



United Nations

**Sixteenth United Nations
Regional Cartographic
Conference for Asia and
the Pacific**

Okinawa, Japan, 14-18 July 2003

Report of the Conference

Department of Economic and Social Affairs

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Cartographic Conference for Asia
and the Pacific**

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Note

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The proceedings of the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held at Okinawa, Japan, from 14 to 18 July 2003, are being issued in one volume as the report of the Conference.

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The Department of Economic and Social Affairs of the United Nations Secretariat is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which States Members of the United Nations draw to review common problems and take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

Contents

	<i>Page</i>
I. Organization of the Conference	1
A. Introduction	1
B. Opening of the Conference	1
C. Attendance	1
D. Election of officers	1
E. Objectives of the Conference	1
F. Adoption of the rules of procedure	2
G. Adoption of the agenda	2
H. Establishment of technical committees and election of chairmen	3
I. Organization of work	3
J. Credentials	3
K. Documentation	4
II. Plenary session	5
III. Work of Technical Committee I: Development needs and institutional capacity-building	13
IV. Work of Technical Committee II: Fundamental data, including their collection and management in an integrated approach	14
V. Work of Technical Committee III: Spatial data infrastructures and their development in Asia and the Pacific	17
VI. Resolutions adopted by the Conference	19
A. List of resolutions	19
B. Texts of resolutions	19
Annexes	
I. Provisional agenda for the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific	26
II. List of documents	27
III. List of participants	31

Chapter I

Organization of the Conference

A. Introduction

1. The Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific was held at Okinawa, Japan, from 14 to 18 July 2003. The Conference was held in accordance with Economic and Social Council decisions 2000/229 of 26 July 2000 and 2002/229 of 23 July 2002.

B. Opening of the Conference

2. The representative of the United Nations Statistics Division of the Department of Economic and Social Affairs of the Secretariat opened the Conference and made a statement on behalf of the Secretary-General of the United Nations.

3. Opening statements were made by Mr. Chuuma Kouki, Senior Vice-Minister of Land, Infrastructure and Transport of Japan, and Mr. Inamine Keichi, Governor of Okinawa Prefecture.

C. Attendance

4. The Conference was attended by 302 representatives of 43 countries and 5 specialized agencies and international scientific organizations, as well as 30 invited speakers. The list of participants appears as annex III to the present report.

D. Election of officers

5. At its 1st plenary meeting, on 14 July 2003, the Conference elected the following officers by acclamation:

President:

Mr. Yang Kai (China)

Vice-President:

Mr. Peter Holland (Australia)

Rapporteur:

Mr. Hoshino Yoshihisa (Japan)

E. Objectives of the Conference

6. At the 1st plenary meeting, the representative of the United Nations Statistics Division defined the objectives of the Conference as follows. The primary objective of the Conference was to provide a regional forum where governmental officials, planners, scientists and experts from Asia and the Pacific and other regions could meet to report on the efforts being accomplished in the development and implementation of national spatial data infrastructures in Asia and the Pacific, to exchange ideas and information, and to address the common needs, problems and

experiences in the field of cartography and geographical information, including educational and training aspects, scientific and technological requirements, implementation issues and benefits. Additional specific objectives were to report on the assessment of the status of the resolutions adopted by the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific, and to report on the developments and contributions of cartography and geographical information in support of the implementation of Agenda 21.

F. Adoption of the rules of procedure

7. At its 1st plenary meeting, the Conference decided to revise rule 38 of its provisional rules of procedure to read as follows: "The Conference shall elect the Chairman of each committee and shall authorize each committee to elect its remaining officers, as may be required."

8. At the same meeting, the Conference adopted its provisional rules of procedure as contained in document E/CONF.95/2, as revised.

G. Adoption of the agenda

9. At its 1st plenary meeting, the Conference adopted its provisional agenda as contained in document E/CONF.95/1. The agenda was as follows:

1. Opening of the Conference.
2. Election of the President and other officers of the Conference.
3. Objectives of the Conference.
4. Organizational matters:
 - (a) Consideration and adoption of the rules of procedure;
 - (b) Adoption of the agenda;
 - (c) Establishment of technical committees and election of chairmen and rapporteurs;
 - (d) Organization of work;
 - (e) Credentials of representatives to the Conference;
 - (f) Election procedures for the Permanent Committee on GIS Infrastructure for Asia and the Pacific.
5. Report of the Permanent Committee on GIS Infrastructure for Asia and the Pacific.
6. Conference reports:
 - (a) Reports on the implementation of resolutions of the United Nations Regional Cartographic Conferences for Asia and the Pacific;
 - (b) Country reports.
7. Invited papers.
8. Technical committees of the Conference.

9. Reports and resolutions:
 - (a) Reports of the technical committees of the Conference;
 - (b) Adoption of reports and action plans;
 - (c) Adoption of resolutions.
10. Review of the achievements of the Conference.
11. Provisional agenda of the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific.
12. Organizational matters concerning the Permanent Committee on GIS Infrastructure for Asia and the Pacific:
 - (a) Election of the Executive Board;
 - (b) Statute;
 - (c) Working groups;
 - (d) Next meeting.
13. Adoption of the report of the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific.

H. Establishment of technical committees and election of chairmen

10. At its 1st plenary meeting, the Conference established the following three technical committees and elected their chairmen:

Committee I: Development needs and institutional capacity-building
Chairman: Mr. Yaguchi Akira (Japan)

Committee II: Fundamental data, including their collection and management in an integrated approach
Chairman: Mr. Chen Jun (China)

Committee III: Spatial data infrastructures and their development in Asia and the Pacific
Chairman: Mr. Kim Kyehyun (Republic of Korea)

I. Organization of work

11. At its 1st plenary meeting, the Conference approved its proposed organization of work as contained in document E/CONF.95/1/Add.1.

J. Credentials

12. At the 5th plenary meeting, on 17 July 2003, 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.

K. Documentation

13. A list of the documents submitted to the Conference appears as annex II to the present report.

Chapter II

Plenary session

1. At its 1st plenary meeting, on 14 July 2003, the Conference began its consideration of agenda item 5 (Report of the Permanent Committee on GIS Infrastructure for Asia and the Pacific). Yang Kai, President of the Permanent Committee on Geographic Information System (GIS) Infrastructure for Asia and the Pacific (PCGIAP) gave an overview of the Permanent Committee from its establishment in 1994, including the background, membership, aims, objectives and current executives, as well as its major activities and linkages with other international institutions engaged in spatial data infrastructure (SDI) development (E/CONF.95/3). The report highlighted some significant achievements, including regional geodetic observation campaigns, the pilot project on administrative boundary data, the policy on sharing fundamental data, the Asia and the Pacific spatial data infrastructure (APSDI) clearing-house data nodes task force, the cadastral template and the PCGIAP Hainan training base.

2. At the same meeting, John Manning, Chair of the PCGIAP Working Group on Regional Geodesy (WGI), introduced six projects launched in pursuance of resolution 3 adopted at the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific. These projects, achieved during the past three years, include regional geodetic campaigns, development of datum transformation parameters, regional geoid improvement, the regional absolute gravity reference frame, and technology transfer to Pacific island nations. The report called for a strengthened collaboration among the members and with the other Working Groups.

3. Also at the 1st plenary meeting, Gholam Fallahi, Chair of the PCGIAP Working Group on Fundamental Data (WG2), presented a report on the activities of the Working Group during the past three years, focusing on the four main tasks: policy of sharing fundamental data, development of fundamental data, development of the APSDI network, and geographical information systems (GIS) applications. Efforts are to be continued towards development of specifications and an implementation plan for regional fundamental data sets, completion of the APSDI data node pilot project, and establishment of linkages with related organizations such as the International Organization for Standardization Technical Committee 211 (ISO/TC 211).

4. At the same meeting, Ian Williamson, Chair of the PCGIAP Working Group on Cadastre (WG3), reported on the activities and tasks undertaken in response to its objective, notably a review of cadastral activities in the region for a better understanding of the role of cadastres in a national SDI, and development of guidelines appropriate to the region for marine cadastre design. A draft cadastral template was prepared and revised with inputs from member nations. It was agreed at the cadastre workshop, held on 12 and 13 July 2003, and successfully concluded just before the opening of the Conference, to propose further action on the template in a resolution to be submitted to the Conference.

5. Also at the 1st plenary meeting, Peter Holland, on behalf of the Chair of the PCGIAP Working Group on Institutional Strengthening (WG4), highlighted the endeavours that had been pursued in three areas, despite the limited resources, namely, member involvement and provision of education/training opportunities for capacity-building, for which some training packages were being developed;

strengthening linkages with the United Nations and other related international bodies; and information dissemination and communication, whose aim was to ensure all members access to relevant information. Stronger support and planning were encouraged.

6. At the same meeting, in consideration of agenda item 6 (Conference reports), Amor Laaribi, the United Nations Statistics Division, presented a report (E/CONF.95/4) jointly prepared by the United Nations and PCGIAP, on the follow-up actions taken on each one of the eight resolutions adopted at the Fifteenth United Nations Regional Cartographic Conference, held in 2000 in Kuala Lumpur. Relevant actions had been taken by PCGIAP Working Groups and plans were implemented as necessary.

7. Also at its 1st plenary meeting, the Conference began its consideration of agenda item 7 (Invited papers). Kazunobu Onogawa, of the United Nations Centre for Regional Development (UNCRD), gave a keynote speech entitled "Environmental management and use of information", referring to the experiences of the Global Resource Information Database (GRID) developed by the United Nations. The presentation stressed that map information was critically essential to environmental management, and should be represented in various formats, for example, as printed information, visual information, and digital information through the Internet, in accordance with needs. It was also mentioned that the Internet had successfully promoted the decentralization of information management, and that the open system could be efficiently operated through an elaborate needs assessment.

8. At its 2nd plenary meeting, on 15 July 2003, the Conference continued its consideration of agenda item 7. Alan Stevens, Global Spatial Data Infrastructure (GSDI) secretariat, presented a paper (E/CONF.95/6/IP.15) entitled "GSDI developments and challenges; SDI evolution in the US". The paper described the approaches of the United States of America in the area of SDI and the mission of GSDI; mentioned the "I-Team" initiative in progress in the United States, which is a collaborative process through which a State organizes the production, archiving and sharing of its digital geospatial assets; and discussed the "Geospatial One-Stop" initiative whose goal is to provide federal, State and local agencies with a single point of access to geographical information, thereby reducing/eliminating redundant data collection and archives. The presentation concluded by introducing GSDI with an emphasis on its main goals, which are: to promote and develop awareness and exchanges, to facilitate data access/discovery via clearing-house and portal web services, to stimulate and conduct capacity-building, to conduct and sponsor SDI development research, and to engage partners in leveraging scarce resources.

9. At the same meeting, Fraser Taylor, Chairperson of the International Steering Committee for Global Mapping (ISCGM), presented a paper (E/CONF.95/6/IP.7) entitled "Global Mapping and spatial data infrastructures: developments and challenges for the dissemination of geospatial data". The paper summarized the progress made in Global Mapping starting from the initial concept to the current situation, and invited nations to participate. It illustrated the challenges facing Global Mapping, drawing on a study on Africa completed by the National Academy of the United States. Responding to the development needs of users, and building human and social capital, are key factors. Furthermore, the paper presented a case study of Timor-Leste, where developing a spatial data infrastructure could help meet the development needs of the emerging nation. The starting point would be to

coordinate existing Office of District Affairs efforts and build human and institutional capacity so as to give the Timorese a greater degree of control over their own destiny.

10. Also at the 2nd plenary meeting Guo Huadong, Secretary-General of the International Society on Digital Earth (ISDE), on behalf of its President, Lu Yongxiang, presented a paper (E/CONF.95/6/IP.16) entitled “Digital Earth: development and challenge”. The concept of Digital Earth was introduced as the information facility of a multidimensional, multi-scale, multi-temporal and multi-layer system. Cooperation with other organizations was stressed and a Digital Earth Prototype System was introduced.

11. At the same meeting, Santiago Borrero, President, Cartographic Commission, Pan American Institute for Geography and History (PAIGH), presented a paper (E/CONF.95/6/IP.3) entitled “Spatial data infrastructure in the Americas: current and future plans and challenges”. The increasingly important role of PAIGH and the aim and objectives of the Permanent Committee on SDI for the Americas (PC-IDEA) were stressed. Significant advances of national SDI in the region along with capacity-building needs and funding difficulties were noted, with an assertion that PAIGH and PC-IDEA must work together to implement the regional spatial data infrastructure vision.

12. Also at the 2nd plenary meeting, Abbas Rajabifard, University of Melbourne, presented a paper (E/CONF.95/6/IP.1) entitled “Developing Spatial Data Infrastructures: highlighting issues and influencing factors”. Key factors influencing the development of an SDI were highlighted, followed by a discussion and analysis on the SDI hierarchy and relationships among SDIs. Developing a successful SDI must be seen as a socio-technical and socio-economic exercise rather than as a purely technical one.

13. At the same meeting, Wang Chunfeng, Deputy Director-General of the State Bureau of Surveying and Mapping, China, presented a paper (E/CONF.95/6/IP.17) entitled “NSDI of China”. Coordination, financial input, standards and wide applications were noted as essential elements for successful SDI development.

14. Also at the 2nd plenary meeting, John Busby, General Manager of the Australian Government Office of Spatial Data Management, on behalf of ANZLIC (the Spatial Information Council) presented a paper (E/CONF.95/6/IP.10) entitled “The National Spatial Data Infrastructure of Australia”. Governance and partnership, and institution- and capacity-building, as well as lowering the barrier to data access and use, should be prioritized in SDI development and implementation.

15. At the same meeting, Girish Kumar, Deputy Surveyor General of India, presented a paper (E/CONF.95/6/IP.18) entitled “National spatial data infrastructure: Indian initiative”. A broad study was introduced encompassing visions and goals, core contents and design element, and stakeholders and beneficiaries.

16. At the 3rd plenary meeting, on 15 July 2003, the Conference continued its consideration of the item. Kim Kyeheun, Inha University, Republic of Korea, presented a paper (E/CONF.95/6/IP.19) entitled “The national spatial data infrastructure of the Republic of Korea: development and challenges”. Master plans of 1995-2000 and of 2000-2005 for creating SDI were introduced and their outcomes and the tasks ahead were considered.

17. At the same meeting, Teruko Usui, Nara University, Japan, and President of the GIS Association of Japan, presented a paper (E/CONF.95/6/IP.20) entitled “The national spatial data infrastructure of Japan: development and challenges”. The presentation stressed that the earthquake in Kobe had promoted awareness and diffusion of national SDI in Japan. An e-government GIS strategy and the GIS Action Programme 2002-2005, as an implementation road map to this end, were introduced.

18. Also at the 3rd plenary meeting, Stig Enemark, representative of the International Federation of Surveyors (FIG), presented a paper (E/CONF.95/6/IP.12) entitled “Underpinning sustainable land administration systems”, which defined the cadastral system as the core system of land administration and land management, and stressed its importance as a basic land information system in support of sustainable development. The presentation quoted the United Nations/FIG Bathurst Declaration on Land Administration for Sustainable Development, 1999, which called for effective security of tenure and access to property for all; and concluded with several remarks including calling upon international organizations to recognize an increasing demand for sustainable land administration and spatial data infrastructures.

19. At the same meeting, John Trinder, President of the International Society for Photogrammetry and Remote Sensing (ISPRS), presented a paper (E/CONF.95/6/IP.21) entitled “Experiences with high-resolution satellite images for information extraction”, which offered an overview of recent high-resolution satellite images as provided, inter alia, by IKONOS, EROS and Quickbird with some applications of the data to geometric assessment and extraction of thematic information. Data access and typical costs of the data were also discussed. A supplementary presentation was given by Gottfried Konecny, Honorary Member of ISPRS.

20. Also at the 3rd plenary meeting, Bengt Rystedt, President of the International Cartographic Association (ICA), presented a paper (E/CONF.95/6/IP.14) entitled “Atlas cartography as a metaphor for geospatial data infrastructure”. The presentation focused on the development of an electronic national atlas and an Internet-based atlas, which would make a major contribution in terms of providing timely information. In his conclusion, he asserted that an electronic and Internet-based atlas could benefit from a geospatial data infrastructure and vice versa and, further, that an Internet-based atlas as an outcome of geospatial data infrastructure might appeal politically to countries.

21. At the same meeting, Olaf Ostensen, Chairman of ISO/TC 211, presented a paper (E/CONF.95/6/IP.22) entitled “Spatial standards as a basis for sustainable geospatial infrastructures: current developments and future challenges”. The background and current status of ISO/TC 211 were explained as well as a conceptual classification of various kinds of standards on geographical information. The paper also stressed the vital and basic role played by the standards in the integration and interoperability of geographical information, for the development of which international cooperation — with organizations with a common objective, such as OpenGIS Consortium (OGC) — was essential and indispensable.

22. Also at the 3rd plenary meeting, Hiroshi Murakami, Cartographic Section of the United Nations Secretariat, presented a paper (E/CONF.95/6/IP.23) entitled “The United Nations Geographic Database: current development, future plans and

challenges”. An overview was given of the development of the United Nations Geographic Database for the purpose of addressing the emerging request for up-to-date information at Security Council meetings and a spatial data infrastructure in the United Nations. Current developments, such as quick impact data (1:1,000,000), cooperation with the United Nations Geographic Information Working Group (UNGIWG) Boundaries Task Group and several application pilots, including strategic plans, a clearing house, and an application pilot (including web application) were explained. The presentation stressed that the establishment of a United Nations commission on geographical information was urgently required to meet a growing demand for geographical information.

23. At the same meeting, Tsuguhiko Katagi, Assistant Executive Director, National Space Development Agency of Japan (NASDA), presented a paper (E/CONF.95/6/IP.24) entitled “NASDA’s earth observation programme for sustainable development”. Mission instruments, their specifications and the release schedule of ALOS Satellite System were discussed, pointing to a significant cut in cost and time for mapping. The presentation also explained the ALOS data node Concept which included several planned data nodes of data dissemination. Finally Asia-Pacific Earth Observation Pilot Projects were described. They were to be executed with partners such as the National Institute of Aeronautics and Space of Indonesia (LAPAN), the Geo-Informatics and Space Technology Development Agency of Thailand (GISTDA) and the Asian Institute of Technology (AIT).

24. At its 4th plenary meeting, on 16 July 2003, the Conference continued its consideration of agenda item 7. Minoru Sasaki, Hydrographic and Oceanographic Department, Japan Coast Guard, on behalf of the International Hydrographic Organization (IHO), presented a paper (E/CONF.95/6/IP.4) entitled “Activities of the International Hydrographic Organization”, which provided the summary of the role of the Organization and stressed the importance of hydrographic activities. An outline of the Electronic Chart and its Display System and the Electronic Navigational Chart (ENC) was given, and the importance of extending global ENC coverage was stressed.

25. At the same meeting, Yoshiyuki Hoshiyama, representative of the Japan International Cooperation Agency (JICA), presented a paper (E/CONF.95/6/IP.11) entitled “JICA support for national spatial data infrastructure projects in developing countries: experiences in the Asia and the Pacific region”. Types of “development study” were outlined, including the item “preparation of topographic data”. The study project (topographic data) in Dhaka City, Bangladesh, was introduced. This large-scale (1:5,000) electronic mapping project represents a recent trend in the preparation of topographic data. The study project in Guatemala was also introduced as an example of the use of the base map and the hazard map, which is expected to mitigate the damage produced by natural disasters.

26. Also at the 4th plenary meeting, Haggai Nyapola, Chair of the Executive Working Group of the Economic Commission for Africa (ECA) Conference of Ministers Committee on Development Information Subcommittee on Geoinformation (CODI-Geo), Director-General of Surveys of Kenya, presented a paper (E/CONF.95/6/IP.25) entitled “The role of the new Executive Working Group of the Geo-Subcommittee of CODI in spearheading SDIs in Africa”. He emphasized the need and rational for a permanent committee on spatial data infrastructure in Africa, as had been expressed in one of the recommendations of the CODI-II

meeting held in May 2001; and quoted the workshop's recommendation to CODI-Geo that the Subcommittee should assume the functions of a permanent committee on spatial data infrastructure for Africa. After elaborating on the expected executive working group and other working groups as described in the recommendations, Mr. Nyapola concluded by calling for comprehensive understanding of the SDI development needs of member States as prerequisite for resources mobilization supported by a broad partnership.

27. At the same meeting, Alan Stevens, GSDI secretariat, presented a paper (E/CONF.95/6/IP.28) entitled "Global spatial data infrastructure: tools facilitating capacity-building". Several GSDI success stories were introduced, including the *SDI Cookbook*. This SDI implementation guide is an internationally developed document designed to help promote globally compatible SDIs. Training/facilitation held at the Kenya Institute of Surveying and Mapping (KISM) in collaboration with JICA, the Earth Resources Observation Systems (EROS) Data Center and United Nations Environment Programme (UNEP)/GRID; and Consortium for International Earth Science Information Network (CIESIN) training in China and Brazil funded by a Federal Geographic Data Committee Cooperative Agreements Program (CAP) grant etc. were also cited as success stories. The public and private partnerships for capacity-building, including the Global Map (GM)/GSDI/Environment System Research Institute (ESRI) and Intergraph Grants, were introduced, and the next activity of GSDI, developing a regional model for capacity-building, and cooperation with regional initiatives were also discussed.

28. Also at the 4th plenary meeting, Ian Williamson, University of Melbourne, Australia, presented a paper (E/CONF.95/6/IP.3) that had been prepared jointly with Abbas Rajarbfard, University of Melbourne, and Stig Enemark, Aalborg University, Denmark, entitled "Capacity-building for SDIs". The presentation introduced a basic concept of capacity-building and asserted that the issues could be addressed at three levels: broader system/societal; entity/organizational; and group of people/individual. In addition, it stressed the importance of an SDI in the context of developing countries and raised the question how an organization like PCGIAP, which intended to design the capacity-building, could apply its work at these three levels. Finally, for reference, the just-published SDI book entitled *Developing SDIs: From Concept to Reality* was introduced.

29. At the same meeting, Mr. Williamson presented a paper (E/CONF.95/6/IP.29) entitled "The relationship between land administration and SDI". The paper asserted that the spatial cadastral framework should be understood as a fundamental layer in a national SDI, and that large-scale data and land parcels should be most focused on.

30. Also at the 4th plenary meeting, Xu Zhou, National Geomatics Centre of China, presented a paper (E/CONF.95/6/IP.27) entitled "APSDI clearinghouse development". Functionality and architecture along with the software solution and technical specifications were explained. Design of the APSDI clearing-house web site, for its possible implementation, was also discussed.

31. At its 5th plenary meeting, on 17 July 2003, the Conference continued its consideration of agenda item 7. Jay Feuquay, representative of the United States Geological Survey (USGS), presented a paper (E/CONF.95/6/IP.) entitled "A topographic map for the 21st century". USGS is promoting the "National Map" project, which envisions a seamless, continuously maintained and nationally consistent set of base geographical data. The national geographical data provided by

other organizations based on good partnership are essential to the National Map, which comprises five layers: orthorectified imagery, surface elevation, vector feature data (transportation, hydrography, structures and boundaries), geographical names and land cover. The presentation also introduced the USGS Geography Program with a focus on land remote sensing as a tool for collecting post-disaster information and monitoring long-term drought.

32. At the same meeting, Sheila Sullivan, ESRI representative, presented a paper (E/CONF.95/6/IP.31) entitled “Data dissemination: the final piece of the SDI puzzle”. The presentation highlighted the fact that SDIs provided a framework of standards, policies, data, procedures and technology, which supported effective coordination and dissemination of geographical information. The presentation also focused on the importance of a well-designed portal as a part of SDI needed for easy data access, prompt response in emergencies, efficient operations and provision of data and services.

33. Also at the 5th plenary meeting, Richard Simpson, Intergraph representative, presented a paper (E/CONF.95/6/IP.32) entitled “Spatial data collections, management, and dissemination”. He introduced the OpenGIS Consortium (OGC), and explained Intergraph’s Interoperability Grant of US\$ 5.5 million which aims at stimulating use of open interoperability standards and providing support to the organizations concerned.

34. At the same meeting, Eihan Shimizu, University of Tokyo, presented a paper (E/CONF.95/6/IP.8) entitled “Landscape visualization of old-time cities: focusing on Tokyo of the past”. The paper asserted that the philosophy and technology for city planning should, most desirably, place a maximum emphasis on the characteristics of the original topography. With respect to realizing this goal, the presentation insisted on the importance of visualizing a location’s various landscapes from various viewpoints, using as much available geographical information as possible, as well as the GIS and computer graphics tools. As an implemented example, the scenery of Edo (old Tokyo) was reproduced, using the woodblock prints (*ukiyo-e*) of Hirohige and other old geographical information. An original landscape of Okinawa before the Second World War was also reproduced. The presentation concluded by highlighting how historical SDIs enriched GIS and our society.

35. Also at the 5th plenary meeting, Ed Parsons, Ordnance Survey representative, presented a paper (E/CONF.95/6/IP.9) entitled “Embracing the Web”. A general perspective on web services (WS) was offered and, as a pilot, the Ordnance Survey master map online service was presented. The presentation focused on its road map and its WS pathfinder and WS-Platform. Potential WS service chaining was also discussed.

36. Following the adjournment of the 5th plenary meeting of the Conference, Technical Committees I, II and III met in parallel sessions, on 17 July 2003, and considered various issues, under agenda item 8 (Technical committees of the Conference).

37. At its 6th plenary meeting, on 18 July 2003, the Conference considered agenda item 9 (a) (Reports and resolutions: reports of the technical committees of the Conference). Mr. Akira Yaguchi (Japan), Convener of Technical Committee I, reported on the work of Technical Committee I (see chap. III); Mr. Gholam Reza Fallahi (Islamic Republic of Iran), Convener of Technical Committee II, reported on

the work of Committee II (see chap. IV); and Mr. Kyehyun Kim (Republic of Korea), Convener of Technical Committee III, reported on the work of Committee III (see chap. V). The Conference discussed the proposals recommended by the committees for consideration and adopted five draft resolutions (see chap. VI).

38. Pursuant to the request of the representatives of Canada and Australia made during the 6th plenary meeting, on 18 July, the United Nations Secretariat provided clarification on the relationship between the Economic and Social Council and PCGIAP. PCGIAP had been established pursuant to resolution 16 adopted by the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held in May 1994 in Beijing. In that resolution, the Conference recommended "that within a year from now, with the initial administrative support of the United Nations Secretariat, directorates of national survey and mapping organizations in the region 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". Owing to the fact that resolution 16 had not requested the Council to take any action regarding the establishment of the Permanent Committee, the Council did not establish such a committee and also did not set any meeting or reporting parameters for it (for example, implications for the budget of the United Nations, periodicity of meetings, membership and composition of the committee, reporting procedure or terms of reference). Therefore, no direct link or subsidiary relationship exists between PCGIAP, established by the organizations mentioned in resolution 16/13, and the Council.

Chapter III

Work of Technical Committee I: Development needs and institutional capacity-building

1. At its 6th plenary meeting, on 18 July 2003, the Conference considered agenda item 9 (a) (reports and resolutions: reports of the technical committees of the conference). Akira Yaguchi (Japan) presented an oral report on the work of Committee I (Development needs and institutional capacity-building). In its work, Committee I had:

(a) Reviewed PCGIAP activities concerned with Working Groups 3 (Cadastre) and 4 (Institutional strengthening) since the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific;

(b) Discussed the recommendations of the two-day workshop on cadastre, held on 12 and 13 July 2003 in Okinawa, Japan;

(c) Reviewed the presentations and discussions on Committee topics carried out so far in this Conference;

(d) Discussed institutional strengthening and capacity-building issues;

(e) Considered draft resolutions emanating from the Committee that provided guidance to Working Groups 3 and 4 during the period between the Sixteenth and Seventeenth United Nations Regional Cartographic Conferences.

2. PCGIAP activities relating to cadastre carried out since the Fifteenth United Nations Regional Cartographic Conference were reviewed and discussed in detail together with the outcomes of the two-day workshop on cadastre organized by Working Group 3, as well as the discussions held during the Sixteenth United Nations Regional Cartographic Conference. Main points of discussion included:

- Cadastral template
- Marine cadastre
- Relationship between cadastral and topographic mapping

3. The PCGIAP activities relating to institutional strengthening and capacity-building undertaken since the Fifteenth United Nations Regional Cartographic Conference were reviewed and discussed in detail in the light of various presentations made during the Sixteenth United Nations Regional Cartographic Conference on the subject. The main points of discussion were:

- The capacity-building concept
- The development needs questionnaire
- The training course held in conjunction with other events
- Strengthening linkage with other international organizations

4. The Committee submitted to the Conference for discussion two draft resolutions on cadastre and on strengthening and capacity-building, in order to provide guidance to Working Groups 3 and 4 during the period between the Sixteenth and Seventeenth United Nations Regional Cartographic Conferences.

Chapter IV

Work of Technical Committee II: Fundamental data, including their collection and management in an integrated approach

1. At the 6th plenary meeting, on 18 July 2003, Gholam Reza Fallahi (Islamic Republic of Iran) presented an oral report on the work of Committee II (Fundamental data). The work of Committee II covered:

(a) Progress of PCGIAP Working Group 2 (WG2) activities that had emanated from the resolutions adopted by Technical Committee III at the Fifteenth United Nations Regional Cartographic Conference;

(b) Proposed work plan for the next period of activity of WG2.

2. The reported progress of WG2 was as follows:

(a) The project for the sharing of fundamental data had been completed;

(b) The work on the monitoring system under the policy on sharing fundamental data that took into account new developments in policies from both member countries and regional initiatives had been undertaken, and would be further continued;

(c) The analysis of responses to the technical questionnaire on fundamental data had been accomplished and its results submitted to the Sixteenth United Nations Regional Cartographic Conference and the publication of its results would be pursued;

(d) The pilot project on the administrative boundary data set had been completed. In this regard, a technical specification and user guide for the pilot project was developed. The development was based on the results of a comprehensive technical questionnaire that had been devised and subsequently distributed to all 55 member nations of PCGIAP. This specification and user guide had been submitted to the PCGIAP Executive Board meeting held in Hiroshima, Japan, in November 2000, at which the Executive Board had decided that the document should be distributed to all member countries for review and comments. Five countries in the pilot area (China, Japan, Republic of Korea, Nepal and Sri Lanka) provided their data set to the project;

(e) The analyses of regional fundamental data sets developed in other regions, particularly the Barents and the Baltic Sea regions in Europe, had been completed and presented to the eighth meeting of PCGIAP;

(f) The development of specifications and an implementation plan for regional fundamental data sets had commenced and would be further continued;

(g) In regard to the establishment of an APSDI clearing house, a task force had been formed within WG2 at the seventh meeting of PCGIAP, held in 2001 in Tsukuba, Japan, for promoting the planning and implementation of an APSDI spatial data clearing house with distributed data nodes according to the adopted resolutions. Apart from that, a PCGIAP workshop on the APSDI clearing house was held in November 2001 in Hainan island, China. According to related resolutions and the work plan of the eighth meeting of PCGIAP, guidelines for APSDI clearing-house development and a core metadata profile of ISO 19115 as well as the

implementation of a prototype clearing house would be carried out based on the guidelines. Pursuant to this, the APSDI data node pilot project had started and its status had been reported at the ninth meeting of PCGIAP. The project would be continued with the establishment of an APSDI clearing house;

(h) The development of the specification and implementation plan for a data node network for the region, with priority given to metadata, data dictionary and clearing-house issues, had been accomplished;

(i) Publicity had been given to the GIS applications developed by the Russian Federation, in addition to the development of GIS application demonstrations to support those countries in the region involved in the development of SDI;

(j) Efforts to establish links with organizations involved in standardization such as ISO/TC 211 and the OpenGIS Consortium and to develop a programme of technical seminars involving scientists and other stakeholders in Working Group matters had been made and would be carried out continuously.

3. The proposed work plan for the next three years (2003-2006) was as follows:

(a) General work plan:

(i) Discuss cooperation with respect to United Nations activities relating to WG2;

(ii) Discuss the establishment of cooperation with other international organizations, like the Asian Centre for Research on Remote Sensing (ACRoRS), GSDD, ISO/TC 211 and OGC;

(b) APSDI data task force:

(i) Maintaining the software package;

(ii) Providing technical support;

(iii) Training for APSDI clearing-house development;

(iv) Developing an implementation plan for the APSDI clearing house;

(v) Conducting a workshop for the APSDI data node;

(c) Fundamental data set task force:

(i) Development of specifications for the regional fundamental data set using the pilot project specifications and other international experiences as reference;

(ii) Development of the Asian and Pacific regional fundamental data sets that would contribute to the Global Map;

(iii) Completion of the pilot project on fundamental data sets;

(iv) Conducting of training and workshops;

(v) Development of an implementation plan for the PCGIAP fundamental data sets;

(vi) Determination of the potential regional fundamental data layers other than administrative boundaries;

(vii) Conducting discussions on how to enrich the regional fundamental data with existing statistics (population, economy etc.).

4. The participants also discussed matters pertinent to the work of Committee II; among the main issues deliberated on were the following:

- (a) Implementation strategy of the APSDI fundamental data sets;
- (b) APSDI clearing house and data nodes;
- (c) Cooperation and collaboration efforts with other organizations;
- (d) Participation of member countries in PCGIAP fundamental data activities;
- (e) Action plan for 2003-2006.

5. Peter Holland (Australia) suggested that the policy on data-sharing developed by PCGIAP be endorsed and that a pan Asia-Pacific regional fundamental data set be developed to help solve the problems of the region. Apart from that he emphasized the importance of the development of the clearing house in order to enable the data sets to be accessed by member countries. The participants agreed to the suggestions made, in particular those pertaining to the development of a pan Asia-Pacific fundamental data set.

6. The Committee submitted to the Conference for discussion a draft resolution on fundamental data issues.

Chapter V

Work of Technical Committee III: Spatial data infrastructures and their development in Asia and the Pacific

1. At the 6th plenary meeting, on 18 July 2003, Kyehyun Kim (Republic of Korea) presented an oral report on the work of Committee III (Spatial data infrastructures and their development in Asia and the Pacific). The work of Committee III covered the following topics:

(a) Development of an Asia-Pacific spatial data infrastructure and regional geodesy network;

(b) Proposed action plan for the next period.

2. Committee III reviewed the progress achieved by PCGIAP on the development of the APSDI and geodesy-related matters since the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific. The major activities of the Regional Geodesy Working Group (WG1) were highlighted, including the ongoing regional geodetic campaigns and the start of a regional absolute gravity network. Japan, Indonesia and Australia presented results from their processing of past regional geodetic campaigns, and a number of countries referred to their previously presented country reports and the geodetic activities contained in those reports.

3. The themes of the presentations made during the Sixteenth United Nations Regional Cartographic Conference were summarized and discussions followed on the pertinent points raised during those presentations, namely:

- The need to extend the APSDI laterally to build linkages with statistical data such as census and population data.
- The desirability of establishing a calendar of PCGIAP events and associated meetings.
- The need to further develop data distribution mechanisms for open communication systems.
- The desirability of using the extended geodetic framework as a linkage tool to harmonize not only cadastral and topographic information but also statistical and other cultural and physical information such as on geo-hazards.
- The continuing need for further capacity-building, refreshing training needs and identifying funding for support of the attendance of small nations at PCGIAP and United Nations Regional Cartographic Conference events.
- The need to now strengthen national spatial data infrastructures as basic building blocks for APSDI.
- The need to ensure appropriate linkages between APSDI and other global initiatives such as GSDI, the Global Map, Digital Earth and some remotely sensed projects.

4. It was clear from discussions that it was essential for the building of APSDI to continue to provide a focus for the development of national spatial data infrastructure. This should include:

- Continued development of a regional geodetic infrastructure.
- Identification of fundamental data sets and linkages to statistical information.
- Developing the role of cadastral and land tenure layers within the regional spatial data infrastructures.

5. Discussion in the Committees led to the identification of several suggestions for consideration by PCGIAP, namely:

- That PCGIAP should develop a calendar of workshops, meetings and events for 2004-2006.
- That APSDI should be extended to include linkages to statistical information.
- That greater use should be made of geo-referencing to link cadastral, topographic and statistical information.
- That data distribution should be promoted using open communication systems.
- That training needs should be identified and capacity-building encouraged.
- That funding sources should be identified for participation in PCGIAP of developing countries.

6. The Committee submitted to the Conference for discussion two draft resolutions on appropriate activities for APSDI development and associated regional geodesy activities that provided guidance for the further development of APSDI aimed at future action plans during the period between the Sixteenth and Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific.

Chapter VI

Resolutions adopted by the Conference

A. List of resolutions

1. Asia and the Pacific spatial data infrastructure
2. Regional geodesy
3. Fundamental data
4. Cadastre and spatial data infrastructure
5. Capacity-building
6. Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific
7. Expression of gratitude to the host Government

B. Texts of resolutions

1. Asia and the Pacific spatial data infrastructure

The Conference,

Recognizing the importance of spatial data infrastructures in supporting sustainable development at national, regional and global levels,

Recognizing also that all elements in the spatial data infrastructure need to be uniformly geo-referenced to ensure homogeneous integration,

Noting the progress made by the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific in building a regional spatial data infrastructure for Asia and the Pacific,

Considering the important role that national spatial data infrastructures play in the development of the Asia and the Pacific spatial data infrastructure,

Bearing in mind that capacity-building is also an important need for empowering people through training courses and associated technology transfer, including participation in international workshops,

Recalling the benefit of the integration of cadastral and statistical information with topographic information in providing an appropriate basis for supporting sustainable development and environment management,

Realizing the need to gather further information to better assist national agencies in the development of national spatial data infrastructure and to identify the best practice procedures,

Recommends that:

(a) The Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific continue its work in the development of a regional spatial data infrastructure for Asia and the Pacific through data integration in the following activities:

- (i) Continued development of a regional geodetic infrastructure;
 - (ii) Identification of fundamental data sets and linkages to statistical information;
 - (iii) Development and integration of the cadastral and land tenure layers within the regional spatial data infrastructure using geodetic referencing techniques;
 - (iv) Institutional strengthening for building spatial data infrastructure through capacity-building, education, training and workshops together with identification of needs and funding options for member countries so as to improve participation in Permanent Committee activities;
- (b) Governments of the region strongly support the further development of national spatial data infrastructures and their smooth integration into the Asia and the Pacific spatial data infrastructure;
- (c) The Permanent Committee ensure that appropriate linkages are developed between the Asia and the Pacific spatial data infrastructure and other global initiatives.

2. 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 part of the International Terrestrial Reference Frame (ITRF),

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

Realizing the continuing need to extend regional geodetic infrastructure established so far to include other countries in the Asia and the Pacific region together with associated technology transfer and information exchange,

Bearing in mind the limited financial resources and availability of equipment and expertise in observation and processing of acquired Global Positioning Systems data,

Recommends that the regional geodetic framework continue to be developed through integration of national geodetic networks and through appropriate linkages to global reference frames through the following projects:

- (a) Enhancement of a regional geodetic infrastructure through annual cooperative campaigns, including ties to vertical datum origin points;
- (b) Review of the status of the regional geoid in relation to current and improved global gravity models available from satellite gravity, and the application of absolute gravity as a means of developing a regional gravity reference frame;

(c) Promotion of the application of new geodetic adjustment techniques and datum change transformation parameters for regional spatial data integration and for geo-referencing of cadastral and statistical information;

(d) Encouragement of the transfer of Global Positioning Systems technology to Pacific island nations and other developing countries through regional and local geodesy workshop activities;

(e) Development of a catalogue of regional tide gauges for monitoring sea-level changes and placement of Global Positioning Systems at key sites;

(f) Review of the status of geodetic networks in individual countries and upgrading of the web-site information of the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific.

3. Fundamental data

The Conference,

Recognizing the policy for sharing of fundamental data endorsed at the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific, the progress made by Working Group 2 on Fundamental Data of the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific on regional fundamental data sets, and the progress made in respect of Global Mapping, such as the recent release of the data sets for six additional countries, bringing the total number of countries covered to eighteen, the availability of Global Map data on the Web and the development of a web portal,

1. *Recommends* the endorsement of the Policy Statement for the Asia-Pacific Boundaries Data Set of the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific, and its Basic Principles for Developing and Utilizing the Asia-Pacific Regional Fundamental Data Set;

2. *Also recommends* that the Permanent Committee continue to develop regional fundamental data sets, a clearing house and geographical information systems applications, in particular by:

(a) Starting the development of a pan Asia-Pacific regional fundamental data set that contributes to the Global Map, and encouraging member nations not contributing to the Global Mapping project to consider participation in the project with the assistance of the International Steering Committee for Global Mapping and the Permanent Committee;

(b) Implementing the Asia and the Pacific spatial data infrastructure clearing house, and encouraging member nations or regions to establish their Asia and the Pacific spatial data infrastructure data node, and put their Global Mapping data on their Asia and the Pacific spatial data infrastructure data node and other fundamental data sets that they may wish to include;

(c) Encouraging efforts in capacity-building in fundamental data, in particular the training programme offered by the Geographical Survey Institute as funded by the Japan International Cooperation Agency;

(d) Undertaking these tasks in collaboration with other initiatives, such as the Global Map project, the United Nations Group of Experts on Geographical

Names; the United Nations Geographic Information Working Group, the Database Project and the Second Administrative Level Boundaries Data Set Project.

4. Cadastre and spatial data infrastructure

The Conference,

Taking note of the outcomes of Agenda 21¹ that promoted the importance of efficient and accessible land markets based on cadastral systems and the establishment of appropriate land tenure systems, as key factors in support of sustainable development and environmental management,

Taking note also of the resolutions and deliberations of the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific and the Sixth and Seventh United Nations Regional Cartographic Conferences for the Americas on the need to better understand and appreciate the relationship between land administration and spatial data infrastructures, and the integration of cadastral and topographic data in spatial data infrastructures, in member nations,

Mindful of the benefits and difficulties of integrating cadastral and land tenure information with topographic information in respect of providing an appropriate basis for supporting sustainable development and environmental management,

Bearing in mind the interest of member nations in sharing experiences on cadastral and land administration issues, and particularly the role that cadastral data has in developing spatial data infrastructures,

Recognizing the difficulties that member nations have in determining the efficiency, effectiveness and performance, and appreciating the global situation, of cadastral, land tenure and land administration systems,

Recalling the outcomes of Working Group 3 on Cadastre of the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific under its work plan for the period 2000-2003 and the Working Group's workshop on cadastral systems in Asia and the Pacific held in Okinawa, Japan, on 12 and 13 July 2003,

Recalling also the importance of a cadastral template which is a standardized, generic proforma that will enable the discovery of information, including matters concerning member nations' land policy, laws and regulations, land tenure, land administration and cadastre, institutional arrangements, spatial data infrastructures and technology, as well as human resources and capacity-building,

1. *Recommends* that:

(a) The jointly developed Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific/International Federation of Surveyors cadastral template be adopted;

¹ *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, vol. I, *Resolutions Adopted by the Conference* (United Nations publication, Sales No. E.93.I.8 and Corr.1), resolution 1, annex II.

(b) The Permanent Committee support its Working Group 3 (on Cadastre) in encouraging member nations in the Asia and the Pacific region to complete the template in the course of carrying out its work plan for the period 2003-2006;

(c) The Permanent Committee cooperate with Commission 7 on Cadastre and Land Management of the International Federation of Surveyors, the Permanent Committee on Spatial Data Infrastructure for the Americas, the Economic Commission for Europe through its Working Party on Land Administration, and the Economic Commission for Africa through its Committee on Development Information, in seeking to induce countries worldwide to complete the template in the course of carrying out its work plan for the period 2003-2006;

(d) The Permanent Committee cooperate with Commission 7 on Cadastre and Land Administration of the International Federation of Surveyors in placing the individual-country cadastral template information on the joint International Federation of Surveyors/Permanent Committee cadastral template web site in the course of carrying out its work plan for the period 2003-2006;

2. *Also recommends* that the work plan for the period 2003-2006 of Working Group 3 on Cadastre of the Permanent Committee further include:

(a) Continuation of its activities related to describing the marine cadastre concept;

(b) Developing a better understanding of the relationship between cadastral and topographic mapping in the establishment and maintenance of the spatial data infrastructures of member nations, by exploring the justification thereof, and associated conceptual, institutional and technical issues.

5. Capacity-building

The Conference,

Taking note of the results of the development needs questionnaire project undertaken by the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific which indicated the need to provide for capacity-building for spatial data infrastructure development in member nations,

Noting that capacity-building is a concept that involves the development of both human and social capital and includes both capacity assessment and capacity development at three levels: societal, organizational and individual,

Recalling resolutions 2 and 5 adopted by the Seventh United Nations Regional Cartographic Conference for the Americas,² as they relate to institutional strengthening and capacity-building,

Recalling also the Memorandum of Understanding between the Permanent Committee and the Permanent Committee on Spatial Data Infrastructure for the Americas,

² See *Report of the Seventh United Nations Regional Cartographic Conference for the Americas, New York, 22-26 January 2001* (United Nations publication, Sales No. E.01.I.13), chap. VI, sect. B.

Noting the discussion of the need for capacity-building at the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific,

Acknowledging the difficulties that are being faced by member nations in assessing and developing their capacity for creating and maintaining spatial data infrastructures,

1. *Recommends* that:

(a) Working Group 4 on Institutional Strengthening redefine its scope of work and develop a work plan to be presented to the Permanent Committee on Geographic Information System Infrastructure for Asia and the Pacific at its tenth meeting, to be held in India in 2004;

(b) Working Group 4 establish strategic linkages with other agencies and organizations involved in capacity-building, and identify opportunities for cooperation with respect to the capacity-building meetings of organizations and institutions with which the Permanent Committee has or should create strategic linkages;

(c) The Permanent Committee endorse the short course on spatial data infrastructures to be offered in conjunction with the meeting of the Executive Board of the Permanent Committee by the Centre for Spatial Data Infrastructures and Land Administration, University of Melbourne, Melbourne, Australia, from 19 to 21 November 2003, and assist in exploring options to support attendance by member nations and representatives from other regions;

2. *Also recommends* that the Permanent Committee:

(a) Endorse and support, with the support of the United Nations, the convening, within available resources, of an interregional workshop to be hosted by the Government of Mexico in Aguascalientes in October 2004 to determine policies and programmes for educational, training and professional capacity-building that will ensure the development of appropriate land administration systems and associated spatial data infrastructures;

(b) Consider the outcomes of the interregional workshop in conjunction with the implementation of the work plan for Working Group 4.

6. Seventeenth 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 Geographic 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 in Beijing,

Noting that the Permanent Committee has expressed its wish to hold its meeting in conjunction with the Seventeenth United Nations Regional Cartographic Conference,

Recognizing the necessity of continuing this important work,

Recommends to the Economic and Social Council that the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific be convened in 2006.

7. Expression of gratitude to the host Government

The Conference

Expresses its heartfelt gratitude to the Government of Japan, the Ministry of Land, Infrastructure and Transport, and the Senior Vice-Minister of Land, Infrastructure and Transport, Mr. Chuma Koki, as well as to Mr. Inamine Keiichi, Governor of Okinawa Prefecture, and Hoshino Yoshihisa, Director-General of the Geographical Survey Institute, for the kind hospitality and gracious support extended to all participants at the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held in Okinawa.

Annex I

Provisional agenda for the Seventeenth 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) Consideration and adoption of the rules of procedure;
 - (b) Adoption of the agenda;
 - (c) Establishment of technical committees and election of chairmen and other officers;
 - (d) Organization of Conference work;
 - (e) Credentials of representatives to the Conference.
4. Objectives of the Conference.
5. Report of the Permanent Committee on Geographic Information System (GIS) Infrastructure for Asia and the Pacific.
6. Conference reports:
 - (a) Reports on the implementation of resolutions of the United Nations Regional Cartographic Conference for Asia and the Pacific;
 - (b) Country reports.
7. Invited papers.
8. Reports of the technical committees of the Conference.
9. Review of the achievements of the Conference.
10. Provisional agenda for the Eighteenth United Nations Regional Cartographic Conference for Asia and the Pacific.
11. Adoption of the report of the Seventeenth United Nations Regional Cartographic Conference for Asia and the Pacific.

Annex II

List of documents

<i>Number</i>	<i>Title/country</i>
E/CONF.95/1	Provisional agenda
E/CONF.95/Add.1	Annotations to the provisional agenda and proposed organization of work
E/CONF.95/2	Provisional rules of procedure
E/CONF.95/INF.1	Documentation for the Conference: note by the Secretariat
E/CONF.95/3	Report of the Permanent Committee on GIS Infrastructure for Asia and the Pacific
E/CONF.95/4	Report on the implementation of resolutions of the United Nations Regional Cartographic Conference for Asia and the Pacific
E/CONF.95/5/CRP.1	Transición de la cartografía tradicional a la Gestión y Administración de Datos Espaciales (GADE) en Nicaragua (submitted by Nicaragua)
E/CONF.95/5/CRP.2	Country report on cartographic activities in Singapore (submitted by Singapore)
E/CONF.95/5/CRP.3	Country report on cartographic activities in Thailand (submitted by Thailand)
E/CONF.95/5/CRP.4	Country report on cartographic activities in New Zealand (submitted by New Zealand)
E/CONF.95/5/CRP.5	Current status of surveying, charting and mapping at the national level (submitted by Australia)
E/CONF.95/5/CRP.6	United Arab Emirates profile on the geographical information system and cartographic science (submitted by United Arab Emirates)
E/CONF.95/5/CRP.7	The development of China's surveying and mapping in 2000-2003 (submitted by China)
E/CONF.95/5/CRP.8	The new geodetic reference system of Japan: its adoption and application to our products (submitted by Japan)

<i>Number</i>	<i>Title/country</i>
E/CONF.95/5/CRP.9	Spatial data infrastructure work in Japan, 2000-2003 (submitted by Japan)
E/CONF.95/5/CRP.10	Technical cooperation in surveying, mapping and charting by Japan (submitted by Japan)
E/CONF.95/5/CRP.11	Recent volcanic disaster countermeasures taken by GSI (submitted by Japan)
E/CONF.95/5/CRP.12	National report of the Republic of Vanuatu (submitted by Vanuatu)
E/CONF.95/5/CRP.13	Country report on the current status and issues of surveying, charting and mapping at the national level (submitted by Indonesia)
E/CONF.95/5/CRP.14	Country report on the current status of geodetic, mapping, cadastral and geospatial data infrastructure activities in Malaysia (submitted by Malaysia)
E/CONF.95/5/CRP.15	Country report on surveying and mapping of the Islamic Republic of Iran (submitted by the Islamic Republic of Iran)
E/CONF.95/5/CRP.16	A glance at cartographic activities in the Survey Department in Nepal (submitted by Nepal)
E/CONF.95/6/IP.1	Developing spatial data infrastructures: highlighting issues and influencing factors (submitted by Mr. Abbas Rajabifard)
E/CONF.95/6/IP.2	Promotion of the Global Mapping project (submitted by Yoshishisa Hoshino, Hiromichi Maruyama, Hiroshi Masaharu, Mitsuo Iwase, Toru Nagayama, Otohiko Shimizu and Hidenori Fujimara)
E/CONF.95/6/IP.3	Capacity-building for SDIs (submitted by Mr. Ian Williamson, Mr. Abbas Rajabifard and Prof. Stig Enemark)
E/CONF.95/6/IP.4	Activities of the International Hydrographic Organization (submitted by International Hydrographic Organization)
E/CONF.95/6/IP.5	The completion of change to the World Geodetic System (WGS) of the geodetic datum on Japanese nautical charts (submitted by the Hydrographic and Oceanographic Department of Japan)

<i>Number</i>	<i>Title/country</i>
E/CONF.95/6/IP.6	Preparation of coastal hazard information for tsunami (submitted by the Hydrographic and Oceanographic Department of Japan)
E/CONF.95/6/IP.7	Global Mapping and spatial data infrastructures: developments and challenges for the dissemination of geospatial data (submitted by Prof. D. R. F. Taylor)
E/CONF.95/6/IP.8	Landscape visualization of old-time cities: focusing on Tokyo of the past (submitted by Prof. Eihan Shimizu)
E/CONF.95/6/IP.9	Embracing the Web (submitted by Mr. Ed Parsons)
E/CONF.95/6/IP.10	The National Spatial Data Infrastructure of Australia (submitted by Dr. John R. Busby)
E/CONF.95/6/IP.11	JICA Support for national spatial data infrastructure projects in the developing countries: experiences in the Asia and the Pacific region (submitted by Mr. Hoshiyama Yoshiyuki)
E/CONF.95/6/IP.12	Underpinning sustainable land administration systems (submitted by Prof. Stig Enemark)
E/CONF.95/6/IP.13	Spatial data infrastructure in the Americas: current and future plans and challenges (submitted by Santiago Borrero)
E/CONF.95/6/IP.14	Atlas cartography as a metaphor for geospatial data infrastructure (submitted by Mr. Bengt Rystedt)
E/CONF.95/6/IP.15	GSDI developments and challenges; SDI evolution in the US (submitted by Mr. Alan R. Stevens)
E/CONF.95/6/IP.16	Digital Earth: development and challenge (submitted by Lu Yongxiang and Guo Huadong)
E/CONF.95/6/IP.17	NSDI of China (submitted by Dr. Wang Chunfeng)
E/CONF.95/6/IP.18	National spatial data infrastructure: Indian initiative (submitted by Mr. Girish Kumar)
E/CONF.95/6/IP.19	The National Spatial Data Infrastructure of the Republic of Korea: developments and challenges (submitted by Prof. Kyehyun Kim)

<i>Number</i>	<i>Title/country</i>
E/CONF.95/6/IP.20	The National Spatial Data Infrastructure of Japan: developments and challenges (submitted by Mr. Teruko Usui)
E/CONF.95/6/IP.21	Experiences with high-resolution satellite images for information extraction (submitted by Mr. John C. Trinder)
E/CONF.95/6/IP.22	Spatial standards as a basis for sustainable geospatial infrastructures: current developments and future challenges (submitted by Mr. Olaf Ostensen)
E/CONF.95/6/IP.23	The United Nations Geographical Database: current development, future plans and challenges (submitted by Mr. Hiroshi Murakami)
E/CONF.95/6/IP.24	NASDA's Earth Observation Programme for Sustainable Development (submitted by Mr. Tsuguhiko Katagi)
E/CONF.95/6/IP.25	The role of the New Executive Working Group of the Geo-Subcommittee of CODI in spearheading SDIs in Africa (submitted by Mr. Haggai Nyapola)
E/CONF.95/6/IP.26	Environmental management and use of information (submitted by Mr. Kazunobu Onogawa)
E/CONF.95/6/IP.27	APSDI clearing house development (submitted by Xu Zhou)
E/CONF.95/6/IP.28	Global spatial data infrastructure: tools facilitating capacity-building (submitted by Mr. Alan R. Stevens)
E/CONF.95/6/IP.29	The relationship between land administration and SDI (submitted by Mr. Ian Williamson)
E/CONF.95/6/IP.30	A topographic map for the 21st century (submitted by Mr. Jay Feuquay)
E/CONF.95/6/IP.31	Data dissemination: the final piece of the SDI puzzle (submitted by Ms. Sheila Sullivan)
E/CONF.95/6/IP.32	Spatial data collections, management and dissemination (submitted by Mr. Richard Simpson)

Annex III

List of participants

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Mr. Nguyen Tai Duong, Deputy Director, Cartographic Publishing House

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Mr. Tran Tuan Kiet, Chief of Business, Bureau of Import-Export and Consultant Service Company for Survey and Mapping (IECCSM)

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Mr. Madhab Mathema, Senior Human Settlements Officer, United Nations Human Settlements Programme

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Dr. Bengt Rystedt, President, National Land Survey

International Federation of Surveyors (FIG)

Prof. Stig Enemark, Department of Development and Planning, Aalborg University, Denmark

International Society for Photogrammetry and Remote Sensing (ISPRS)

Prof. John Trinder, President, International Society for Photogrammetry and Remote Sensing (ISPRS)

Prof. Gottfried Konecny, Institute for Photogrammetry and Geoinformation, University of Hannover, Germany

D. Invited speakers

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Dr. Alan Stevens, Global Spatial Data Infrastructure (GSDI) Secretariat

Prof. Fraser Taylor, Chairperson, International Steering Committee for Global Mapping (ISCGM)

Dr. Guo Huadong, Secretary-General, International Society on Digital Earth

Mr. Santiago Borrero, President, Cartographic Commission, Pan American Institute for Geography and History (PAIGH)

- Dr. Abbas Rajabifard, Department of Geomatics, University of Melbourne
- Dr. Wang Chunfeng, Deputy Director-General, State Bureau of Surveying and Mapping, China
- Dr. John Busby, General Manager, Commonwealth Office of Spatial Data Management
- Mr. Bal Krishna, Survey of India
- Mr. Kim Younghwan, Director-General, National Geography Institute of the Republic of Korea
- Prof. Teruko Usui, Faculty of Literature, Nara University
- Prof. Stig Enemark, Representative, International Federation of Surveyors (FIG); Department of Development and Planning, Aalborg University
- Prof. John Trinder, President, International Society for Photogrammetry and Remote Sensing (ISPRS)
- Dr. Bengt Rystedt, President, International Cartographic Association
- Dr. Milan Konecny, Vice-President, International Cartographic Association; Department of Geography, Faculty of Science, Masaryk University
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- Mr. Olaf Ostensen, Chairman, ISO/TC 211, Norwegian Mapping Authority
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- Mr. He Chandchui, Economic and Social Commission for Asia and the Pacific (ESCAP)
- Dr. Minoru Sasaki, Hydrographic and Oceanographic Department, Japan Coast Guard
- Mr. Tsuguhiko Katagi, Office of Satellite Technology, Research and Applications, National Space Development Agency of Japan (NASDA)
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- Mr. Ed Parsons, Chief Technology Officer, Ordnance Survey
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