to be held from 19 to 22 October 2010 in Singapore, in conjunction with the Twelfth International Conference on

Global Spatial Data Infrastructure, and invited delegates to the forthcoming conference. He also emphasized the importance of spatial data infrastructures for the Governments of the region by introducing the experience of Singapore on spatial data infrastructure development.

24.   At its 3rd plenary meeting, on 27 October 2009, the Conference continued its consideration of item 7 (b). Greg Scott, in his capacity as Director of the National Mapping and Information, Geospatial and Earth Monitoring Division of Geoscience Australia, presented a paper entitled "Disaster risk reduction and climate change adaptation in the Australia-Pacific region" (E/CONF.100/IP.7). By referring to the geospatial component included in the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters, adopted at the United Nations World Conference on Disaster Reduction held in Japan in 2005, the paper drew the attention of geoinformation specialists to the importance of being able to contribute to disaster risk reduction. While in the past the United Nations regional cartographic conferences for Asia and the Pacific had mainly focused on data development, more attention had to be paid to disaster mitigation at the conferences, beginning with the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific. It was also emphasized that, in addition to employing geospatial information after disasters, it was more important to make geospatial information usable for the decision makers before disasters occurred.

25.   At the same meeting, Yukiko Tachibana, Deputy Head of the Information Access Division of the Geospatial Information Department of the Geographical Survey Institute (GSI) of Japan, presented a paper entitled "New NSDI and national mapping policy of Japan" (E/CONF.100/IP.5). She introduced new NSDI legislation that had been enacted in Japan in the light of the rapid expansion of geospatial applications in society. As one of the measures prescribed in the new law, GSI was now developing fundamental geospatial data in cooperation with local governments. She also explained about the implications of fundamental geospatial data development to the national mapping programme, in which conventional topographical map data are rebuilt based on the newly developed fundamental geospatial data.

26.   Also at the same meeting, Woosug Cho, Professor of Inha University, Republic of Korea, presented a paper entitled "The present state of geographic information in the Republic of Korea" (E/CONF.100/IP.15). He introduced the activities related to having developed NSDI in the Republic of Korea in 1995, based on a GIS law and three master plans, including base map data development, data standardization, human resources development and research and development. He also introduced a new organizational structure in the Government of the Republic of Korea, which merged land surveys, cadastre and marine surveys into one entity, as well as a new role for the National Geographic Information Institute.

27.   Also at the 3rd plenary meeting, Victor Khoo, Senior Manager of Survey Services of the Singapore Land Authority, presented a paper entitled "Singapore NSDI: towards a spatially enabled nation" (E/CONF.100/IP.9). He introduced the activities of Singapore on the development of NSDI ("SG-SPACE") starting within an assessment of user needs. He explained that beyond data-sharing, SG-SPACE aimed to create a sustainable environment where geospatial data was interoperable, accessible and usable by agencies in day-to-day operations in order to facilitate better policy, decision-making and governance.

28. At the same meeting, Shri L. P. Sharma, National Informatics Centre, Sikkim, India, presented a paper entitled "Geographical Information System-based landslide probabilistic model with trivariate approach: a case study in Sikkim Himalayas" (E/CONF.100/IP.19). The region of Sikkim has been vulnerable to landslides owing to steep slopes. Geospatial information was collected to classify the region in terms of its vulnerability to landslides. The developed GIS successfully identified vulnerable areas.

29. Also at the same meeting, Ian Williamson presented a paper entitled "National mapping, land administration and spatially enabled Government: looking back, looking forward" (E/CONF.100/IP.18). He drew the attention of the participants to the changes that had occurred in the field since the launch of United Nations regional cartographic conferences and after the establishment of PCGIAP, particularly in the role and concept of cadastre. While acknowledging that there were differences in land administration between countries, he stressed that integration of land administration into spatial data infrastructures would be the key for the successful implementation of spatially enabled Government. He encouraged member States to develop a new vision to cope with the changes and challenges.

30. Also at the 3rd plenary meeting, Manoj Tayal, Surveyor General of India, presented a paper entitled "Achievements and developments in geographical information in addressing national issues in India" (E/CONF.100/IP.22). He introduced the past engagement of the Survey of India in surveying and mapping the country, including countrywide surveying and mapping activities and large-scale mapping in State capitals. One of the successful applications of geospatial information could be seen in India's employment of geospatial data in the national election in 2009.

31. At its 4th meeting, on 27 October 2009, the Conference continued its consideration of item 7 (b). Pengde Li, Director of the Map Supervision Centre of the State Bureau of Surveying and Mapping of China, presented a paper entitled "Institutional strengthening to stimulate geospatial industry growth in China" (E/CONF.100/IP.11). He introduced the reorganization of the State Bureau of Surveying and Mapping of China, which had been achieved through a new Government initiative, with a new emphasis on the modernized relationship between the Government and the industry. The industry had been growing rapidly during the past years, with recent annual growth of more than 20 per cent. Based on such changes, the Bureau was tasked with new terms of reference and would work more closely with the industry.

32. At the same meeting, Paulino da Cruz, Head of Cadastral and Land Information of the National Directorate for Land and Property and Cadastral Services, Ministry of Justice of Timor-Leste, presented a paper entitled "The efforts of building GIS infrastructure in a newly independent State: the case of Timor-Leste" (E/CONF.100/IP.12). He introduced the experience of Timor-Leste in building a GIS infrastructure as a new independent State, including with support from the United Nations and other countries and organizations. He reported that some basic development had been completed, including geodetic datum through international support. At the same time, however, the country still needed technical capacity development and overall coordination of its GIS infrastructure.

33. Also at the same meeting, Adibah Awang, University of Technology, Department of Surveying and Mapping, Malaysia, presented a paper entitled

"Geospatial data accuracy and its legal implications in the Malaysian context" (E/CONF.100/IP.14). She drew the attention of the delegates to outstanding legal issues associated with geospatial information, in particular in instances when maps were inaccurate. Due to the peculiar nature of geospatial information, such as multiple developers for a single dataset, the existing legal framework was not adequate for the current situation and new legislation was needed in Malaysia.

34.   Also at the 4th plenary meeting, Gholam Reza Fallahi, GIS Department of the National Cartographic Center, Islamic Republic of Iran, presented a paper entitled "Implementation of Web Geo-services" (E/CONF.100/IP.13). He introduced a three-layer system on the web map service based on Web 2.0 technology, with the application of a new layer in the middle of the data and client layers. He also explained the advantage of the new Web services implemented in the National Cartographic Center with its enhanced efficiency and ease of maintenance in comparison to the traditional ones.

35.   At the same meeting, Dietmar Grünreich, Director-General of the Federal Agency for Cartography and Geodesy, Germany, presented a paper entitled "The German NSDI (GDI-DE)" (E/CONF.100/IP.17). He introduced the structure of German NSDI in the Government and the work of the German federal Government mapping agency. He also introduced domestic laws on geospatial information and the regional framework of the INSPIRE (Infrastructure for Spatial Information in Europe) Directive, which requires that the European Union provide the geospatial data for European policymaking.

36.   Also at the same meeting, Dodi Sukmayadi presented a paper entitled "Indonesia emergency: quick response to the West Sumatra earthquake" (E/CONF.100/IP.21) on behalf of Rudolf W. Matindas, Head of the National Coordinating Agency for Surveys and Mapping (BAKOSURTANAL) of Indonesia. He introduced the responses provided by BAKOSURTANAL immediately after the earthquake, which had occurred on 30 September 2009 in the Padang area of Sumatra. He reported that as a result of 1:10,000-scale maps having been prepared by the mapping agency the year before, the Government had been able to respond quickly to the disaster caused by the earthquake. One of the lessons learned at the time of the disaster was that paper maps were a more valuable source of information than digital map data, in the event of the electric power outages that immediately follow a disaster.

37.   Also at the 4th plenary meeting, Luiz-Paulo Fortes (Brazil), Chair of the Ninth United Nations Regional Cartographic Conference for the Americas and President of the Permanent Committee on Spatial Data Infrastructure for the Americas (PC-IDEA), presented a paper entitled "Importance of policies and legal instruments for the building of spatial data infrastructures in the Americas" (E/CONF.100/IP.16). He reviewed how PC-IDEA had been created with the membership of 24 countries in the Americas and the Caribbean region and reported on the legal status of spatial data infrastructures in the region based on the survey that had been conducted in 2008 on the legal framework which prescribed the development of NSDI, standards, capacity-building and the level of spatial data infrastructure development. He pointed out that there seemed to be a positive relationship between the availability of legal framework and actual spatial data infrastructure development, suggesting that the legal framework was essential for success of spatial data infrastructure implementation.

38. At its 5th plenary meeting, on 28 October 2009, the Conference continued its consideration of item 7 (b). Orhan Altan, President of the International Society for Photogrammetry and Remote Sensing (ISPRS), presented a paper entitled "Geospatial technologies to reach the Millennium Development Goals" (E/CONF.100/IP.3). He pointed out significant changes, including disasters, climate change and food shortages, that had been occurring globally and that posed serious threats to the people living in the affected areas. He introduced the important activities that ISPRS and other related international organizations were undertaking to tackle such global issues, including by employing Earth observations and photogrammetric technology.

39. At the same meeting, William Cartwright, President of the International Cartographic Association (ICA), presented a paper entitled "Web 2.0 map production and publishing and geospatial information dissemination" (E/CONF.100/IP.1). He introduced the recent development of map production and publishing through sophisticated Web 2.0 software and powerful computer hardware by non-professionals, including ordinary citizens, illustrating a shift from the conventional publishing model. He pointed out that such amateur mapmakers were now ready to produce and immediately publish maps globally to support their cause.

40. Also at the same meeting, Fraser Taylor, President of the International Steering Committee for Global Mapping (ISCGM), presented a paper entitled "Global mapping: a tool for natural disaster mitigation for the Asia and Pacific region" (E/CONF.100/IP.2). He introduced the current status of the Global Mapping project, from its origins to recent progress, while highlighting the valuable contribution of Global Map in the field of disaster mitigation and management. The future challenges of Global Map include improved data interoperability and institutional cooperation among the various stakeholders responsible for collecting, storing and distributing geoinformation.

41. Also at the 5th plenary meeting, Kyoung-Soo Eom, of the United Nations Cartographic Section, presented a paper entitled "Geospatial support for United Nations operations" (E/CONF.100/IP.20). He introduced the responsibilities of the Section, which encompass a wide range of geospatial information support activities, including timely provision of geospatial information for the United Nations Secretariat, particularly in support of the work of the Security Council, direct support on GIS to United Nations field missions and technical support in respect of international boundary issues. The Section works closely with United Nations agencies and national, regional and global organizations through partnerships to enhance its functions, including capacity-building and data-sharing.

42. At the same meeting, Mauro Salvemini, President of the European Umbrella Organization for Geographic Information (EUROGI), presented a paper entitled "Spatially enabling e-Government through geoservices" (E/CONF.100/IP.8). He introduced the European experience in developing spatial data infrastructures in the region, including EUROGI, and the ongoing activities based on the INSPIRE Directive. Through such experience, it was emphasized that networking and dialogues among stakeholders, users, developers and institutions were crucial to the successful implementation of spatial data infrastructures.

43. Also at the same meeting, the representative of the Russian Federation stated that the Government of the Russian Federation had recently reorganized three

geospatial information-related organizations (land property sales, cadastral service and cartography) and had merged them into one body.

44.   Also at the 5th plenary meeting, under agenda item 5, "Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific", the Conference had a panel discussion on the theme "PCGIAP: future directions". The panellists included Luiz Paulo Fortes of PC-IDEA, Mauro Salvemini of EUROGI, Claude Obin Tapsoba of CODIST-Geo (Africa) and Abbas Rajabifard of GSDI. Greg Scott, President of the Conference and PCGIAP, opened the panel discussion, and presented a summary of the discussions that had been conducted at the PCGIAP Executive Board meeting, held on 19 and 20 May 2009 in Xi'an, China, in terms of the future of the PCGIAP. He also introduced the outcome of an informal meeting convened by the United Nations Statistics Division on 25 October 2009, in which consultations were held with member countries and regional and global non-governmental organizations on the importance of global geographic information management. He proposed that the Conference consider a resolution highlighting the need for a global forum to tackle outstanding global issues and for more effective coordination by enhancing global geographic information management. He invited the views of the panellists on these subjects.

45.   At the same meeting, Luiz Paulo Fortes of PC-IDEA expressed his views on the lack of a global political framework on the applications of geospatial information and on the need for high-level global coordination to direct regional activities, including technical standards and specifications on spatial data infrastructures.

46.   Also at the same meeting, Mauro Salvemini of EUROGI expressed his views that spatial data infrastructures needed a platform of networking with other spatial data infrastructures and supported the initiative of global geographic information management. He also added that PCGIAP should take the lead in setting up an instrument to guide the Asia and Pacific region in communicating with each other through workshops.

47.   Also at the 5th plenary meeting, Claude Obin Tapsoba of CODIST-Geo (Africa) expressed his view that geospatial information was desperately needed in Africa, but that not enough work had been undertaken so far. In Africa, NSDI initiatives were established, but the management committees might not be sustainable for various reasons and required support from other countries. He added that Africa supported the proposed idea of global geographic information management.

48.   At the same meeting, Abbas Rajabifard of GSDI welcomed the initiative on global geographic information management and mentioned that GSDI and the proposed global body complemented each other's work. He added the need for a high-level arrangement for global geographic information management and emphasized the need to facilitate better outreach by such global bodies as the United Nations to promote the idea of spatial enablement.

49.   Also at the same meeting, the President invited comments from the floor. The representatives of Canada, Fiji, Finland and Germany expressed their support for the proposed idea of global geographic information management, pending high-level support from their respective Governments.

50. Also at the 5th plenary meeting, the President proposed that a draft resolution on global geographic information management be prepared and discussed in the plenary on 29 October 2009 and that another preparatory meeting be organized in 2010, which was accepted by the floor by acclamation.

51. In the afternoon of 28 October 2009, the three technical committees, established at the 1st plenary meeting, met in parallel sessions in order to discuss various relevant topics and work on the texts of draft resolutions to be submitted to the Conference plenary for consideration and adoption.

Chapter III
Conclusion of the Conference

52. At its 6th plenary meeting, on 29 October 2009, the Conference considered agenda item 8, "Reports of the technical committees of the Conference". The Rapporteurs of Committee I, Shigeru Matsuzaka (Japan), Committee II, Zoher Nomanbhoy (Malaysia) and Committee III, Cho Wu Sug (Republic of Korea), reported on the work undertaken by their respective Committees. The Conference agreed to include the reports of the three technical committees in the final report of the Conference (see annexes I, II and III).

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

54. Also at its 6th plenary meeting, the Conference discussed and adopted six draft resolutions recommended by the technical committees (see chapter IV, resolutions 1-6); one draft resolution proposed at the panel discussion held during the 5th meeting (see chapter IV, resolution 7); and a resolution on the holding of the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific (see chapter IV, resolution 8).

55. At the same meeting, under agenda item 10, 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.

56. Also at the same meeting, the President of the Conference made a statement and declared the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific closed.

Chapter IV
Resolutions adopted by the Conference

A. List of resolutions

1. Regional geodesy

2. Capacity-building in disaster management

3. Data access

4. Data integration

5. Spatially enabled Government and society

6. Annual Forum on Land Administration

7. Global geographic information management

8. Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific

B. Texts of resolutions

1. Regional geodesy

The Conference,

Recognizing the importance of establishing a homogeneous geodetic network as the basis for the Asia and the Pacific regional spatial data infrastructure as well as for activities concerning disaster management of the region,

Noting the progress made by the Permanent Committee on Geographical Information System (GIS) Infrastructure for Asia and the Pacific Working Group on Regional Geodesy in improving the regional geodetic framework as the base layer for a regional spatial data infrastructure,

Considering the frequency of earthquakes, volcanic eruptions and tsunamis in the region and more generally the significant ongoing regional crustal deformation,

Considering also the need of member States to provide users with access to the reference frame with an accuracy of one centimetre or better to support spatial data collection for a wide range of applications,

Realizing the need to establish a new and precise geodetic framework in the Asia and Pacific region, which is linked to the International Terrestrial Reference Frame, to support disaster prevention/mitigation programmes,

Recommends that member States support the Asia-Pacific Reference Frame initiative by:

(a) Participating in the Asia-Pacific Regional Reference Frame initiative;

(b) Sharing data from continuously operating reference stations operated in their respective countries;

(c) Undertaking routine and continuous geodetic analysis, if the capability exists, of continuously operating reference stations data from all or a subcomponent of the region;

(d) Installing additional continuously operating reference stations;

(e) Supporting geodetic experts from member States to attend appropriate regional forums, such as the meetings of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group on Regional Geodesy.

2. Capacity-building in disaster management

The Conference,

Recognizing that institutional strengthening, education and training programmes and facilities across the region may not be at the same level of development in all member States,

Recognizing also the ongoing need for training, education and capability development in the region,

Recommends that:

(a) The United Nations Platform for Space-based Information for Disaster Management and Emergency Response be requested to undertake Geographic Information System, remote sensing and geodesy training in the region in support of disaster management on an ongoing, country-by-country basis, adopting the so-called "capability caravan" approach;

(b) The Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific, United Nations and other partners be requested to support capacity-building in the region, in particular for developing countries such as Timor-Leste;

(c) The Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific and other partners facilitate the development of a data and services inventory, catalogue, toolkit and guidelines using web services infrastructure.

3. Data access

The Conference,

Recognizing the benefits of having access to data in time of disaster for assessment and relief, but also the ongoing difficulties of many member States in accessing all forms of spatial data, such as the Geographic Information System, remote sensing and land administration for disaster management,

Noting that transferring large volumes of data via the Internet in many countries is problematic,

Also noting the development of web technologies that assist in providing access to data over the Internet,

Recommends that efforts be made by countries to improve access to data so as to support disaster management in a number of ways, including by:

(a) Developing and using web technologies, such as geo-portals, to disseminate data;

(b) Using appropriate standards for data-sharing;

(c) Capturing timely data to support regional hazard assessment;

(d) Approaching development partners, including the United Nations Platform for Space-based Information for Disaster Management and Emergency Response to acquire and widely share timely data for disaster management.

4. **Data integration**

The Conference,

Recognizing the importance of the integration of fundamental data with other spatial data, including hazard and exposure data sets in support of disaster mitigation and reduction,

Also recognizing the power of spatial tools in integrating various data from many sources and multiple formats,

Noting that the discovery, access, integration and delivery of spatial data can become much easier with enhanced interoperability,

Recommends that:

(a) The Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific assist member States in understanding and pursuing the principles of data integration within the context of spatially enabled society;

(b) The Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific cooperate with the International Steering Committee for Global Mapping, the United Nations Statistics Division and other international organizations in order to integrate spatial and statistical data.

5. **Spatially enabled Government and society**

The Conference,

Noting the progress made in the development of national spatial data infrastructures in the Asia and Pacific region,

Also noting the global importance of spatially enabled Government and society and the outcome of the forum on this matter, convened by the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific and held in Seoul in June 2007,

Recognizing that spatially enabled Government is an important part of the information and communications technology, e-Government and information-sharing strategies of countries and is the key activity that fosters innovation,

Recommends that the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific undertake a study to understand, compare and determine the state of spatially enabled Government and society, including levels of maturity and governance of spatial data infrastructure, in the region.

6. Annual forum on land administration

The Conference,

Noting the importance of good land administration systems in supporting sustainable development, poverty alleviation, social justice and economic development,

Also noting the role that land administration and the cadastre plays in providing large-scale, people-relevant spatial data within spatial data infrastructures,

Mindful of the growing importance to integrate all forms of spatial data, in particular natural and built environmental spatial data in support of spatially enabled society,

Noting the outcomes of the Mongolian Conference, supported by the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific (PCGIAP) on good land administration and its role in economic development and the outcomes of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific round-table discussion on mechanisms for sharing land administration policies, strategies, related technologies and experiences, held in Mongolia in 2007,

Also noting the outcomes of the second PCGIAP Land Administration Forum, held in Malaysia in 2008, and the third PCGIAP Land Administration Forum and PCGIAP Land Market Seminar, held in Tehran in 2009, that resulted in the Tehran Declaration on Land Administration to support sustainable land markets and e-Government,

Further noting the importance of the Tehran Declaration on land administration to support sustainable land markets and e-Government,

Recognizing the needs of member States in the Asia and Pacific region to have an annual land administration forum supported by the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific,

Recommends that the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific formalize and maintain its annual Forum on Land Administration in Asia and the Pacific,

Also recommends that the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific rename the existing Working Group on Spatially Enabled Government (Working Group 3) as "Spatially enabled Government and society", being responsible for the two interconnected components of spatially enabled Government and society, and land administration and under the direction of PCGIAP facilitates the annual land administration forum and liaises with the respective agencies in the Asia and the Pacific region in pursuit of this objective.

7. Global geographic information management

The Conference,

Recalling the recommendations made in Economic and Social Council resolution 131 (VI) of 19 February 1948, entitled "Coordination of cartographic services of specialized agencies and international organizations", and subsequent resolutions,

Taking note of the rapid development of and increased demand for geographic information infrastructure in all countries in past years, which has made geographic information an invaluable tool in policy planning and decision-making,

Bearing in mind that global issues, such as climate change, food and energy crises, peace operations and humanitarian assistance, all require strong support for geographic information management on a global scale,

Acknowledging with appreciation the work of the United Nations regional cartographic conferences and the significant role that they are serving in the Asia and Pacific and Latin America and the Caribbean regions, as well as in Africa, and recognizing the important role and contribution of regional organizations in Europe,

Also acknowledging the important contribution of other regional and international organizations and of global initiatives and projects,

Recognizing the absence of a United Nations consultation process led by member States, which deals with global geographic information management, coordinates regional efforts, promotes global norms on geographic information and brings such information to bear on global issues,

Also recognizing the requests of member States for a global mechanism, the work to develop common frameworks and tools and a process of standardization, for which the United Nations has a key mandate, to address the need and the necessity for experience exchange and technology transfer on geographic information tools and infrastructures, with specialized, regional and international organizations,

Requests that, by 1 November 2010, the Secretary-General and the United Nations Secretariat initiate discussions and prepare a report, for a future session of the Economic and Social Council, on global coordination of geographic 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 in particular for sharing best practices in legal and policy instruments, institutional management models, technical solutions and standards, interoperability of systems and data, and sharing mechanisms that guarantee easy and timely accessibility of geographic information and services.

8. Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific

The Conference,

Noting the progress made in the work on the spatial data infrastructure, 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 United Nations Regional Cartographic Conference for Asia and the Pacific and by the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific,

Noting further that the Permanent Committee was established in 1994 pursuant to resolution 16 adopted by the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held in Beijing,[1]

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[1] *Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific, Beijing 9-18 May 1994*, vol. I, *Report of the Conference* (United Nations publication, Sales No. E.94.I.19), chap. VI, sect. B.

Noting that the Permanent Committee has expressed the wish to hold its meeting in conjunction with the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific,

Recognizing the necessity of continuing this important work,

Recommends to the Economic and Social Council that the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific be convened in 2012.

Annex I

Technical Committee I: Geographical Information System (GIS), remote sensing and geodesy for disaster management

1.   Technical Committee I met in the afternoon of 28 October 2009. John Dawson (Australia), Chairperson of Technical Committee I, presented a paper on a new regional geodesy initiative, the Asia-Pacific Regional Reference Frame (APREF) project. He mentioned that the objective of APREF was to create and maintain an accurate and dense geodetic frame based on continuous observation and analysis of Global Navigation Satellite System data and an evolution from the campaign-based Asia-Pacific Regional Geodetic Project (APRGP, 1997-2009). Discussions confirmed the importance of the project for regional spatial data infrastructure and disaster management.

2.   The Committee also discussed the following issues:

    (a)   Vertical datums: importance and difficulties of regional integration;

    (b)   Difficulties in data sharing;

    (c)   Capacity-building;

    (d)   Access to data and its problems for disaster management;

    (e)   Interaction with the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) in both capacity-building and data access;

    (f)   Positioning systems and their appropriate use.

3.   The Committee presented draft resolutions concerning the following three subjects as a result of the discussions: (a) APREF project; (b) capacity-building and cooperation with UN-SPIDER; and (c) data access improvements and standardization for adoption by the Conference.

Annex II

Technical Committee II: Spatial data infrastructure and spatially enabled Government

1.   Technical Committee II met in the afternoon of 28 October 2009. Manoj Tayal (India), Chairperson of Technical Committee II, proposed key issues related to spatial data infrastructure and spatially enabled Government and society for discussion, including networking for sustainability, user needs at the subnational and national levels, revenue models and geographic information as a driver for economic development.

2.   The Committee also discussed the following issues:

      (a)   Developing a spatially enabling Government and society template for the quantitative spatial data infrastructure/spatially enabled Government study of the Asia and Pacific region; and understanding the levels of maturity and institutional arrangements in each of the 56 member States;

      (b)   Having member States develop a better understanding and pursue the principles of the integration of fundamental data with natural hazard and community exposure data sets in support of disaster mitigation and reduction within the context of spatially enabling society;

      (c)   Facilitating capacity and capability development in the region by developing a data inventory, catalogue, toolkit and guidelines using web services infrastructure;

      (d)   Acknowledging that geographic information, as a driver for economic development, and appropriate cost/benefit spatial data infrastructure models should be considered for societal well-being;

      (e)   Adopting the principles of the Tehran Declaration with regard to land administration to support sustainable land markets and e-Government, and an annual land administration forum in the pursuit of these principles.

3.   The Committee submitted draft resolutions for adoption by the Conference.

Annex III

Technical Committee III: Geospatial data collection, management and dissemination

1.   Technical Committee III (Geospatial data collection, management and dissemination) met in the afternoon of 28 October 2009. The Chairperson of the Committee, Bebas Purnawan (Indonesia) and the Vice-Chairperson, Victor Khoo (Singapore) made brief oral presentations on the work of the Committee. The meeting covered the following topics:

(a)   Focusing on poverty, education, disaster management and climate change, where geospatial data should be well appreciated and recognized;

(b)   Developing norms, procedures, guidelines, standards, specifications and best practices on data collection, dissemination and management;

(c)   Providing support work on national geocoding;

(d)   Developing a spatial data infrastructure primary dataset and collecting metadata in support of implementing Geographical Information System applications;

(e)   Ensuring that projects are needs-driven;

(f)   Supporting developing countries, such as Timor-Leste, that require support in managing geospatial data and capacity-building;

(g)   Ensuring the quality of volunteered geodata;

(h)   Promoting the role of information and communications technology solutions in managing, disseminating and collecting large volumes of geospatial data.

2.   The Committee submitted four draft resolutions for adoption by the Conference.

Annex IV

Provisional agenda for the Nineteenth United Nations Regional 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 Chairperson of each committee;

    (d) Credentials of representatives to the Conference.

4. Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific.

5. Report on the implementation of resolutions adopted at the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific.

6. Conference papers:

    (a) Country reports;

    (b) Invited papers on achievements and developments in geographical information management in addressing national, regional and global issues.

7. Reports of the technical committees of the Conference.

8. Provisional agenda for the Twentieth United Nations Regional Cartographic Conference for Asia and the Pacific.

9. Adoption of the report of the Nineteenth United Nations Regional Cartographic Conference for Asia and the Pacific.

Annex V

List of documents^a

Number	Title/country
E/CONF.100/1*	Provisional agenda
E/CONF.100/2	Provisional rules of procedure
E/CONF.100/INF/1	Documentation for the Conference
E/CONF.100/INF/2	List of participants
E/CONF.100/3	Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific
E/CONF.100/4	Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group 1: Regional Geodesy
E/CONF.100/5	Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group 2: Fundamental Dataset
E/CONF.100/6	Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group 3: Land Management
E/CONF.100/7	Report of the Permanent Committee on Geographical Information System Infrastructure for Asia and the Pacific Working Group 4: Institutional Strengthening
E/CONF.100/8	Report on the actions taken on resolutions of the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific
E/CONF.100/9	Report of the Conference
E/CONF.100/IP.1	Web 2.0, map production and publishing and geospatial information dissemination
E/CONF.100/IP.2	Global mapping: a tool for natural disaster mitigation for the Asia and Pacific region
E/CONF.100/IP.3	Geospatial technologies to reach the Millennium Development Goals
E/CONF.100/IP.4	Realizing spatially enabled societies: a global perspective in response to the Millennium Development Goals
E/CONF.100/IP.5	New National Spatial Data Infrastructure and National Mapping Policy of Japan

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^a All documents are posted, without any formal editing, on the United Nations Statistics Division website: http://unstats.un.org/unsd/methods/cartog/Asia_and_Pacific/18/18th-UNRCC-AP-Docs.htm.

Number	Title/country
E/CONF.100/IP.6	Spatial enablement and the response to climate change and the Millennium Development Goals
E/CONF.100/IP.7	Disaster risk reduction and climate change adaptation in the Australia-Pacific region
E/CONF.100/IP.8	Spatially enabling e-Government through geo-services
E/CONF.100/IP.9	Singapore National Spatial Data Infrastructure: towards a spatially enabled nation
E/CONF.100/IP.10	The role of spatial data in understanding climate change risk
E/CONF.100/IP.11	Institutional strengthening to stimulate geospatial industry growth in China
E/CONF.100/IP.12	The efforts of building Geographical Information System (GIS) infrastructure in a newly independent State: the case of Timor-Leste
E/CONF.100/IP.13	Implementation of web geo-services by the National Cartographic Center
E/CONF.100/IP.14	Geospatial data accuracy and its legal implications in the Malaysian context
E/CONF.100/IP.15	The present state of geographic information in the Republic of Korea
E/CONF.100/IP.16	Importance of policies and legal instruments for the building of spatial data infrastructures in the Americas
E/CONF.100/IP.17	The German National Spatial Data Infrastructure (GDI-DE)
E/CONF.100/IP.18	National mapping, land administration and spatially enabled Government: looking back, looking forward
E/CONF.100/IP.19	Geographical Information System-based landslide probabilistic model with trivariate approach: a case study in Sikkim Himalayas
E/CONF.100/IP.20	Geospatial support for United Nations operations
E/CONF.100/IP.21	Indonesia Emergency: quick response to the West Sumatra earthquake
E/CONF.100/IP.22	Achievements and developments in geographical information in addressing national issues in India
E/CONF.100/CRP.1	Survey and mapping activities in Viet Nam
E/CONF.100/CRP.2	Geospatial information in Japan
E/CONF.100/CRP.3	Technical cooperation in surveying, mapping and charting by Japan
E/CONF.100/CRP.4	Present status of the National Spatial Data Infrastructure policy of Japan
E/CONF.100/CRP.5	Disaster prevention activities

Number	*Title/country*
E/CONF.100/CRP.6	Utilization of Global Map for Asia and the Pacific region
E/CONF.100/CRP.7	Provision of 2,147 Environmental Sensitivity Index Maps
E/CONF.100/CRP.8	National Report, Finland
E/CONF.100/CRP.9	Country report on Spatial Data Infrastructure activities in Singapore
E/CONF.100/CRP.10	Current status of GIS in the Sudan
E/CONF.100/CRP.11	National report, Iran (Islamic Republic of)
E/CONF.100/CRP.12	Geographic Information System (GIS) infrastructure development in Timor-Leste 2006-2009
E/CONF.100/CRP.13	Application of geodetic tools for crustal deformation monitoring in Iran (Islamic Republic of)
E/CONF.100/CRP.14	Global Spatial Data Infrastructure Association, report to the 18th United Nations Regional Cartographic Conference for Asia and the Pacific Conference for Asia and the Pacific
E/CONF.100/CRP.15	Report of Thailand on cartographic activities during the period 2007-2009
E/CONF.100/CRP.16	China Geodetic Coordinate System 2000
E/CONF.100/CRP.17	Country report on surveying and mapping in the Philippines
E/CONF.100/CRP.18	Iran (Islamic Republic of) Cadastre report

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