

FOURTEENTH UNITED NATIONS
REGIONAL
CARTOGRAPHIC CONFERENCE
FOR ASIA AND THE PACIFIC

Bangkok, 3-7 February 1997

ECONOMIC AND SOCIAL COUNCIL
OFFICIAL RECORDS, 1997

Report of the Conference



UNITED NATIONS

Department for Development Support and Management Services

FOURTEENTH UNITED NATIONS REGIONAL CARTOGRAPHIC CONFERENCE FOR ASIA AND THE PACIFIC

Bangkok, 3-7 February 1997

ECONOMIC AND SOCIAL COUNCIL
OFFICIAL RECORDS, 1997

Report of the Conference



UNITED NATIONS
New York, 1997

NOTE

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

The proceedings of the Fourteenth United Nations Regional Cartographic Conference for Asia and the Pacific, held at Bangkok, Thailand, from 3 to 7 February 1997, are being issued in two volumes, as follows:

Report of the Conference

Technical Papers

The proceedings of the previous United Nations regional cartographic conferences for Asia and the Far East 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) and E/CONF.87/3/Add.1 (to be issued) for the Thirteenth Conference.

E/CONF.89/5

UNITED NATIONS PUBLICATION

Sales No. E.97.I.12

ISBN 92-1-100637-6

Copyright © United Nations 1997

All rights reserved

Printed by the United Nations Reproduction Section, New York

CONTENTS

	<u>Paragraphs</u>	<u>Page</u>
I. ORGANIZATION OF THE CONFERENCE	1 - 16	1
A. Terms of reference	1	1
B. Opening of the Conference	2	1
C. Attendance	3	1
D. Agenda	4	1
E. Adoption of the rules of procedure	5	1
F. Election of officers	6	1
G. Objectives of the Conference	7	2
H. Organization of work	8	2
I. Technical committees	9 - 11	2
J. Documentation	12	3
K. Report on credentials	13	3
L. Closing of the Conference	14 - 16	3
II. PLENARY SESSION	17 - 37	5
III. WORK OF COMMITTEE I: LAND RESOURCES AND ENVIRONMENTAL MANAGEMENT	38 - 50	8
IV. WORK OF COMMITTEE II: ENABLING TECHNOLOGIES	51 - 76	10
V. WORK OF COMMITTEE III: POLICIES AND MANAGEMENT	77 - 97	17
VI. RESOLUTIONS ADOPTED BY THE CONFERENCE		21
A. List of resolutions		21
B. Texts of resolutions		22
<u>Annexes</u>		
I. List of participants		36
II. Agenda		48
III. List of documents		50
IV. Provisional agenda for the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific		57

I. ORGANIZATION OF THE CONFERENCE

A. Terms of reference

1. The Fourteenth United Nations Regional Cartographic Conference for Asia and the Pacific was held at the headquarters of the Economic and Social Commission for Asia and the Pacific (ESCAP) in Bangkok, Thailand, from 3 to 7 February 1997. The Conference was held in accordance with Economic and Social Council decision 1994/228 of 14 July 1994.

B. Opening of the Conference

2. On behalf of the Secretariat, the Director of the Division for Economic and Social Development and Natural Resources Management opened the Conference and welcomed the participants. A welcoming statement from Mr. Jin Yongjian, Under-Secretary-General for Development Support and Management Services, was read, in which it was stressed how recent changes in technology and communications could make it feasible for cartography to be used as a tool for national, regional and global sustainable development.

C. Attendance

3. The Conference was attended by 158 representatives and observers of 29 countries and territories and five intergovernmental and international scientific organizations. The list of participants appears as annex I to the present report.

D. Agenda

4. The Conference adopted its agenda, as contained in document E/CONF.89/1. The agenda, as adopted, appears as annex II to the present report.

E. Adoption of the rules of procedure

5. At its first plenary meeting, the Conference adopted, without change, its rules of procedure, as adopted by the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific and as contained in document E/CONF.89/2.

F. Election of officers

6. The Conference elected the following officers:

President: Mr. Jose Solis (Philippines)

First Vice-President: Mr. Kunio Nonomura (Japan)

Second Vice-President: Maj. Gen. Titichai Innadda (Thailand)

Rapporteur: Mr. Peter Holland (Australia)

G. Objectives of the Conference

7. 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 address their common needs, problems and experiences in the fields of surveying and mapping, cartography, hydrography, remote sensing, and land and geographical information systems, including educational and training aspects, scientific and technological requirements, implementation issues and benefits. Additional specific and related objectives were to report on the implementation of the resolutions taken by the Thirteenth Regional United Nations Cartographic Conference for Asia and the Pacific; to report on the contribution of surveying, mapping and charting to supporting the implementation of Agenda 21; and to report on the regional implementation of the Programme of Action for the Sustainable Development of Small Island Developing States and the Declaration of Barbados.

H. Organization of work

8. The Conference adopted the organization of work as proposed by the secretariat.

I. Technical committees

9. The Conference established three technical committees and allocated to each committee the agenda items shown below:

Committee I: Land resources and environmental management Items 6 (a), (c), (d), (e), and 7

Committee II: Enabling technologies Items 6 (g), (h)

Committee III: Policies and management Items 6 (b), (f), 8 and 9

10. Agenda items 1, 2, 3, 4, 5, 10 and 11 were considered at plenary meetings.

11. The following officers were elected to the three Committees:

Committee I: Land resources and environmental management

Chairman: Mr. Kim Wonik (Republic of Korea)

Vice-Chairman: Mr. Yoddha Shah (Nepal)

Rapporteur: Mr. Andreas Illert (Germany)

Committee II: Enabling technologies

Chairman: Mr. Rudolf Matindas (Indonesia)

Vice-Chairman: Mr. Ratnesh Srivastava (India)

Rapporteur: Mr. Farlin Arrington (United States of America)

Committee III: Policies and management

Chairman: Dato' Abdul Majid Bin Mohamed (Malaysia)

Vice-Chairman: Mr. A. Radjabi Fard (Iran, Islamic Republic of)

Rapporteur: Mr. Yuen Ka Wei (Singapore)

J. Documentation

12. A list of the documents submitted to the Conference appears as annex III to the present report. The technical papers are to be published in a separate volume, after review and editing, as proceedings of the Conference.

K. Report on credentials

13. The Credentials Committee, composed of the President and the Vice-Presidents, reported that the credentials of all representatives had been found to be in order.

L. Closing of the Conference

14. The Conference, at its final meeting, on 7 February 1997, discussed and adopted its draft report, 21 resolutions and the provisional agenda for the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific, to be held for five working days in mid-2000. The primary focus of the provisional agenda was the continuing assessment and improvement of the contribution of surveying, mapping and charting in support of the implementation of Agenda 21.¹ The provisional agenda, as approved, appears as annex IV to the present report. The resolutions adopted by the Conference focused on transfer of technology, harmonization and standardization of data sets, the role and involvement of non-governmental organizations, and other issues related to assisting member States in the region to utilize fully the opportunities provided by cartographic technology and the applications in the information and communication environment to decision makers.

15. Gratitude and appreciation were expressed by the Conference to the Government of Thailand and the Government of the United States of America for hosting hospitality events and to the Royal Thai Survey Department for its support. The Conference also expressed appreciation to the President and Chairpersons for the excellent manner in which they conducted the meetings. Thanks were extended to the other officers of the Conference and to the staff of the United Nations for the excellent substantive servicing and support provided, all of which contributed to the smooth progress of the Conference.

16. In his closing statement, the President acknowledged the increasingly active role taken by cartographic technology in assisting regional member States in the implementation of Agenda 21 and encouraged countries in the region, large and small, to participate actively and contribute to future conferences. The

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 corrigendum), resolution 1, annex II.

Conference stressed the global consensus for establishing a global spatial data infrastructure (SDI) which would provide worldwide coverage and linkages to the geographical data needed for a broad spectrum of technological applications to help resolve social, economic and environmental problems.

II. PLENARY SESSION

17. Country reports were provided by 12 of the countries attending the Conference. Those documents are listed in annex III.

18. Major trends in the Asia/Pacific region, according to the reports, include:

(a) The significant and continuing contribution of surveying, mapping and charting to the implementation of Agenda 21 and sustainable development;

(b) The strengthening of communication and cooperation between countries in the region, exemplified by sharing of skills and experience, joint project activity and common approaches to policy and management issues, through the activities of the Permanent Committee on Geographic Information System (GIS) Infrastructure for Asia and the Pacific;

(c) The growing awareness of the concept of the spatial data infrastructure (SDI), the acceleration in implementation of national SDI programmes, and the recognition of the importance of regional and global SDI;

(d) The increasing role of non-governmental organizations and the academic and private sectors in the region, exemplified by the ASEAN Federation of Land Surveying and Geomatics (FLAG);

(e) The move towards a common geocentric datum for the region and the increasing availability of fundamental data sets;

(f) The growth in the use of the Internet as a primary means of communication in the region.

19. Highlights of several reports are contained in the paragraphs below.

20. Thailand reported (E/CONF.89/INF/38) on the joint GPS observation campaigns with ASEAN countries and with the National Imagery and Mapping Agency of the United States in order to establish a national reference framework for the country and transformation parameters between the Indian Datum and World Geodetic System 1984.

21. Australia reported (E/CONF.89/INF/21) on the definition of the Geocentric Datum of Australia 1994 and the creation of new spatial data products, such as a national 9-second digital elevation model and the national multiresolution topographic database. Australia also reported on the progress on implementation of the National Spatial Data Infrastructure (NSDI).

22. The United States reported (E/CONF.89/L.1) on the activities of the Federal Geographic Data Committee and the implementation of the NSDI. The United States also reported on the implementation of the National Digital Cartographic Data Base, the use of digital ortho quadrangle data in the revision of primary-scale mapping, and the access to geographical names data sets on the Internet.

23. The Republic of Korea reported (E/CONF.89/INF/23) on large-scale digital mapping under the National Geographic Information System (NGIS) Development Plan.

24. The President of the Permanent Committee on GIS Infrastructure for Asia and the Pacific reported (E/CONF.89/INF/56) on the activities in geographic

information infrastructure and institutional framework issues relating to cadastral infrastructure, Asia and the Pacific regional geodetic networks, and legislation and administrative arrangements for the acquisition and sharing of spatial data. The President also reported that the Permanent Committee had class A liaison status with ISO/TC211 and had established an Internet home page.

25. Indonesia reported (E/CONF.89/INF/47) on the establishment of the Permanent GPS Station Network and the Relative Differential GPS system and the International Meeting of Cadastral Experts which resulted in the Bogor Declaration on Cadastral Reform. That presentation led to discussion by the Holy See and China on the application of GPS to water-vapour studies and research on severe storms.
26. New Zealand reported (E/CONF.89/INF/48) on continuing reforms in the state sector which aimed to minimize governmental intervention in contestable markets and maintain a public sector responsible for the effective and efficient provision of public policy and goods. Those reforms led to the separation of regulatory and service delivery functions in government and increased the use of private-sector resources.
27. Malaysia reported (E/CONF.89/INF/42) on the task of creating and maintaining the national cadastral and topographic databases and the dissemination of information to end users. That had resulted in an extensive modernization programme and was leading to stronger partnerships with GIS users and vendors.
28. Nepal reported (E/CONF.89/INF/49) on the extensive use of GPS in applications such as the study of crustal dynamics in the Nepalese Himalayas and the determination of aerial camera coordinates. The presentation led to a question by New Zealand on the approach taken to pricing data and the response that a fixed price approach was taken in Nepal.
29. Japan reported (E/CONF.89/INF/32, 33, 34, 35 and 36) on the application of earth resources satellite data to mapping, the implementation of the national GPS array, and the high-level support being given to the creation of national framework data. Japan also reported on the work of the International Steering Committee on Global Mapping and its contribution to the Global Spatial Data Infrastructure.
30. China reported (E/CONF.89/L.2, 3, 4 and 5) on the emphasis being given to the construction of the national fundamental geographic information system and the study of the geodynamic behaviour along the boundary between the Eurasian and Indian plates.
31. The Asia South-East and Pacific South-West Division of the United Nations Group of Experts on Geographical Names reported on its activities, including the publication of a division map prepared by New Zealand and the forthcoming toponymy training course in Australia in mid-1997.
32. The entire list of draft resolutions presented to the Conference, as amended, were moved for adoption by a motion from the Holy See, seconded by Iran. That was approved unanimously.
33. Delegates were reminded of the objective of conducting regional cartographic conferences in different parts of the Asia and Pacific region. Philippines gave support, in principle, to acting as host to the fifteenth

conference in Manila, subject to agreed arrangements between the Government and the United Nations.

34. The International Federation of Surveyors (FIG) sought clarification of the process for follow-up of Conference resolutions. The Executive Secretary explained that the Conference report would be submitted to the Economic and Social Council, and that the report of the Secretary-General would be presented to the special session of the General Assembly of the United Nations in June 1997. Delegates were encouraged to follow through the resolution recommendations within their own countries.

35. During the closing ceremony, the delegate from Guam, as a small Pacific island country, thanked the United Nations for the opportunity to attend and contribute to the Conference and thanked the Royal Thai Survey Department for its support.

36. The Executive Secretary thanked delegates for their contributions and expressed the view that the quality of participation had exceeded expectations. The Conference had been conducted in an orderly manner and in a spirit of cooperation and goodwill.

37. The President concluded by stating that it had been his privilege to serve the Conference and he looked forward to the active participation of all countries in the region, both large and small, in the future. The President thanked all those who had contributed to the success of the Conference.

III. WORK OF COMMITTEE I: LAND RESOURCES AND ENVIRONMENTAL MANAGEMENT

38. The work of Committee I covered the following sub-items of agenda item 6; Reports on the contribution of surveying, mapping and charting to support the implementation of Agenda 21:

- (a) Environmental management, including management of the oceans, and disaster mitigation, reporting and documenting;
- (c) Land reform, land management and development;
- (d) Demography, human settlement policies;
- (e) Desertification and land degradation.

39. It also covered agenda item 7; Reports on the regional implementation of the Programme of Action for the Sustainable Development of Small Island Developing States and the Declaration of Barbados.

40. The Islamic Republic of Iran presented a paper (E/CONF.89/INF/L.6) that referred to all sub-items of agenda item 6. The delegation of Iran reported on a number of activities, including geodynamic studies at the Caspian Sea, an earthquake prediction network along the Teheran Fault, and improvement of the first-order geodetic network. Production of the national atlas of Iran was under way. Steps had been taken to produce an electronic atlas and a national GIS in several scales.

41. Japan submitted two papers on sub-item 6 (a). Progress in Global Mapping and its future were described in paper E/CONF.89/INF/28. The Global Map was a geographic information database designed to cover the whole globe with consistent specification. The Geographic Survey Institute (GSI) of Japan had developed the concept at a ground resolution of 1 km in terms of raster data, equivalent to a scale of 1:1,000,000 in paper maps. The data might serve as elements of a global spatial data infrastructure. An International Steering Committee for Global Mapping was established in 1996.

42. The second paper of Japan on the Global Map reported on the interregional seminar held in Santa Barbara, United States, in November 1996 (E/CONF.89/INF/29). The seminar was jointly organized by the Department for Development Support and Management Services, United Nations Secretariat; the University of California at Santa Barbara; and the Geographic Survey Institute of Japan. The seminar recognized the contribution of Global Mapping to the implementation of Agenda 21, pointed out the role of the United Nations in the development of the Global Map, and suggested the creation of a Global Mapping forum.

43. Delegates from Australia, China, Germany, India, Indonesia, Iran, Saudi Arabia and the United States contributed to the discussion on the two papers presented by Japan.

44. Four papers were presented under sub-item 6 (c). Germany reported on changes in the organizational structure of the Survey and Cadastral Administration of Lower Saxony, one of the federal states in Germany (E/CONF.89/INF/13). Lower Saxony intended to run the Survey and Cadastral Administration as a business enterprise. The new structure would help the

agency to adapt itself to the market, improve its services and increase its cost-recovery rate. In order to identify the costs of products and services, an accounting system was introduced in 1996.

45. In Malaysia, the Department of Survey and Mapping had taken steps to reform its cadastre (E/CONF.89/INF/41). The concept of an integrated cadastral management system allowed for a computer-assisted land survey system, digital cadastral database and an image document management system. Further to the changes in technology, the Department was restructured in 1994 to convert it into a modern geographic data supplier. The legal framework of cadastre had been amended to recognize digital data with respect to copyright and legal evidence.

46. Japan reported on the status and future concepts of its cadastral survey (E/CONF.89/INF/33). Currently, the cadastral survey had been completed for 39 per cent of the Japanese territory. Map scales ranged from 1:250 to 1:5,000. By the end of 1995, 26 per cent of the map coverage had been converted to digital data. The Government would further improve the coverage of cadastral survey and promote the utilization of cadastral results as a base map for GIS. The delegate from Japan reported that, as a result of the Kobe earthquake, people are now more aware of the importance of cadastre and GIS.

47. In Cyprus, the Department of Lands and Surveys would improve the land registration system and cadastre by implementation of information technology and modern survey techniques (E/CONF.89/INF/50). Development of an integrated land information system started in 1995. The project included a systematic cadastral resurvey of the country, the computerization of land records and maps and the use of computer systems with the activities of the Department. Conversion of the national geodetic datum to WGS-84 had already been prepared by GPS survey. The resurvey of cadastre would take advantage of large-scale aerial photogrammetry.

48. No papers were submitted specific to sub-items 6 (d) and 6 (e).

49. No paper was submitted for agenda item 7.

50. The Chairman of Committee I noted with concern that, since no contributions had been submitted on agenda item 7, the resolution of the Thirteenth Regional Cartographic Conference on the attendance of small Pacific island States had had little effect. He expressed his thanks to the delegates for presenting papers on the other subjects and contributing to the discussion.

IV. WORK OF COMMITTEE II: ENABLING TECHNOLOGIES

51. The work of Committee II covered the following sub-items of agenda item 6; Reports on the contribution of surveying, mapping and charting to support implementation of Agenda 21:

(g) Safety of maritime and air navigation, including hydrographic surveys and nautical charting;

(h) Other applications of surveying and mapping to support the implementation of Agenda 21.

Twenty-three papers were presented/submitted, four relating to sub-item 6 (g), and 19 relating to sub-item 6 (h).

Safety of maritime and air navigation, including hydrographic surveys and nautical charting

52. In the first paper under sub-item 6 (g) (E/CONF.89/L.6), the Islamic Republic of Iran described how it had prepared hydrographic charts of bordering waters, determined mean sea level and established tide gauges and one year tide table predictions.

53. The United States presented a paper (E/CONF.89/INF/5) concerning the Digital Nautical Chart (DNC). The National Imagery and Mapping Agency was required by law to make its products available to the civil sectors that enhanced safety of marine navigation. Vector Product Format (VPF) was improving the interoperability of Department of Defense systems. VPF, an implementation of the international Digest-C standard format adopted by NATO, covers a wide range of products available and planned, such as 1:50,000 to 1:1 million multipurpose databases, littoral warfare databases, special submarine navigation products, and navigation databases supporting safe navigation. DNC, a step in replacing the paper chart, was developed to satisfy international standards - i.e., of the International Maritime Organization and the International Hydrographic Organization. DNC would cover 29 regions with 3,700 charts by 1999, using the WGS-84 datum. The Agency was developing Full Utility Navigation Demonstration (FUND) software to familiarize users with DNC. DNC covering foreign areas would not be put on public sale, pending quid pro quo with affected nations.

54. Japan's paper (E/CONF.89/INF/34) covered the Electronic Navigational Chart (ENC) which was first produced in March 1995 on CD-ROM using the IHO S-57.V2.0 standard. ENC was produced using four databases - Hydrographic Source Database, Nautical Chart Database, Electronic Chart Database, and Paper Chart Database. ENC was seamless and covered several thousand square kilometres. It was updated using notices to mariners. Four CD-ROMs had been produced at scales smaller than 1:100,000, covering the surrounding waters of Japan. Seventeen total would be produced by 2002. In 1992, the Japan Hydrographic Association began producing an Electronic Reference Chart in IC memory card format for the Electronic Chart System. Twenty-eight were produced by the end of 1996.

55. Japan's paper (E/CONF.89/INF/35) covered the production of a new chart series covering basic maps of the sea in continental shelf areas. Three map series were produced, using four thematic charts - bathymetric chart, submarine structural chart, total magnetic anomaly chart, and free air gravity chart.

Sixteen map areas were planned. The series was produced at 1:100,000 scale, using the Mercator projection. The maps provided very precise and homogeneous data, revealing the nature of the ocean floor, which would increase understanding of the genesis of the island-arc and trench systems.

Other applications of surveying and mapping
to support the implementation of Agenda 21

56. The first paper under sub-item 6 (h) (E/CONF.89/L.6), submitted by the Islamic Republic of Iran, concerned execution of the National Base-map Project at 1:25,000 scale, to be comprised of 10,000 sheets, and of the National GIS at scales of 1:25,000, 1:50,000, 1:100,000, 1:250,000. Iran had created NGIS at 1:1 million; standardized products, services, structure and activities; and initiated 1:100,000-scale ortho-images from satellite images to cover the entire country. The National Space Technology Training Centre, to promote education and training at the national, regional, and international levels, would be established in the near future with cooperation of the United Nations and the ongoing integration of GIS and GPS.

57. The United States Geological Survey reported that it was building a production system to support the National Digital Orthophoto Program (NDOP) (E/CONF.89/INF/2). The goal of NDOP was to cover the conterminous United States by 2001, using contracted firms in the private sector. Demand for digital orthophotos increased with the maturity of GIS technology, the general lack of current base cartographic data, and the dramatic decrease in computer hardware costs. The current system utilized available photo diapositives, camera calibration data, photo-identified control points, aero-triangulation data, digital elevation models, and topographic maps. NDOP standards were being developed from field control, airborne GPS, aero-triangulation data, digital elevation models, digital ortho-imagery and metadata, orthophoto mosaics, and hard-copy deliverables from all data producers. Consequently system design and integration were more complex, due to non-standard elements from those sources. The centralized database was decentralized to regional production centres. A sales database was established to facilitate distribution of data to the public.

58. Another paper from the United States (E/CONF.89/INF/3) addressed small-scale mapping using Advanced Very High Resolution Radiometer (AVHRR) data for use in national-to-global environmental assessments. A formal protocol between China's National Bureau of Surveying and Mapping (NBSM) and the United States Geological Survey (USGS) allowed for mapping of two test sites in the north central and south-east regions of China. Those sites differed in climate, vegetation, and land-use intensity. The primary data, NOAA AVHRR 1 km Normalized Difference Vegetation Index composites for the 1992 growing season, were compiled by the USGS EROS Data Center. Other data were NBSM's 1:4 million digital elevation model, Beijing Agricultural University's digital soil database, and a Chinese land-use atlas compiled by the Institute of Geography, Chinese Academy of Sciences. Classification results yielded 26 land cover types for the north-central area and 16 classes for the south-east site. Results indicate that that method of large area land cover mapping using AVHRR data was feasible.

59. One paper from the United States (E/CONF.89/INF/4) covered standards for Global Spatial Data Infrastructure (GSDI). Its capabilities were beginning to be integrated into mainstream information technologies. Availability, accessibility, management, and the integration of digital spatial data had challenged the international community to form spatial data infrastructures.

Those structures can be national, regional, and global. Their components were technology, standards, policy, and institutional framework. Various working groups - i.e., framework and reference models, geospatial data models and spatial operators, geospatial data administration, geospatial services, and profiles and functions standards - had contributed standardization at the regional (country) and global level, supported by national standards organizations. The International Standards Organization's TC 211 was a key element in the effort. That important work permitted technology transfer to developing nations. Twenty integrated standards should be in place by 1999.

60. Another paper from the United States (E/CONF.89/INF/6) addressed the United States National Spatial Data Infrastructure (NSDI), which would aid in streamlining governmental operations and managing resources. NSDI was established by Executive Order in 1994. Open sharing of data within and external to an organization contributed to increased knowledge and efficiency, particularly of benefit to the public. Data-sharing required standards. The decentralized National Data Clearinghouse linked people seeking data with data producers via electronic networks. That required metadata, the Internet, and search-and-query software tools. Common themes included digital ortho-imagery, geodetic control, elevation, transportation, hydrography, boundaries, and cadastral information. Data-sharing and collaboration among diverse and widely spread organizations was being promoted. The relationship between the user and the data producer was being simplified and strengthened.

61. The United States paper on Vector Product Format (VPF) (E/CONF.89/INF/7) described how the National Imaging and Mapping Agency (NIMA) provided digital geospatial products in three formats - VPF, Raster Product Format, and Text Product Format. VPF defined the conceptual and physical data model on which all NIMA vector products were based. It used a geo-relational model which was physically organized into five hierarchical levels - database, library, coverage, feature, and primitive levels. System limitations required the division of large geospatial databases into manageable units or tiles. Some available VPF products were Digital Chart of the World, World Vector Shoreline, Digital Nautical Chart, Vector Smart Map Levels 0, 2, and Urban. VPF software aided in accessing the database displaying chosen combinations of features or themes for a selected area of interest.

62. One United States paper (E/CONF.89/INF/8) addressed time-invariant bathymetry, relating to chart vertical datum problems and a new concept in defining/surveying a time-invariant bathymetry using a high accuracy geoid as the new zero reference surface. The capability to compute a geoid of very high accuracy - i.e., absolute accuracy of $\pm 25-30$ cm - over ocean areas could define a nautical chart datum that was not dependent on time-dependent tidal surfaces. Thus that geoid was proposed as the zero surface for nautical chart datum with all bathymetric data referenced thereto. That would eliminate the numerous existing local tidal datums, which was practical and realizable with current technology.

63. Germany presented a paper (E/CONF.89/INF/10) covering the global usage of permanent GPS arrays. One hundred stations had been established within the global framework of the International GPS Service for Geodynamics (IGS). The accuracy of derived products supported the improvement of the International Terrestrial Reference Frame, monitoring of solid earth deformation and liquid earth variations. National, continental, and global institutions coordinated various tasks. The success of permanent sites rested on the availability of communication links between observation sites, operations centres, data centres, and analysis centres. Data transfer was done on a daily basis. Europe's

achievable internal accuracy was ± 2 mm horizontal and ± 7 mm vertical. Japan noted that such arrays made possible the monitoring of crustal movements towards earthquake prediction.

64. Germany also presented a paper (E/CONF.89/INF/14) covering mapping from space. Several nations had civilian satellite systems with resolutions down to 5 metres (Russia's was 2 metres). Military satellite systems were capable of .5 metres (Russia). Developing commercial satellite systems should be capable of 1-metre resolution. The German MOMS-02 combined three aspects - high resolution, stereo in orbit, and multispectral capability. MOMS-02 covered 10 million square kilometres in 1993 in 10 days. Results over Dubai City were ± 4 m horizontal and ± 6 m vertical; therefore, 1:25,000-scale mapping and map-updating was possible.

65. The International Society for Photogrammetry and Remote Sensing (ISPRS) presented the secretariat's report (E/CONF.89/INF/16) on the integration of remote sensing, GIS, and GPS. Those integrations supported land-use mapping, disaster analysis, and urban planning. New systems with 1-metre resolution should make possible mapping at 1:10,000 scale. Stereo function should make possible 1:25,000 mapping at 10-metre contour intervals. Terrestrial photography systems, such as Japan's GPS Landmaster Camera, with GPS should be useful in the collection of GIS data at a site. When such a system became digital, a simplified mapping system would replace plane table mapping. Mobile mapping systems would allow almost real-time input via telecommunications links into the GIS database. Advanced technologies must be smoothly integrated, since they contributed to environmental and natural resource management.

66. Australia presented a paper (E/CONF.89/INF/17) concerning its contribution of surveying mapping and charting to the implementation of Agenda 21. The Environmental Resources Information Network (ERIN), located in the Department of Environment, Sport, and Territories, sought to provide geographically related data of the extent, quality, and availability required for planning and decision-making. ERIN was building a holistic picture of the current state of knowledge, drawing on geography, ecology, archaeology, taxonomy, geology, and environmental monitoring data. The National Resources Information Centre (NRIC) was part of the Bureau of Resource Sciences in the Department of Primary Industries and Energy. NRIC facilitated information flow to support critical decisions about major sustainable development issues such as environmental assessment. NRIC was regarded as a world leader in GIS, metadata and directories, exploratory data analysis and visualization, and decision-support systems. The Australian Surveying and Land Information Group (AUSLIG), part of the Department of Administrative Services, was responsible for the policy, coordination and standards associated with national land information programs. AUSLIG data had been used in the Digital Chart of the World and GLOBE digital elevation models. Internet addresses were listed at the end of the paper for purposes of obtaining further information on the above organizations.

67. The Islamic Republic of Iran presented a paper (E/CONF.89/INF/57) concerning GIS standardization aspects in GIS infrastructure for Asia and the Pacific. GIS standards, fundamental data sets, and a technological framework were main issues to be considered. Levels of modelling were external (user view), conceptual (data model), logical (data structure), and internal (file structure). Standardization benefits included improvement of quality, quality control, cost savings, supporting users, data integrity, efficiency, and data transfer. Standards could be classified in layers such as world, user environment, data modelling, data structure, schema implementation, feature/attribute dictionary, content, encapsulation, metadata, directory and

indices, and media. The National Cartographic Center (NCC) of Iran's Digital Spatial Data Standard would encompass data acquisition; coordinate systems; conceptual model; data structure, format, and exchange format; metadata; data dictionary; cartographic presentation; and storage media.

68. The International Cartographic Association presented a paper (E/CONF.89/INF/18) concerning ICA progress during 1991-1995. ICA had a membership of 80 nations, with 12 affiliates. The main scientific work was accomplished by commissions and working groups, 250 individuals from 66 countries. The Commission on Spatial Data Quality had been addressing certain issues since large databases were created for access/use by many individuals. Lineage, positional accuracy, attribute accuracy, completeness, logical consistency, semantic accuracy, and temporal accuracy definitions provided a sound basis for further research into the display of data quality and reliability. ICA's Commission on Thematic Mapping from Satellite Data was focusing on the expanding manufacture of tools for image-processing, the increasing adoption of GIS, and the diversification of civilian space programs for ground observation. Environmental monitoring required a global sampling framework whose changing data must be displayed and analysed on maps of various kinds, many of them innovative in character. The Standing Commission on Education and Training was one of the leading promoters of ICA throughout the world. ICA looked to the future by promoting children's map competitions. A United Nations CD-ROM, My City, incorporated many of those maps and was exhibited at the World Summit on Social Development in Copenhagen in 1995. The program might be the most significant achievement of the Association to date.

69. The Secretariat's paper (E/CONF.89/INF/22) concerned the challenge of cartography in transition. The success of any programs based on natural resources and environment could be guaranteed only if current and reliable spatial data were used during both the planning and implementation stages. At the global level agencies at the United Nations and some industrialized countries had developed global geospatial databases - e.g., Digital Terrain Elevation Data, Digital Chart of the World, AVHRR Global Land Data Set, European Land Use Database, Soil and Terrain Digital Database, Earthmap, and the Land Cover Mapping of Africa. Almost all countries had national mapping organizations dedicated to establishing national geodetic networks and standard topographic map series at various scales. Developing countries, on the other hand, had a critical shortage of data effecting the currency of existing maps. Automated collection, compilation, and production of cartographic products was rapidly advancing with digital photogrammetry, image motion compensation and mount stabilization in metric cameras, satellite remote sensing by digital means, GIS, GPS, and networks, due to the rapidly developing computer technology. Those capabilities had greatly affected the production system and organizational changes within national mapping organizations, personnel skills, equipment, product types, budgeting, and the focus of professional organizations, and emphasized international cooperation.

70. The International Federation of Surveyors (FIG) presented the Secretariat's paper (E/CONF.89/INF/25) concerning the Bogor Declaration. The Inter-Regional Meeting of Experts on Cadastre was held in Bogor, Indonesia, in March 1996 to develop a document delineating the desirable requirements and options for the cadastral systems of developing Asian and Pacific countries and, to some extent, globally. The document covered historical perspectives, Agenda 21, cadastral vision, diversity of needs, needs for re-engineering systems, administrative and technical options, resource implications, and the roles of non-governmental organizations and the private sector. Recommendations to the United Nations included promoting forums for the exchange of knowledge, guidelines for cadastre

and land administration, the feasibility of regional educational support centres, and encouraging funding from all sources. National Governments should recognize the essential role of cadastral support to land management and the close relationship between cadastral and national mapping in national, private, and educational organizations, and should strengthen the non-governmental organizations to tap that important resource. Non-governmental organizations should play a mediating role due to their collective representation of various organizations. All organizations should support the efforts of the United Nations.

71. Japan presented a paper (E/CONF.89/INF/30) concerning the national GPS network system and the integration of the coordinate systems in Japan. Japan's long-standing geodetic network consists of 1,000 triangulation points, 5,000 second-order points, and 33,000 third-order points. The nationwide GPS network was authorized in 1994. One hundred GPS stations were established in 1994 with a mean-distance-between of 120 kms. Four hundred stations were added in 1995 with a mean-distance-between of 20 kms. The network revealed tectonic motions more precisely. Data collection and transfer were accomplished over existing telephone lines. Temporary stations aided in establishing control in the Kobe area after the Hyogo-ken Nambu earthquake in 1995. The demand for global coordinate systems - i.e., WGS-84 - led to the establishment of the Tsukuba Datum of 1992 as research towards future revision of the Tokyo Datum. The Geographical Survey Institute (GSI) was developing a new national datum which excluded the Tokyo Datum distortion and harmonized with global geocentric coordinate systems. GSI's GPS network was one of the largest in the world, due to Japan's interest in monitoring and understanding crustal movements.

72. Japan presented a paper (E/CONF.89/INF/31) on the establishment of GIS infrastructure and related activities in Japan since the 1970s. In 1974, the Digital National Land Information contained Digital Elevation Model (DEM), land use data, local government boundaries, major roads, railways, rivers, coastal lines, public facilities, etc. In 1993, the Digital Map Series was initiated. It had seven product lines, covering elevation, shore lines, and administration boundaries. Currently, the GIS Research Committee (university professors) was preparing reports covering the new strategies. The first report (February 1996) stressed the need for a national spatial data network that must be standardized and promoted to acquire the various organizational requirements and support. A second report (May 1996) stressed the need for the introduction of GIS, administrative leadership, and immediate actions (a model project) for building consensus. In 1995 the Liaison Committee of Ministries and Agencies Concerned with GIS (21 ministries and agencies) published its long-term plan which called for the formation and establishing of a National Spatial Data Infrastructure (NSDI) within three years. GSI started to prepare a spatial data framework in 1995, composed of transformed existing digital maps and newly digitized data from 1:2,500-scale city planning maps and 1:500-scale road management maps.

73. Japan presented a paper (E/CONF.89/INF/36) concerning the application of Japanese satellites data to mapping. Japan's National Space Development Agency (NASDA) had launched three Earth observation satellites since 1987, with a fourth (ALOS) to be launched in 2002. JERS-1 (Japanese Earth Resources Satellite-1) and ADEOS (Advanced Earth Observing Satellite) were operational with optical, synthetic aperture radar (SAR) and near infrared radiometer capabilities. ALOS would have three remote-sensing instruments: PRISM (Panchromatic Remote Sensing Instrument for Stereo Mapping) for digital elevation mapping; AVNIR-2 (Advanced Visible and Near Infrared Radiometer type 2) for precise land coverage observation; and PALSAR (Phased Array type L-band SAR) for 24-hour all-weather observation. Resolutions were 2.5 metres

(PRISM), 10 metres (AVNIR-2, and 10, 20, and 30 metres (PALSAR). Special capabilities included simultaneous observation of AVNIR-2 and PALSAR, simultaneous stereo of PRISM, and easier fusion of optical and radar data. A detailed preliminary ALOS questionnaire was included with the paper to aid NASDA in understanding the requirements of potential users.

74. The International Federation of Surveyors (FIG) presented a paper (E/CONF.89/INF/45) concerning the role of the surveying and mapping non-governmental organizations and their relationship with national Governments. Common national surveying and mapping associations attributes included regulation of membership by academic qualification; regulation of standards of education, practice, and behaviour; advancement sciences or disciplines via meetings; and representation of other interests through other organizations (including government). Non-governmental organizations could be defined by their independent constitutions and funding; limited membership via qualifications; and their objectives of advancing science and its applications. The International Federation of Surveyors was comprised of over 90 professional associations with a membership of over 250,000. Its focus was based on the realization that the health of the surveying profession was bound with its relevance; ability to understand and respond to society issues and needs. FIG's close relationship with the United Nations had enabled it to make important contributions to Habitat II and regional cartographic conferences. Those contributions were made possible by the United Nations recognition that non-governmental organizations were partners in development. Non-governmental organizations, therefore, needed the recognition and support of global organizations and national Governments.

75. Germany presented a paper (E/CONF.89/INF/51) concerning airborne laser scanning (ALS), a new remote-sensing method for terrain mapping. ALS was a new remote-sensing method using laser range-finder technology in combination with airborne kinematic GPS in differential mode (DGPS). ALS required a line of sight clear of clouds, fog, or rain. Optimal flying height was 3,000 metres. Data were recorded on 8-millimetre tape (12 hours) and typical processing for a two-to-five square kilometre area was one hour. An Airborne Laser Terrain Mapper 1020 was used in conjunction with two GPS receivers (one onboard and the other at a known ground position reference). Point densities of 250,000 per square kilometre (one point every 4 square metres) could be obtained. Digital Terrain Models (DTM) typically had height accuracies of 15 centimetres and were usually produced with a 5-metre grid. Rate of vegetation coverage affected results; therefore, autumn and spring were preferred times for scanning. ALS was especially developed for the acquisition of elevation data in larger areas. Other possible applications included topographic terrain survey, forest floor detection, tree heights, tidal areas, glacier surveying, and route detection of roads, pipelines and cables.

76. After each paper was presented, the Committee Chairman invited representatives to comment. Comments varied from simple statements to lively discussion, depending on the specific paper.

V. WORK OF COMMITTEE III: POLICIES AND MANAGEMENT

77. The work of Committee III covered policies and management, under agenda item 6, sub-items:

- (b) Public access to and exchange of information;
- (f) Human resources development;

and agenda item 8: Policy and management of national survey activities in the field of surveying and mapping; and item 9: Technical cooperation and transfer of technology.

78. Based on the number of technical reports submitted to the Conference and the lively exchanges that occurred during the discussions, one could conclude that there was substantial interest in the topics and general recognition of the importance of policy and management in the realization of Agenda 21, through the provision of sound national, regional and global spatial data infrastructure.

79. There were eight papers submitted under the topic "Public access to and exchange of information". In a concept paper submitted by the Islamic Republic of Iran (E/CONF.89/L.6), the easy availability of geographic and remote-sensing data as one of the key ingredients needed for the achievement of sustainable development was cited. Several other papers echoed that sentiment.

80. Two papers, one by Germany (E/CONF.89/INF/11), and one by France (E/CONF.89/INF/40), discussed the process of data harmonization of different national data sets to form the Seamless Administrative Boundaries of Europe Dataset (SABE) through the establishment of the Multipurpose European Ground-Related Information Network (MEGRIN). The French paper went further into MEGRIN's Geographic Data Description Directory (GDDD). SABE and MEGRIN provided a viable model for the formation of other regional geographic data sets from national sources that often had vast technical differences.

81. Another paper from Germany (E/CONF.89/INF/12), described the effort undertaken by the Land Survey Offices in establishing the Official Topographic Cartographic Information System (ATKIS). The aim of the system was to establish a national spatial infrastructure that would be able to meet all foreseeable future demands made on national survey and mapping. The ATKIS experience was a good illustration of the provision of standardized geographic information at a federal and area-wide level, independently of any particular interest or system, with the aim of making data accessible to users in the planning, economic and administrative sectors.

82. On the Asia and Pacific region, a paper submitted by Japan (E/CONF.89/INF/32) described how the Geographic Survey Institute (GSI) viewed the issue of public access to geographic information. Through its national efforts, GSI had launched a large number of paper and digital geographic products to the public. Dissemination of "hot" information through the Internet was demonstrated successfully after the Hanshin-awaji Earthquake. GSI found that multimedia in an Internet context were quite effective for communicating geographic information, especially the time-sensitive ones.

83. ICA reported on the national electronic and multimedia atlas of China (E/CONF.89/INF/9). The atlas was a fine example of Chinese effort in making data accessible to the public.

84. On a more fundamental note, a Chinese paper (E/CONF.89/L.2) described the China national spatial data infrastructure and dealt with institutional frameworks, fundamental data sets, technical standards and clearing-house networks.
85. The last paper under the item was also from ICA (E/CONF.89/INF/43). It detailed the initiatives of the International Cartographic Association to implement Agenda 21. It highlighted the intimate linkage of environment and development, resulting in a demand for two-way dialogue and communication between policy makers and ground administrators. Public accessibility of information was a necessary portion. ICA had endeavoured to work towards that realization.
86. There were three papers submitted under sub-item 6 (f): Human resource development. An Iranian paper (E/CONF.89/L.6) stated the country's recognition of the need to develop human resources in the surveying and mapping arena. Towards that end, they established a national training centre and actively participated in seminars and international conferences in order to get the appropriate human resources to satisfy the needs of Agenda 21.
87. The paper from the United States of America (E/CONF.89/INF/54) described the inevitable impact of the advancement of automated cartography and prepress operations on future cartographers, who would have to take on additional tasks in non-traditional areas like computer system management and working in teams. Thus the keys to future success were flexibility, cooperation, teamwork and the possession of an attitude towards continual upgrading of knowledge through education.
88. The Netherlands paper (E/CONF.89/INF/55) described ITC's effort in meeting the challenging changes in the word of spatial data handling. The courses would definitely fulfil the need for continual education, as expounded in a paper from the United States (E/CONF.89/INF/54).
89. There were five papers submitted under item 8, Policy and management of national survey activities in the field of surveying and mapping. The paper by China (E/CONF.89/L.5) gave a comprehensive description of the legislation framework of surveying and mapping in China and a detailed account of the status of formulating related law and regulation in their country. From this paper, we could see that the Chinese had rightfully given due emphasis towards the continual promotion of legislative progress in order to guarantee the advancement of survey and mapping professional development and deepen structural reform.
90. The paper submitted by the Republic of Korea (E/CONF.89/INF/24) described the country's National Geographic Information System (NGIS). It gave a comprehensive description of the role of the Government and the various committees and policy bodies in the establishment of NGIS. In essence, it was felt that the establishment of a national spatial infrastructure improved national competitiveness and productivity, and the importance of such endeavour entailed a centralized governmental effort with contributions from the private sector.
91. The paper from Malaysia (E/CONF.89/INF/42) gave a detailed account on the mapping and surveying activities in Malaysia between 1994 and 1996. During that period, the Malaysians embarked on extensive development of the necessary policy and management in the area of spatial data infrastructure in support of the

country's national thrust into the establishment of an information super corridor under Vision 2020.

92. Likewise, New Zealand described its framework towards the establishment of a national spatial infrastructure (E/CONF.89/INF/53). The New Zealand structure was divided into four basic functional areas of policy, regulatory activities, service delivery and corporate service. In order to avoid a potential conflict of interest and provide transparency, the authorities had separate business groups handling regulatory and service functions in key areas such as surveying, topographic/hydrographic activities, and state property and land titles.

93. The paper submitted by the Islamic Republic of Iran (E/CONF.89/INF/58), also detailed the implementation of a national spatial data infrastructure. In particular, it highlighted the importance of a comprehensive common data transfer format to bridge data produced with different software packages.

94. There were three papers submitted under item 9, Technical cooperation and the transfer of technology. The German paper (E/CONF.89/INF/15) described the national contribution to technical cooperation in mapping and GIS through non-governmental organizations. By offering technical, organizational and financial expertise, the German GeoKart Association for Surveying and Mapping was well equipped to cooperate with all interested parties.

95. According to the Japanese paper (E/CONF.89/INF/27), the main sponsor for technical cooperation in Japan was the Japan International Cooperation Agency (JICA), a quasi-governmental agency. Through its sponsorships, several governmental agencies were engaged in rendering technical assistance and implementing the transfer of technology in the field of cartography with other countries. The governmental agencies were the Geographic Survey Institute (GSI), the Hydrographic Department (HD), the Geological Survey of Japan (GSJ), and the National Land Agency (NLA). The primary targets of sponsorship were developing countries, and the assistance covered training and mapping and surveying projects.

96. The last paper in the series (E/CONF.89/INF/20) was submitted by the International Society for Photogrammetry and Remote Sensing (ISPRS). It described its cooperation programmes in international and regional cartography.

97. The following themes recurred in a large number of papers and discussions:

(a) The successful creation of national spatial databases and data infrastructure required coordinated control and consistent policies by national mapping organizations, backed by the respective Government;

(b) The fulfilment of Agenda 21 necessitated the creation of regional and global spatial infrastructure and effective two-way communication between the users and producers of information, who might not be within the same country since the objects of interest might not follow national boundaries;

(c) The maturing information technologies and their general usages were the key impetus for the creation of national spatial infrastructures, the absence of which would result in the dilution of national competitiveness and productivity;

(d) Non-governmental organizations continued to play a significant role in the transfer of technology and technical development, both by participating

actively in their respective fields and by providing bridges to governmental bodies;

(e) The evolution of technologies obliged surveyors, cartographers, GIS practitioners and others in similar fields to keep upgrading their knowledge, in both managerial and technical areas, so as to remain relevant in a rapidly changing society;

(f) Public accessibility to the national spatial databases was an important element in enhancing national competitiveness and productivity. The Internet was an important enabler in that regard.

VI. RESOLUTIONS ADOPTED BY THE CONFERENCE

A. List of resolutions

General policies

1. Funding for spatial data infrastructure programmes
2. Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific
3. Involvement of Pacific island countries in United Nations meetings
4. Review of rules and procedures
5. Linkages with other international forums
6. Attendance at future United Nations regional cartographic conferences for Asia and the Pacific
7. Monitoring the implementation of Conference resolutions

Transfer of technology

8. Asia and Pacific Regional Geodetic Project
9. Graphic components in connection with digital map production
10. Standardization of digital mapping databases
11. Development of the Global Map
12. Permanent Committee on GIS Infrastructure for Asia and the Pacific
13. Workshop on land rights, land responsibilities and restrictions
14. Spatial data infrastructure

Institutional issues

15. Linking cadastral mapping with topographic mapping within a wider spatial data infrastructure
16. Updating map inventories
17. Notification of the holding of United Nations regional cartographic conferences for Asia and the Pacific
18. Participation of ASEAN FLAG as a non-governmental organization at United Nations meetings on surveying and mapping
19. Involving non-governmental organizations in the development and provision of cadastral systems

20. Strengthening non-governmental organizations

* * *

21. Vote of thanks

B. Texts of resolutions

General policies

1. Funding for spatial data infrastructure programmes

The Conference,

Recognizing the fundamental role played by the spatial data infrastructure in ensuring the successful implementation of the initiatives of Agenda 21 and in facilitating sustainable development,

Noting that spatial data infrastructure programmes require adequate levels of funding to be truly effective,

Noting the requirement for new and innovative solutions to funding in the future,

Noting the increasing requirement by funding agencies, including multilateral institutions such as the World Bank, for project proposals to demonstrate, among other considerations, satisfactory rates of economic return,

Concerned that there is inadequate recognition by funding agencies of the critical importance of the spatial data infrastructure in ensuring effective delivery of projects,

Recommends that the United Nations, through the Permanent Committee on GIS Infrastructure for Asia and the Pacific of the United Nations Regional Cartographic Conference for Asia and the Pacific:

(a) Identify options for new and innovative ways to finance spatial data infrastructure programmes;

(b) Make funding agencies aware of the economic impact of spatial data infrastructure and urge those agencies to give greater attention to funding the spatial data infrastructure components of project proposals.

2. Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific

The Conference,

Recognizing the contribution of the United Nations regional cartographic conferences for Asia and the Pacific to capacity-building, transfer of technology and technical cooperation for the promotion of global and regional strategies for sustainable development,

Mindful of the efforts made by countries in the region to formulate and implement action programmes to fulfil the strategy for sustainable development

and promote related technologies and institutional framework to facilitate the implementation of Agenda 21,

Bearing in mind the deliberations and conclusions of the working group of the Fourteenth United Nations Regional Cartographic Conference for Asia and the Pacific on future regional cartographic conferences,

Acknowledging with appreciation the commendable work of the United Nations Secretariat in preparing for the Conference and providing the necessary resources to facilitate its accomplishment,

Recommends that the Economic and Social Council should convene the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific in mid 2000, with a primary focus on the continued and strengthened contribution of surveying, mapping and charting in support of the implementation of Agenda 21.

3. Involvement of Pacific island countries in United Nations meetings

The Conference,

Recognizing the continuing desire for Pacific island countries to participate in the work of the United Nations regional cartographic conferences,

Noting the limited attendance of most Pacific island countries at recent meetings,

Also noting the limited resources of personnel and finance of most Pacific island country surveying and mapping agencies,

Further noting that the smaller Pacific island countries have specific needs, due to their small size and isolation and to various cultural, environmental and economic factors,

Recalling resolution 4 of the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific on Pacific small island developing States,

Recommends that the United Nations, within existing resources, take the necessary initiatives to sponsor or facilitate forums more appropriate to the needs of Pacific island countries, such as group workshops, seminars and/or expert group meetings between conferences.

4. Review of rules and procedures

The Conference,

Recognizing the importance of up-to-date rules and procedures for the effective operation of the United Nations Regional Cartographic Conference for Asia and the Pacific as it enters the new millennium,

Noting that the current rules and procedures have not been reviewed for some time,

Concerned that the United Nations Regional Cartographic Conference for Asia and the Pacific must be able to operate in a flexible manner and be more responsive to the needs of participating countries,

Recommends that the United Nations, through appropriate mechanisms and within existing resources, undertake a review and updating of current rules and procedures governing the effective operation of the regional cartographic conferences in time for the next United Nations Regional Cartographic Conference for Asia and the Pacific.

5. Linkages with other international forums

The Conference,

Recognizing that the agenda of the United Nations Regional Cartographic Conference for Asia and the Pacific is changing so as to focus more on identifying and addressing global, regional, and national issues and less on strictly technological processes,

Further recognizing the potential to increase understanding of global and national issues by linking the work of the United Nations Regional Cartographic Conference for Asia and the Pacific with other forums of physical and social scientists,

Mindful of existing links between non-governmental organizations involved in international surveying and mapping and those involved in other disciplines,

Recommends that the United Nations Secretariat, when extending invitations to cartography-related non-governmental organizations to participate in United Nations regional cartographic conferences, promote and encourage the active contributions of other relevant international non-governmental organizations and institutions at future cartographic conferences.

6. Attendance at future United Nations Regional Cartographic Conferences for Asia and the Pacific

The Conference,

Recalling resolution 3 of the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific,

Acknowledging the fundamental role played by a sound spatial data infrastructure in contributing to the enhancement of national competitiveness and productivity and the role of the United Nations Regional Cartographic Conference for Asia and the Pacific in promoting the attainment of such infrastructure,

Noting with concern that some of the least developed countries and other developing countries with low per capita income continue to be absent from the Conferences,

Aware of the financial difficulties involved in attending the present Conference,

Conscious that, owing to their exclusive economic zone boundaries, some of those countries are responsible for environmental management of extensive ocean areas of the Pacific region,

Recognizing the special benefits that are being realized by the less affluent countries from the technical advances in cartography and related disciplines which have been reported at the present Conference,

1. Recommends that the United Nations:

(a) Assist the least developed and other developing countries with low per capita income to attend future Conferences through direct financial assistance, within existing resources, and encourage them to submit reports on their special needs along with their country reports;

(b) Reassert the overall goal of attaining full regional participation at the Conferences;

(c) Reaffirm the validity of resolution 3 of the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific;

2. Further recommends the identification of appropriate means of encouraging the participation of the least developed and other developing countries with low per capita income, through bilateral initiatives, including bilateral sponsorship as part of ongoing technical assistance and/or other cooperative programmes.

7. Monitoring the implementation of Conference resolutions

The Conference,

Recognizing that the contribution of the United Nations regional cartographic conferences for Asia and the Pacific is essential for capacity-building, transfer of technology and technical cooperation for the promotion of global, regional and national strategies for sustainable development,

Mindful of the efforts made by countries in the region to promote the introduction and implementation of new technologies and other mechanisms in the field of surveying, mapping and charting in response to changing needs and of the impact of implementing new approaches to sustainable development and related recommendations emanating from major United Nations conferences,

Aware of financial and institutional constraints and other difficulties which have delayed, postponed or prevented the timely implementation of resolutions adopted at past United Nations regional cartographic conferences,

1. Recommends that member States undertake an assessment of the performance of the past three United Nations regional cartographic conferences for Asia and the Pacific with a view to redefining the role and direction of future cartographic conferences for further strengthening and continued cooperation at the start of the new millennium, and that such an assessment be conducted through the Permanent Committee for GIS Infrastructure for Asia and the Pacific, with findings made available to the United Nations Secretariat for review and action, as appropriate, prior to the next Conferences;

2. Further recommends that, as a result of the assessment, a set of criteria be defined and instruments established to facilitate the ongoing process of monitoring the implementation of future Conference resolutions.

Transfer of technology

8. Asia and Pacific Regional Geodetic Project

The Conference,

Acknowledging the need of a regional geodetic infrastructure as a basis for a homogeneous regional geographic information system,

Further acknowledging a regional fiducial point network for greater utility of global, regional and local positioning and navigation,

Also acknowledging the need for clearer identification of tectonic plate boundaries and associated movement vectors in order to better understand and predict natural hazards in the region,

Recalling that the expert symposium organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) in September 1994, in Beijing recommended that an Asia Pacific space geodynamic initiative project should be established to promote and coordinate related activities in the region and to encourage international cooperation, in order to provide more basic information for earthquake prediction, volcanic eruptions and sea level rise,

Also recalling the resolution adopted by the International Association of Geodesy (IAG) Assembly in August 1995, at Boulder, Colorado, in which it recommended that local institutions and international cooperating agencies support and carry out an Asia/Pacific space geodynamics project which would employ precise space geodetic techniques to study the regional tectonics that result in extreme risk from volcanic, seismic and other natural hazards,

Further recalling the Asia and the Pacific Regional Geodetic Project, adopted by the Permanent Committee on GIS Infrastructure for Asia and the Pacific in October 1996, at Sydney, Australia, which is to establish a common geodetic infrastructure for the region, as the basis for integrating geographic information,

1. Urges the Permanent Committee on GIS Infrastructure for Asia and the Pacific to carry out an Asia and Pacific geodetic project in close cooperation with the Asia/Pacific space geodynamics project, to establish a regional geodetic infrastructure and to maintain a regional geodetic network for GIS application;

2. Recommends that all member countries in the region undertake a simultaneous geodetic data observation campaign with techniques of Very Long Baseline Interferometry (VLBI), Satellite Laser Ranging (SLR) and global positioning systems (GPS), within available resources, throughout the region for a one-month observation period in October 1997.

9. Graphic components in connection with digital map production

The Conference,

Acknowledging the rapid change in map-making technology and the need for maps as basic tools for transferring information visually,

Also acknowledging the need to produce maps quickly,

Further acknowledging that the often poor quality of maps produced by non-cartographers results from lack of or non-adherence to cartographic rules,

Recognizing the visualization aspect of all activities involved in the map-making process,

1. Recommends that more emphasis should be given to cartographic processes in map production;

2. Further recommends that meetings regarding the standardization of symbols and layouts of maps and the overall visualization aspect be held within countries of the region.

10. Standardization of digital mapping databases

The Conference,

Acknowledging the need of an homogeneous working environment in the fields of digital cartography, digital photogrammetry, remote sensing, geographical information systems (GIS), and land information systems (LIS),

Also acknowledging the need of a standardized exchange of formats to facilitate transfer of cartographic/digital data,

Further acknowledging the necessity to minimize the economic cost resulting from frequent changes of hardware and software, due to obsolescence,

Aware that its commitment to promote the availability and exchange of cartographic data in the countries in Asia and the Pacific is to facilitate the fulfilment of Agenda 21,

Further aware of resolution 12 of the thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific towards standardization of exchange formats for geographical information systems (GIS) and land information systems (LIS),

Recalling the resolution on common geodetic infrastructure for the region, adopted by the Permanent Committee on GIS Infrastructure for Asia and the Pacific in October 1996, at Sydney, Australia,

Further recognizing problems of compatibility of hardware and software as a result of frequent technology upgrade,

1. Recommends that the private sector in the industry be encouraged, through appropriate means, to coordinate efforts in the design of digital hardware and software in the field of digital cartography, digital photogrammetry, remote sensing, geographical information systems, and land

information systems to bring about homogeneity and standardization in order to facilitate integration of data at the international level;

2. Further recommends that more participation in future United Nations regional cartographic conferences by the private sector in the industry be encouraged.

11. Development of the Global Map

The Conference,

Recognizing the efforts that have been made over many years to complete mapping of the globe,

Noting that development of the Global Map realizes the concept of global spatial data infrastructure,

Also noting that the involvement of international groups of experts, such as the International Steering Committee for Global Mapping, is indispensable in developing the Global Map,

Bearing in mind that the integration of national and regional spatial data infrastructures to a global level facilitates the creation of the Global Map,

Recognizing that the Global Map, a global group of geographic datasets of known and verified quality with consistent specifications, publicly available and distributed at nominal cost, is vital for understanding global environmental problems, mitigating natural disasters, and realizing social improvement and economic growth within the context of sustainable development,

Also recognizing that the development of the Global Map provides a significant contribution of surveying and mapping towards the implementation of Agenda 21,

1. Urges all the Governments of Asia and the Pacific to consider participating in the development of the Global Map, with the assistance of the International Steering Committee for Global Mapping and the close cooperation of the United Nations;

2. Recommends the creation of a Global Mapping forum of data providers and users to facilitate the development of the Global Map and a virtual forum of users via the Internet or other means of communication and interaction;

3. Also recommends establishing and maintaining points of contact within national mapping organizations as the initial step in facilitating the creation of such a forum;

4. Further recommends the strengthening of collaborative and cooperative efforts between Global Mapping and those of various regional spatial data infrastructures, especially the Asia and the Pacific Spatial Data Infrastructure (APSDI) of the Permanent Committee on GIS Infrastructure for Asia and the Pacific.

12. Permanent Committee on GIS Infrastructure for Asia and the Pacific

The Conference,

Noting the formation of the Permanent Committee on GIS Infrastructure for Asia and the Pacific, pursuant to resolution 16 of the Thirteenth United Nations Regional Cartographic Conference,

Also noting that the Economic and Social Council, in its decision 1994/228 of 14 July 1994, approved that resolution,

Bearing in mind that the aims of the Permanent Committee are to maximize the economic, social and environmental benefits of geographic information in accordance with Agenda 21 by providing a forum for nations from Asia and the Pacific to:

- (a) Cooperate in the development of a regional geographic information infrastructure;
- (b) Contribute to the development of the global geographic information;
- (c) Share experiences and consult on matters of common interest;

Also bearing in mind that the Permanent Committee has had three meetings - the inaugural meeting in Kuala Lumpur, Malaysia, in July 1995; a second meeting in Sydney, Australia, in October 1996; and a third meeting in Bangkok, Thailand, in February 1997,

Recognizing the urgent need to facilitate and enhance the promotion of these aims among all members of the Permanent Committee, through active engagement and coordination,

Also recognizing the autonomous nature of the Permanent Committee and the important role of the United Nations/ESCAP Regional Space Application Programme, supported in part by continuing assistance from the United Nations Development Programme, which has established a significant and operational network within the region of Asia and the Pacific in promoting regional coordination and collaboration,

Recalling resolutions 12, 16 and 19 adopted by the Thirteenth Regional Cartographic Conference, on GIS standardization, a permanent regional GIS infrastructure committee, and institutional frameworks for geospatial data management, respectively,

Acknowledging the report submitted by the Permanent Committee on GIS Infrastructure for Asia and the Pacific as a key contribution to the work of the present United Nations regional cartographic conferences for Asia and the Pacific,

Urging all Governments in Asia and the Pacific to consider participating in the work of the Permanent Committee,

1. Recommends that cooperation be sought between the Regional Space Applications Programme of the Economic and Social Commission for Asia and the Pacific and the Permanent Committee on GIS Infrastructure for Asia and the

Pacific, in advancing the successful realization of the aims of the Permanent Committee, listed above;

2. Also recommends that future reports by the Permanent Committee on GIS Infrastructure for Asia and the Pacific be submitted for consideration to subsequent United Nations regional cartographic conferences for Asia and the Pacific;

3. Further recommends that the Permanent Committee on GIS Infrastructure for Asia and the Pacific provide on its World Wide Web home page:

(a) A link to the World Wide Web home page of the International Organisation for Standardization/Technical Committee 211 (ISO/TC 211) in order to access the standards currently being developed by that Committee, especially the metadata and other geospatial data administration standards;

(b) A capability to report on the status of recommendations of the United Nations Regional Cartographic Conference for Asia and the Pacific;

(c) A generic template with which nations can report the status of surveying, mapping, and GIS activities, including relevant national issues, actions taken and associated rationales for those actions.

13. Workshop on land rights, land responsibilities and restrictions

The Conference,

Recalling the conclusions of the 1996 United Nations Interregional Meeting of Experts on Cadastre, jointly sponsored by the United Nations and the International Federation of Surveyors, and the recommendations in the resulting Bogor Declaration,

Further recalling the recommendations of the Third Meeting of the Permanent Committee on GIS Infrastructure for Asia and the Pacific,

Recognizing the outcomes of Agenda 21, which 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,

Assuming that appropriate and efficient cadastral systems are an appropriate tool in supporting sustainable development and environmental management,

Noting that existing cadastral systems are often inflexible and inappropriate to the needs of many countries, especially in their ability to record use rights, responsibilities and restrictions on land in support of sustainable development and environmental management,

Further noting the loss of customary and traditional knowledge relating to land, as developing countries move towards a land market economy, and the potential of more flexible cadastral systems in maintaining that knowledge,

Acknowledging the difficulties of integrating informal land-tenure systems into formal structures and the resulting need for more flexible cadastral

systems to facilitate that move to ensure access to land and security of tenure for all,

Recommends that the United Nations, within existing resources, with the expert assistance of the International Federation of Surveyors and other relevant organizations, organize by 1999 a global workshop on land rights, land responsibility and restrictions and suitable cadastral structures and systems appropriate to the needs of Governments for their sustainable development.

14. Spatial data infrastructure

The Conference,

Noting that the rapid global emergence of national and regional spatial data infrastructures is changing the role of the United Nations regional cartographic conference for Asia and the Pacific,

Conscious that the strategic direction of the Conferences is towards the Global Spatial Data Infrastructure (GSDI), through the linking of national spatial data infrastructures and regional spatial data infrastructures, such as the Asia and the Pacific Spatial Data Infrastructure,

Bearing in mind the establishment of the Permanent Committee on GIS Infrastructure for Asia and the Pacific, pursuant to resolution 16 of the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific,

Recognizing that the aims of the Permanent Committee are to maximize the economic, social and environmental benefits of geographic information in accordance with Agenda 21 by providing an autonomous forum for countries from Asia and the Pacific to:

- (a) Cooperate in the development of a regional geographic information infrastructure;
- (b) Contribute to the development of global geographic information;
- (c) Share experiences and consult on matters of common interest,

1. Recommends that the United Nations urge all Governments in Asia and the Pacific to consider establishing a national spatial data infrastructure;

2. Also recommends that the United Nations urge all Governments in Asia and the Pacific to consider participating in the work of the Permanent Committee in establishing the Asia and the Pacific Spatial Data Infrastructure;

3. Further recommends that the United Nations urge the Permanent Committee on GIS Infrastructure for Asia and the Pacific to endeavour to link the Asia and the Pacific Spatial Data Infrastructure into the Global Spatial Data Infrastructure.

Institutional issues

15. Linking cadastral mapping with topographic mapping within a wider spatial data infrastructure

The Conference,

Bearing in mind the conclusions of the 1996 United Nations Interregional Meeting of Experts on Cadastre, jointly sponsored by the United Nations and the International Federation of Surveyors, and the recommendations in the resulting Bogor Declaration, and the recommendations of the 1997 Third Meeting of the Permanent Committee on GIS Infrastructure for Asia and the Pacific,

Mindful of the outcomes of Agenda 21, which 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,

Noting the benefit of integrating cadastral and land tenure information with topographic information in providing an appropriate basis for supporting sustainable development and environmental management,

Further noting the difficulties being faced by many member States in integrating cadastral and topographic spatial data, especially in digital form,

Recommends that member States report to the next United Nations Regional Cartographic Conference on issues, problems and solutions concerned with integrating digital cadastral mapping with large-scale topographic mapping within the context of a wider national spatial data infrastructure.

16. Updating map inventories

The Conference,

Acknowledging the value of the inventories of the status of mapping in the world carried out by the Secretariat,

Recalling that such inventories were last prepared for the Twelfth and Thirteenth United Nations Regional Cartographic Conferences for Asia and the Pacific,

Recognizing that those inventories generated great interest in agencies involved in sustainable development,

Bearing in mind the proposal made at the Fourteenth Conference by Germany to assist in updating the inventories and expanding their content with reference to scales and thematic information,

Recommends that the Secretariat consider that proposal of assistance.

17. Notification of the holding of United Nations regional cartographic conferences

The Conference,

Noting that officials of the survey organizations of many countries have in the past experienced delay in being informed, through official channels of communication, about the holding of United Nations regional cartographic conferences,

Recommends that the Secretariat make informal and appropriate arrangements for officials of survey organizations in the region to be informed about the venue and the dates of such Conferences.

18. Participation of ASEAN FLAG as a non-governmental organization at United Nations meetings on surveying and mapping

The Conference,

Noting that member countries of the Association of South-East Asian Nations (ASEAN) have formed an association known as the ASEAN Federation of Land Surveying and Geomatics (ASEAN FLAG),

Recognizing that the ASEAN secretariat has accepted ASEAN FLAG as a surveying and mapping non-governmental organization,

Further recognizing that the ASEAN FLAG's objective is to promote and advance the science, practice and application of land surveying and geomatics for the advancement of mankind and community and to foster regional cooperation and transfer of technology,

Further recognizing that ASEAN FLAG can contribute to the future proceedings of the regional cartographic conferences,

Recommends that ASEAN FLAG participate as a surveying and mapping non-governmental organization in future Conferences and meetings of the United Nations dealing with surveying, mapping and geomatics.

19. Involving non-governmental organizations in the development and provision of cadastral systems

The Conference,

Noting the growing recognition of the key role of cadastral systems in supporting the objectives of Agenda 21, by:

- (a) Facilitating efficient markets in land and resource rights;
- (b) Facilitating individual and community access to land and security of tenure;
- (c) Contributing to spatial information bases for land and resource management,

Bearing in mind that cadastral systems must meet the collective needs of both governmental and public administrations and the aspirations of individuals and communities for sustainable growth,

Recognizing that human and financial resources are major factors in developing and maintaining effective cadastral systems,

Further recognizing the respective roles and contributions of:

(a) The government sector, in providing leadership in the development and administration of cadastral systems appropriate to their jurisdictional needs;

(b) The private sector, in meeting the needs of landowners and other spatial data clients and by providing operational and technical capacity;

(c) The academic sector, in providing expertise in research and analysis to assist in developing appropriate policies and technologies and in providing education in the necessary human skills and expertise;

(d) Non-governmental organizations, in facilitating the transfer of technology and expertise and by representing the collective interest,

Recommends that the United Nations system and its specialized agencies, including funding organizations, fully recognize and endorse the importance of involving all sectors, including government, private, academic and research institutions and non-governmental organizations, in achieving the development and provision of effective, efficient cadastral systems.

20. Strengthening non-governmental organizations

The Conference,

Recognizing the increasing responsibility of national surveying and mapping agencies to understand and satisfy country needs and the demands of Agenda 21,

Also recognizing the increasing capacity of and contributions from the academic institutions and the private sector,

Noting the need to optimize national resources and harmonize all contributing activities,

Recommends that member States, through their relevant surveying and mapping agencies:

(a) Enter into mutually beneficial relationships with relevant non-governmental organizations;

(b) Promote, encourage and support the strengthening of existing non-governmental organizations, if required, and/or facilitate their establishment when they do not already exist.

21. Vote of thanks

The Conference,

1. Expresses its heartfelt gratitude to the Office of the Deputy Commander, Supreme Command Headquarters, Ministry of Defence, Thailand, for the kind hospitality extended to all participants in the Fourteenth United Nations Regional Cartographic Conference for Asia and the Pacific, through the gracious support provided by the Royal Thai Survey Department;
2. Expresses its warmest thanks and appreciation to the United States representative for hosting, on behalf of the United States of America, a generous reception open to all participants, staff and support personnel of the Conference;
3. Expresses its deep appreciation to the Secretariat for the excellent substantive servicing provided to the Conference, and to the Economic and Social Commission for Asia and the Pacific for the efficient arrangements made for the Conference;
4. Expresses its sincere appreciation to the President of the Conference and to the Chairpersons of the technical committees for the excellent manner in which the Conference was conducted;
5. Expresses its thanks to the other officers of the Conference and staff of the United Nations, including the editors, translators and secretarial support staff for their dedicated work;
6. Acknowledges the highly successful nature and far-reaching results of the Conference.

Annex I

LIST OF PARTICIPANTS

A. States members of the United Nations

AUSTRALIA

Representative

Mr. Peter HOLLAND, acting General Manager, Australian Surveying and Land Information Group (AUSLIG)

Alternates

Mr. Dennis MUTTON, Chief Executive, Chairman, Australia and New Zealand Land Information Council

Mr. John PARKER, Chairman, Intergovernmental Committee on Surveying and Mapping; Chairman, Committee for Geographical Names in Australia; Chairman, United Nations Group of Experts on Geographical Names (Asia South East Pacific South West Division)

Mr. Peter BOWEN, President Elect, Mapping Sciences Institute

Mr. Ian MARSHALL, President, Institution of Surveyors

Mr. David SINCLAIR, Chairman, Association of Consulting Surveyors

BRUNEI DARUSSALAM

Representative

Mr. Naweh Haji Abu HANAFIAH, Deputy Surveyor-General, Survey Department

CHINA

Representative

Prof. YANG Kai, Deputy Director, National Bureau of Surveying and Mapping

Deputy Representatives

Prof. CHEN Junyong, Senior Adviser, National Bureau of Surveying and Mapping

Mr. BAI Bo, Director, Department of Foreign Affairs, National Bureau of Surveying and Mapping

Adviser

Mr. ZHANG Baoqi, Third Secretary, Department of Treaties and Laws, Ministry of Foreign Affairs of China

Experts

Mr. YU Yongchang, Director, Department of Planning and Finance,
National Bureau of Surveying and Mapping

Mr. CIREN Tudeng, Director, Tibet Regional Bureau of Surveying and Mapping

Mr. WANG Baoli, Division Director, Department of Legislation, National Bureau of
Surveying and Mapping

Mr. YUAN Hong, Secretary, National Bureau of Surveying and Mapping

CYPRUS

Representative

Mr. Andreas Z. Georgiov, Director, Department of Lands and Surveys, Nicosia

DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA

Representative

Mr. Choi Dae SONG, Permanent Representative of the Democratic People's Republic
of Korea to ESCAP, Bangkok

FRANCE

Representative

Ms. Sylvie MARZOCCHI, Regional Manager for Asia and the Pacific of IGN France
International, Bangkok

GERMANY

Representative

Prof. Dr. Hermann SEEGER, President of the German Institute of
Applied Geodesy (Institut für angewandte Geodasie-IFAG)

Deputy Representative

Mr. Helmut RAUSCH, Counsellor, German Embassy, Bangkok

Alternates

Dr. Fritz LEHMANN, Ministry of Interior of the state of Lower Saxony

Prof. Dr. Gottfried KONECNY, University of Hannover

Dipl-Ing Eberhard HERDEG, State Cartography Office, Stuttgart

Dr. Dierk HOBBIE, President Trade Association, Geo-Kary Association, Oberkochen

Dr. Andreas ILLERT, Assistant Professor, Institute for Applied Geodesy,
Frankfurt

Observers

Dr. Enrico CLERICI, Geo-Kart Association and Carl-Zeiss-Company

Dr. Wolfgang KOST, Hansa Luftbild Co. (Airborne Terrain Mapping)

HOLY SEE

Observer

Rev. Daniel J. McNAMARA, Director Manih Observatory, Bangkok

INDIA

Representative

Dr. Harkrishan Kumar NARULA, Assistant Director, Airports Authority of India

Alternate Representatives

Mr. Ratnesh SRIVASTAVA, Deputy Surveyor General, Surveyor General Office, Dehra
Dun

Dr. D. K. SHARMA, Deputy Secretary, Ministry of Science and Technology, New
Delhi

INDONESIA

Representative

Dr. Paul SUHARTO, Chairman, National Coordination Agency for Surveys and Mapping

Deputy Representative

Mr. Rudolf MATINDAS, Head of Centre for Mapping, National Surveying and Mapping
Agency

Advisers

Dr. Lukman AZIZ, Lecturer, Department of Geodetic Engineering, Institute of
Technology, Bandung

Mr. Tantan RUCHIATAN, Vice-Chairman, Indonesian Surveyor Association

Mr. Sobar SUTISNA, Head, Geodetic Survey Division, BAKOSURTANAL

Mr. Suwargadi PUNTODEWO, Government Official, National Coordinating for Survey
and Mapping

Mr. Enda Iskandar YUSUP, Second Secretary (Economic), Indonesian Embassy,
Bangkok

Mr. Leo NARDY, Vice-President Indonesian Survey and Mapping Company Association
Mr. Bernt Harald BAKKEN, Production Manager, Blom-Narcon Cooperation

IRAN, ISLAMIC REPUBLIC OF

Representative

H.E. Mr. Ramin Mehmanparast NODEHI, Ambassador Extraordinary and Plenipotentiary and Permanent Representative to ESCAP of the Islamic Republic of Iran, Bangkok

Alternative Representatives

Mr. Behdad GHAZANFARI, Head of National Atlas of the Islamic Republic of Iran, National Cartographic Centre, Tehran

Advisers

Mr. Mohammad Jafar DORUDI, Counsellor and Deputy Permanent Representative to ESCAP of the Islamic Republic of Iran, Bangkok

Mr. A. Radjabi FARD, Head of GIS Department, National Cartographic Centre, Tehran

Mr. Farokh TAVAKOLI, Manager of the Surveying and Geodetic Department, National Cartographic Centre, Tehran

Mr. Ahmad MOHAMMADPOUR, Deputy Director for GIS Application, Remote Sensing Centre of Iran, Tehran

Mr. Hamid Nazari TAJABADI, Expert, International Economic Affairs Section, Ministry of Foreign Affairs, Tehran

JAPAN

Representative

Mr. Kunio NONOMURA, Director-General, Geographical Survey Institute

Alternate Representatives

Mr. Nobuo NAGAI, Director, Geographic Department, Geographical Survey Institute

Mr. Masaki MURAKAMI, Head, Geodetic Research and Development Office, Geographical Survey Institute

Mr. Shyoji OKUYAMA, Head, Cartographic Research and Development Office, Cartographic Department, Geographical Survey Institute

Mr. Toshio NAGAI, Head, Territorial Sea Baselines Research Office, Hydrographic Department, Maritime Safety Agency

Mr. Sakae SAITO, Special Assistant Director, National Land Survey Division, Land Bureau, National Land Agency

Advisers

Dr. Tositomo KANAKUBO, President, Japan Map Centre

Mr. Sohsuke GOTOH, Special Assistant to the President, National Space Development Agency for Japan

MALAYSIA

Representative

Dato Abdul Majid Bin MOHAMED, Director-General, Department of Survey and Mapping

Alternate Representatives

Mr. Wee Tong CHIA, Director of Survey

Mr. Colin Hun Seok CHAN, Representative, Land Surveyor's Board

Mr. Chee Boo TENG, Principal Assistant Director of Survey (Research Section)

Mr. Ismail MOHD YUSOF, Chief Cartographer, Department of Survey and Mapping, Malaysia

Mr. Abdul Rahman ISMAIL, Director, Defence Mapping Section, Department of Survey and Mapping, Malaysia

Mr. Clarice YAP, Secretary

Mr. G. S. LEE, Town Planner

Mr. B. K. KHOO, Secretary General of FLAG

NEPAL

Representative

Mr. Yoddha SHAH, Officiating Secretary of the Ministry of Land Reform and Management

Deputy Representative

Mr. Narayan BHATTARAI, Deputy Director General, Survey Department

NETHERLANDS

Representative

Mr. Edzard S. BOS, Senior Scientist, ITC, Enschede

NEW ZEALAND

Representative

Mr. Tony BEVIN, Surveyor-General, Land Information New Zealand, Wellington

NIGERIA

Representative

Mr. Mohammed Nadu YAHAYA, Surveyor-General of Nigeria, Federal Survey Department, Federal Ministry of Works and Housing

Alternate Representatives

Mr. Fuad KASSIM, Deputy Surveyor-General, Federal Ministry of Works and Housing

Mr. Ganiyu OYENEYE, Assistant Director, Federal Ministry of Works and Housing

OMAN

Representative

Mr. Nasser AL-HARTHY, Director, National Survey Authority

PHILIPPINES

Representative

Mr. Jose SOLIS, Administrator, NAMRIA

Alternate Representatives

Mr. Federico NADELA, President, CERTEZA

Mr. Oscar BASCO ESCOBAR, Deputy Executive Director, Commission of Population

REPUBLIC OF KOREA

Representative

Mr. Won-Ik KIM, Director-General, National Geography Institute, Ministry of Construction and Transportation

Deputy Representatives

Mr. Sang-Deuk HAN, Director of Geodesy Division, National Geography Institute, Ministry of Construction and Transportation

Mr. Kyong-Soo KIM, Director of Geographic Information Division, National Geography Institute, Ministry of Construction and Transportation

Mr. Yoo-Shin SON, Assistant Director, Cartography Division, National Geography Institute, Ministry of Construction and Transportation

RUSSIAN FEDERATION

Representative

H.E. Mr. Oleg V. BOSTORIN, Ambassador of the Russian Federation in Thailand and Permanent Representative to ESCAP

Alternate Representatives

Mr. Sergey I. PANCHENKO, First Secretary of the Russian Embassy and Deputy Permanent Representative to ESCAP

Mr. Serguei SHIBILOV, Second Secretary of the Russian Embassy

Mr. Dmitri SOUBBOTIN, Third Secretary, Legal Department, Ministry of Foreign Affairs, Moscow

SAUDI ARABIA

Representative

Mr. Abdullah AL-SHAHRANI, Manager

Deputy Representatives

Mr. Eid AL-MUTAIRY

Mr. Mohammad AL RASHED, Director of the Department of Cartography, Ministry of Petroleum and Mineral Resources

Mr. Assad Suliman ABDO, Professor

Mr. Nasser SALMA

Mr. Ali AL SHEHRI

Mr. Ahmed AL GHAZZANI, Supervisor, Aerial Survey Department

SINGAPORE

Representative

Mr. Ka Wei YUEN, Head, Mapping Unit, Ministry of Defence

Deputy Representative

Mr. Chin Tian LIM, Surveyor, Survey Department, Ministry of Law

SRI LANKA

Mr. Dayananda ABEYWICKKAME, Executive Director, Family Planning Association of Sri Lanka

THAILAND

Representative

Lieutenant General Suraphol CHINACIT, Director of Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Alternates

Major General Titichai INNADDA, Deputy Director for Technical Affairs, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Sanong MINGSAMON, Technical Officer, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Lek CHUDASUTA, Director of Mapping Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Captain Narong NAGADHANA, Director of Cartographic Division, Hydrographic Department, Royal Thai Navy, Ministry of Defence

Colonel Neramit SRICHAMNONG, Director of Geography Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Lieutenant Colonel Anant CHINNABOOTR, Plans and Projects Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Major Sarunyapong PRAMSANEH, Survey Engineering Instructor, Survey School, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Captain Kanok WEERAWONG, Mapping Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Mr. Paibul RUANGSIRI, Director of Remote Sensing Division, National Research Council of Thailand

Mr. Prayut SRIMECHAI, Director of Surveying and Mapping Division, Department of Lands, Ministry of Interior

Mr. Borom SOMSUP, Director of Investigation, Department of Energy Development and Promotion, Ministry of Science, Technology and Environment

Mr. Opas KIETSIRIKUL, Engineer Level 10, Survey Division, Electricity Generating Authority of Thailand

Sub. Lt. Surapol PRAMDEE, Survey Engineer 8, Royal Irrigation Department, Ministry of Agriculture and Cooperatives

Mr. Pote LAUPHONG, Chief of Photogrammetry Section, Operation Division, Agricultural Land Reform Office, Ministry of Agriculture and Cooperatives

Dr. Dusdi CHANLIKIT, Department of Geography, Chulalongkorn University

Dr. Peerapong SIRIKASEM, System Analyst 6, Land Information Division, City Planning Department, Bangkok Metropolitan Administration

Mr. Somdej TIKUMPONVAROKAS, Technical Forest Office 7, Royal Forest Department, Ministry of Agriculture and Cooperatives

Mrs. Supawndee VIMUKTANADA, Chief of Geologic Cartographic Section, Geological Survey Division, Department of Mineral Resources, Ministry of Industry

Mrs. Wanarat THOTHONG, Chief of Photogrammetric Sub-Division, Ministry of Agriculture and Cooperatives

ADVISERS

Major General Thawal SRIWONGTHONG, Deputy Director for Administration, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Major General Phanusak SWANGNET, Deputy Director for Operations, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Thaweewat THAMBUMROONG, Deputy Commandant Survey School, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Nukool RATANAKARN, Technical Officer, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Raht UNCHAIYA, Director of Geodesy and Geophysics Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Ronnachai BAMPHENYU, Director of Plans and Projects Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Somnas RATTANAPOTE, Director of Aerial Photograph Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Wirat YIMCHAROEN, Deputy Director of Plans and Projects Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Phuchong WONGKOET, Deputy Director of Geodesy and Geophysics Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Boonlert THASANAKRONGSIN, Deputy Director of Mapping Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Colonel Nopphadon CHOTSIRI, Assistant Director of Geography Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Commander Sirichai NOEYTONG, Chief of Nautical Chart Section, Cartographic Division Hydrographic Department, Royal Thai Navy, Ministry of Defence

Lieutenant Colonel Peerasak OONOK, Chief of Foreign Relations Section, Plans and Projects Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Lieutenant Colonel Krith BUNTHID, Mapping Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Major Yutthasak WASANACHITT, Geodesy and Geophysics Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Captain Sonthidet MOOKSRI, Aerial Survey Division, Royal Thai Survey Department, Supreme Command Headquarters, Ministry of Defence

Assoc. Prof. Meechai WORASAYAN, Head of Geography Department, Burapa University

Assoc. Prof. Pongsri CHANTHOW, Department of Geography, Chulalongkorn University

Asst. Prof. Paitoon PIYAPAKORN, Head of Department of Geography, Ramkhamhaeng University

Asst. Prof. Nom NGAMNISAI, Department of Geography, Faculty of Social Science, Srinakharinwirot University

Dr. Charat MONGKOLSAWAT, Deputy Director Geographic Information System and Satellite Imagery, Analysis Section, Computer Centre, Khonkaen University

Dr. Worapot CHOBTUM, Head of Geography Department, Faculty of Arts, Silpakorn University

Mr. Jareet APIWAT, Engineering Level 9, Assistant Manager, Survey Department, Electricity Generating Authority of Thailand

Mr. Preecha CHAKEO, Senior Surveyor, Bureau of Energy Study, Research and Development, Department of Energy Development and Promotion, Ministry of Science, Technology and Environment

Mr. Suwit ONGSOMWANG, Technical Forest Office 6, Forestry Bureau, Royal Forest Department, Ministry of Agriculture and Cooperatives

Mr. Soonthorn SUPUNCHANABURI, Survey Engineer 7, Department of Lands, Ministry of Interior

Mr. Wattana TANSATHIEN, Geological Survey Division, Department of Mineral Resources, Ministry of Industry

Mrs. Chotinard RATANASAKA, Geographer, Land Development Department, Ministry of Agriculture and Cooperatives

Mr. Boonchai CHERTSURAKUL, Photogrammetrist 6, Royal Irrigation Department, Ministry of Agriculture and Cooperatives

Mr. Somchai SRISOM, Survey Engineer, Operation Division, Agricultural Land Reform Office, Ministry of Agriculture and Cooperatives

Mr. Pong-In RAKARIYATHAM, Deputy Dean for Planning and Development Affairs, Faculty of Social Science, Chiang Mai University

Mr. Prayong KOKAT, Geography Lecturer, Prince of Songkla University

Mr. Anusorn PUMPUANG, Cartographer, Land Information Division, City Planning Department, Bangkok Metropolitan Administration

Miss Jatuporn PORNPRASERTCHAI, Computer Scientist, The National Research Council of Thailand

UNITED STATES OF AMERICA

Representative

Mr. Curtis WARD, Deputy Director, Geospatial Information and Services Directorate, National Imagery and Mapping Agency, Department of Defense

Advisers

Mr. Farlin ARRINGTON, East Asia Regional Office, National Imagery and Mapping Agency, Tokyo

Mr. Michael HEERSCHAP, Senior Geographic Specialist, Foreign Maps and Publications Procurement Program, Bureau of Intelligence and Research, Department of State

Mr. Terry M. LAYDON, Acting Director, USNOS, Office of Aeronautical Charting and Cartography, National Ocean Service, National Oceanic and Atmospheric Administration, Department of Commerce

Mr. Roy R. MULLEN, Emeritus Program Officer, National Mapping Division, United States Geological Survey Office, Department of the Interior

Mr. Thomas RYEFIELD, South Asia Regional Office, National Imagery and Mapping Agency, Joint U.S. Military Assistance Group, American Embassy, Bangkok

Mr. Henry TOM, Standards and Engineering Interoperability Branch, National Imagery and Mapping Agency, Department of Defense

B. Associate members of the Economic and Social Commission for Asia and the Pacific

GUAM

Representative

Mr. Francisco CAMACHO, GIS/LIS Manager

HONG KONG

Representative

Mr. Kin-fai YEUNG, Chief Land Surveyor, Land Department

C. Observers

Representative

Mr. Jonathan SUITERS, Second Secretary Defence, Military Survey, British High Commission, Singapore

D. International scientific organizations

International Society of
Photogrammetry and Remote
Sensing (ISPRS)

Mr. Shunji MURAI
Vice-President, ISPRS

International Cartographic
Association (ICA)

Mr. Jose G. SOLIS
Vice-President, ICA

Mr. T. KANAKUBO
Vice-President, ICA

International Federation
of Surveyors (FIG)

Mr. Ian WILLIAMSON
Chairman, Commission 7, FIG

Mr. Peter BYRNE
Past Vice-President, FIG

E. Representatives of United Nations Secretariat units

Economic and Social Commission
for Asia and the Pacific (ESCAP)

Mr. Valeri MOSKALENKO
Cartography Officer
Space Technology Applications Section
Environment and Natural Resources
Management Division

Department for
Development Support and
Management Services

Ms. Beatrice LABONNE, Director
Division for Economic and Social
Development and Natural Resources
Management

F. Secretariat of the Conference

Executive Secretary

Gabriel GABELLA
Natural Resources and Environment
Management Branch
Division for Economic and
Social Development and Natural
Resources, Department
for Development Support and
Management Services

Deputy Executive Secretary

K. Hans STABE
Natural Resources and
Environment Management Branch
Division for Economic and
Social Development and Natural
Resources, Department
for Development Support and
Management Services

Annex II

AGENDA

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) 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.
5. United Nations and country reports on the implementation of the resolutions of the Thirteenth United Nations Regional Cartographic Conference for Asia and the Pacific.
6. Reports on the contribution of surveying, mapping and charting to support the implementation of Agenda 21:
 - (a) Environmental management, including management of the oceans, and disaster mitigation, reporting and documenting;
 - (b) Public access to and exchange of information;
 - (c) Land reform, land management and development;
 - (d) Demography, human settlements policies;
 - (e) Desertification and land degradation;
 - (f) Human resources development;
 - (g) Safety of maritime and air navigation, including hydrographic surveys and nautical charting;
 - (h) Other applications of surveying and mapping to support the implementation of Agenda 21.
7. Reports on the regional implementation of the Programme of Action for the Sustainable Development of Small Island Developing States and the Declaration of Barbados.
8. Policy and management of national survey activities in the field of surveying and mapping.

9. Technical cooperation and transfer of technology.
10. Review of achievements of the Conference and provisional agenda for the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific.
11. Adoption of the report of the Fourteenth United Nations Regional Cartographic Conference for Asia and the Pacific.

Annex III

LIST OF DOCUMENTS

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
E/CONF.89/1	Provisional agenda	4 (b)
E/CONF.89/2	Rules of procedure	4
E/CONF.89/3	List of documents	
E/CONF.89/4	List of participants	
E/CONF.89/INF/1	Documentation for the Conference	
E/CONF.89/L.1	The status of cartographic activities in the United States of America (Submitted by the United States)	5
E/CONF.89/L.2	On the national spatial data infrastructure of China (Submitted by China)	8
E/CONF.89/L.3	Review and prospect of geodetic survey in China (Submitted by China)	5
E/CONF.89/L.4	An integrated crustal movement monitoring network in China (Submitted by China)	6 (a)
E/CONF.89/L.5	Status of China's surveying and mapping legislation (Submitted by China)	5
E/CONF.89/L.6	Comments of the Islamic Republic of Iran's delegation on the contribution of surveying, mapping and charting to support the implementation of Agenda 21 (Submitted by the Islamic Republic of Iran)	6
E/CONF.89/L.7	Access to Geographic names data sets on the Internet: Developments in the United States since 1994 - the GEOnet Names Server (Submitted by the United States of America)	5
E/CONF.89/INF/1	Documentation for the Conference	

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
E/CONF.89/INF/2	Building a production system to support the national digital orthophoto program: An integration challenge (Submitted by the United States of America)	6 (h)
E/CONF.89/INF/3	Recent experiences in mapping land cover from Advanced Very High Resolution Radiometre (AVHRR) data: China test sites (Submitted by the United States of America)	6 (h)
E/CONF.89/INF/4	Standards for the Global Spatial Data Infrastructure (GSDI) (Submitted by the United States of America)	6 (h)
E/CONF.89/INF/5	The Digital Nautical Chart: a multi-use database (Submitted by the United States of America)	6 (g)
E/CONF.89/INF/6	The U.S. National Spatial Data Infrastructure (Submitted by the United States of America)	6 (h)
E/CONF.89/INF/7	The Vector Product Format: an overview (Submitted by the United States of America)	6 (h)
E/CONF.89/INF/8	Time-invariant bathymetry: a new concept to define and survey it using GPS (Submitted by the United States of America)	6 (h)
E/CONF.89/INF/9	National electronic and multimedia: a new cartographic product for the information era (Submitted by the International Cartographic Association (ICA))	6 (b)
E/CONF.89/INF/10	The significance and results of permanent GPS arrays (Submitted by Germany)	6 (h)
E/CONF.89/INF/11	Harmonization of national contributions to a dataset of European administrative boundaries (Submitted by Germany)	6 (b)
E/CONF.89/INF/12	The official topographic cartographic information systems ATKIS (Submitted by Germany)	6 (b)

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
E/CONF.89/INF/13	The survey and cadastral administration of Lower Saxony (Germany) (Submitted by Germany)	6 (c)
E/CONF.89/INF/14	Mapping from space (Submitted by Germany)	6 (h)
E/CONF.89/INF/15	The contribution of Germany to technical cooperation in mapping and GIS (Submitted by Germany)	9
E/CONF.89/INF/16	Integration of three "S" technologies: remote sensing, GIS and GPS (Submitted by the Secretariat)	6 (h)
E/CONF.89/INF/17	Report on the contribution of surveying, mapping and charting to support the implementation of Agenda 21 (Submitted by Australia)	6 (h)
E/CONF.89/INF/18	International Cartographic Association: progress during 1991-1995 (Submitted by the United Nations Secretariat)	6 (h)
E/CONF.89/INF/19	Activities of the United Nations Department for Development Support and Management Services (Submitted by the United Nations Secretariat)	5
E/CONF.89/INF/20	Activities of the International Society for Photogrammetry and Remote Sensing (ISPRS) (Submitted by ISPRS)	9
E/CONF.89/INF/21	The status of cartographic activities in the Commonwealth of Australia (Submitted by Australia)	5
E/CONF.89/INF/22	Cartography in transition: a challenge to the national mapping organizations of developing countries (Submitted by the United Nations Secretariat)	6 (h)
E/CONF.89/INF/23	Country report (Submitted by the Republic of Korea)	5
E/CONF.89/INF/24	National Geographic Information System (NGIS) Master Plan in Korea (Submitted by the Republic of Korea)	8

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
E/CONF.89/INF/25	The Bogor Declaration: the United Nations Interregional Meeting of Experts on the Cadastre, Bogor, Indonesia, 18-22 March 1996 (Submitted by the United Nations Secretariat)	6 (h)
E/CONF.89/INF/26	Cartographic work in Japan 1993-1996 (National report) (Submitted by Japan)	8
E/CONF.89/INF/27	Technical cooperation in surveying, mapping and charting (National report) (Submitted by Japan)	9
E/CONF.89/INF/28	Progress of global mapping activities and its future (Submitted by Japan)	6 (a)
E/CONF.89/INF/29	Importance of the Interregional Seminar on Global Mapping for the Implementation of Multinational Environmental Agreements (Submitted by Japan)	6 (a)
E/CONF.89/INF/30	The nationwide GPS Network System and the integration of the coordinate systems in Japan (Submitted by Japan)	6 (h)
E/CONF.89/INF/31	Establishment of GIS infrastructure and related activities in Japan (Submitted by Japan)	6 (h)
E/CONF.89/INF/32	Relations with the Public: various types of access to geographic information (Submitted by Japan)	6 (b)
E/CONF.89/INF/33	Cadastral survey in Japan (Submitted by Japan)	6 (c)
E/CONF.89/INF/34	Development of the Electric Navigational Chart in Japan (Submitted by Japan)	6 (g)
E/CONF.89/INF/35	Basic map of the sea in continental shelf areas (the east of Nansei-shoto) at a scale of 1/1,000,000 (Submitted by Japan)	6 (g)
E/CONF.89/INF/36	Application of earth observation data to mapping (Submitted by Japan)	6 (h)

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
E/CONF.89/INF/37	Strategic management of cadastral reform (Submitted by the Secretariat)	6 (c)
E/CONF.89/INF/38	Country report on cartographic activities in Thailand 1994-1996 (Submitted by Thailand)	5
E/CONF.89/INF/39	Report of the United Nations Group of Experts on Geographical Names: Asia South East and Pacific South West Division	5
E/CONF.89/INF/40	Megrin's <u>Geographical Data Description Directory</u> (Submitted by France)	6 (b)
E/CONF.89/INF/41	Malaysian cadastral reforms	6 (c)
E/CONF.89/INF/42	National report on mapping activities in Malaysia 1994-1996	5
E/CONF.89/INF/43	Initiatives of the International Cartographic Association (ICA) in the implementation of Agenda 21 (Submitted by the ICA)	6 (b)
E/CONF.89/INF/44	Surveying, mapping and charting activities 1994-1996 (Submitted by Singapore)	5
E/CONF.89/INF/45	The role of surveying and mapping non-governmental organizations and their relationships with national Governments (Submitted by the International Federation of Surveyors)	6 (h)
E/CONF.89/INF/46	National report (Submitted by Iran)	5
E/CONF.89/INF/47	Country report (Submitted by Indonesia)	5
E/CONF.89/INF/48	Report on cartographic activities in New Zealand (Submitted by New Zealand)	5
E/CONF.89/INF/49	Status of mapping in Nepal (Submitted by Nepal)	5
E/CONF.89/INF/50	Policy and development (Submitted by Cyprus)	6 (c)

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
E/CONF.89/INF/51	Airborne laser scanning: a new remote sensing method for terrain mapping (Submitted by Germany)	6 (h)
E/CONF.89/INF/52 (withdrawn)	National topographic and cartographic databases for geographic information systems (GIS)	6 (h)
E/CONF.89/INF/53	Report on the outcome of economic reforms on national survey activities in New Zealand from 1996 to 1997 (Submitted by New Zealand)	8
E/CONF.89/INF/54	The impact of automated cartography and prepress operations on future cartographers (Submitted by the United States)	6 (f)
E/CONF.89/INF/55	Challenging changes in the world of spacial data handling: ITC's new course in geoinformatics (Submitted by the Netherlands)	6 (f)
E/CONF.89/INF/56	Report of the Permanent Committee on GIS Infrastructure for Asia and the Pacific (Submitted by the Permanent Committee)	5
E/CONF.89/INF/57	GIS standardization aspects in GIS infrastructure for Asia and the Pacific (Submitted by Iran)	6 (h)
E/CONF.89/INF/58	Geo-information infrastructure in Iran (Submitted by Iran)	8
E/CONF.89/INF/59	Some Australian land information activities that contribute to the objectives of Agenda 21, the Forest Principles and other Conventions (Submitted by Australia)	6 (h)
E/CONF.89/INF/60	Country report on the current status of surveying, mapping and cartographic activities (Submitted by India)	5
E/CONF.89/INF/61	Draft provisional agenda for the Fifteenth Conference (Submitted by the United Nations Secretariat)	10
C/CONF.89/L.8	Draft report of the Conference: work of Committee II	11

<u>No.</u>	<u>Title/Country</u>	<u>Agenda item</u>
C/CONF/89/L.8/Add.1	Draft report of the Conference; work of Committee III	11
C/CONF/89/L.8/Add.2	Draft report of the Conference: work of Committee I	11
C/CONF/89/L.8/Add.3	Draft report of the Conference: opening and organization	11
C/CONF/89/L.8/Add.4	Draft report of the Conference: plenary session	11
C/CONF/89/L.9	Draft resolutions	11
C/CONF/89/L.9/Rev.1	Draft resolutions (version 2)	11
E/CONF.89/CRP.1	Proposal for the establishment of technical committees (Submitted by the Secretariat)	4 (c)

Annex IV

PROVISIONAL AGENDA FOR THE FIFTEENTH 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. Objectives of the Conference.
4. Organizational matters:
 - (a) Rules of procedure;
 - (b) Adoption of the agenda;
 - (c) Establishment of committees and election of Chairmen and Rapporteurs;
 - (d) Organization of work;
 - (e) Credentials of representatives to the Conference.
5. Report of the Permanent Committee on GIS Infrastructure for Asia and the Pacific.
6. Country reports.
7. Report on the implementation of resolution 3 of the Fourteenth Conference.
8. Reports on the status of implementation of resolutions of previous conferences from countries, the United Nations and non-governmental organizations.
9. Reports on achievements in surveying, mapping and charting in addressing national, subregional, regional, and global issues, including:
 - (a) New National Spatial Data Infrastructure (NSDI) and Asia and the Pacific Spatial Data Infrastructure (APSDI);
 - (b) Environmental management, including oceans and disaster mitigation;
 - (c) Public access to and exchange of information;
 - (d) Land reform, land management, planning and development;
 - (e) Human settlements - demography and policy;
 - (f) Desertification and land degradation;
 - (g) Development of human resources;
 - (h) Safety of maritime and air navigation;
 - (i) Other applications of surveying and mapping in support of the implementation of Agenda 21;

- (j) Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States and the Declaration of Barbados;
 - (k) Policy and management of national surveying and mapping activities;
 - (l) Funding of national surveying and mapping activities;
 - (m) Technical cooperation and transfer of technology.
10. Review of the achievements of the Conference.
 11. Provisional agenda for the Sixteenth United Nations Regional Cartographic Conference for Asia and the Pacific.
 12. Adoption of the report of the Fifteenth United Nations Regional Cartographic Conference for Asia and the Pacific.

