



United Nations

**Sixth United Nations Regional
Cartographic Conference
for the Americas**

New York, 2-6 June 1997

**Volume I
Report of the Conference**

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NOTE

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

The proceedings of the Sixth United Nations Regional Cartographic Conference for the Americas, held in New York from 2 to 6 June 1997, are being issued in two volumes as follows:

Volume I. Report of the Conference

Volume II. Technical papers

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CONTENTS

	<u>Paragraphs</u>	<u>Page</u>
I. ORGANIZATION OF THE CONFERENCE	1 - 15	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. Credentials	13	3
L. Closing of the Conference	14 - 15	3
II. PLENARY MEETINGS	16 - 30	4
III. WORK OF COMMITTEE I: LAND RESOURCES AND ENVIRONMENTAL MANAGEMENT	31 - 36	8
IV. WORK OF COMMITTEE II: ENABLING TECHNOLOGIES	37 - 50	10
V. WORK OF COMMITTEE III: DATA STORAGE, STANDARDIZATION AND PRESENTATION	51 - 57	13
VI. RESOLUTIONS ADOPTED BY THE CONFERENCE		16
A. List of resolutions		16
B. Text of resolutions		16
<u>Annexes</u>		
I. List of participants		24
II. Agenda		33
III. List of documents		34
IV. Provisional agenda for the Seventh United Nations Regional Cartographic Conference for the Americas		38

I. ORGANIZATION OF THE CONFERENCE

A. Terms of reference

1. The Sixth United Nations Regional Cartographic Conference for the Americas was held at United Nations Headquarters from 2 to 6 June 1997. The Conference was held in accordance with Economic and Social Council decision 1993/225 of 12 July 1993.

B. Opening of the Conference

2. On behalf of the Department for Development Support and Management Services, the Director of the Division for Economic and Social Development and Natural Resources Management and Executive Secretary of the Conference opened the Conference and welcomed the participants. She stressed the way in which 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 94 representatives of 38 countries and specialized agencies, 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.90/1. 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 contained in document E/CONF.90/2.

F. Election of officers

6. The Conference elected the following officers:

President: Dr. Carlos M. Jarque (Mexico)

Vice-President: Ing. Roberto López Meyer (El Salvador)

Rapporteur: Mr. Peter Parkinson (United Kingdom of Great Britain and Northern Ireland)

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 the Americas and other regions could meet to address 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 of the Fifth United Nations Regional Cartographic Conference for the Americas and to report on the contribution of surveying, mapping and charting to the implementation of Agenda 21.

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 5 (d), 5 (f)

Committee II: ENABLING TECHNOLOGIES
Items 5 (a), 5 (e)

Committee III: DATA STORAGE, STANDARDIZATION AND PRESENTATION
Items 5 (b), 5 (c), 5 (g), 5 (h)

10. Agenda items 1, 2, 3, 4, 6, 7 and 8 were considered at plenary meetings.

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

Committee I: Land Resources and Environmental Management

Chairman: Mr. Santiago Borrero Mutis (Colombia)

Rapporteur: Mr. Alexandrino Njuki (Kenya)

Committee II: Enabling Technologies

Chairman: Mr. Costas Armenakis (Canada)

Rapporteur: Lt. Col. Panagiotis Mallis (Greece)

Committee III: Data Storage, Standardization and Presentation

Chairman: Mr. Manuel García-Pérez (Spain)

Rapporteur: Mr. Douglas L. Brown (United States of America)

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. Credentials

13. The Credentials Committee, composed of the President and Vice-President, 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 6 June 1997, adopted its draft report, 10 resolutions, and the provisional agenda for the Seventh United Nations Regional Cartographic Conference for the Americas, to be held for five working days no later than early 2001. The primary focus of the provisional agenda was to be the continuing assessment and improvement of the contribution of surveying, mapping and charting to 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 datasets, the role and involvement of non-governmental organizations, and other issues that would assist member States in the region to fully utilize opportunities provided by cartographic technology and applications in the information and communications environment.

15. Gratitude and appreciation were expressed by the Conference to the Government of the United States of America for hosting the hospitality event. The Conference also expressed appreciation to the President and Chairpersons for the excellent manner in which they conducted the meetings, to the other officers of the Conference and to the staff of the United Nations for the excellent substantive servicing and support, which contributed to the smooth progress of the Conference.

Notes

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.93.1.8), resolution I, annex II.

II. PLENARY MEETINGS

Opening remarks by the President

16. The President opened the Conference by referring to the immense challenges to the world community posed by demographic change (pressure of population, rapid urbanization); economic trends such as globalization and the shift from primary to tertiary activities; the need to husband effectively the world's natural resources; and technological advance. The rate of change and the pressures generated in those areas demanded better planning all around, and the cartographic community had an important role to play. The President concluded by inviting the Conference to assess the achievements of the participating countries with a view to sharing ideas. The prime objective was to facilitate the development of cartographic strategies within individual countries and the region as a whole.

Reports of governmental and non-governmental organizations

17. Fourteen country reports - from Argentina, Brazil, China, Colombia, El Salvador, Fiji, Honduras, India, Japan, Kenya, Mexico, the Netherlands, Russia and the United States of America - were submitted and presented to the Conference. The following themes recurred in the presentations:

(a) Governmental cartographic agencies were vulnerable to reductions in their resource allocations;

(b) Pressures existed to move cartographic activities from the public to the private sector;

(c) New technologies were being introduced in order to generate digital geographic data for improved map production purposes and to feed geographic information systems;

(d) Increasing use was being made of satellite imagery and global positioning systems;

(e) There was a continuing need to maintain topographic and thematic mapping;

(f) The need to produce data and maps in support of cadastre was a priority;

(g) There was growing urgency to support GIS systems for the planning and management of natural resources, etc.;

(h) Geodetic networks were being improved.

18. Before introducing the report of his country, the delegate of Colombia expressed concern that not enough countries from Latin America were represented at the Conference. The issue was subsequently taken up for discussion by the United Nations Secretariat staff and the elected officers of the Conference.

19. The four non-governmental and other organizations that gave presentations were Comité européen des responsables de la cartographie officielle (CERCO), the International Cartographic Association (ICA), the International Society for

Photogrammetry and Remote Sensing (ISPRS), and the International Federation of Surveyors (FIG).

20. The delegate of Finland presented a paper on the activities of the Comité européen des responsables de la cartographie officielle (CERCO). CERCO, which had been founded by five European governmental mapping agencies, had a current membership of 34. CERCO's main objectives were to encourage the exchange of information on matters of mutual concern among Europe's national mapping agencies, to influence the cartographic community in Europe, and to identify and promote subjects suitable for common policies. One important lesson to be drawn from CERCO was that national mapping agencies within a region - in the current case, Europe - could effectively associate, on a non-governmental basis, in order to promote policies and developments for the benefit of the participants. CERCO was a structured organization and, as such, offered an object lesson in the value of regional cooperation when driven by dedicated individuals drawn from the national mapping agencies of the region.

21. The aim of the International Society for Photogrammetry and Remote Sensing (ISPRS), a non-governmental organization, was to promote the development of international cooperation for the advancement of photogrammetry and remote sensing and their applications. Among the topics for study by its technical commissions and working groups were commercial earth observation satellites, synthetic aperture radar (SAR) interferometry, integrated sensor systems with Global Positioning System (GPS) and Inertial Navigation System (INS), digital photogrammetry, image understanding, three-dimensional Geographical Information Systems (3D GIS), the integration of remote sensing and GIS, and global mapping from satellite data and standards.

22. The International Cartographic Association (ICA), another non-governmental organization devoted to the promotion of cartography and its applications and to the sharing of information on cartographic developments throughout the world, described itself as a "volunteer force" which benefitted from the support of 80 country members and 15 affiliated members. Among the topics studied were the new cartographic environment, metadata assessment characteristics or standards, spatial data quality, the application of ISO 9000 to cartographic production, the availability of national atlases on both CD ROM and the World Wide Web, education and training in cartography, marine cartography, and maps and children. ICA was active on all continents through commissions and working groups, sponsored meetings, training seminars, technical conferences, and sessions in association with other international meetings - e.g., the International Geographic Union (IGU).

23. The International Federation of Surveyors, a federation of professional surveying associations and an accredited non-governmental organization, operated through a bureau which moved between member associations every four years. Much of the activity of FIG was undertaken by commissions which covered such areas as professional practice, education, LIS/GIS and spatial data infrastructures, engineering surveys, hydrographic surveys, surveying and mapping technologies, cadastre and land management, planning and environmental management, valuation, and construction economics. Many of the commissions ran or sponsored meetings annually, with the FIG organizing a congress every four years. FIG represented about 70 countries worldwide and worked closely with international bodies such as the United Nations. FIG presented two papers: one on the Bogor Declaration on Cadastral Reform, and one on the strategic management of cadastral reform.

24. The delegate for the Netherlands gave a presentation on the impact of developments in the production and dissemination of geospatial data on the

structure of training courses offered by ITC. After covering the challenging world of cartography and the issues faced by cartographic organizations, he elaborated on what were perceived to be current training needs. Staff in cartographic organizations were no longer expected to specialize in specific disciplines, as had once been the case. In consequence, ITC has designed a set of combined courses to cover geo-informatics as a whole - i.e., photogrammetry, remote sensing, cartography and geo info visualization, spatial information and applied computer science, and the management of geographic information. However, time was a constraint and courses must be short and intense, followed by distance learning.

25. The Secretariat gave a presentation on the activities of the United Nations through the Department of Development Support and Management Services. That encouraged the delegate for Fiji to make a plea on behalf of the remoter parts of the world - for instance, the countries of the Pacific Region. He said that a typical problem was the difficulty of access to satellite data. That could be solved by the installation of a receiving station in the region.

26. The delegate of Japan made a brief statement on the training Japan provided to other countries. That takes the form of accepting trainees, despatching experts, and also extending cooperation in various projects of those countries. He cited Kenya as a case in point. The delegate for Kenya acknowledged the support provided by Japan and expressed the gratitude of his country.

27. The following conclusions were drawn from the reports of the governmental and non-governmental organizations:

(a) Computer and space technologies allied to advances in telecommunications were leading to better cartographic information;

(b) Non-governmental organizations had an important role to play in focusing on the issues that were important to governmental cartographic agencies;

(c) Non-governmental organizations could promote and coordinate activities designed to achieve regional and global solutions - e.g., standards for formatting geospatial data;

(d) Governmental cartographic agencies were vulnerable to reductions in the resources allocated to them at a time when the demands they faced were increasing and becoming more complex - e.g., for digital geographic and cartographic data to feed geographic information systems and support the revision of cartographic products;

(e) The level of development among the various national cartographic agencies was uneven and widening due to resource constraints and the costs associated with technological change;

(f) There was a move, by Governments, to shift cartographic activities from the public to the private sector;

(g) The priority work expected of governmental cartographic agencies in the region was cadastre, to meet land registration programmes and property rights.

28. Under the leadership of the President, the Bureau members, comprising Secretariat staff and elected officers, met to exchange views on the purpose and

agenda of the Conference. Their meeting was held in response to concerns expressed in plenary that not enough delegates from Latin America and the Caribbean had seen fit to attend the Sixth Conference. The meeting was invited to make suggestions which would bring future Conferences closer to the expectations of the member States and encourage their participation. It was pointed out that the goal of the United Nations regional cartographic conferences was to provide a forum for member States, through their Governments and with the assistance of non-governmental organizations, in which they might discuss and share information on cartographic and related issues in support of sustainable and environmental management development at the national, regional and global levels.

29. The following points were agreed:

(a) There should be a regional focus on the Americas, but it was important to have worldwide representation. Geospatial issues had become global and there was much to be gained by sharing information and opinions with countries from outside the region;

(b) There was a need to form an intersessional working group of experts whose task would be to produce a mission statement for the Seventh Conference. The statement should formulate a strategy for the Conference and define the issues of importance within the region;

(c) The working group would "re-engineer" the work of the Conference to ensure that the vital issues were addressed and that the member States were offered real benefits from their participation;

(d) The working group would prepare an agenda for the Seventh Conference which should include institutional as well as technical issues, and the development of national, regional and global strategies for managing geospatial data.

30. In the subsequent discussion in plenary, comments were made from the floor. The United States supported the proposal for a working group and the need to re-engineer the regional conferences. That view was echoed by other member States. With regard to an agenda for the Seventh Conference, the United States felt that it should be left to the working group. However, since it was necessary to produce a provisional agenda before the closing of the Sixth Conference, the provisional agenda would not contain the work of the working group. The United States expressed the concern that the three United Nations regional cartographic conferences occurred too closely together and that they should be separated by intervals of 12 months. Colombia recommended that the working group should convene within 12 months. Guatemala recommended that the Conference should not only share information but also actively encourage cooperation to benefit those countries that lacked the resources to act on their own. Malaysia observed that there were commonalities with the United Nations Regional Cartographic Conference for Asia and the Pacific, and ICAO observed that there were common interests that extended across the regions. It was important to develop a common goal for the conferences. Canada urged the working group and therefore the Seventh Conference to address the distribution of geospatial data in respect of issues such as licensing, copyright, royalties and "value-added" cartographic products.

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

31. Committee I considered the following topics: cadastral surveying and land reform; item 5 (d); and item 5 (f): thematic mapping of natural resources development and environment.

32. The following important issues were highlighted for consideration:

(a) Objective: The success of a cadastral system depended not only on its legal or technical sophistication but also on whether it protected land rights adequately and permitted those rights to be recorded (when appropriate) efficiently, simply, quickly, securely and at low cost;

(b) Key cadastral issues: clear identification and recording of ownership rights; access to land information; rapid processing and keeping the cadastral system up to date; integrating cadastral and land registry systems; legal reform, quality assurance and risk management;

(c) Importance of cadastral systems: the importance of cadastral reform to economic development, social stability and environmental management; the important role that cadastral reform played in establishing national spatial data infrastructure (NSDI); the need for topographic and cadastral data bases to be homogeneous and uniformly based on the national geodetic network;

(d) Resource implications: the major resource limitations to cadastral reform were human, technological and financial. Human and financial resources, however, tended to be major constraining factors. Different strategies were required to reform cadastral systems. The role of the private sector needed to be recognized.

Cadastral surveying and land reform

33. The United Nations Secretariat presented a paper entitled "The Bogor Declaration for Cadastral Reform". The paper described the reasons for justifying the establishment and maintenance of appropriate cadastral systems. The cadastral vision, issues and reform options, the need for diversification and re-engineering of cadastral systems and the role of the private sector and non-governmental organizations in cadastral surveying were emphasized. The paper also recognized that human and financial resources were major limitations in developing cadastral systems. It concluded by giving the 17 recommendations adopted at Bogor for consideration by the United Nations, national Governments, and non-governmental organizations.

34. The United Nations Secretariat presented a second paper entitled "Strategic management of cadastral reforms". The paper described the importance of cadastral reform in economic development, social stability and environmental management within United Nations member States. It reviewed the United Nations initiatives in that respect over the past five years and agreed that cadastral reform required a national commitment by Governments strategically to manage the reform process, which included a range of economic, technical and institutional issues. The paper identified a range of key issues which must be addressed and noted that topographic and cadastral data bases need to be homogeneous and uniformly based on national geodetic networks. It concluded by describing the

important role that cadastral reform played in establishing national spatial data infrastructures.

35. El Salvador presented a paper describing the process of modernization in the cartographic, cadastral and geodetic areas. The paper discussed the creation of the Centro Nacional de Registros (National Register Office) which was responsible for registries of property and mortgages, commerce, intellectual and social property, and cartography and cadastre. It described a pilot project funded by the World Bank whose aim was to initiate a cadastral survey to support registration and whose end result would be updating and re-ordering of the Property Register Office under a new technical/judicial arrangement. A main objective would be security of land ownership, since insecurity was one of the main causes of the recent civil war. The paper also described the development of a geographical information system incorporating different layers of information geo-referenced with geographical and cartographic data, complemented by cadastral and registry information. The modernization process included re-observing first-order and second-order geodetic networks, using GPS and electronic levelling, acquiring digital photogrammetric instruments, and providing information relating to environmental protection and ecological concerns, using new technology, including satellite images.

Thematic mapping of natural resources
development and environment

36. Japan submitted a paper entitled "Towards the development of the Global Map". The paper described the need to resolve global environmental problems by acquisition of accurate and consistent global geographical information. One of the ways to achieve that was through the production of the Global Map which would include basic geographical information to cover the whole land area of the globe at the scale of 1:1,000,000 or with a ground resolution of 1 kilometre. The paper described the characteristics of the Global Map, the necessity for regular revision, and the measures to be taken towards the development of the Global Map by the year 2000. The paper highlighted the historical activities leading to the initiation of the global mapping concept and described the proceedings of two international workshops in global mapping and the establishment of an International Steering Committee for Global Mapping (ISCGM). The paper also described in detail the Santa Barbara Statement on Global Mapping for the Implementation of Agenda 21, which was adopted at the Interregional Seminar on Global Mapping for the Implementation of Multinational Environmental Agreements, held at Santa Barbara, California, in November 1996. The Statement was circulated as an official document at the fifth session of the Commission on Sustainable Development, held from 7 to 25 April 1997, and would also be circulated to the General Assembly at its special session on an overall review and appraisal of the implementation of Agenda 21, to be held from 23 to 27 June 1997. The Santa Barbara Statement focused on the need for spatial data products in support of the implementation of multinational environmental agreements, the current status of global mapping activities at the scale of 1:1 million or 1:1 kilometre, and the requirements for international coordination of and cooperation in geospatial data development activities.

IV. WORK OF COMMITTEE II: ENABLING TECHNOLOGIES

37. Committee II addressed the following topics: item 5 (a): Automated mapping projects: development and application of digital cartographic databases, including digital terrain modelling; and item 5 (e): Remote sensing in cartography.

38. The major highlights relevant to the issues covered by Committee II were:

(a) Internet: users' access to data on the Internet for making their own maps; international Web sites of geo-spatial data, clearinghouses;

(b) Development of partnerships/synergy between government and private sectors;

(c) Standards: formats to support not only data exchange but also data modelling (inter-operability); standardized metadata;

(d) The role of a geo-spatial framework for economic and sustainable development;

(e) Use of innovative data visualization along with hypermedia technologies for knowledge-based decision-making;

(f) Integration of the 3S technologies (remote sensing, global positioning systems (GPS) and geographical information systems (GIS)) for efficient management of natural resources;

(g) Significant impact of the current and upcoming high-resolution imagery as data source for database generation and updating; use of multi-optical systems and of synthetic aperture radar (SAR) satellites;

(h) Development of raster-based generalization methodology;

(i) Development of raster-based databases, including rasterized maps, digital orthophotos, satellite images and classification data;

(j) Data issues: high cost; integration of multi-type data; need for systematic data collection;

(k) Further promotion of the use of GIS to support urban planning, management and development.

Automated mapping projects

39. The United States of America submitted and presented a paper entitled "Designing a new national atlas of the United States". The national atlas project would use GIS technology to bind together diverse sets of geospatial information into definitive information resources and to provide uniform access capabilities to analyse and display the data. Users would have the flexibility to create their own map by selecting, combining, symbolizing and displaying the particular data sets of interest. In addition Internet access to United States Geological Survey (USGS) data sets would be provided.

40. The United States of America also submitted and presented a paper entitled "The Vector Product Format: an overview". The Vector Product Format (VPF) defined the conceptual and physical data model on which all National Imagery and Mapping Agency (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. The VPF geographic data model was based on the geographic model defined in the Digital Geographic Information Exchange Standard (DIGEST).

41. The United States of America also submitted and presented a paper entitled "Access to geographic names data sets on the Internet: developments in the United States since 1994: the GEONet Names Server". The foreign geographic names holdings of the United States Board on Geographic Names (USBGN) first came on line on the Internet in 1994 at a World Wide Web (WWW) site known as the GEONet Names Server (GNS). The data base served by GNS contained approximately 3,300,000 geographic features around the world and 4,700,000 geographic names. The GEONet Names Server could currently supply names data that were compliant with the ISO 8859 Latin 1 standard, which rendered text in many Western European languages.

42. The paper entitled "The Inter-American Geospatial Data Network: developing a western hemisphere geospatial data clearinghouse", submitted and presented by the United States of America, explained how the project was to promote access to information that described the existence and availability of geospatial data sets by means of the Internet. The Inter-American Geospatial Data Network (IGDN) housed and served an organization's metadata and, optionally, its geospatial data. It adhered to the metadata standard established by the Federal Geographic Data Committee (FGDC), described in Content Standards for Digital Geospatial Metadata Workbook, version 1.0.

43. The International Cartographic Association submitted and presented a paper entitled "A geographical data framework for economic development". The use of geographic information science could help developing countries to improve the standards of living of their people while helping preserve natural resources for future generations. Developing multi-scale, spatially referenced data of critical variables that could be used to help make resource management and development decisions was a wise investment in the future.

44. The International Cartographic Association (ICA) submitted and presented a paper entitled "Maps and mapping: The ICA vision of the future". The ICA vision for the future of cartography focused on the development of a firm theoretical basis for representing knowledge and the modelling of reality and the use of innovative map strategies (such as interactivity, animation, multi-media technologies), through the application of geographic visualization information systems (GVIS), as essential tools.

45. Finland submitted and presented the paper entitled "Uniform, reliable map data sets for the Baltic Sea region (MapBSR Project)". The purpose of the MapBSR Project was to provide basic map data sets for the Baltic Sea drainage area and the countries in its sphere of influence in the nominal scale of 1:1 million. The participants in the project were the national mapping agencies of 14 countries close to the Baltic Sea. When completed, the database would form a uniform base map for a regional GIS, in which any kind of data item could be located and presented, as long as its coordinates were known.

Remote sensing in cartography

46. The United Nations Secretariat submitted a paper entitled "Integration of the 3S technologies: remote sensing, GIS and GPS". It was presented by the President of the International Society for Photogrammetry and Remote Sensing (ISPRS). The 3S technologies - remote sensing, geographical information systems, and global positioning systems - were being highlighted in the new geoinformatics, a multidisciplinary science which includes the traditional disciplines of surveying, photogrammetry, cartography, geodesy, etc. The paper demonstrated the present and future applicability of integrated systems derived from a combination of two or more 3S technologies.

47. Finland submitted and presented the paper entitled "Automatic generalization in cartography". An automated generalization method had been developed for the compilation of a multi-scale land-cover map. The methodology was built on standard raster-based GIS modelling language called "Map Algebra". All kinds of nominal scale areal features were equally suitable for the developed automatic generalization method.

48. Finland also submitted and presented the paper entitled "Land cover and forest classification of Finland based on Landsat Thematic Mapper images and digital map data". The main goal of the project was the establishment of a digital raster database, a satellite image classification which would fulfil different needs of partner organizations and other expected users. The available ancillary information (digital map data) was used to mask the classification image and thus ease the classification task. The product, having a spatial resolution of 25 m, covers the entire country.

49. Germany submitted and presented the paper entitled "Mapping from space". After a historical review of the use of satellite imagery for mapping applications, the characteristics and capabilities of the current and future high spatial resolution satellite imagery were given. Emphasis was given to the German MOMS-02 Program which provided high resolution stereo-coverage suitable for mapping or map updating at the scale of 1:25,000. (MOMS stands for modular optoelectronic multispectral scanner.) The necessary software had been developed by various German universities and incorporated a high degree of automation through image matching techniques.

50. Germany submitted and presented another paper entitled "Urban GIS issues". It described the important role that GIS could play in urban development, environmental protection and cadastral implementation by integrating multi-type data. The various data sets required and alternative effective methods of data sources, such as digital orthophotos and satellite orthoimages, were identified.

V. WORK OF COMMITTEE III: DATA STORAGE,
STANDARDIZATION AND PRESENTATION

51. Committee III considered four topics: item 5 (b): geographic information systems; 5 (c) surveying and mapping, geodesy, map updating and generalization; 5 (g) hydrographic surveying and nautical charting; and 5 (h) aeronautical charting. A range of issues were addressed by delegate presentations and follow-up discussions on each item.

52. The Committee singled out the following as key areas of concern:

(a) It was agreed that a proposal should be drafted to consider how best to implement regional and national spatial data infrastructures in Latin America;

(b) With SIRGAS 95, a first solution for the establishment of a unique geocentric geodetic reference system for the region of South America was available. Continued collaboration was encouraged in the development of a geodetic reference system for Latin America;

(c) New ways of doing business in areas of mapping and charting were evident, including the sharing of production responsibilities by users, the dissemination of geospatial information via the Internet, the introduction of cost recovery demands by national Governments, and the fashioning of partnerships with the private sector in order to sustain programs or improve programs;

(d) The International Hydrographic Organization (IHO) serves as a resource in the areas of technical assistance and training related to hydrography, nautical charting, and ocean mapping;

(e) Standardization of aeronautical data is critical to the safety of air navigation; in addition, integration of those data with GPS would provide significant benefits in efficiency and cost savings;

(f) Coordination and cooperation on development of the common geoid, data manipulation, storage and presentation among those parties concerned should be established and planned in the most efficient and timely manner, and that such coordination and cooperation could be one of the terms of reference to the proposed Permanent Committee on GIS.

53. In the area of GIS, new technologies and methodologies for collecting, maintaining and disseminating data were emphasized. Dissemination of topographic data via the World Wide Web was discussed by Finland, which had an active program in the area. Particular attention was devoted to spatial data infrastructure development on a national, regional and global basis. The basic elements of a spatial data infrastructure were discussed in a paper by the United States of America, and a proposal was made by Colombia to consider how best to implement regional and national infrastructures in Latin America. Germany discussed a multi-purpose ground-related information network that had resulted from a consolidated effort of European mapping agencies to produce multinational datasets. The program served as a source of revenue for many of the agencies.

54. During discussion of surveying and mapping, geodesy, map updating and generalization, presenters outlined new technology-based developments in cartography, including a new refined global vertical datum, based on the geoid as the zero reference surface for time-invariant altimetry and elevations for more accurately defining heights and depths (United States), and enhancements to geodetic reference systems derived from permanent GPS observations (Germany). In addition, Spain described its new digitally based national topographic map at the 1:25,000 scale, which would be the basis of all the country's mapping. Germany described the collaborative effort to define and maintain a reference system for South America (SIRGAS 95) which would provide a geocentric datum for the continent. Connections with existing networks would be facilitated, providing data for more accurate adjustment to support mapping, resource, and scientific applications. Germany further described a program of digital cadastral mapping in the state of Hessen, which would provide maps at scales of 1:500 to 1:2,000 for a variety of resource management, business and land registry purposes. A unique aspect of the program was the shared approach to collecting and producing digital data from which the maps were built.

55. In the session on hydrographic surveying and nautical charting, discussion focused on vector and raster-based nautical charts produced by the United States. The United States presented a paper on the multiple applications of the vector-based Digital Nautical Chart (DNC). Although intended as a navigational tool expressly for naval and merchant vessels, DNC, with its layered data sets, might serve as a resource for GIS users. DNC coverage would be world-wide. The United States discussed in a different paper its current raster-based system for producing nautical charts of United States waters. The system had been introduced two years before and had increased the agency's capacity to produce new editions of its charts and decreased the costs and turnaround time associated with reproduction. A by-product of the production system was a new product line - the raster nautical chart - covering all United States waters and marketed through a partnership with a United States private company. The National Oceanic and Atmospheric Administration (NOAA) was also developing a vector database of selected chart themes which would be gradually incorporated into the raster nautical chart product line. The United States also presented a paper on behalf of the International Hydrographic Bureau which described the activities of the International Hydrographic Organization in the Americas. Those activities included technical assistance, training, sponsoring regional hydrographic commissions, and coordination of charting schemes to international standards.

56. During discussion of aeronautical charting, the United States presented a paper on the benefits of integrated GPS and GIS databases as a means of improving aviation safety and reducing the costs associated with air traffic management and related functions. The representative from ICAO stressed the importance of integrating graphics, such as weather information, airport data and moving maps, with GPS. He also emphasized the need for further standardization of aeronautical data and the need for work on a new vertical datum to provide more accurate definition of vertical obstructions/altitudes.

57. The International Civil Aviation Organization (ICAO) presented a paper on activities relevant to the Conference deliberations and specifically on those dealing with the establishment of the common geoid, data manipulation, data storage and presentation. Since other aviation branches and parties were developing and progressing on the common subjects, it was suggested that, in

order to avoid duplication of effort and potential divergence in developments and in order to share experience and resources, timely, close coordination and cooperation should be established in respect of the common geoid, data storage, manipulation and presentation among the parties involved.

VI. RESOLUTIONS ADOPTED BY THE CONFERENCE

A. List of resolutions

1. Seventh United Nations Regional Cartographic Conference for the Americas
2. Establishment of a working group of delegates and experts to define the mission and focus of the Seventh United Nations Regional Cartographic Conference for the Americas
3. Permanent Committee on GIS Infrastructure for the Americas
4. Spatial data infrastructure
5. The role of the cadastre in spatial data infrastructure
6. Development of the Global Map
7. Enabling technologies
8. Inter-American Biodiversity Information Network
9. Regional workshops and seminars on the benefits of advanced satellite imaging systems
10. Vote of thanks

B. Text of resolutions

1. Seventh United Nations Regional Cartographic Conference for the Americas

The Conference,

Acknowledging that the mission of the United Nations regional cartographic conferences is to provide both a regional and interregional forum for member States, through their governmental institutions, professional and academic sectors, non-governmental organizations and the private sector, to discuss and share information on related institutional, legal, economic and technical issues and to advise national Governments, the United Nations and other regional and international organizations on policy development options related to cartography, surveying, mapping, charting, cadastre, GIS technology and spatial data infrastructures in support of sustained economic growth for sustainable development and environmental management,

Bearing in mind that the conferences address the requirements of mapping organizations, spatial data providers and related land information managers, who focus on the needs of national, regional and local decision makers, stakeholders and other end-users,

Recognizing that the participants in the Sixth United Nations Regional Cartographic Conference for the Americas considered it essential to continue to hold cartographic conferences for the region,

Recognizing further the expressed desire to increase the effectiveness, impact and outreach of the conferences and realizing the need for the active involvement of all countries of the region in the preparation of the agenda for each conference and in the conferences themselves,

1. Recommends that the Economic and Social Council approve that the Seventh United Nations Regional Cartographic Conference for the Americas be convened no later than early 2001 for five working days and that member States be informed of the date, venue, specific themes as per the provisional agenda, and substantive requirements three years in advance;

2. Further recommends that with the assistance of some member States of the region, the Secretary-General promote an ongoing dialogue between the member States and other stakeholders to ensure the implementation of the resolutions adopted by the Sixth United Nations Regional Cartographic Conference for the Americas.

2. Establishment of a working group of delegates and experts to define the mission and focus of the Seventh United Nations Regional Cartographic Conference for the Americas

The Conference,

Noting the desire of the member States of the United Nations Regional Cartographic Conferences for the Americas and other stakeholders to enhance the relevance of the conferences to meet their expectations,

Further noting that two other United Nations regional cartographic conferences have also recommended the need to review their structure and operation,

Stressing the need for the Seventh Conference for the Americas to further its regional focus, based on national concerns and the importance of the participation of non-regional member States for stronger sharing of experience and bench-marking, for comparing respective achievements, advancements, structures and strategies,

Bearing in mind the benefits to be gained by being able to compare and contrast progress, institutional arrangements, economic performance, adopted technologies and the legal structures of surveying, mapping, charting, cadastral, land administration and GIS activities,

Keeping in mind that the issues of sustained growth for sustainable development and environmental management are truly interregional and that the vision of a global village is becoming a reality,

Taking into account the views of the Sixth Conference for the Americas that future conferences should focus more on current and emerging needs and demands at an institutional and policy level, with each conference focusing on one or more key themes, and should aim at providing policy support to local, regional and national governments and also to international organizations, especially the United Nations, in order for them to implement and evaluate programmes addressing socio-economic development and environmental management,

Mindful of the views of the Sixth Conference for the Americas that future conferences should include a day of specific interest to heads of line

ministries and organizations responsible for civilian, military and cadastral mapping, which should focus on how spatial data infrastructures could be developed to support policy-making and fiscal, security and legal issues,

1. Recommends the convening, under the guidance of the Secretary-General and within available resources, of a special working group of delegates and experts from all United Nations regional cartographic conferences and the member States of the Economic Commission for Europe within 12 months to re-engineer the operation of the regional conferences to ensure that they are relevant to regional and global needs and addresses issues of importance to local, national and international users of spatial data and land-related information in the twenty-first century, and to refine the provisional agenda for the Seventh United Nations Regional Cartographic Conference for the Americas;

2. Further recommends that the special working group:

(a) Develop a generic template for member States to use in reporting the status of surveying, mapping, charting, cadastral and GIS activities, together with relevant national indicators, and request all member States to utilize the template in making their country report to the United Nations regional cartographic conferences;

(b) Investigate the timing of United Nations regional cartographic conferences to ensure that the conferences in Africa, Asia and the Pacific and the Americas are followed by intervals of approximately 12 months, those in turn to be followed by an interregional United Nations cartographic conference at which global experiences are shared and the resolutions of the regional conferences are brought together to provide a global perspective in policy- and decision-making for all member States and the United Nations;

(c) To report to the Economic and Social Council within 18 months on the preferred structure;

3. Also recommends that the generous offer of the Government of Mexico to host the special working group of delegates and experts should be pursued.

3. Permanent Committee on GIS Infrastructure for the Americas

The Conference,

Noting with appreciation 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 (Beijing, 9-18 May 1994) and the significant role that it is serving in that region,

Also noting the formation of a similar regional organization in Europe, the European Umbrella Organization for Geographic Information (EUROGI),

Bearing in mind the absence of such a regional organization in the Americas and the need to maximize the economic, social and environmental benefits of geographic information to implement regional initiatives such as Agenda 21 by providing a forum for member States from the Americas to cooperate in the development of a regional geographic information infrastructure, contribute to the development of the global geographic information infrastructures, and share experiences and consult on matters of common interest,

Recognizing the urgent need to facilitate and enhance the promotion of these aims among all member States of the Americas through active engagement and coordination,

Conscious that the United Nations Regional Cartographic Conference for the Americas meets once every four years,

1. Recommends that member States take definite action towards the establishment of a Permanent Committee for GIS Infrastructure for the Americas, within one year from the end of the Sixth Conference, and invite all member States of the region to participate in the Committee;

2. Further recommends that future reports by the Permanent Committee on GIS Infrastructure for the Americas be submitted for consideration to the United Nations Regional Cartographic Conferences for the Americas.

4. Spatial data infrastructure

The Conference,

Noting the rapid global emergence of national and regional spatial data infrastructures which is changing the role of the United Nations Regional Cartographic Conference for the Americas,

Conscious that the strategic direction of the Conference for the Americas is directed towards the Global Spatial Data Infrastructure (GSDI), through the linking of national spatial data infrastructures and regional spatial data infrastructures,

Bearing in mind the proposed establishment of the Permanent Committee on GIS Infrastructure for the Americas, pursuant to resolution 3 of the Sixth United Nations Regional Cartographic Conference for the Americas,

Recognizing that the aims of the Permanent Committee are to maximize the economic, social and environmental benefits of geographic information to implement regional initiatives such as Agenda 21 by providing an autonomous forum for countries in the Americas to cooperate in the development of a regional geographic information infrastructure, contribute to the development of the global geographic information infrastructures and share experiences and consult on matters of common interest,

1. Recommends that the United Nations encourage all member States in the Americas to consider establishing national spatial data infrastructures (NSDI);

2. Also recommends that the United Nations encourage all member States in the Americas to consider participating in the work of the proposed Permanent Committee on GIS Infrastructure for the Americas and in the work of the International Organization for Standardization (ISO) Technical Committee 211, Geographic Information/Geomatics;

3. Further recommends that the United Nations encourage the proposed Permanent Committee on GIS Infrastructure for the Americas to endeavour to link the Americas' spatial data infrastructure into the Global Spatial Data Infrastructure.

5. The role of the cadastre in spatial data infrastructure

The Conference,

Bearing in mind the conclusions of the United Nations Interregional Meeting of Cadastral Experts, held at Bogor, Indonesia, 18-22 March 1996, jointly sponsored by the United Nations and the International Federation of Surveyors, and the recommendations in the Bogor Declaration on cadastral reform,

Recalling the deliberations of the Sixth United Nations Regional Cartographic Conference for the Americas on the need better to understand and appreciate the relationship between land tenure and the physical environment,

Mindful of the outcomes of Agenda 21 which promoted the importance of efficient and accessible land markets based on cadastral systems and appropriate land tenure systems as key factors in support of sustainable development and environmental management,

Recognizing the importance of efficient and effective cadastral systems in supporting the development of land markets, in providing security of tenure and access to land, in facilitating the provision of credit to farmers and peasants, and more generally in promoting economic development, social cohesion and sustainable development,

Noting the benefit of integrating cadastral/land tenure information with topographic information in providing an appropriate basis for the support of 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,

1. Recommends that member States and appropriate stakeholders convene, through the proposed Permanent Committee on GIS Infrastructure for the Americas, and under the guidance and with the assistance of the Secretary-General of the United Nations, a special working group to determine the role of the cadastre in spatial data infrastructures and, in particular, to discuss technical, institutional and legal issues, problems and solutions concerned with integrating digital cadastral mapping with large-scale topographic mapping, within the context of wider national spatial data infrastructures;

2. Also recommends that the deliberations and recommendations of the working group be reported to the Seventh United Nations Regional Cartographic Conference for the Americas;

3. Further recommends that the special working group review the Bogor Declaration on cadastral reform to assess its applicability to the Americas and, in particular, review the need for guidelines regarding:

(a) Cadastre and associated land administration along the lines of those guidelines recently produced for the Economic Commission for Europe;

(b) Costs, benefits, risks and value for money of cadastral systems in assisting member States in evaluation support for cadastral projects.

6. Development of the Global Map

The Conference,

Noting that the development of the Global Map will assist in establishing the Global Spatial Data Infrastructure (GSDI),

Noting also that the development of the Global Map will further enhance the significant contribution of surveying and mapping to the implementation of Agenda 21,

Noting with appreciation that the commitment of international groups of experts, such as the International Steering Committee for Global Mapping (ISCGM), is essential for the development of the Global Map,

Recognizing that the Global Map, an integrated group of global 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 bringing about social improvement and sustained economic growth for sustainable development,

Commending the letter dated 21 March 1997¹ from the Permanent Representatives of Japan and the United States of America to the United Nations, addressed to the Secretary-General, which circulates the executive summary and recommendations of the Interregional Seminar on Global Mapping for the Implementation of Multinational Environmental Agreements, Santa Barbara, California, 13-16 November 1996,

Encouraging member States in the Americas to consider participating in the development of the Global Map with the assistance of ISCGM and in close cooperation with the United Nations,

1. Recommends to all participating members of the Global Map project to create a global mapping forum of data providers and users to facilitate the development of a Global Map network which would be connected to the Internet or other means of communication to facilitate contact and interaction;

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

3. Further recommends the strengthening of existing efforts and the establishment of new initiatives between global mapping and various national and regional spatial data infrastructures.

7. Enabling technologies

The Conference,

Recognizing the benefits of the enabling geomatics technologies to the development of the region,

Further acknowledging the diversity of technology available to member States of the region,

¹ A/S-19/7 (E/1997/19), of 4 April 1997.

1. Recommends that the Secretary-General, within available resources and with the support of member States and international scientific organizations, promote enabling geomatics technologies in all countries of the region, by educating the community on their capabilities, and informing the community on the status and progress of such technologies on a regular basis;

2. Further recommends making enabling technologies and relevant data more accessible, easy to use and understand, while ensuring that they are sustainable and affordable.

8. Inter-American Biodiversity Information Network

The Conference,

Noting with appreciation the Summit on Sustainable Development (Santa Cruz, Bolivia, December 1996) and the Hemispheric Plan of Action, adopted there by representatives of the Governments of South, Central, and North American countries, in which the Inter-American Biodiversity Information Network (IABIN), an intergovernmental initiative intended to promote greater coordination among member States in the region for the collection, sharing, and use of environmental information is a key element,

Noting also the cooperation and coordination between the United States Department of the Interior, the Brazilian Environment Ministry, the Mexican Biodiversity Commission (CONABIO), and several Canadian agencies on implementing the Network, which focuses on the coordination of distributed data stewards,

Conscious of the need to maximize the economic, social and environmental benefits of geographic information to implement Agenda 21 and the relevance of environmental information, inherently spatially defined, within the context of global mapping and the national, regional, and global spatial data infrastructures for the region,

Recognizing that the underlying principle of the Network is not to supplant any existing information or networking efforts but rather to identify actions that increase the inter-operability of current efforts and strengthen, link, and complement existing activities,

Recognizing with appreciation the significant role of the United Nations Regional Cartographic Conferences for the Americas,

Recommends that member States of the region and non-governmental organizations consider joining and participating in the Inter-American Biodiversity Information Network (IABIN).

9. Regional workshops and seminars on the benefits of advanced satellite imaging systems

The Conference,

Recognizing that high-resolution digital imaging satellite systems, designed to produce finer images than the 1-metre panchromatic and 4-metre multispectral ones currently available, will soon be operational and producing repetitive global coverage,

Noting the value of high-resolution images to mapping, charting, and geographical information systems,

Further noting the increasing significance of urban growth and human activity on the environment and the need for development management,

Recommends that the United Nations, within available resources, collaborate with international scientific organizations such as the International Society for Photogrammetry and Remote Sensing to arrange for regional workshops and seminars on the benefits derived from advanced satellite imaging systems for decision makers and high-level managers.

10. Vote of thanks

The Conference,

1. Expresses its warmest thanks and appreciation to the representative of the United States of America for hosting, on behalf of the United States of America, a generous reception open to all participants, staff and support personnel of the Conference;

2. Expresses its deep appreciation to the Secretariat for the excellent substantive servicing provided to the Conference;

3. Expresses its sincere appreciation to the President, the Vice-President, and the Rapporteur of the Conference, Chairpersons and Rapporteurs of the technical committees for the excellent manner in which the Conference was conducted;

4. 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;

5. Acknowledges the highly successful nature and far reaching results of the Conference.

Annex I

LIST OF PARTICIPANTS

A. States members of the United Nations

ARGENTINA

Representative

Mr. Fernando PETRELLA, Ambassador, Permanent Mission of Argentina to the United Nations

Deputy Representatives

Ms. Ana Maria RAMIREZ, Minister, Permanent Mission of Argentina to the United Nations

Mr. Horacio Fernandez PALACIO, Secretary, Permanent Mission of Argentina to the United Nations

Mr. Jorge Raul ARICHULUAGA, Teniente Coronel (Oficial Ingeniero Militar Geografo), Jefe, Departamento Geográfico Militar, Instituto Geográfico Militar

BELGIUM

Representative

Monsieur J. DE SMET, Administrateur-général de l'Institut géographique national

BRAZIL

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Mr. Sergio FLORENCIO, Minister Plenipotentiary, Permanent Mission of Brazil to the United Nations

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Mr. Costas ARMENAKIS, Research Scientist, Department of Natural Resources, Geomatics Canada, Center for Topographic Information

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Mr. WANG Chunfeng, Assistant Director-General, National Bureau of Surveying and Mapping

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

Mr. SUN Baowu, Senior Programme Officer, National Bureau of Surveying and Mapping

Mr. YI Shubai, Director, Department of Policy and Regulation, National Bureau of Surveying and Mapping

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Mr. Sully SANAUY, First Secretary, Permanent Mission of Dominican Republic to the United Nations

EL SALVADOR

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Technical Advisor of the National Geographic Institute

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Ing. Lawrence Angel Velásquez PAYES, Sub-Director Ejecutivo, Control Nacional de Registración

Mr. Enrique de LA O
Cartographic Manager of the National Geographic Institute

FIJI

Representative

Mr. Mohammed JAFFAR, Director of Lands and Surveyor-General

FINLAND

Representative

Mr. Jarmo RATIA, Director-General, National Land Survey of Finland

Deputy Representative

Mr. Juhani KAKKURI, Director-General, Finnish Geodetic Institute

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Representatives

Prof. Dr. E. REINHART, Institute for Applied Geodesy

Deputy Representative

Prof. Dr. Gottfried KONECNY, Advisory Group for Development Aid, Head of the Institute for Photogrammetry and Engineering Surveying, University of Hanover

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Mr. Juergen SCHAUER, Joint Working Group of the German Federal States for Surveying

Mr. Thomas ZIELKE, Second Secretary, Permanent Mission of Germany to the United Nations

Observer

Mr. Arthur BREYER, Fa. Carl Zeiss, Oberkochen

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Lt. Col. Panagiotis MALLIS, Head of Digital Mapping Department, (HMGS)

Mr. Athanassios LITSAS, Head of Cartographic Department (HMGS)

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Sr. Luis Raul ESTEVEZ, Consejero, Permanent Mission of Guatemala to the United Nations

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Mr. Luis Andres Torres ROSALES, Asesor en Tecnologia GPS de la Comisión Especial de Demarcación

Lic. Octavio Pineda ESPINOZA, Consejor

INDIA

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Mr. Man Mohan KUMAR, Secretary, Department of Science and Technology

Mr. Bimal Kumar SRIVASTAVA, Director (Cartography), Airports Authority of India

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Mr. David PRENDERGAST, Counsellor, Permanent Mission of Jamaica to the United Nations

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KENYA

Mr. Alexandrino K. NJUKI, Director of Surveys, Survey of Kenya

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Mr. Mouratbek BAIKHODJOEV, Third Secretary of the Permanent Mission of Kyrgyzstan to the United Nations

Mr. Urmatbek Tyna LIYEV, Intern, United Nations, New York

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OMAN

Representative

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

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Representative

Mr. António MONTEIRO, Ambassador, Permanent Mission of Portugal to the United Nations

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First Lt. Fialho LOURENCO, Institute of Hydrography

Mrs. Rosa BATUREU, Minister Counsellor, Permanent Mission of Portugal to the United Nations

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Deputy Representative

Mr. A. A. BARANOV, Chief, International Relations Department (Roskartographia)

Advisers

Mrs. G. V. ZHADANOVA

Mr. D. V. SUBBOUTINE, Third Secretary, Ministry of Foreign Affairs

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Representative

Mr. Arturo LACLAUSTRA, Representante Permanente Adjunto, Permanent Mission of Spain to the United Nations

Deputy Representatives

Mr. José CEBRIAN PASCUAL, Director General de Producción Cartográfica, Ministerio de Fomento

Mr. Manuel GARCIA-PEREZ, Secretario-General, Instituto Geográfico Nacional, Ministerio de Fomento

Mr. Francisco RABENA, Consejero, Permanent Mission of Spain to the United Nations

Ms. Marta BETANZOS, Secretaria de Embajada, Permanent Mission of Spain to the United Nations

TURKEY

Representative

Mr. Burak OZUGERRGIN, First Secretary, Permanent Mission of Turkey to the United Nations

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Mr. Peter PARKINSON, Liaison Officer, National Imagery and Mapping Agency, Department of Defense (United States)

UNITED STATES OF AMERICA

Representative

Dr. Gene THORLEY, Senior Program Advisor for External Affairs, National Mapping Division, United States Geological Survey, Department of the Interior

Advisers

Mr. Richard E. WITMER, Acting Chief, National Mapping Division, United States Geological Survey, Department of the Interior

Mr. Roy R. MULLEN, Emeritus Program, United States Geological Survey, Department of the Interior

Dr. Robert H. HUGHES, Chief, Americas Department, National Imagery and Mapping Agency, Department of Defense

Mr. James E. AYRES, Scientific Advisor for Hydrography, National Imagery and Mapping Agency, Department of Defense

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

Mr. Douglas L. BROWN, Senior Staff Cartographer, National Ocean Service, National Oceanic and Atmospheric Administration, Department of Commerce

Mr. David M. JONES, Senior Geographic Specialist, Map Procurement Division, Department of State

VENEZUELA

Representative

Ms. Alicia MOREAU, Directora General Sectorial del Servicio Autónomo de Geografía y Cartografía Nacional del Ministerio del Ambiente y de los Recursos Naturales Renovables

Deputy Representatives

Ms. Maria Emilia Pérez VERA, Primer Secretario de la Misión Permanente de Venezuela ante las Naciones Unidas

Mr. Zulay MARIANI, Dirección General Sectorial del Servicio Autónomo de Geografía y Cartografía Nacional del Ministerio del Ambiente y de los Recursos Naturales Renovables

B. Specialized agencies

INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

Mr. Aleksandar PAVLOVIC, Chief Aeronautical Information and Charts Section, Air Navigation Bureau, ICAO

UNITED NATIONS CENTRE FOR HUMAN SETTLEMENTS (Habitat)

Ms. Aliye CELIC, Officer-in-Charge, New York Office of Habitat

C. International scientific organizations

INTERNATIONAL CARTOGRAPHIC ASSOCIATION (ICA)

Mr. Michael WOOD, President, ICA

INTERNATIONAL SOCIETY FOR PHOTOGRAMMETRY AND REMOTE SENSING (ISPRS)

Mr. Lawrence W. FRITZ, President, ISPRS

INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS

Mr. Juhani KAKKURI, Director-General, Finnish Geodetic Institute
(See also Finland)

INTERNATIONAL FEDERATION OF SURVEYORS (FIG)

Mr. Ian WILLIAMSON, Chairman, FIG, Commission 7 (Cadastre and Land Management)

D. United Nations Secretariat

Executive Secretary

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

Deputy Executive Secretaries

Mr. Gabriel GABELLA, Senior Economic Affairs Officer, Natural Resources and Environment Management Branch, Division for Economic and Social Development and Natural Resources Management

Mr. K. Hans STABE, Economic Affairs Officer, Natural Resources and Environment Management Branch, Division for Economic and Social Development and Natural Resources Management

Annex II

AGENDA

1. Opening of the Conference.
2. Election of the President and other officers of the Conference.
3. Organizational matters:
 - (a) Adoption of the rules of procedure;
 - (b) Adoption of the agenda;
 - (c) Establishment of technical committees;
 - (d) Organization of work;
 - (e) Credentials of representatives to the Conference.
4. Country reports.
5. Review of the latest technology in cartographic data acquisition, manipulation, storage and presentation, with special emphasis on potential applications in developing countries:
 - (a) Automated mapping projects: development and application of digital cartographic databases, including digital terrain modelling;
 - (b) Geographic information systems: definition, formation and application;
 - (c) Surveying and mapping, geodesy, map updating and generalization;
 - (d) Cadastral surveying and land reform;
 - (e) Remote sensing in cartography;
 - (f) Thematic mapping of natural resources development and environment;
 - (g) Hydrographic surveying and nautical charting;
 - (h) Aeronautical charting.
6. Technical assistance and transfer of appropriate and affordable technology.
7. Provisional agenda for the Seventh United Nations Regional Cartographic Conference for the Americas.
8. Adoption of the report of the Conference.

Annex III

LIST OF DOCUMENTS

<u>Symbol</u>	<u>Title/country</u>	<u>Agenda item</u>
E/CONF.90/1	Provisional agenda	3 (b)
E/CONF.90/2	Rules of procedure	3 (a)
E/CONF.90/INF/1	Documentation for the Conference	
E/CONF.90/INF/2	Provisional list of documents	
E/CONF.90/INF/3	Provisional list of participants	
E/CONF.90/L.1	Integration of the 3S technologies; remote sensing, GIS and GPS (Submitted by the Secretariat)	5 (e)
E/CONF.90/L.2	Activities of the International Society for Photogrammetry and Remote Sensing (ISPRS) (Submitted by ISPRS)	4
E/CONF.90/L.3	Automatic generalization in cartography (Submitted by Finland)	5 (e)
E/CONF.90/L.4	MapSite-a WWW service for browsing topographic maps of Finland (Submitted by Finland)	5 (b)
E/CONF.90/L.5	Land cover and forest classification of Finland based on Landsat Thematic Mapper images and digital map data (Submitted by Finland)	5 (e)
E/CONF.90/L.6	The Status of Cartographic Activities in the U.S.A. (Submitted by the United States)	4
E/CONF.90/L.7	Designing a new national atlas of the United States (Submitted by the United States)	5 (a)
E/CONF.90/L.8	The Digital Nautical Chart - A Multi-Use Data Base (Submitted by the United States)	5 (g)
E/CONF.90/L.9	The Vector Product Format: an overview (Submitted by the United States)	5 (a)
E/CONF.90/L.10	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)	5 (a)
E/CONF.90/L.11	GPS/GIS integrated systems to benefit all phases of aircraft navigation (Submitted by the United States)	5 (h)

<u>Symbol</u>	<u>Title/country</u>	<u>Agenda item</u>
E/CONF.90/L.12	The Inter-American Geospatial Data Network: developing a western hemisphere geospatial data clearinghouse (Submitted by the United States)	5 (a)
E/CONF.90/L.13	Global vertical datum to survey accurate orthometric heights and depths (Submitted by the United States)	5 (c)
E/CONF.90/L.14	Office of Coast Survey Chart Production Modernization (Submitted by the United States)	5 (g)
E/CONF.90/L.15	The U.S. national spatial data infrastructure (Submitted by the United States)	5 (b)
E/CONF.90/L.16	Standards for the global spatial data infrastructure (GSDI) (Submitted by the United States)	5 (b)
E/CONF.90/L.17	A geographic data framework for economic development (Submitted by the International Cartographic Association)	5 (a)
E/CONF.90/L.18	Cooperation between official mapping agencies in Europe (Submitted by Comité Européen des responsables de la cartographie officielle)	4
E/CONF.90/L.19	La Cartografía Cubana y el medio ambiente: logros y perspectivas en el umbral de las nuevas tecnologías (Submitted by Cuba)	5 (f)
E/CONF.90/L.20	Informe sobre el estado y avances registrados por la actividad cartográfica en la republica Argentina (Submitted by Argentina)	4
E/CONF.90/L.21	Progress of surveying and mapping in China, 1993-1997 (Submitted by China)	4
E/CONF.90/L.22	La cartografía básica oficial de España: el mapa topográfico nacional a Escala 1:25,000 (Submitted by Spain)	5 (c)
E/CONF.90/L.23	International Cartographic Association: progress during 1991-1997 (Submitted by ICA)	4
E/CONF.90/L.24	Maps and mapping: the ICA vision of the future (Submitted by the Secretariat)	5 (a)
E/CONF.90/L.25	Cartography at the Brazilian Institute of Geography and Statistics (Submitted by Brazil)	5 (a)

<u>Symbol</u>	<u>Title/country</u>	<u>Agenda item</u>
E/CONF.90/L.26	Uniform, reliable map data sets for the Baltic Sea region (MapBSR Project) (Submitted by Finland)	5 (a)
E/CONF.90/INF/4	Instituto Geografico Agustin Codazzi (Submitted by Colombia)	4
E/CONF.90/INF/5	The Bogor Declaration on cadastral reform (Submitted by the Secretariat)	5 (d)
E/CONF.90/INF/6	Strategic management of cadastral reform (Submitted by the Secretariat)	5 (d)
E/CONF.90/INF/7	Mapping from space (Submitted by Germany)	5 (e)
E/CONF.90/INF/8	Implications of permanent GPS-arrays for the monitoring of geodetic reference frames (Submitted by Germany)	5 (c)
E/CONF.90/INF/9	The South American geocentric reference system (Submitted by Germany)	5 (c)
E/CONF.90/INF/10	Creation of multinational datasets: the MEGRIN experience (Submitted by Germany)	5 (b)
E/CONF.90/INF/11	Establishing digital cadastral maps in the state of Hessen (Submitted by Germany)	5 (c)
E/CONF.90/INF/12	Urban GIS issues (Submitted by Germany)	5 (e)
E/CONF.90/INF/13	Challenging changes in the world of spatial data handling: ITC's new courses in geoinformatics (Submitted by the Netherlands)	6
E/CONF.90/INF/14	Activities of the United Nations Department for Development Support and Management Services (Submitted by the Secretariat)	6
E/CONF.90/INF/15	Cartographic work in Japan, 1994-1996 (Submitted by Japan)	4
E/CONF.90/INF/16	Technical cooperation in surveying, mapping and charting in Japan (Submitted by Japan)	6
E/CONF.90/INF/17	Towards the development of the Global Map (Submitted by Japan)	5 (f)
E/CONF.90/INF/18	Hydrography, nautical cartography and bathymetric mapping in the Americas (Submitted by the United States)	5 (g)
E/CONF.90/INF/19	Status of cartography in Kenya, 1994-1996 (Submitted by Kenya)	4
E/CONF.90/INF/20	Principales avances en materia cartográfica (Submitted by Mexico)	4

<u>Symbol</u>	<u>Title/country</u>	<u>Agenda item</u>
E/CONF.90/INF/21	Country report on the current status of surveying, mapping and cartographic activities (Submitted by India)	4
E/CONF.90/INF/22	Mapping in Russia: contemporary development (Submitted by Russia)	4
E/CONF.90/INF/23	Le service hydrographique et oceanographique de la marine (Submitted by France)	5 (g)
E/CONF.90/INF/24	Instituto Geográfico Nacional (Submitted by Honduras)	4
E/CONF.90/INF/25	Presentación de la modernización área cartográfica, catastral y geodésica de El Salvador (Submitted by El Salvador)	5 (d)
E/CONF.90/INF/26	Country report of Fiji (Submitted by Fiji)	4
E/CONF.90/INF/27	Inter-American Biodiversity Information Network (Submitted by the United States)	5 (b)
E/CONF.90/INF/28	Activities in the International Civil Aviation Organization (Submitted by ICAO)	5 (b)
E/CONF.90/INF/29	The Permanent Committee on GIS Infrastructure for Asia and the Pacific (Submitted by the Secretariat)	4
E/CONF.90/INF/30	Draft provisional agenda for the Seventh United Nations Regional Cartographic Conference for the Americas (Submitted by the Secretariat)	7
E/1997/52	Report of the Fourteenth United Nations Regional Cartographic Conference for Asia and the Pacific, Bangkok, 3-7 February 1997 (Submitted by the Secretariat)	
A/S-19/7	Interregional Seminar on Global Mapping for Implementation of Multinational Environmental Agreements (Letter dated 21 March 1997 addressed to the Secretary-General) (Submitted by the Secretariat)	

Annex IV

PROVISIONAL AGENDA FOR THE SEVENTH UNITED NATIONS REGIONAL
CARTOGRAPHIC CONFERENCE FOR THE AMERICAS

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 committees and election of the Chairman and Rapporteurs;
 - (d) Organization of work;
 - (e) Credentials of representatives to the Conference.
5. Country reports.
6. Reports on the implementation of resolutions adopted at the Sixth United Nations Regional Cartographic Conference for the Americas.
7. Reports on achievements in surveying, mapping, and charting in addressing national, subregional, regional, and global issues, including:
 - (a) Policy and institutional issues;
 - (b) Technical issues;
 - (c) Applications.
8. Review of the achievements of the Conference.
9. Provisional agenda for the Eighth United Nations Regional Cartographic Conference for the Americas.
10. Adoption of resolutions and the report of the Seventh United Nations Regional Cartographic Conference for the Americas.