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THIRD UNITED NATIONS REGIONAL CARTOGRAPHIC CONFERENCE FOR THE AMERICAS

New York, 19 February-1 March 1985

Vol. I. Report of the Conference

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Department of Technical Co-operation for Development

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NOTE

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

The proceedings of the Third United Nations Regional Cartographic Conference for the Americas, held in New York from 19 February to 1 March 1985, are being issued in two volumes, as follows:

Volume I. Report of the Conference
Volume II. Technical papers

The proceedings of the previous United Nations regional cartographic conferences for the Americas were issued under the following symbols and sales codes: E/CONF.67/3 (Sales No. E.77.I.13) and E/CONF.67/3/Add.1 (Sales No. E/F/S.79.I.14) for the First Conference; E/CONF.71/3 (Sales No. E.81.I.4) and E/CONF.71/3/Add.1 (Sales No. E/F/S.82.I.14) for the Second Conference.

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I. ORGANIZATION OF THE CONFERENCE

A. Terms of reference

1. The Third United Nations Regional Cartographic Conference for the Americas, convened in accordance with Economic and Social Council resolution 1980/14 of 28 April 1980 and Council decision 1984/117 of 21 May 1984, was held at United Nations Headquarters from 19 February to 1 March 1985.

B. Opening of the Conference

2. The Under-Secretary-General for Technical Co-operation for Development welcomed the participants and noted the support of so many Governments, not only from the region but also from other parts of the world, and stated that such widespread support would contribute towards the success of the Conference. He stressed the significant role that had been played by such conferences in offering a platform on which communication among countries could be established, and expressed his views on the importance of cartographic works by all the countries of the region.

3. The Executive Secretary of the Conference thanked the Under-Secretary-General for his opening address and added his welcome.

C. Attendance

4. The Conference was attended by 126 representatives or observers of 45 countries, the Economic Commission for Latin America and the Caribbean, three specialized agencies, six intergovernmental and international scientific organizations, and the Palestine Liberation Organization. The list of participants appears as annex I to the present report.

D. Agenda

5. The Conference adopted its agenda as contained in document E/CONF.77/1. The agenda as adopted appears as annex II to the present report.

E. Adoption of the rules of procedure

6. At its 1st plenary meeting, the Conference adopted its rules of procedure as contained in document E/CONF.77/2 but amended rule 5 to read:

> "The Conference shall elect a President, two Vice-Presidents and a Rapporteur from the representatives of the States participating in the Conference. These officers shall constitute the Bureau of the Conference."

The rules of procedure as adopted appear as annex III to the present report.

F. Election of officers

7. The Conference elected the following officers:

President:	César Durán Abad (Ecuador)
First Vice-President:	Giampiero Bellucci Casunatti (Mexico)
Second Vice-President:	Luis Polanco Gallardo (Chile)
Rapporteur:	Wayne Miller (United States of America)

G. Organization of work

8. The Conference adopted the organization of work as proposed by the Secretariat, and decided that papers presented under agenda item 4, entitled "Country reports and progress made since the Second Conference", would be discussed under each related technical item. In addition, the Conference requested the Executive Secretary to provide facilities for the delegations to hold an exhibition of maps and related cartographic products. The Executive Secretary stressed the fact that that was a very delicate and sensitive subject and that such an exhibition could only take place if there was a clear understanding that the sole responsibility of the content of the exhibited products rested entirely with the delegations exhibiting their products, that the Secretariat was in no way responsible for the content of the exhibited material, and that the fact that the material was exhibited on United Nations premises did not imply any endorsement or acceptance by the United Nations. The Conference agreed with that statement.

H. Credentials of representatives to the Conference

9. The Credentials Committee, composed of the President, the two Vice-Presidents and the Rapporteur, with the Executive Secretary ex officio, reported that the credentials of all representatives had been found to be in order.

I. Establishment of technical committees

10. The Conference established four technical committees and the following officers were nominated and subsequently elected to the technical committees:

Committee I (Agenda item 5)

Chairman:	Richard Groot (Canada)
Vice-Chairman:	Luis Polanco Gallardo (Chile)
Rapporteur:	Frank Maloney (United States of America)

Committee II (Agenda item 6)

Chairman:	Giampiero Bellucci Casunatti (Mexico)
Vice-Chairman:	Fernando Rodrígues de Carvalho (Brazil)
Rapporteur:	José A. Tejada S. (Panama)

Committee III (Agenda item 7)

Chairman:	Paulo César Teixeira Trino (Brazil)
Vice-Chairman:	Humberto Goyen-Alvez (Uruguay)
Rapporteur:	Sandra H. Shaw (United States of America)

Committee IV (Agenda item 8)

Chairman:	Rupert B. Southard (United States of America)
Vice-Chairman:	Michel Paradis (Canada)
Rapporteur:	Gottfied Konecny (Federal Republic of Germany)

11. In addition, the Conference established a working group to study agenda items 10 and 11, and appointed Mr. Richard Groot (Canada) convenor of the group.

J. Documentation

12. A list of the documents submitted to the Conference appears as annex IV to the present report. The technical papers are to be published in volume II of the proceedings of the Conference.

K. Closing of the Conference

13. The Conference, at its final meeting on 1 March 1985, expressed its gratitude to the President for the excellent way in which he had conducted the meetings and to the Bureau. The Conference also expressed its heartfelt thanks and appreciation to the officers of the Conference, the Executive Secretary and the staff of the United Nations.

14. On behalf of the Under-Secretary-General of the Department of Technical Co-operation for Development, the Director of the Natural Resources and Energy Division addressed the Conference to express his satisfaction at the successful completion of the Conference and stated that the Department would spare no efforts to cast its activities within the framework provided by the resolutions adopted at the Conference. He noted, however, that the existing resources of the Department prevented any extension of those activities and urged the representatives to impress upon their own Governments the unanimous recommendations of the Conference and to explore any possible avenues to provide additional resources to the United Nations to enable any expansion as provided by the resolutions.

15. In his closing remarks the President emphasized the importance of the regional cartographic conferences in providing an opportunity to examine the situation of surveying and mapping in the world and the relevant technical advances that facilitate and accelerate their specific work in the region. He further noted that the experience of the developed countries would be most valuable for those who had less, and the contacts that had been established and the formal meetings that were held would be of the greatest significance in facilitating the exchange and transfer of technology.

II. SUMMARY OF PROCEEDINGS OF THE PLENARY MEETINGS

Agenda items 1 to 3 and 9 to 12

16. The Conference considered in plenary meetings agenda items 1 to 3 and 9 to 12. Agenda item 4, entitled "Country reports and progress made since the Second Conference", was referred to technical committees I to IV for presentation and discussion during their meetings. Agenda items 10 and 11, which dealt with United Nations interregional cartographic conferences and the provisional agenda for the next United Nations regional or interregional cartographic conference, were referred to a working group for discussion and recommendations. The recommendations of the working group were commented on in plenary meetings, and incorporated in resolution 1.

Technical assistance and transfer of technology

17. Under agenda item 9, five documents on technical assistance and transfer of technology (E/CONF.77/L.8, E/CONF.77/L.13, E/CONF.77/L.28, E/CONF.77/L.39 and E/CONF.77/L.61), were presented. In addition, the observer from the International Hydrographic Organization (IHO) addressed the Conference.

18. In the paper on United Nations technical co-operation activities in surveying, mapping and charting, with specific emphasis on the Americas (E/CONF.77/L.13), presented by the United Nations Secretariat, disappointment was expressed at the low level of involvement in the region since the Second United Nations Regional Cartographic Conference for the Americas, held at Mexico City in 1979. Some speculation arose regarding the reason for that state of affairs, including an observation regarding a deficient public relations effort. Although a process by which requests could be made to the United Nations was not discussed, the representative of the Department of Technical Co-operation for Development made himself available to delegations if they desired more information.

19. In addressing himself to the balanced distribution of project components, the representative made reference to the high unit costs of certain types of equipment which made it difficult for new projects to achieve a level of balance acceptable to some donors (particularly the United Nations Development Programme). When a delegation asked how the United Nations proposed to achieve that balance, the representative indicated that there was no clear cut formula, since the parameters were different for each case. An example given for assistance in achieving such a programme balance would be the introduction of project co-funding with investment-oriented donors (for example, the World Bank and third-party cost sharing).

20. In the paper on activities of the Federal Republic of Germany in the field of surveying and mapping in South and Central America, as well as in the Caribbean (E/CONF.77/L.8), submitted by the Federal Republic of Germany, a complete summary of technical co-operation with the Americas and the Caribbean was provided. An excellent analysis of technical co-operation in cadastral work was made. Special mention was made of the school for surveying and mapping, Escuela de Topografía Catastro y Geodesía, at the National University of Heredia in Costa Rica. There was a brief discussion of the abandonment of the primitive tax cadastre (tax-mapping system) in Central America in favour of a more suitable cadastre along the lines of those employed by European countries.

21. The paper refers to the importance of training to include advanced training at all levels within regional institutions, since the knowledge thus acquired will remain regardless of political disturbances.

22. It is suggested in the paper that it would be worth investigating whether the cadastre, as a multipurpose cadastre, would not already be a land information system, rather than just the basis for one.

23. It was pointed out in the paper that the cadastre is normally politically sensitive and may too often be turned down by a donor country, but the donor country should accept the task of setting up a cadastre and should not be intimidated by its political sensitivity. The paper did not generate discussion among the delegations.

24. The head of the delegation of the United Kingdom of Great Britain and Northern Ireland introduced the paper on monitoring and evaluation of projects for land registration submitted by that country (E/CONF.77/L.28). The speaker focused on the new technologies and new approaches that have dramatically reduced the time and the cost required to establish a reliable cadastre, or register of rights on land. A figure of about $US 10 per hectare is considered a cost-effective investment by the World Bank, for instance. It was further pointed out that proposals for rural land administration programmes usually originate from departments and institutions actively engaged in such administration, whereas most and perhaps all of the organizations from which support must be sought are more greatly concerned with the benefits to be gained from the proposed programmes in relation to the costs.

25. Another point was made which related to the ability of a programme to consider future maintenance of a system which had been implemented. Such maintenance must be within the capability and the resources of a realistic level of future recurrent budgets. The speaker concluded that the aim of land registration should be a system that would cut out waste of resources, but the introduction and maintenance of an authoritative record of land rights is undoubtedly expensive. There is therefore a need to foster contact and debate involving general administrators, economists and financiers of international agencies, as well as technical and professional surveyors.

26. The second paper submitted by the United Kingdom under agenda item 9, report on cartographic activities in the Americas (E/CONF.77/L.61), provided an account of the contribution made by United Kingdom governmental agencies to the surveying, mapping and charting operations in the region of the Americas during the period January 1979 to December 1984.

27. In the background paper submitted by the International Federation of Surveyors (FIG) (E/CONF.77/L.39) the representative of that organization described the work of the organization as summarized in the paper, its goals, conferences and symposia. Special attention was directed by the speaker to the Colloquium on Surveying and Mapping Education, to be held at the University of New Brunswick, Fredericton, Canada, from 11 to 14 June 1985, sponsored by the Canadian Institute of Surveying and co-sponsored by FIG, the International Cartographic Association (ICA), the International Society for Photogrammetry and Remote Sensing (ISPRS) and the International Association of Geodesy (IAG).

28. The Director of the International Hydrographic Organization informed the Conference of the procedures adopted by IHO for the implementation of the activities regarding technical assistance to developing countries. The procedures entail the following:

(a) As a first step, IHO will address developing countries, with a view to arranging a visit concerning technical assistance in hydrography;

(b) On receiving a positive response, a representative of IHO will visit the country concerned, with a view to:

(i) Explaining the need for establishing or strengthening the hydrographic capability of the country;

(ii) Recommending the most suitable government department to be responsible for hydrographic work;

(iii) Making a preliminary assessment of the facilities already available and the level of effort required in the country to meet its hydrographic needs;

(iv) Urging the country to become a member of IHO;

(v) Arranging the date for a subsequent visit;

(c) On subsequently visiting the developing country, the IHO representative will assist in the preparation and finalization of a project document for further processing by Governments as part of their national development plans;

(d) Depending on the outcome of those visits, IHO will act as the focal point for obtaining assistance by determining a potential co-operating country among member States. IHO will also provide advice and support for obtaining assistance from aid-giving agencies, impressing upon those agencies the need for giving adequate priority to hydrographic projects.

29. The representative of IHO made it clear that, while the above procedures envisaged the initiation of a formal approach by IHO, developing countries should feel free to approach IHO as desired.

30. Finally, he added that in the past two years, visits of technical assistance experts were made to Cyprus, the Islamic Republic of Iran, Kenya, Oman, Papua New Guinea, the United Arab Emirates and the United Republic of Tanzania. The project documents that have been prepared are now being processed by interested Governments and some aid-giving agencies.

Report of the working group on agenda items 10 and 11

31. The convenor of the group introduced agenda items 10 and 11 and made reference to the following documents on the same questions:

(a) Tenth United Nations Regional Cartographic Conference for Asia and the Pacific, Bangkok, 17-28 January 1983, vol. I, Report of the Conference, chap. II, items 9 and 10; 1/

(b) Report of the Economic and Social Council for the Year 1980, chap. XVII; 2/

(c) "Report of the Secretary-General on United Nations interregional cartographic conferences" (E/1984/36);

(d) Paper presented by Sweden on the role of the United Nations cartographic conferences (E/CONF.75/L.31). 3/

32. The subsequent discussion dealt with all the points mentioned in those documents and led to a general consensus that regional cartographic conferences were valuable to all countries of the region but particularly so to those countries still faced with large mapping tasks and few financial and technical resources to carry out those tasks. It was observed that many of the latter countries were not members of international technical and scientific organizations in the field of surveying and mapping and that the United Nations regional cartographic conferences provided them with an opportunity to participate in a conference covering the full scope of surveying and mapping. Concern was expressed regarding the limited attendance of those countries at the current Conference. Ways to involve them more in establishing the agenda and possibly to provide financial assistance to enable them to attend regional cartographic conferences were discussed.

33. The two-week duration of the Conference was generally regarded as a matter of serious concern. The merits were debated of reducing the length of cartographic conferences for the region by focusing more sharply on a limited number of subjects within the framework of the current agenda. The need to involve actively the countries of the region in establishing, through consultations, the agenda for a fourth United Nations regional cartographic conference for the Americas and to encourage their participation in the actual conference was identified as an important aspect of the preparatory work for such a conference.

34. Finally, it was recognized that knowledge of new technological developments is important for all countries of the region and that some papers should be presented on that subject. Adequate emphasis should be given to papers covering "appropriate and affordable" technology.

35. The working group submitted to the Conference a draft resolution that would put in place a mechanism to solve perceived problems concerned with the continued effectiveness of United Nations regional cartographic conferences for the Americas. It was subsequently adopted by the Conference as resolution 1 (for the text of the resolution, see chap. VII below).

1/ United Nations publication, Sales No. E.83.I.18.

2/ Official Records of the General Assembly, Thirty-fifth Session, Supplement No. 3 (A/35/3/Rev.1).

3/ See Tenth United Nations Regional Cartographic Conference for Asia and the Pacific, Bangkok, 17-28 January 1983, vol. II, Technical papers (E/CONF.75/5/Add.1) (to be issued as a United Nations publication).

III. WORK OF COMMITTEE I: REVIEW OF THE LATEST TECHNOLOGY AND ITS RELATIONSHIP TO POLICY, ECONOMY AND DEVELOPMENT IN CARTOGRAPHIC DATA ACQUISTION AND SUPPORTING ACTIVITIES

36. Committee I considered the following topics: conventional and satellite geodesy (item 5 (a)); acquisition of cartographic data from space (item 5 (b)); aerial photography and remote sensing from space (item 5 (c)); surveys for mapping and charting (item 5 (d)); hydrographic surveying and nautical charting (item 5 (e)); and development of digital data bases (item 5 (f)). The Committee reviewed 21 papers dealing with those topics. Three draft resolutions were submitted to the Conference, and subsequently adopted by the Conference as resolutions 3, 5 and 10 (for the texts of the resolutions, see chap. VII below).

A. Conventional and satellite geodesy

37. The Federal Republic of Germany presented a paper entitled "The Modular Transportable Laser Ranging System, MTLRS 1, and its application for detecting earth plate motion" (E/CONF.77/L.7). The paper explained the system configuration, the initial and future performance evaluation tests and the proposed observation work plan.

38. The United States of America presented a paper entitled "Navstar Global Positioning System Overview" (E/CONF.77/L.19), which described the system, its capabilities, the management of the system and its current status. The Navstar Global Positioning System (GPS) is evolving into a highly accurate, world-wide, all-weather navigation/positioning system applicable to the needs of both military and civilian communities.

39. The United States of America also presented a paper entitled "World Geodetic System 1984" (E/CONF.77/L.20). The paper explained an ellipsoidal model, an ellipsoidal gravity formula, an earth gravitational model and transformation equations from conventional geodetic datums to the World Geodetic System 1984. This system is developed for cartographic application in those cases where mapping with respect to the centre of mass of the earth is desired.

40. France presented a paper entitled "Tests of motorized indirect precision levelling (NIPREMO) by the National Geographical Institute" (E/CONF.77/L.29). Special vehicles for transporting a levelling team and their equipment were described, as well as the operational procedures used and test results of the system.

41. The Federal Republic of Germany presented a paper entitled "On the significance of Doppler antennae calibration results" (E/CONF.77/L.42), which dealt with the need for a calibration programme, the characteristics of the calibration programme and an extensive review of the calibration programme results.

42. A paper entitled "Establishment of a satellite geodesic network in the southern zone of Chile as a basic structure for photogrammetric monitoring" (E/CONF.77/L.44) was presented by Chile. The paper addressed the physical geographical obstacles to conducting conventional geodetic work and then described how the technologies of satellites, photogrammetry, analytical systems and programmes of aerotriangulation were utilized to overcome the physical geographical

barriers and enable cartographic coverage to be obtained of the southern zone of Chile.

43. A paper submitted by Poland, entitled "General principles of the concept of the African Continental Geodetic Network (ACGN) and its international aspect" (E/CONF.77/L.47), was presented during the deliberations of Committee IV.

44. The Union of Soviet Socialist Republics submitted a paper entitled "Observation of tectonic precursors of earthquakes by geodetic methods" (E/CONF.77/L.58) describing a programme of tectonic movement observations based on high-precision levelling which allowed tracing the presence of earthquake foretokens at selected test sites.

B. Acquisition of cartographic data from space

45. The International Society for Photogrammetry and Remote Sensing, presented a paper entitled "Space photography: present status and future directions" (E/CONF.77/L.55). The paper contained a description of the current cameras used for collecting cartographic data and the specific space missions that carry them. The utility of mapping with space photographs was discussed, as were the future developments of photographic systems.

46. The Federal Republic of Germany presented a paper entitled "First results of the European Spacelab Photogrammetric Camera Mission" (E/CONF.77/L.6). The paper dealt with the photogrammetric camera experiment carried aboard the first Spacelab mission, launched in November 1982 from Cape Canaveral.

47. France presented a paper entitled "Participation in Spacelab and Spot Programmes" (E/CONF.77/L.38). The paper described the Spacelab programme with the Metric Camera and the advantages of using photographic captors for aerotriangulation and identification of planimetric details. The Spot satellite, to be launched in 1985, was discussed with emphasis on its use for altimetric plotting and revision.

48. The United States of America presented a paper entitled "The Satellite Image Mapping Program of the United States Geological Survey" (E/CONF.77/L.24). The development background of two key experimental image map projects revealed some of the new and innovative procedures that have evolved over the past several years to produce greater resolution of detail and colour imagery.

C. Aerial photography and remote sensing from space

49. France presented a paper entitled "New APR-laser system of the National Geographical Institute" (E/CONF.77/L.30), which provided an explanation of the new system for air-borne terrain-profile recording, developed by the Institute in order to establish an altimetric network for small-scale photogrammetric surveys. This system replaces the APR radar system previously used at the Institute.

D. Surveys for mapping and charting

50. The United Nations Secretariat submitted a paper entitled "Report of the Meeting of the Ad Hoc Group of Experts on Cadastral Surveying and Land Information

Systems" (E/CONF.77/L.1). The report reviewed and updated the 1972 report of the meeting of the Ad Hoc Group of Experts 4/ in the light of technological developments, especially in the field of land information systems. It gave definitions of the terms "land", "land use", "land parcel", "land information", "land information systems", "cadastre" and "land registration", and showed that the cadastre was one type of land information system. The paper was also discussed under agenda item 6 (g).

51. Spain submitted a paper entitled "Geodesic and cartographic studies in the Strait of Gibraltar" (E/CONF.77/L.2), which dealt with the study of the movements between the Euro-Asiatic and African tectonic plates in order to determine the feasibility of establishing a fixed link across the Strait of Gibraltar.

E. Hydrographic surveying and nautical charting

52. The International Hydrographic Organization presented a paper entitled "Status of hydrographic surveying and nautical charting world-wide" (E/CONF.77/L.12). The paper described the results of a questionnaire circulated to 128 States Members of the United Nations that are coastal States, for the purpose of assessing the status of the world's hydrographic surveying and nautical charting resources.

53. The United States of America presented a paper entitled "The history of the Loran-C charting at the National Ocean Service" (E/CONF.77/L.14). The paper dealt with the production phases of Loran-C charting from 1970 to the present time. Problems and solutions were addressed.

54. Canada gave a video presentation which dealt with the research projects at the Canadian Hydrographic Survey. The projects focused on advances in hydrographic surveying with special attention on the Arctic region. The presentation was given to illustrate the paper entitled "Three recent developments in Canadian hydrography" (E/CONF.77/L.50).

55. The Union of Soviet Socialist Republics presented a paper entitled "Mapping of the continental shelf and other aquatories" (E/CONF.77/L.57), which dealt with basic principles of topographic survey on shelf and other aquatories.

F. Development of digital data bases

56. The United States of America presented a paper entitled "A Standard Linear Format and Feature/Attribute Coding Scheme for Map Data" (E/CONF.77/L.18). The paper addressed the need to establish a common digital data exchange format and common feature code at the Defense Mapping Agency (DMA). The format used at DMA was explained.

4/ Seventh United Nations Regional Cartographic Conference for Asia and the Far East, vol. II, Technical Papers (United Nations publication, Sales No. E.74.I.25), pp. 275-284.

57. The United States of America also presented a paper entitled "The joint development of a national 1:100,000-scale digital cartographic data base" (E/CONF.77/L.22), which dealt with requirements for a 1:100,000-scale digital data base, and the joint work on this data base by the United States Geological Survey and the United States Bureau of the Census.

58. France submitted a paper entitled "Small-scale data base" (E/CONF.77/L.32). It was stated in the paper that the National Geographical Institute, in its programmes for the next 5 to 10 years, had provided for the setting up of digital data bases concerning all the information contained in small-scale maps covering the metropolitan territory of France.

59. The paper entitled "Altimetric data base at the National Geographical Institute of France" (E/CONF.77/L.33), also submitted by France, addressed the completed digitalization of the relief of that country on the medium scale and a system developed to manipulate the data.

IV. WORK OF COMMITTEE II: REVIEW OF THE LATEST TECHNOLOGY AND ITS RELATIONSHIP TO POLICY, ECONOMY AND DEVELOPMENT IN CARTOGRAPHIC DATA MANIPULATION

60. The work of Committee II focused on agenda item 6, which encompassed the following sub-items: (a) conventional and digital large-scale topographic map compilation; (b) conventional and digital small-scale topographic map compilation; (c) conventional and digital charting compilation; (d) compilation of small-scale maps and charts, the International Map of the World on the Millionth Scale (IMW), national and regional atlases etc.; (e) digital terrain models; (f) conventional and digital cadastral mapping; (g) land information systems; (h) map revision techniques; and (i) thematic mapping. In all, 19 papers were discussed. Three draft resolutions were submitted and subsequently adopted by the Conference as resolutions 9, 11 and 17 (for the texts of the resolutions, see chap. VII below).

A. Conventional and digital large-scale topographic map compilation

61. Canada submitted a paper entitled "Conventional and digital large-scale topographic map compilation" (E/CONF.77/L.52),* which pointed out that, even when a conventional, line map was required, there was an increased demand for the simultaneous supply of digital data. The paper also analysed certain aspects of the rapid technological advances being made.

B. Conventional and digital charting compilation

62. The United States of America submitted a paper entitled "National Ocean Service: Automated Nautical Charting System and Automated Information System" (E/CONF.77/L.15), which indicated that the production and maintenance of nautical charts required changes to the original cartographic concepts and methodologies which had been developed for data handling and maintenance of nautical charts. It also submitted a paper entitled "Lessons learned from nautical chart digital data processing" (E/CONF.77/L.16), containing comments on the results obtained from the processing of nautical chart digital data, and providing suggestions for improving the management of software and hardware.

C. International Map of the World on the Millionth Scale

63. The Secretariat of the United Nations submitted a document entitled "International Map of the World on the Millionth Scale", together with two supplements (ST/ESA/SER.D/17 and Suppl.1 and 2), indicating the current status of publication of the map. The Executive Secretary expressed concern at the slow progress made in executing that project. A number of delegations expressed doubts concerning the need for priority in compiling the map, when account was taken of the cartographic programmes of each country.

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* Reissued as document E/CONF.77/L.65 for technical reasons.

D. Conventional and digital cadastral mapping

64. The Federal Republic of Germany submitted a paper entitled "Conventional and digital cadastral mapping" (E/CONF.77/L.10), which mentioned the importance of the cadastre as a basic component of the land information system; it described the characteristics of the system established in the Federal Republic of Germany and the transition from conventional to digital cadastral maps.

65. France submitted a paper entitled "Cadastral mapping in urban and rural areas" (E/CONF.77/L.34), which described the characteristics of a good cadastre; it focused on the characteristics that were most important in urban and rural areas, and noted that the compilation of a cadastral map depended on a political and financial decision.

66. Canada submitted a paper entitled "Reform of Quebec's cadastral system" (E/CONF.77/L.51), which indicated that, since the traditional system was outdated, there was a need for reforms involving methodological changes in order to obtain multi-purpose information; it drew particular attention to the use of digital maps on the thousandth scale.

E. Land information systems

67. Canada also submitted a paper entitled "A land information system for urban and regional planning in the city of Edmonton, Alberta, Canada" (E/CONF.77/L.66), which described the use of modern equipment in surveying and mapping; it also assessed the criteria adopted for establishing a land information systems network.

68. Malaysia submitted a paper entitled "Proposed land information system in the Malaysian context" (E/CONF.77/L.67). It described the process that must be devised to institute a combined land-based geo-referenced information system, which could be applied to all scales for many different purposes.

69. The International Federation of Surveyors submitted a paper entitled "The surveyor and human settlements" (E/CONF.77/L.40), which outlined the role and responsibilities of a professional surveyor in various activities related to human settlement development.

F. Map revision techniques

70. The Federal Republic of Germany submitted a paper entitled "Scanner-aided revision of the topographic map 1:25,000" (E/CONF.77/L.11), which described the application of orthophotography to the revision of maps; satisfactory results were obtained in terms of quality, work-hours and costs.

71. The United States of America submitted a paper entitled "Automation of DMA's broadcast warnings: a significant milestone in marine communications" (E/CONF.77/L.17). It described the automated control, handling and printing of marine messages, enabling ships at sea to obtain information and advice via broadcasting warnings.

72. The United Kingdom of Great Britain and Northern Ireland submitted a paper entitled "Revision of national mapping series - experience in Great Britain" (E/CONF.77/L.27), which highlighted the problem of updating cartographic material,

an activity which had received insufficient emphasis, with the result that little material was available concerning techniques and methodologies for revision. Specialists tended to focus on obtaining a better product at lower cost for initial mapping programmes.

73. France submitted two papers: the first, entitled "Topographic data base" (E/CONF.77/L.31), studied the question of setting up a topographic data base for the purpose of establishing a system for updating medium-scale maps; the data base would also assist users by providing large-scale graphic documents and enable a topographic document at the national level to be produced.

74. The second paper, entitled "Base-map revision techniques" (E/CONF.77/L.37), described the methodology applied in revising the base map on the scale 1:25,000; it indicated the system and procedure for undertaking such an important task.

G. Thematic mapping

75. In the field of thematic mapping, France submitted two papers. The first, entitled "Soil maps" (E/CONF.77/L.35), drew attention to the opportunity provided for studying the interactions among several parameters by means of a digital model designed by specialists in the disciplines concerned, in which data on soils and on the environment in general were combined for purposes of land development.

76. The second paper, entitled "Statistical cartography" (E/CONF.77/L.36), emphasized the importance of a knowledge of population phenomena in preparing a development programme, and mentioned the use of automated cartography in supplying the information needed by planners.

77. Canada submitted a paper entitled "Economical maintenance of a national topographic data base using Landsat images" (E/CONF.77/L.48), which described the situation concerning revision of the country's base maps on the scales 1:50,000 and 1:250,000 by means of a methodology based on the use of satellite images, and indicated that it had yielded economic benefits.

78. The International Civil Aviation Organization submitted a paper entitled "Aeronautical charts" (E/CONF.77/L.71), which reviewed specifications and basic requirements for aeronautical charts, and also gave general information about technical assistance services available from that agency.

79. After the presentation of the papers, discussions were held on the different methods demonstrated, reference being made to their technological variants and their economic implications. The prevailing view was that the situation and capacity of each country required specific methods for processing cartographic data.

V. WORK OF COMMITTEE III: REVIEW OF THE LATEST TECHNOLOGY AND ITS RELATIONSHIP TO POLICY, ECONOMY AND DEVELOPMENT IN CARTOGRAPHIC DATA DEPICTION

80. The Committee considered the questions of conventional and digital map and chart production and publishing and reproduction and printing under agenda items 7 (a) and (b). The Committee reviewed two papers on those questions. One draft resolution was submitted to the Conference and subsequently adopted as resolution 8 (for the text of the resolution, see chap. VII below).

A. Conventional and digital map and chart production and publishing

81. At the request of the Secretariat, a background paper entitled "Cartography 1985 - state-of-the-possible" (E/CONF.77/L.56) was presented by the International Cartographic Association. The paper addressed the state-of-the-possible in cartography under three categories: data acquisition; data storage and manipulation; and information presentation and querying. It was noted that cartography has accomplished the transition from cottage craft (art) to a rigorous science with rapidly changing technologies. As such, cartography can offer a diversity of technological levels to its practitioners requiring each country or organization to evaluate its differing sets of needs and economic priorities as well as other external constraints. The paper concluded with a request for international co-operation between the United Nations and governmental and non-governmental international organizations involved in surveying and mapping, such as the International Society for Photogrammetry and Remote Sensing, the International Federation of Surveyors and the International Cartographic Association, to foster world cartographic consciousness for use for the betterment of man and his planet.

82. The United States submitted a paper entitled "Current digital cartographic activity at the United States Geological Survey" (E/CONF.77/L.23), which addressed the mission of the National Mapping Programme in the development and co-ordination of a national digital cartographic data base. As directed by the overall programme mission and the Office of Management and Budget, the United States Geological Survey chairs the Federal Inter-agency Co-ordinating Committee on Digital Cartography, which is dedicated to the reduction of duplication of activities in digital cartography to the extent possible and to the development of a national digital cartographic data base to make available to a variety of federal, state and local users a large amount of multi-purpose base data at nominal cost, using standards that are communicated and well understood. In its effort to implement the programme, the United States Geological Survey has developed two major data bases, the 1:250,000-scale digital terrain data produced by the Defense Mapping Agency and the 1:2,000,000-scale data base from the National Atlas, and is in the process of developing a 1:100,000-scale data base in co-operation with the Bureau of the Census. As expected, there is a growing demand for digitized base map data and it is now important for users to communicate their requirements to the National Mapping Programme, so that its efforts to build structured digital data bases, initially including map data categories such as hydrographic features, transportation systems, boundaries and land net, may be as responsive as possible.

B. Reproduction and printing

83. No papers were submitted under this item.

VI. WORK OF COMMITTEE IV: REVIEW OF THE LATEST DEVELOPMENTS RELATED TO POLICIES AND MANAGEMENT OF NATIONAL MAPPING AND CHARTING PROGRAMMES

84. The Committee considered the questions of matters related to the establishment of national programmes, map specifications, geographical names, training and education and map and chart sales and distribution policies and practices under agenda item 8. The Committee reviewed 34 papers on those subjects and submitted 10 draft resolutions, subsequently adopted by the Conference as resolutions 2, 4, 6, 7, 12 to 16, and 18 (for the texts of the resolutions, see chap. VII below).

A. Matters related to the establishment of national programmes

85. Spain submitted a report on cartographic regulations in Spain (E/CONF.77/L.4). Recently a new law covering national cartography has been enacted.

86. France presented a paper on the small-scale data base (E/CONF.77/L.32) serving scales from 1:100,000 to 1:1,000,000 to be established during the next 10 years. Details of the paper had been discussed earlier in Committee I.

87. In a paper on systematic mapping programmes in the Commonwealth countries of the Caribbean (E/CONF.77/L.45), the United Kingdom of Great Britain and Northern Ireland reported on the currently adequate status of mapping in the Caribbean. Some mapping had been carried out with the assistance of the British Directorate of Overseas Surveys. Since the recent closing of the regional office in the Caribbean, provisions had been made for the updating of the large-scale maps of the region, but some countries could find it difficult to initiate updating programmes of medium and/or small-scale mapping without outside help. The representative of Jordan suggested a regional approach in this matter.

88. The representative of Poland discussed a paper on metrological laboratories as an indispensable tool in the activities of the national geodetic services (E/CONF.77/L.46). Facilities for the testing of theodolites, electronic distance measuring devices, levelling equipment and gravity meters were discussed. The representative of Poland offered co-operation in the matter. The representatives of the United States of America and the Federal Republic of Germany made similar offers.

89. In presenting a paper on managerial and technical aspects of digital mapping and automated cartography (E/CONF.77/L.49), the representative of Canada explained the various aspects that must be considered when entering the field of digital mapping. These were, in particular, the choice of the data base, the organization of the mapping unit, and economic questions concerning data collection, data storage and data dissemination. During the discussion, the representative of the United States of America pointed out that, contrary to the opinion expressed in the paper that digital data were scale-free, data bases were collected for a desired density of information corresponding to a certain scale. The representative of Norway stressed the point that, until a digital system ran flawlessly, a conventional mapping system should be maintained in parallel for safety. The representative of India noted that the introduction of digital methods in developing countries had its own difficulties but was welcome as a technological step forward. The representative of France concluded that the labour cost factor varying for each country should determine the degree of digitalization.

90. In a paper on general principles and the concept of the African Continental Geodetic Network and its international aspect (E/CONF.77/L.47), Poland reported on the realization of a Polish-French concept to establish a continental geodetic network throughout Africa. That concept had been adopted by the African Association of Cartography in 1983. It called for the establishement of a zero-order network of Doppler points in the so-called ADOS campaign (African Doppler Survey), a distance survey of all sides in the existing national geodetic network was to be expanded by new level lines and new tidal stations. The ADOS campaign could serve as an example of international co-operation. It was pointed out in the discussion that considerable efforts had been made in the past concerning the North American Network and the RETRIG in Western and Central Europe. They involved investigations of monumentation and the precision of observation.

91. Brazil presented a national report (E/CONF.77/L.69) in which the role of the Comissao de Cartografia and the accomplishments of Brazilian cartography were explained, including the results obtained in the areas of education and thematic mapping and remote sensing. The report stressed the increase, from 44 per cent to 80 per cent, during a period of six years, in the topographically mapped territory on medium scales.

92. Country reports covering, inter alia, the matters related to policies and management of national mapping and charting programmes have been presented by Spain (E/CONF.77/L.4), the Federal Republic of Germany (E/CONF.77/L.5), the United States of America (E/CONF.77/L.26), China (E/CONF.77/L.43), Finland (E/CONF.77/L.53), the Union of Soviet Socialist Republics (E/CONF.77/L.60), Mexico (E/CONF.77/L.62), the Republic of Korea (E/CONF.77/L.63), Japan (E/CONF.77/L.68), Chile (E/CONF.77/L.70), Sweden (E/CONF.77/L.72), India (E/CONF.77/L.73), Jordan (E/CONF.77/L.75) and Nepal (E/CONF.77/L.77).

B. Map specifications

93. The International Organization for Standardization (ISO) presented a brief review (E/CONF.77/L.74) on its activities related to standardization in cartography (representation of country names, geographic point location, information processing systems, aerial photography).

C. Geographical names

94. The representative of Canada reminded the Conference that the fifth United Nations Conference on the Standardization of Geographical Names would be held at Montreal in 1987 (tentatively planned for 17 to 31 August).

95. The Executive Secretary of the Conference introduced the three members of the United Nations Group of Experts on Geographical Names present at the Conference: S. Shaw (United States of America), F. Beaudin (Canada) and F. Ormeling (Netherlands).

96. The representative of the Netherlands then gave a short introduction concerning the excellent and voluminous work the United Nations had done in the field of standardization of geographical names. The first United Nations meeting on the subject had taken place in New York in 1960. The recommendations made at that and later meetings resulted in a series of international conferences (Geneva,

London, Athens and Geneva) and in the creation of a permanent group of experts on geographical names. He noted that the United Nations was successfully promoting:

(a) The establishment in member countries of national names authorities for domestic standardization;

(b) Training courses in toponymy;

(c) The publication by member States of toponymic guidelines (with the Austrian model as a sample) containing such items as the legal status of names, the alphabets and/or romanization keys in use, spelling rules, a real distribution of languages, and names authorities. Approximately 30 countries had presented their toponymic guidelines.

97. Further, the United Nations Group of Experts on Geographical Names had studied romanization systems for non-Roman alphabets and scripts and adopted resolutions containing recommendations on the international acceptance of those donor systems. It had reached agreement with the International Hydrographic Organization on the naming of maritime and undersea features and with the International Astronomical Union on the naming of extraterrestrial features.

98. A first regional conference for the Latin American Division of the United Nations Group of Experts on Geographical Names had been held during December 1984 at Havana (see para. 102 below), at which the need for establishing national names authorities and training courses in toponymy had been noted.

99. The representative of Canada made a presentation on the Quebec Commission on Toponymy and Official Geographic Names (E/CONF.77/L.64), reporting on its work and on the publication of an official gazetteer of Quebec to which approximately 10,000 new names were added per year; at present 102,000 had been collected.

100. The United States of America presented a paper on cartography and geographic names (E/CONF.77/L.21), giving the views of the United States on the need to create a names authority, develop training programmes, publish gazetteers, and support the work of the United Nations in those aspects.

101. The United States of America submitted a paper on the geographic names information system (E/CONF.77/L.25), reporting on a system that was now fully established at the United States Geological Survey, including over 2 million names. The information content was published formally in the states volumes of the National Gazetteer of the United States of America, which was being prepared.

102. The Secretariat of the United Nations presented a report on the First Regional Conference of the Latin American Division of the United Nations Group of Experts on Geographical Names at Havana (E/CONF.77/L.41).

103. In addition, the Secretariat presented five conference room papers on geographical names, which had been prepared by the Governments of France (E/CONF.77/1985/CRP.1), Suriname (E/CONF.77/1985/CRP.2), Austria (E/CONF.77/1985/CRP.3), the United States of America (E/CONF.77/1985/CRP.4) and Canada (E/CONF.77/1985/CRP.7); and one paper which summarized the work of the Eleventh Session of the United Nations Group of Experts on Geographical Names held at Geneva in October 1984 (ESA/RT/C/GN/9-E/CONF.77/1985/CRP.5).

D. Training and education

104. The Netherlands presented a paper on current developments in training and research of the International Institute for Aerospace Survey and Earth Sciences (E/CONF.77/L.3). The Institute offered four programmes at different levels in cartography, from technician to engineer. In addition, following a request by a questionnaire, a service package for newly recruited draftsmen is being developed, which would be offered to departments overseas as a one-year programme, beginning in 1988.

105. The Institute had also planned a one-year graduate course in land information systems, which would be instituted in co-operation with other organizations in the Netherlands and abroad, starting in 1985. A new short course in nautical cartography would also be established in 1985. The Institute would continue the three-month courses in remote sensing data processing.

106. The International Hydrographic Organization pointed out that most coastal States did not have adequate capability to carry out hydrographic surveys and nautical charting and suggested that assistance should be sought from the United Nations Development Programme and other aid-giving agencies to solve that ever-increasing problem (including training).

107. It was concluded that other training efforts by the Intergovernmental Council for Automatic Data Processing, in the form of seminars and training materials, and by the Federal Republic of Germany, in land information systems, were aimed at different levels of training and were complementary to the efforts of the International Institute for Aerospace Survey and Earth Sciences.

108. Poland reported, in a paper on proposals of various kinds of long- and short-term training courses in the field of geodesy (E/CONF.77/L.54), on the various training programmes offered by GEOKART in English and French for technicians, technologists, engineers and research scientists in geodesy and surveying, photogrammetry, cartography and mining surveying. Also, thematic training courses of about two months' duration might be offered in geodetic astronomy, in Doppler surveys, in gravimetry and other subjects after agreement between interested parties.

109. The Union of Soviet Socialist Republics reported on the United Nations interregional training course in thematic cartography (E/CONF.77/L.59), organized jointly with the United Nations Secretariat and held from 6 September to 5 October 1983 in the Union of Soviet Socialist Republics. The course had concentrated on thematic mapping, using aerial and space imagery.

E. Map and chart sales and distribution

110. The Federal Republic of Germany submitted a paper on the distribution of maps and aerial photographs, illustrated by the example of a land survey administration (E/CONF.77/L.9) and concerning a distribution system for the sale of maps in Rhineland-Palatinate, a State of the Federal Republic of Germany.

VII. RESOLUTIONS ADOPTED BY THE CONFERENCE

A. List of resolutions

1. Fourth United Nations Regional Cartographic Conference for the Americas
2. Organization of cartography and geographic information management within the United Nations
3. Satellite imagery test programme
4. Training in remote sensing
5. Hydrographic surveying and nautical charting
6. Training in nautical cartography
7. Digital mapping
8. National digital cartographic data base
9. Future of the International Map of the World on the Millionth Scale
10. Land information systems
11. Financing of land information systems projects
12. Training in land information systems
13. Map revision
14. National names authority
15. Toponymic guidelines
16. Training in geographical names
17. Workshops and seminars on thematic mapping
18. Training facilities in cartography
19. Vote of thanks

B. Texts of resolutions

1. Fourth United Nations Regional Cartographic Conference for the Americas

The Conference,

Noting the general recognition unanimously expressed by representatives of the importance of the regional cartographic conference,

Further noting the general desire to increase the effectiveness of the conferences and realizing the need for an active involvement of countries of the region in the preparation of the agenda of the conference and in the conference itself,

1. Recommends that a Fourth United Nations Regional Cartographic Conference for the Americas should be convened in 1989 and that efforts should be made to reduce the duration of the Conference to approximately five working days;

2. Also recommends that a technical steering committee, consisting of one member each from North America, Central America, the Caribbean and from South America, should be established to design, in consultation with the countries of the region, the substantive content of the Fourth Conference;

3. Further recommends that expenses incurred by the technical steering committee should be defrayed by the United Nations, using the saving which would accrue from the reduction in the length of the Conference.

2. Organization of cartography and geographic information management within the United Nations

The Conference,

Recalling Economic and Social Council resolution 261 (IX) of 27 July 1949, instructing the Secretary-General to set up a cartographic office,

Appreciating the valuable work done by the Cartography Section for the advancement of surveying, mapping and geographical information management during the past 35 years,

Noting that the Cartography Section no longer exists as a separate entity,

Further noting the increasing importance of systematic management and presentation of geographical information,

Recommends the Economic and Social Council to request the Secretary-General to restore the identity of cartography and geographic information management by reinstating, within existing resources, a unit specifically responsible for these questions.

3. Satellite imagery test programme

The Conference,

Recognizing the increasing activities in satellite remote sensing and the potential applications of this technology to the topographic and resources mapping of countries in the region,

1. Recommends that the United Nations should look into the feasibility of sponsoring an objective test programme over test areas to be previously agreed upon after due consultation with the directly interested countries, to determine the applicability of remote sensing technology from space to various scales of

topographic and resource mapping, using various sensor systems, including film cameras, available now and in the near future;

2. Recommends further that interested countries which maintain space systems and countries of the region should contact the Department of Technical Co-operation for Development of the United Nations Secretariat to solicit participation in such a test programme, and that the United Nations should take appropriate action to co-ordinate this test programme, the cost involved being borne by the participating countries.

4. Training in remote sensing

The Conference,

Recognizing that satellite images and space photography provide sources of topographic information for the compilation of medium-scale and small-scale topographic map series, and for the derivation of information on topographic change,

Considering that these sources are being employed increasingly for the purposes described, using manual interpretation and digital image processing,

Recommends that:

(a) Countries which are currently using satellite images and space photography for the compilation and maintenance of topographic map series should extend assistance to those which do not have appropriate facilities and experience;

(b) Countries which offer short and long courses in the applications of remote sensing to mapping, both topographic and thematic, should make information of such courses available to the United Nations for circulation to Member States.

5. Hydrographic surveying and nautical charting

The Conference,

Noting the contents of the report on the status of hydrographic surveying and nautical charting world-wide, prepared jointly by the Secretariat of the United Nations and the International Hydrographic Organization (E/CONF.77/L.12),

Recognizing that large areas of continental shelves and exclusive economic zone waters are inadequately surveyed or not surveyed at all,

Considering that the majority of coastal States have little or no capability for carrying out even vital port, or port approach, surveys; for publishing charts which would ensure the safety of navigation in their waters; or for mapping the sea-bed of their exclusive economic zones,

Also considering that, given the costs and length of time needed to create even an elementary hydrographic capability, those States have little hope of remedying the situation in the near future by their own efforts,

Observing the role and initiative taken by the International Hydrographic Organization in the field of technical assistance,

Noting that States members of the International Hydrographic Organization are engaged in a concerted effort to promote regional co-operation and technical assistance in hydrography and nautical charting, through the establishment of regional hydrographic commissions or regional charting groups,

A

1. Expresses its appreciation for the preparation of the valuable report on the status of hydrographic surveying and nautical charting world-wide;

2. Requests the United Nations to ensure wide distribution of the report, in particular to the United Nations Development Programme and other aid-giving agencies;

3. Strongly recommends that the United Nations Development Programme and other aid-giving agencies should give higher priority to hydrographic and nautical charting projects;

4. Requests that the International Hydrographic Organization, in co-operation with the Department of Technical Co-operation for Development of the United Nations Secretariat, should periodically, at two-year intervals, update the study on the status of hydrographic surveying and nautical charting world-wide;

B

1. Recommends that Governments of the region should establish or strengthen their hydrographic and nautical charting capabilities;

2. Urges the countries of the region to become members of the International Hydrographic Organization;

3. Invites coastal States of the Americas to endorse the concept of regional hydrographic commissions or regional charting groups sponsored by the International Hydrographic Organization and to establish such regional bodies in the region.

6. Training in nautical cartography

The Conference,

Noting resolution 18 of the Tenth United Nations Regional Cartographic Conference for Asia and the Pacific on the need for training in nautical cartography, 5/

Recognizing from the report prepared by the International Hydrographic Organization in co-operation with the United Nations Secretariat (E/CONF.77/L.12) that there are substantial requirements for hydrographic surveys to be undertaken of the port approaches, coastal waters and continental shelves of many developing countries,

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5/ Tenth United Nations Regional Cartographic Conference for Asia and the Pacific, vol. I, Report of the Conference (United Nations publication, Sales No. E.83.I.18).

Understanding that the United Nations Development Programme has given financial support to specific projects in hydrographic surveying and nautical cartography, in part for training overseas,

Requests the United Nations to support the general expansion of nautical charting in developing countries by granting fellowships for selected staff to study at appropriate establishments.

7. Digital mapping

The Conference,

Noting resolution 17 of 19 March 1976, adopted by the First United Nations Regional Cartographic Conference for the Americas, 6/ and resolution 12 of 14 September 1979, adopted by the Second United Nations Regional Cartographic Conference for the Americas, 7/

Also noting the contents of papers discussed by Committee IV of the Third United Nations Regional Cartographic Conference for the Americas,

Recognizing that increasing use is being made of digital mapping techniques within the region,

Also recognizing that transition from conventional to digital techniques is often slow and hampered by problems of hardware and software acquisition and maintenance and retraining of personnel,

Observing that decisions to adopt digital mapping techniques are based on many factors, including organization, abilities for data collection, data storage and data dissemination, skills and understanding of personnel, including management and cost of labour,

1. Recommends continuing attention by management of national mapping organizations to the possible applications of this evolving technology, including careful planning of phased implementation;

2. Strongly recommends that care should be taken in this planning to adopt techniques appropriate to identified requirements;

3. Further recommends that active advantage should be taken of opportunities for advice and technical and financial assistance while acquiring systems which are appropriate to the situation for each country.

6/ First United Nations Regional Cartographic Conference for the Americas, vol. I, Report of the Conference (United Nations publication, Sales No. E.77.I.13), pp. 30-31.

7/ Second United Nations Regional Cartographic Conference for the Americas, vol. I, Report of the Conference (United Nations publication, Sales No. E.81.I.4), p. 26.

8. National digital cartographic data base

The Conference,

Considering that the availability of a national digital cartographic data base, at several levels of detail, is a goal to be achieved by Member States,

Recognizing that a data base of this type will be of great value for national censuses in the countries of the Americas,

Further recognizing that developing countries can benefit from such data bases for their development planning activities,

1. Recommends that countries with the cartographic needs referred to above, with the support of the United Nations, should take full advantage of recent technical developments in the definition of their own digital cartographic data bases, while building up their own experience in this field;

2. Further recommends that countries of the Americas should promote the exchange of technical information and documentation at the regional level in order to increase the effectiveness of the co-operation.

9. Future of the International Map of the World on the Millionth Scale

The Conference,

Recognizing that since 1953 the United Nations has assumed responsibility for co-ordinating international efforts towards the completion of the International Map of the World on the Millionth Scale, 8/

Noting that the rate of producing revised sheets in the series appears to have slowed,

Learning that some Member States are according a low priority to the maintenance of sheets in the series,

Aware of the link between the International Map of the World and the mapping programme co-ordinated by the International Civil Aviation Organization,

Recommends that the United Nations should:

(a) Consult with the International Civil Aviation Organization about the existing and future role of the International Map of the World in aeronautical charting;

(b) Undertake an early study of the present and future uses of the International Map of the World by Member States and non-governmental organizations and, if justified, submit proposals for an alternative programme of map coverage of world-wide interest;

8/ See Economic and Social Council resolution 261 (IX).

(c) Submit the results of the study at future United Nations regional cartographic conferences.

10. Land information systems

The Conference,

Recognizing the valuable contributions made by the Ad Hoc Group of Experts on Cadastral Surveying and Land Information Systems,

Noting the generally expressed view of representatives that the subject of land information systems will continue to be important to all countries in the region,

Noting the current definition of land information systems by the International Federation of Surveyors and the composition of the Ad Hoc Group of Experts,

Recommends that:

(a) The question of land information systems should continue to be an item on the agenda of the Regional Cartographic Conference for the Americas;

(b) The scope of the Ad Hoc Group of Experts on Cadastral Surveying and Land Information Systems should be enlarged to reflect the International Federation of Surveyors' definition of land information systems, including geographic information systems with use of data from space;

(c) The United Nations should secure, within existing resources, adequate funding for the reconvening of the Ad Hoc Group of Experts.

11. Financing of land information systems projects

The Conference,

Noting the report of the Ad Hoc Group of Experts on Cadastral Surveying and Land Information Systems (E/CONF.77/L.1),

Recognizing that the World Bank has made loans to some developing countries for the introduction, strengthening or expansion of cadastral systems which may serve as a foundation for multi-purpose cadastres or large-scale land information systems,

Recommends that the United Nations, through its development programme, should consider applications from developing countries for joint financing of future projects concerned with cadastral and land information systems.

12. Training in land information systems

The Conference,

Noting section IX of the report of the meeting of the Ad Hoc Group of Experts on Cadastral Surveying and Land Information Systems (E/CONF.77/L.1),

Recognizing that there will be increased needs for educational programmes and courses to prepare personnel in the fields related to the functions, organization and operation of land information systems,

1. Recommends that the United Nations should maintain a current directory of courses in land information systems being offered by educational institutions in Member States;

2. Further recommends that educational institutions which are considering the introduction of a course in land information systems should:

(a) Seek guidance from the above-mentioned report;

(b) Evaluate carefully the level of personnel for which the proposed course is intended;

(c) Consult the directory recommended in paragraph 1 above to facilitate co-operation.

13. Map revision

The Conference,

Considering the economic and managerial importance of maintaining valuable inventory of completed mapping in an up-to-date condition,

Recognizing the frequent difficulty of obtaining funds for revision programmes,

1. Recommends that every effort should be made by Member States to emphasize the revision of the national map coverages as crucial to wise and prudent management and development of the country's resources;

2. Further recommends that special attention should be paid to the needs of the Caribbean and Central American countries, which may require outside assistance in initiating revision programmes, particularly for medium-scale and small-scale maps.

14. National names authority

The Conference,

Considering that there is a need for awareness in Governments of the importance of general geographical information as a basic tool for the promotion of decision-making,

Noting that the standardization of geographical names is closely linked to this concept and that geographic information standardization requires a rational process and an organizational capability,

Recommends Member States in the region to establish national names authorities to assist them in implementing the recommendations of the United Nations Conferences on the Standardization of Geographical Names.

15. Toponymic guidelines

The Conference,

Recognizing the importance of resolution 4 of the Fourth United Nations Conference on the Standardization of Geographical Names 9/ on the publication of toponymic guidelines for map and other editors,

Noting the publication of toponymic guidelines by about 30 countries,

Recommends that countries of the region should be encouraged to publish and keep up to date toponymic guidelines for map and other editors which will enable cartographers of other countries to deal appropriately with problems of cartographic toponymy.

16. Training in geographic names

The Conference,

Noting that there exists a need for professional personnel with education in cartographic toponymy in the region,

Noting further that few universities and academic institutions have cartographic toponymy as part of their curricula,

1. Recommends that each country should aim at providing training in cartographic toponymy at the university or corresponding academic level;

2. Further recommends the holding of short courses in cartographic toponymy and requests the United Nations Secretariat to seek appropriate funding for such courses and seminars.

17. Workshops and seminars on thematic mapping

The Conference,

Recognizing the urgent world-wide need to generate thematic mapping at various scales for the inventory of natural resources as a basis of land information systems,

Noting the successful interregional training course in thematic cartography held in the Union of Soviet Socialist Republics in 1983,

Recommends that workshops and seminars on thematic mapping should be held for decision-makers and high-level managers in the field of surveying and mapping to inform them of the possibilities of mapping for national planning bodies.

9/ Fourth United Nations Conference on the Standardization of Geographical Names, vol. 1, Report of the Conference (United Nations publication, Sales No. E.83.I.7) p. 29.

18. Training facilities in cartography

The Conference,

Noting with appreciation the recent and confirmed contribution of several countries or institutions to the training of staff in a wide variety of fields within cartography,

Encourages the continuation and expansion of such arrangements.

19. Vote of thanks

The Conference,

1. Expresses its heartfelt thanks and appreciation to the Secretary-General of the United Nations for the thoughtful arrangements made for the organization of the Third United Nations Regional Cartographic Conference for the Americas, and for the hospitality extended to all the participants;

2. Expresses its appreciation to the President of the Conference for the excellent manner in which the Conference was conducted;

3. Expresses its gratitude to the Executive Secretary, his staff, interpreters, and all those from the general secretariat whose efforts so greatly assisted the conduct of the Conference.

Annex I

ATTENDANCE

A. Members of the United Nations or of the specialized agencies

ARGENTINA

Representative: Héctor Mario Goncevatt

Alternate: Rubén Clemente Rodríguez

BAHAMAS

Representative: Davidson Hepburn
Permanent Representative of the Bahamas to the United Nations

Alternate: Paulette Bethel-Daly
Counsellor
Permanent Mission of the Bahamas to the United Nations

BENIN

Representative: Simon I. Ogouma
Permanent Representative of Benin to the United Nations

Alternate: Gagnon Eke
Attaché
Permanent Mission of Benin to the United Nations

BRAZIL

Representative: Affonso E. de Alencastro Massot
Counsellor
Permanent Mission of Brazil to the United Nations

Alternates: Fernando Rodrigues de Carvalho
Executive Secretary of the Cartography Commission of the Ministry of Planning

Márcio Nogueira Barbosa
Deputy Director of the Institute for Space Research of the National Council on Scientific and Technological Development

Paulo César Teixeira Trino
President
Brazilian Society of Cartography

Daniel César Monteiro
Directorate of Hydrography and Navigation of the Brazilian Navy

Erico José Cavalcante de Albuquerque
Directorate of Hydrography and Navigation of the Brazilian Navy

BRUNEI DARUSSALAM

Representative: Haji Yunos Mohammad Noh
Surveyor General of Brunei Darussalam

BURMA

Representative: U Saw Hlaing
Permanent Representative of Burma to the United Nations

Alternates: U Tun Ohn
Second Secretary
Permanent Mission of Burma to the United Nations

U Kyaw Tin
Third Secretary
Permanent Mission of Burma to the United Nations

CANADA

Representative: Richard Groot, Director
Geographical Services
Ministry of Energy, Mines and Resources

Alternates: Neil Anderson
Canadian Hydrographic Services

David Monahan
Canadian Hydrographic Services

J. M. Zarzycki, Director
Topographical Survey
Ministry of Energy, Mines and Resources

Michel Paradis
Sous-ministre adjoint
Section générale du domaine territorial
Québec

D. McLarty
President
Canadian Association of Aerial Surveyors

Francois Beaudin
Président
Commission de toponymie du Québec

Douglas Seaborn
President
Systemhouse Graphics

Linda McGilleverary
Tipixx Co.

Charles Weir
Stewart, Weir, Stewart, Watson, Henrichs and Dixon

Al Gregory
President
Gregory Geosciences

Sam Masry
President, Universal Systems Ltd.
Fredericton

R. Mann
Counsellor
Permanent Mission of Canada to the United Nations

Fredericka Gregory
Third Secretary
Permanent Mission of Canada to the United Nations

CENTRAL AFRICAN REPUBLIC

Representative: Joseph-Yvon Niamatne
Chef de Service de la cartographie nationale

CHILE

Representative: Luis Polanco Gallardo
Jefe, Departamento Hidrografía y Control Técnico del Instituto Geográfico Militar

Alternates: José Pinto Cifuentes
Jefe, Departamento Geodésico
Instituto Geográfico Militar

Hugo Gorziglia
Jefe, Departamento Hidrografía
Instituto Hidrográfico de la Armada

CHINA

Representative: Liu Pi
Deputy Director
National Bureau of Surveying and Mapping

Alternates: Zhuo Wen
Division Chief
Department of Treaties and Law
Ministry of Foreign Affairs

Gao Jun
Vice President
Zhengzhou Technical Institute of Surveying and Mapping

Chu Liangcai
Chief, Photogrammetry and Remote Sensing
Research Institute of Surveying and Mapping
National Bureau of Surveying and Mapping

Li Daoyi
Associate Professor
National Bureau of Surveying and Mapping

COLOMBIA

Representatives: Ninón Millan
Minister Plenipotentiary
Permanent Mission of Colombia to the United Nations

Policarpo Arce-Rojas
Counsellor (Economic Affairs)
Permanent Mission of Colombia to the United Nations

COSTA RICA

Representative: Jorge A. Montero
Alternate Permanent Representative of Costa Rica to the United Nations

Alternate: Emilia C. de Barish
Alternate Permanent Representative of Costa Rica to the United Nations

CUBA

Representatives: Juan Astorga-Frometa
Attaché
Permanent Mission of Cuba to the United Nations

Arturo de la Torre-Peña
Attaché
Permanent Mission of Cuba to the United Nations

ECUADOR

Representative: César Durán Abad
Subdirector del Instituto Geográfico Militar

EQUATORIAL GUINEA

Representative: Florencio Maye Ela
Permanent Representative of Equatorial Guinea to the United Nations

Alternate: Jesús Ndong Bindang
Second Secretary
Permanent Mission of Equatorial Guinea to the United Nations

ETHIOPIA

Observer: Hadgu Gebreh Medhin
In charge of External Relations
Ethiopian Mapping Agency
Addis Ababa

FINLAND

Representative: Lauri Kantee
Director-General
National Board of Survey
Helsinki

Alternate: Matti Jaakkola
Director
National Board of Survey
Helsinki

FRANCE

Representative: Alain Couzy
Adjoint au directeur exécutif de l'Institut géographique national
Chargé des relations internationales

Alternate: Henri Journoud
Chargé des relations avec les organismes financiers internationaux à l'Institute géographique national

Observer: Charles-Etienne Nephtali
Chef de l'Agence de l'Institut géographique national
à Caracas

GERMANY, FEDERAL REPUBLIC OF

Representatives: Ewald Reinhart
Head of Department
Institute for Applied Geodesy
Frankfurt/Main

Klaus Werndl
First Counsellor
Permanent Mission of the Federal Republic of Germany
to the United Nations

Alternates: G. Appelt
Director, Cartography Division
Geodetic Bureau of Land, Bavaria
Munich

Klaus Barwinski
Director, Geodetic Bureau of Land
North Rhine-Westphalia
Bonn

Gottfried Konecny
Hannover University
Institute for Photogrammetry and Engineering Surveys
Hannover

Johannes Nittinger
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Hannover

Hermann Seeger
Bonn University
Director of the Institute for Cartography and Topography
Bonn

Karlheinz Vogel
Carl Zeiss Co.
Oberkochen

Günther Zuelsdorf
Haumann und Zuelsdorf Consultant Surveyors
Munich

GHANA

Representative: Kofi G. Antwi
Acting Deputy Director
Survey Department

GUATEMALA

Representative: Arturo Fajardo Maldonado
Permanent Representative of Guatemala to the United Nations

Alternates: Raquel Cohen Orantes
Deputy Permanent Representative of Guatemala to the United Nations

Francis E. Aguilar Hecht
Minister Counsellor
Permanent Mission of Guatemala to the United Nations

INDIA

Representative: A. K. Sanyal
Deputy Director
Survey of India
New Delhi

JAMAICA

Representative: Diane M. Brown
First Secretary
Permanent Mission of Jamaica to the United Nations

JAPAN

Representative: Shintaro Yagi
Topographic Department
Geographical Survey Institute
Ministry of Construction

JORDAN

Representative: Ghazi Fayez Asa'd
Chief, Reproduction Department
Jordan National Geographic Center

Alternate: Husam Jamil Madanat
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Jordan National Geographic Center

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Professor, Geography Department
Kuwait University

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Representatives: Mohamed Shellid
Third Secretary
Permanent Mission of the Libyan Arab Jamahiriya to the United Nations

Fadel Ashur
Third Secretary
Permanent Mission of the Libyan Arab Jamahiriya to the United Nations

MALAYSIA

Representative: Abdul Majid Mohamed
Director-General
Department of Survey and Mapping
Ministry of Land and Regional Development

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Representative: Giampiero Bellucci Casunatti
Director de Cartografía Temática
Dirección General de Geografía

Alternates: Carlos Galindo
Director de Cartografía Básica
Dirección General de Geografía

Luis Alfonso De Alba
Third Secretary
Permanent Mission of Mexico to the United Nations

NEPAL

Representatives: Arjun Bahadur Basnyat
Director-General
Department of Survey

Tej Prasad Koirala
Second Secretary
Permanent Mission of Nepal to the United Nations

NETHERLANDS

Representatives: F. J. Ormeling
Vice-President
International Cartographic Association

G. McGrath
Professor and Chairman
Department of Cartography
International Institute of Aerospace Survey and Earth Sciences

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Representative: O. Adebekun
Co-ordinating Director
Department of Lands, Surveys, Urban and Regional Planning
Federal Ministry of Works and Housing
Lagos

Alternate: E. O. Adebiyi
Chief Surveyor
Federal Ministry of Works and Housing
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NORWAY

Representative: Erik O. Dahle
Director
Geographical Survey of Norway

PANAMA

Representative: José A. Tejada Salas
Director Nacional
Instituto Geográfico Nacional "Tommy Guardia"

PERU

Representative: Raúl Rivera
Counsellor
Permanent Mission of Peru to the United Nations

POLAND

Representative: Andrzej Krynski
Deputy Director, Geodetic and Cartographic Export Enterprise

Alternate: Bogdan Ney
Director
Institute of Geodesy and Cartography

REPUBLIC OF KOREA

Representative: Won-Ik Kim
Head, Cartography Division
National Geography Institute
Ministry of Construction

SAINT LUCIA

Representative: Charles S. Flemming
Counsellor/Chargé d'affaires
Saint Lucia Permanent Mission to the United Nations

SWEDEN

Representative: Jim Widmark
Director-General
National Swedish Land Survey Board

Alternate: Ian Brook
Technical Director
National Swedish Land Survey Board

UGANDA

Representative: Paul Bakashabaruhanga
Commissioner
Lands and Surveys Department
Kampala

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Representative: V. I. Moskalenko
Acting Chief
Department of International Relations
Central Board of Geodesy and Cartography

Advisers: Anatoliy V. Makhov
Counsellor
Permanent Mission of the USSR to the United Nations

A. S. Drago
Second Secretary
Permanent Mission of the USSR to the United Nations

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Representative: W. P. Smith
Director General
Ordnance Survey

Alternates: Leslie J. Howells
Principal Survey Officer
Ordnance Survey

I. Mumford
British Liaison Officer (Survey)
Defence Mapping Agency
Washington, D.C. (Directorate of Military Survey)

R. Horton
Senior Civil Hydrographic Officer
Hydrographic Department

UNITED STATES OF AMERICA

Representative: Rupert B. Southard
Chief, National Mapping Division
United States Geological Survey
Department of the Interior

Alternate: Sandra H. Shaw
Chief, Cartography Division
Office of the Geographer
Department of State

Advisers: Wayne Miller
Technical Director
Inter-American Geodetic Survey
Defense Mapping Agency
Department of Defense

Mark Macomber
Deputy Director, Systems and Techniques
Defense Mapping Agency
Department of Defense

Frank Maloney
Director, Aeronautical Chart Division
Office of Aeronautical Charting and Cartography
National Oceanographic and Atmospheric Administration
Department of Commerce

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Representative: Humberto Goyen-Alvez
Minister Counsellor
Alternate Representative of Uruguay to the United Nations

VENEZUELA

Representatives: Héctor Griffin
Minister Counsellor
Permanent Mission of Venezuela to the United Nations

Domingo Chacón
Third Secretary
Permanent Mission of Venezuela to the United Nations

Anabel Durán
Attaché
Permanent Mission of Venezuela to the United Nations

B. Specialized agencies

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Observer: John A. Howard, Chief
Remote Sensing Centre
FAO headquarters
Rome

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

Observer: Shikon Takei
Liaison Officer
UNESCO Office for Liaison with the United Nations
New York

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Observer: D. Huddleson
Supervisor
Cartographic Unit
Aeronautical Information and Charts Section
Montreal

C. United Nations Secretariat

Economic and Social Commission for Latin America and the Caribbean; Regional Commissions Liaison Office

D. International scientific organizations represented by observers

International Cartographic Association (ICA)	Joel L. Morrison President, ICA United States Geological Survey Reston, Virginia
International Federation of Surveyors (FIG)	C. H. Weir President Edmonton, Alberta
	C. W. Youngs Secretary-General Edmonton, Alberta
	T. D. W. McCulloch Vice President (Group A) Burlington, Ontario
International Hydrographic Organization (IHO)	O. A. A. Affonso Director Monte Carlo
International Society for Photogrammetry and Remote Sensing (ISPRS)	G. Konecny President, ISPRS Hannover University Hannover, Federal Republic of Germany
	George Zarzycki Vice President, ISPRS Topographical Survey Ottawa
	Frederick J. Doyle Former President, ISPRS United States Geological Survey Reston, Virginia
International Union of Geodesy and Geophysics (IUGG)	J. Kakkuri Geodetic Institute Helsinki
Pan American Institute of Geography and History (PAIGH)	J. Alberto Villasana Chairman of the Commission on Cartography

E. Other organizations represented by observers

Palestine Liberation Organization

F. Secretariat of the Conference

Executive Secretary	Max C. de Henseler Department of Technical Co-operation for Development
Deputy Executive Secretary	Dmitry S. Votrin Department of Technical Co-operation for Development

Annex II

AGENDA

1. Opening of the Conference.

2. Election of the President.

3. Organizational matters:

   (a) Adoption of the rules of procedure;

   (b) Adoption of the agenda;

   (c) Election of officers other than the President;

   (d) Organization of work;

   (e) Credentials of representatives to the Conference;

   (f) Establishment of technical committees.

4. Country reports and progress made since the Second Conference.

5. Review of the latest technology and its relationship to policy, economy and development in cartographic data acquisition and supporting activities:

   (a) Conventional and satellite geodesy;

   (b) Acquisition of cartographic data from space;

   (c) Aerial photography and remote sensing from space;

   (d) Surveys for mapping and charting;

   (e) Hydrographic surveying and nautical charting;

   (f) Development of digital data bases.

6. Review of the latest technology and its relationship to policy, economy and development in cartographic data manipulation:

   (a) Conventional and digital large-scale topographic map compilation;

   (b) Conventional and digital small-scale topographic map compilation;

   (c) Conventional and digital charting compilation;

   (d) Compilation of small-scale maps and charts, the International Map of the World on the Millionth Scale (IMW), national and regional atlases etc.;

   (e) Digital terrain models;

(f) Conventional and digital cadastral mapping;

(g) Land information systems;

(h) Map revision techniques;

(i) Thematic mapping.

7. Review of the latest technology and its relationship to policy, economy and development in cartographic data depiction:

(a) Conventional and digital map and chart production and publishing;

(b) Reproduction and printing.

8. Review of the latest developments related to policies and management of national mapping and charting programmes:

(a) Matters related to the establishment of national programmes;

(b) Map specifications;

(c) Geographical names;

(d) Training and education;

(e) Map and chart sales and distribution policies and practices.

9. Technical assistance and transfer of technology.

10. United Nations interregional cartographic conferences.

11. Provisional agenda for the next United Nations regional or interregional cartographic conference.

12. Adoption of the report of the Conference.

Annex III

RULES OF PROCEDURE

I. REPRESENTATION AND CREDENTIALS

Composition of delegations

Rule 1

1. Each State participating in the Conference shall be represented by a head of delegation and such other accredited representatives, alternate representatives, experts and advisers as may be required.

2. The head of a delegation may designate an alternative representative or an adviser to act as a representative.

Submission of credentials

Rule 2

The credentials of representatives and the names of alternate representatives and advisers shall be submitted to the Executive Secretary of the Conference, if possible not later than 24 hours after the opening of the Conference. The credentials shall be issued by the head of the State or Government or by the Minister for Foreign Affairs.

Examination of credentials

Rule 3

The Bureau of the Conference shall examine the credentials and report thereon to the Conference without delay.

Provisional participation in the Conference

Rule 4

Pending a decision of the Conference upon their credentials, representatives shall be entitled to participate provisionally in the Conference.

II. OFFICERS

Elections

Rule 5

The Conference shall elect a President, two Vice-Presidents and a Rapporteur from the representatives of the States participating in the Conference. These officers shall constitute the Bureau of the Conference.

Acting President

Rule 6

1. If the President finds it necessary to be absent from a meeting or any part thereof he shall designate a Vice-President to take his place.

2. A Vice-President acting as President shall have the same powers and duties as the President.

Voting rights of the President

Rule 7

The President, or a Vice-President acting as President, shall not vote, but may designate another member of his delegation to vote in his place.

III. SECRETARIAT OF THE CONFERENCE

Duties of the Executive Secretary

Rule 8

1. The Executive Secretary of the Conference appointed by the Secretary-General of the United Nations shall act in that capacity in all meetings of the Conference and its subsidiary organs. He may designate another member of the secretariat to act in his place at these meetings.

2. The Executive Secretary shall direct the staff required by the Conference.

Duties of the secretariat

Rule 9

The secretariat of the Conference shall, in accordance with these rules:

(a) Interpret speeches made at meetings;

(b) Receive, translate and circulate the documents of the Conference;

(c) Publish and circulate the report of the Conference;

(d) Make and arrange for the keeping of sound recordings of meetings;

(e) Arrange for the custody of the documents of the Conference in the archives of the United Nations;

(f) Generally perform all other work that the Conference may require.

Statements by the secretariat

Rule 10

The Executive Secretary of the Conference, or any member of the secretariat designated by him for that purpose, may, subject to rule 15, make statements concerning any question under consideration.

IV. CONCLUSIONS OF THE CONFERENCE

Report

Rule 11

The Conference shall adopt a report, the draft of which shall be prepared by the Rapporteur.

V. CONDUCT OF BUSINESS

Quorum

Rule 12

The President may declare a meeting open and permit debate to proceed when at least one third of the representatives of the States participating in the Conference are present. The presence of representatives of a majority of such States shall be required for any decision to be taken.

General powers of the President

Rule 13

1. In addition to exercising the powers conferred upon him elsewhere by these rules, the President shall preside at the plenary meetings of the Conference; he shall declare the opening and closing of each meeting, direct the discussions, ensure observance of these rules, accord the right to speak, put questions to the vote and announce decisions. He shall rule on points of order. The President, subject to these rules, shall have complete control of the proceedings and over the maintenance of order thereat. The President may propose to the Conference the closing of the list of speakers, a limitation on the time to be allowed to speakers and on the number of times the representative of each participant in the Conference may speak on a question, the adjournment or the closure of the debate and the suspension or the adjournment of a meeting.

2. The President, in the exercise of his functions, remains under the authority of the Conference.

Points of order

Rule 14

During the discussion of any matter, a representative may at any time raise a point of order, which shall be immediately decided by the President in accordance with these rules. A representative may appeal against the ruling of the President. The appeal shall be immediately put to the vote, and the President's ruling shall stand unless overruled by a majority of the representatives present and voting. A representative may not, in raising a point of order, speak on the substance of the matter under discussion.

Speeches

Rule 15

1. No one may address the Conference without having previously obtained the permission of the President. Subject to rules 14, 16 and 19 to 22, the President shall call upon speakers in the order in which they signify their desire to speak.

2. Debate shall be confined to the question before the Conference and the President may call a speaker to order if his/her remarks are not relevant to the subject under discussion.

3. The Conference may limit the time allowed to speakers and the number of times participants may speak on a question. Permission to speak on a motion to set such limits shall be accorded only to two representatives in favour of and to two opposing such limits, after which the motion shall be immediately put to the vote. In any event, with the consent of the Conference, the President shall limit each intervention on procedural matters to five minutes and on other matters to 15 minutes by representatives of States and to 10 minutes by other participants.

Precedence

Rule 16

The presiding officer or rapporteur of a committee may be accorded precedence for the purpose of explaining the conclusions arrived at by the committee.

Closing of the list of speakers

Rule 17

During the course of a debate, the President may announce the list of speakers and, with the consent of the Conference, declare the list closed. When there are no more speakers, the President shall, with the consent of the Conference, declare the debate closed. Such closure shall have the same effect as closure pursuant to rule 20.

Right of reply

Rule 18

1. Notwithstanding rule 17, the President shall accord the right of reply to a representative of any State participating in the Conference who requests it. Any other representative may be granted the opportunity to make a reply.

2. Statements made under this rule shall normally only be permitted at the end of the day whenever two meetings have been scheduled that are devoted to the consideration of the same item.

3. The representatives of a State may make no more than two statements under this rule at a given meeting on any item. The first shall be limited to five minutes and the second to three minutes; representatives shall in any event attempt to be as brief as possible.

Adjournment of debate

Rule 19

A representative may at any time move the adjournment of the debate on the question under discussion. Permission to speak on the motion shall be accorded only to two representatives in favour of and to two opposing the adjournment, after which the motion shall, subject to rule 22, be immediately put to the vote.

Closure of debate

Rule 20

A representative may at any time move the closure of the debate on the question under discussion, whether or not any other representative has signified his/her wish to speak. Permission to speak on the motion shall be accorded only to two representatives opposing the closure, after which the motion shall, subject to rule 22, be immediately put to the vote.

Suspension or adjournment of the meeting

Rule 21

Subject to rule 33, a representative may at any time move the suspension or the adjournment of the meeting. No discussion on such motions shall be permitted and they shall, subject to rule 22, be immediately put to the vote.

Order of motions

Rule 22

The motions indicated below shall have precedence in the following order over all proposals or other motions before the meeting:

(a) To suspend the meeting;

(b) To adjourn the meeting;

(c) To adjourn the debate on the question under discussion;

(d) To close the debate on the question under discussion.

Submission of proposals and substantive amendments

Rule 23

Proposals and substantive amendments shall normally be submitted in writing to the Executive Secretary of the Conference, who shall circulate copies to all delegations. Unless the Conference decides otherwise, substantive proposals shall be discussed or put to the vote no earlier than 24 hours after copies have been circulated in all languages of the Conference to all delegations.

Withdrawal of proposals and motions

Rule 24

A proposal or a motion may be withdrawn by its sponsor at any time before voting on it has commenced, provided that it has not been amended. A proposal or a motion thus withdrawn may be reintroduced by any representative.

Decisions on competence

Rule 25

Any motion calling for a decision on the competence of the Conference to adopt a proposal submitted to it shall be put to the vote before a vote is taken on the proposal in question.

Reconsideration of proposals

Rule 26

When a proposal has been adopted or rejected, it may not be reconsidered unless the Conference, by a two thirds majority of the representatives present and voting, so decides. Permission to speak on a motion to reconsider shall be accorded only to two speakers opposing reconsideration, after which the motion shall be immediately put to the vote.

VI. DECISION-MAKING

General agreement

Rule 27

The Conference should make best endeavours to ensure that the work of the Conference and the adoption of its report are accomplished by general agreement.

Voting rights

Rule 28

Each State participating in the Conference shall have one vote.

Majority required

Rule 29

1. Subject to rule 27, decisions of the Conference shall be taken by a majority of the representatives present and voting.

2. If a vote is equally divided, the proposal or motion shall be regarded as rejected.

Meaning of the phrase "representatives present and voting"

Rule 30

For the purpose of these rules, the phrase "representatives present and voting" means representatives casting an affirmative or negative vote. Representatives who abstain from voting shall be regarded as not voting.

Method of voting

Rule 31

Except as provided in rule 38, the Conference shall normally vote by show of hands, except that a representative may request a roll-call, which shall then be taken in the English alphabetical order of the names of the States participating in the Conference, beginning with the delegation whose name is drawn by lot by the President. The name of each State shall be called in all roll-calls, and its representative shall reply "yes", "no" or "abstention".

Explanations of vote

Rule 32

Representatives may make brief statements consisting solely of an explanation of their votes, before the voting has commenced or after the voting has been completed. The President may limit the time to be allowed for such explanations. The representative of a State sponsoring a proposal or motion shall not speak in explanation of vote thereon, except if it has been amended.

Conduct during voting

Rule 33

After the President has announced the commencement of voting, no representative shall interrupt the voting except on a point of order in connection with the process of voting.

Division of proposals

Rule 34

A representative may move that parts of a proposal be voted on separately. If a representative objects, the motion for division shall be voted upon. Permission to speak on the motion shall be accorded only to two representatives in favour of and to two opposing the division. If the motion is carried, those parts of the proposal that are subsequently approved shall be put to the vote as a whole. If all operative parts of the proposal have been rejected, the proposal shall be considered to have been rejected as a whole.

Amendments

Rule 35

A proposal is considered an amendment to another proposal if it merely adds to, deletes from or revises part of that proposal. Unless specified otherwise, the word "proposal" in these rules shall be considered as including amendments.

Order of voting on amendments

Rule 36

When an amendment is moved to a proposal, the amendment shall be voted on first. When two or more amendments are moved to a proposal, the Conference shall vote first on the amendment furthest removed in substance from the original proposal and then on the amendment next furthest removed therefrom and so on, until all the amendments have been put to the vote. Where, however, the adoption of one amendment necessarily implies the rejection of another amendment, the latter shall not be put to the vote. If one or more amendments are adopted, the amended proposal shall then be voted upon.

Order of voting on proposals

Rule 37

1. If two or more proposals, other than amendments, relate to the same question, they shall, unless the Conference decides otherwise, be voted on in the order in which they were submitted. The Conference may, after each vote on a proposal, decide whether to vote on the next proposal.

2. Revised proposals shall be voted on in the order in which the original proposals were submitted, unless the revision substantially departs from the original proposal. In that case the original proposal shall be considered as withdrawn and the revised proposal shall be treated as a new proposal.

3. A motion requiring that no decision be taken on a proposal shall be put to the vote before a vote is taken on the proposal in question.

Election

Rule 38

All elections shall be held by secret ballot, unless the Conference decides otherwise.

Rule 39

1. When one or more elective places are to be filled at one time under the same conditions, those candidates, in a number not exceeding the number of such places, obtaining in the first ballot a majority of the votes cast and the largest number of votes, shall be elected.

2. If the number of candidates obtaining such majority is less than the number of places to be filled, additional ballots shall be held to fill the remaining places.

VII. SUBSIDIARY BODIES

Committees

Rule 40

The Conference may establish such committees as may be necessary for the performance of its functions. Items relating to the same category of subjects may be referred to the committee dealing with that category of subjects.

Officers and procedure

Rule 41

The rules relating to officers (chapter II), the secretariat of the Conference (chapter III), the conduct of business of the Conference (chapter V), decision-making (chapter VI) and languages and records (chapter VIII) shall be applicable, mutatis mutandis, to the proceedings of committees, except that:

(a) Each committee shall elect a presiding officer and such other officers as it may require;

(b) A committee may dispense with certain language interpretation facilities if there is no objection on the part of the delegations directly concerned.

VIII. LANGUAGE AND RECORDS

Languages of the Conference

Rule 42

English, French and Spanish shall be the languages of the Conference.

Interpretation

Rule 43

1. Speeches made in a language of the Conference shall be interpreted into the other such languages.

2. A representative may speak in a language other than a language of the Conference if he/she provides for interpretation into one such language.

Languages of resolutions and other formal decisions

Rule 44

All resolutions and other formal decisions of the Conference shall be published in the languages of the Conference.

Languages of reports

Rule 45

Any reports submitted by the Bureau or by the committees established in accordance with rule 40, as well as the report of the Conference referred to in rule 11, shall be published in the languages of the Conference.

Records of meetings

Rule 46

1. There shall be neither verbatim nor summary records of meetings.

2. Sound recordings of meetings of the Conference and of its committees shall be made and kept in accordance with the practice of the United Nations.

IX. PUBLIC AND PRIVATE MEETINGS

General principles

Rule 47

The plenary meeting of the Conference and the meetings of its committees shall be held in public unless the body concerned decides otherwise.

X. OBSERVERS

Representatives of the specialized agencies and other intergovernmental organizations

Rule 48

1. Representatives designated by the specialized agencies and other intergovernmental organizations invited to the Conference may participate as observers in the deliberations of the Conference and its committees.

2. Upon the invitation of the presiding officer of the Conference body concerned and subject to the approval of that body, such representatives may make oral statements on questions within the scope of their activities.

Representatives of non-governmental organizations

Rule 49

1. Non-governmental organizations invited to the Conference may designate representatives to sit as observers at public meetings of the Conference and its committees.

2. Upon the invitation of the presiding officer of the Conference body concerned and subject to the approval of that body, such observers may make oral statements on questions in which they have a special competence.

Written statements

Rule 50

Written statements related to the work of the Conference submitted by the designated representatives of the organizations referred to in rules 48 and 49 shall be distributed by the secretariat to all delegations in the quantities and in the languages in which the statements are made available to the secretariat for distribution.

XI. AMENDMENT AND SUSPENSION OF THE RULES OF PROCEDURE

Method of amendment

Rule 51

These rules of procedure may be amended by a decision of the Conference taken after the Bureau has reported on the proposed amendment.

Method of suspension

Rule 52

Any of these rules may be suspended by the Conference provided that 24 hours notice of the proposal for the suspension has been given, which may be waived if no representative objects. Any such suspension shall be limited to a specific and stated purpose and to a period required to achieve that purpose.

Annex IV

LIST OF DOCUMENTS

(in the language of presentation)

Document number	Title or description	Agenda item
E/CONF.77/1	Provisional agenda	3 (b)
E/CONF.77/2	Provisional rules of procedure	3 (a)
E/CONF.77/INF.1	Documentation for the Conference	
E/CONF.77/L.1	Report of the meeting of the Ad Hoc Group of Experts on Cadastral Surveying and Land Information Systems (submitted by the Secretariat)	5 (d) 6 (f) 6 (g)
E/CONF.77/L.2	Trabajos Geodésicos y Cartográficos en el Estrecho de Gibraltar (presentado por España)	5 (d)
E/CONF.77/L.3	Current developments in training and research at the International Institute for Aerospace Survey and Earth Sciences (submitted by the Netherlands)	8 (d)
E/CONF.77/L.4	Ordenación de la cartografía en España (presentado por España)	8 (a)
E/CONF.77/L.5	Country report (submitted by the Federal Republic of Germany)	4
E/CONF.77/L.6	First results of the European Spacelab photogrammetric camera mission (submitted by the Federal Republic of Germany)	5 (b)
E/CONF.77/L.7	The Modular Transportable Laser Ranging System, MTLRS 1, and its application for detecting earth plate motion (submitted by the Federal Republic of Germany)	5 (a)
E/CONF.77/L.8	Activities of the Federal Republic of Germany in the field of surveying and mapping in South and Central America, as well as in the Caribbean (submitted by the Federal Republic of Germany)	9
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