

WORLD METEOROLOGICAL ORGANIZATION

EXECUTIVE COUNCIL

FIFTY-SECOND SESSION

GENEVA, 16–26 MAY 2000

ABRIDGED FINAL REPORT WITH RESOLUTIONS

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WMO-No. 915

Secretariat of the World Meteorological Organization - Geneva - Switzerland

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2000**

REPORTS OF RECENT WMO SESSIONS

Congress and Executive Council

- 829 — **Executive Council**. Forty-seventh session, Geneva, 22–23 June 1995.
- 846 — **Executive Council**. Forty-eighth session, Geneva, 11–21 June 1996.
- 867 — **Executive Council**. Forty-ninth session, Geneva, 10–20 June 1997.
- 880 — **Twelfth World Meteorological Congress**. Proceedings, Geneva, 30 May–21 June 1995.
- 883 — **Executive Council**. Fiftieth session, Geneva, 16–26 June 1998.
- 902 — **Thirteenth World Meteorological Congress**. Geneva, 4–26 May 1999.
- 903 — **Executive Council**. Fifty-first session, Geneva, 27–29 May 1999.

Regional associations

- 851 — **Regional Association II** (Asia). Eleventh session, Ulaanbaatar, 24 September–3 October 1996.
- 868 — **Regional Association IV** (North and Central America). Twelfth session, Nassau, 12–21 May 1997.
- 874 — **Regional Association III** (South America). Twelfth session, Salvador, 17–26 September 1997.
- 882 — **Regional Association VI** (Europe). Twelfth session, Tel Aviv, 18–27 May 1998.
- 890 — **Regional Association V** (South–West Pacific). Twelfth session, Denpasar, 14–22 September 1998.
- 891 — **Regional Association I** (Africa). Twelfth session, Arusha, 14–2 October 1998.

Technical commissions

- 852 — **Commission for Hydrology**. Tenth session, Koblenz, 2–12 December 1996.
- 854 — **Commission for Basic Systems**. Eleventh session, Cairo, 28 October–7 November 1996.
- 860 — **Commission for Marine Meteorology**. Twelfth session, Havana, 10–20 March 1997.
- 870 — **Commission for Climatology**. Twelfth session, Geneva, 4–14 August 1997.
- 879 — **Commission for Atmospheric Sciences**. Twelfth session, Skopje, 23 February–4 March 1998.
- 881 — **Commission for Instruments and Methods of Observation**. Twelfth session, Casablanca, 4–12 May 1998.
- 893 — **Commission for Basic Systems**. Extraordinary session, Karlsruhe, 30 September–9 October 1998.
- 899 — **Commission for Aeronautical Meteorology**. Eleventh session, Geneva, 2–11 March 1999.
- 900 — **Commission for Agricultural Meteorology**. Twelfth session, Accra, 18–26 February 1999.

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Technical Commissions	— Arabic, Chinese, English, French, Russian, Spanish

WMO issues authoritative publications on scientific and technical aspects of meteorology, hydrology and related subjects.
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GENERAL SUMMARY OF THE WORK OF THE SESSION

The Executive Council (EC) of the World Meteorological Organization (WMO) held its fifty-second session at the WMO Headquarters from 16 to 26 May 2000, under the chairpersonship of Mr J. W. Zillman, President of WMO.

1. ORGANIZATION OF THE SESSION (agenda item 1)

1.1 OPENING OF THE SESSION (agenda item 1.1)

1.1.1 The President of the Organization, Mr J. W. Zillman, opened the session at 10.10 a.m. on 16 May 2000.

1.1.2 In his opening remarks, the President extended a warm welcome to all members of the Executive Council, to their alternates and advisers, to the presidents of the technical commissions, particularly those attending for the first time, and to representatives of the United Nations system and other international organizations. A complete list of participants is given in Appendix A to this report.

1.1.3 The President extended a special welcome to the new *ex-officio* members of the Council, Messrs I. Mersich, as acting president of RA VI, and N. Salazar Delgado, who was recently elected as president of RA III.

1.1.4 In welcoming the two new members of EC, Mr Zillman placed on record the Council's appreciation to two former colleagues who recently ceased to be EC members: General C. Finizio who, as president of RA VI (Europe), had served the Region and the broader WMO interests with distinction; and Mr Y. Takigawa, former Permanent Representative of Japan with WMO, who had contributed greatly to the work of the Council during his term of office. Another acting member, Mr K. Yamamoto, was later designated by the Council to fill the vacancy left by Mr Takigawa's retirement.

1.1.5 The President alluded to the task and challenges that laid before the Council and the need to bring the experience and wisdom of all the members of the Council to bear, not just on managing the daunting array of issues, opportunities and threats that confronted the Organization in the current inter-Congress period, but also, and in many ways much more importantly, on laying out the early groundwork for WMO's strategy for the next decade for consideration and decision by Fourteenth Congress.

1.1.6 In putting forward his suggestions as to how the session should be conducted, the President reminded the participants that WMO was built on the concept of cooperation among nations and on a commitment to mutual assistance in the interests of the entire global community. It was therefore of fundamental importance to keep in mind that the central task was to work together to harness the immense potential of international meteorology and its related sciences to contribute to the good of humanity as a whole. He reminded members that, when performing their functions in the Council,

they were not national delegates presenting their own national activities or advancing their own national positions but officers of the Organization and members of the Council carrying out the responsibilities set down in the Convention, in the best interests of the entire Organization rather than of the individual countries from which they came.

1.1.7 In that regard, he encouraged EC members, especially the new members, to participate fully and constructively in the debates, as each of them brought a new and welcome perspective to the issues that Members faced. Maximum advantage should be taken of the presence of the presidents of technical commissions and chairpersons or representatives of other WMO subsidiary bodies and partner organizations. He urged all members to work closely with the Secretariat to ensure a successful outcome of the session.

1.2 APPROVAL OF THE AGENDA (agenda item 1.2)

The Executive Council adopted the agenda which is reproduced in Appendix B to this report.

1.3 ESTABLISHMENT OF COMMITTEES (agenda item 1.3)

1.3.1 The Executive Council decided to establish three working committees. The various agenda items were shared among those committees. Committee A was chaired by Mr J.-P. Beysson, the First Vice-President, with Mr R. R. Kelkar as vice-chairperson; Committee B by Mr A. M. Noorian, the Second Vice-President, with Mr T. W. Sutherland as vice-chairperson; and Committee C by Mr R. A. Sonzini, the Third Vice-President, with Mr A. Y. Salahu as vice-chairperson.

1.3.2 A Coordination Committee was established in accordance with General Regulation 28. It was composed of the President and the three Vice-Presidents, who were also chairpersons of the Working Committees, the vice-chairpersons of the Working Committees, the Secretary-General or his representative as well as others invited by the President.

1.3.3 The Council decided to establish a number of subcommittees to consider specific items:

- (a) A subcommittee on the membership of the JSC for the WCRP, with Mr J. J. Kelly as chairperson, with Messrs A. I. Bedritsky, K. Konaré and Mr A. M. Noorian as members and with Mr G. A. McBean serving as an expert adviser;
- (b) A subcommittee on the Theme for the World Meteorological Day (2002-2003) with Mr F. J. B. Hounton as chairperson. The subcommittee was open to all members of the Council;
- (c) A subcommittee for Scientific Lectures for EC-LIII and the IMO Lecture at Fourteenth Congress with Mr U. Gärtner as chairperson. The subcommittee was open to all members of the Council.

1.3.4 The Council appointed Mr F. Camargo Duque as Rapporteur to Review Previous Resolutions of the Executive Council.

1.4 **PROGRAMME OF WORK OF THE SESSION** (agenda item 1.4)

The necessary arrangements concerning the working hours and the allocation of agenda items to plenary meetings, to meetings of the Committee of the Whole and to the working committees were agreed. A full list of documents presented at the session is contained in Appendix B to this report.

1.5 **APPROVAL OF THE MINUTES** (agenda item 1.5)

The Executive Council noted that the proceedings of the sessions were taped and therefore agreed that detailed minutes of plenary meetings would not be taken at the present session unless a member wished certain statements or deliberations to be recorded formally. Such requests could be responded to at short notice.

2. **REPORTS** (agenda item 2)

2.1 **REPORT BY THE PRESIDENT OF THE ORGANIZATION** (agenda item 2.1)

2.1.1 The Executive Council noted with appreciation the report of the President which provided an overview of the achievements of the Organization covering the work of the constituent bodies of WMO, including the Bureau and other subsidiary bodies of the Council, as well as jointly-sponsored bodies such as IPCC. The President referred particularly to the new and effective partnership, under the auspices of WMO, between the satellite operating community and the meteorological and related applications communities which he believed would follow the meeting with satellite operators held in January 2000.

2.1.2 The Council confirmed the action taken by the President on its behalf since its last session under General Regulation 9(7) on the following items:

- (a) Approval of the extension of appointments of: (a) Chief, Languages Division, Languages, Publications and Conferences Department for a further four months to 30 September 1999; (b) Programme Manager, Technical Cooperation Department for 12 months to 30 November 1999; (c) Translator, Languages, Publications and Conferences Department for 12 months to 30 June 2000; (d) Scientific Officer, Ocean Affairs Division, World Weather Watch Department for 12 months to 30 April 2001; (e) Technical Officer, Atmospheric Research and Environment Programme Department for nine months to 31 December 1999; and (f) Secretary, Intergovernmental Panel on Climate Change for a further 12 months to 31 July 2000;
- (b) Approval of Recommendation 8 (CBS-99) for amendments to the *Manual on Codes* (WMO-No. 306), Volume 1.2, Part B, Binary Codes (BUFR) and Part C, Table Driven Alphanumeric Code CREX and Common Code Tables;

(c) Approval of the transfers between parts of the budget of the Organization for the biennium 1998-1999.

2.1.3 The President identified some of the key issues affecting the Organization over the past year to which he believed particular attention should be given by the Council. Those included globalization, the role and operation of NMHSs, technical cooperation, global environmental monitoring and research, disaster reduction and transition to sustainability, partnership with other international organizations, engagement of all Members in the international collaborative work of WMO and WMO's own internal planning and management.

2.1.4 The issues in the report requiring action or decisions were dealt with under the relevant agenda items.

2.2 **REPORT BY THE SECRETARY-GENERAL** (agenda item 2.2)

2.2.1 The Executive Council noted with appreciation the report by the Secretary-General and the comprehensive presentation of the activities of the past year as well as the relevant issues and challenges facing the Organization and NMHSs. In particular, the Secretary-General focused on WMO's initiatives and leadership role on issues such as those related to the mitigation of natural disasters, climate variability and climate change, water resources management, pollution control and the protection of the ozone layer. The report emphasized WMO's collaborative efforts in those areas with other United Nations system organizations and relevant international and regional organizations. The report referred to the forward-looking measures taken by WMO with regard to the data exchange issues and to the role and operation of the NMHSs. The Secretary-General also highlighted the innovative action, together with IOC, on the establishment of JCOMM, which could be used as a model for similar collaborative efforts with other organizations, in areas such as hydrology. The Secretary-General informed the Council on the implementation of the outcome of the Secretariat review being undertaken to reinforce the effectiveness and efficiency of the Secretariat in addressing the existing and future challenges facing WMO and the NMHSs. He further informed the Council on actions under way to evolve the planning, budgetary, evaluation and reporting mechanisms of the Organization and the development of a human resource development strategy.

2.2.2 The issues in the report requiring action or decisions were dealt with under the relevant agenda items.

2.3 **REPORTS BY THE PRESIDENTS OF REGIONAL ASSOCIATIONS** (agenda item 2.3)

2.3.1 The Executive Council noted with appreciation the reports of the presidents of regional associations and expressed satisfaction at the effective manner in which the activities of the associations were being undertaken. It commended the presidents for the continued dedication with which they worked in their respective associations to assist in the development of the NMHSs of their Members.

2.3.2 The Council expressed its appreciation to Messrs W. Castro (Paraguay) and C. Finizio (Italy) for their valuable contribution to their Associations while they served as presidents of RAs III and VI, respectively.

2.3.3 The Council noted with satisfaction the general improvements in the implementation of the scientific and technical programmes of WMO in the various Regions. In particular, it noted the implementation of the RMTN point-to-point circuits through the introduction of PC-based and cost-effective communications procedures (TCP/IP) in Regions IV and VI. The Council called for continued efforts to improve the situation in other Regions.

2.3.4 The Council noted with satisfaction the enhancement of the GDPs and the availability of their products on the GTS. The Council welcomed the efforts of the RSMCs with activity specialization in tropical cyclones to upgrade their facilities to provide tropical cyclone forecasts. The Council also noted the enhancement of forecasting systems in a few RSMCs, including capacity building and improved services through the use of super computers to operate global/regional NWP models. It noted with satisfaction the successful WMO Workshop on NWP, held in Nairobi in December 1999, and the RA IV Workshop on Tropical Cyclone Forecasting and Warning, held at RSMC, Miami in March–April 2000.

2.3.5 The Council noted with concern that lack of data and products remained the most serious problem faced by Members in some Regions. It acknowledged the efforts by NMHSs to develop plans and strategies at the national and regional levels, in particular in RA II, to enhance regional cooperation with a view to addressing the problem of specific concern and encouraged regional and global cooperation in ensuring an effective data collection and distribution system. It noted with satisfaction the plans to carry out a study on the future development and operation of NMHSs in RA I and the development of a regional telecommunication strategy and invited the Secretary-General to facilitate the implementation of the study. The Council expressed its satisfaction at the organization of workshops on the use of new technology for the exchange, processing and application of meteorological data and products and invited the Secretary-General to continue supporting such activities. In that regard, the Council took note of the training activities that took place in various Regions.

2.3.6 The Council noted the well-established practice, as referred to in the *Reference Guide to the Work of the Executive Council*, that the Bureau which met between Council sessions, helped in the preparations of EC and Congress sessions. In that regard, the Council requested the President, in consultation with the Secretary-General of WMO, to ensure appropriate regional representation at sessions of the Bureau.

2.3.7 Thirteenth Congress had requested the Council to find way and means of promoting and facilitating the participation of representatives of Members in the work of regional associations and technical commissions. In that regard, the Council invited the presidents of

regional associations and of technical commissions to consider that issue at their meetings and to propose appropriate mechanisms for such representations in consultation with the Secretary-General.

2.3.8 The Council noted that the project for the replacement of METEOSAT ground-receiving and processing systems in Africa was progressing satisfactorily through the work of the Task Team on PUMA. The European Union was considering the project proposals prepared by the PUMA Task Team. It was noted that some countries in Africa were not taken care of in the PUMA Task Team project and invited the Secretary-General to explore other sources of funding for those countries.

2.3.9 The Council noted that in respect to new technology, the Internet was not adequately exploited in several NMHSs. The Council therefore requested that attention should be given to address that issue and to the general question of exploiting information technology.

2.3.10 The Council noted with satisfaction the work performed by the RA IV Hurricane Committee and stressed the importance of continuing to receive all necessary support for the organization of the annual meeting.

2.3.11 The Council noted with concern the extreme weather events in Regions I and III and commended the Secretary-General for taking timely action. The Council welcomed the establishment of the Centre for Applied Research on *El Niño* in Ecuador by the United Nations General Assembly. In that regard, the Council noted the need to enhance the capabilities of RA III NMHSs for climate monitoring and prediction. The Council further noted the need for enhancing the capabilities of RA V NMHSs in monitoring and forecasting atmospheric and environmental parameters to ensure effective drought warning system and forecasting of conditions leading to fire and smoke/haze in South-East Asia.

2.4 REPORT OF THE FINANCIAL ADVISORY COMMITTEE (agenda item 2.4)

The Executive Council considered the report of the Financial Advisory Committee. It noted with appreciation the various recommendations of the Committee contained in Annex I to this report. The Council took account of those recommendations in making its decisions under the various related agenda items.

2.5 REPORT ON THE 1999 MEETING OF THE PRESIDENTS OF TECHNICAL COMMISSIONS (agenda item 2.5)

2.5.1 The report of the 1999 Meeting of Presidents of Technical Commissions, held in Geneva from 26 to 28 October 1999, was presented by Mr A.-M. Noorian, Second Vice-President of WMO, who had chaired the Meeting.

2.5.2 The Executive Council noted that the presidents had considered a wide range of issues requiring attention of, and coordinated actions by, all technical commissions, in order to increase the efficiency and effectiveness of the work of the technical commissions.

2.5.3 The Council was pleased to note that the presidents had agreed to participate actively in the process of continuing review of the WMO structure and to cooperate with the chairperson of the EC Task Team on WMO Structure. In that connection, the Council requested that the reports of the EC Working Group on Long-term Planning and the Task Team on WMO Structure, as well as those of the EC Advisory Group on the Role and Operation of NMHSs, should be made available to the presidents of technical commissions and members of relevant technical commissions' bodies.

2.5.4 The Council noted that the presidents had considered ways to strengthen further cooperative ways in running a commission, including distribution of responsibilities among members of the AWG, regular communication of the president with the vice-president, chairpersons of working groups and members of the AWG, and that they had supported a proposal for the establishment of a small core group (steering group), which would meet more frequently than the AWG using various opportunities. The Council, in general, endorsed those ideas, which should provide for increased dynamism in the operation of technical commissions.

2.5.5 The Council shared the concern expressed by the presidents on the issue of insufficient attendance at sessions of technical commissions by many Members, especially from the developing countries, due primarily to financial constraints. The Council endorsed initiatives to overcome partly that difficulty by the organization of symposia/workshops in conjunction with sessions of technical commissions. The Council called upon the presidents to explore all potential ways for that and to submit proposals, as appropriate.

2.5.6 The Council reiterated its view that adequate representation of technical commissions at sessions of regional associations and vice versa should be ensured. It agreed with the presidents' conclusion that apparently the most feasible way to ensure representation of technical commissions at sessions of regional associations would be to approach respective Permanent Representatives and request them to include commissions' experts in their national delegations. The Council further agreed that the Secretary-General should consider the inclusion of such a request in the relevant correspondence with the Permanent Representatives.

2.5.7 The Council noted the presidents' views on the functions and specific tasks of the potential RCCs, and urged the president of CCI to accelerate, as far as possible, the preparation of detailed proposals on the organization of the RCC network. The Council emphasized that high scientific and technical quality of those proposals should be ensured. The Council encouraged the active participation of all relevant technical commissions in that work. In that respect, it noted with approval that an intercommission task team had been proposed by the president of CCI (see general summary paragraph 4.1.29).

2.5.8 The Council noted that the presidents had supported the suggested organization of a scientific conference on climate research matters with focus on

seasonal to interannual forecasting. The Council considered that careful consideration of the related scientific and financial aspects had been required and requested the technical commissions concerned to develop, with the assistance of the Secretariat, a detailed planning proposal for consideration at the next session of the Council.

2.5.9 The Council noted the concern expressed by the presidents on the decreasing number of climatological stations. It agreed with the view of the presidents that Members should be constantly reminded of the importance of the climatological stations network, particularly for detection and assessment of climate change. The Council therefore urged Members to do their utmost to preserve and maintain their national networks of climatological stations.

2.5.10 The Council noted with support that on the urban meteorology issue, the presidents had recommended to specify the requirements of various technical commissions in the field of urban meteorology and had suggested that a meeting of experts from the technical commissions concerned be organized for that purpose. The Council encouraged all technical commissions to take urgent actions towards their participation in the activities related to urban meteorology, particularly through the GURME Project and TRUCE.

2.6 REPORT OF THE CHAIRPERSON OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (agenda item 2.6)

2.6.1 The Chairperson of the IPCC, Mr R. T. Watson, briefed the Executive Council on the current status of the work of the Panel. He also dealt extensively with several important issues, including the future role of the IPCC, the current state of knowledge and capacity building.

2.6.2 Mr Watson concluded his report by thanking WMO, particularly its Executive Council, its President, and its Secretary-General, for the generous support to the IPCC, including that for its Secretariat.

2.6.3 The Council expressed its appreciation to Mr Watson for his report. It agreed with him that the IPCC should continue to make every effort to continue to maintain strictly its objectivity. It noted that the IPCC would be making a proposal to GEF for capacity-building in the developing countries. Recognizing that contributions to the WMO/UNEP Trust Fund were voluntary, the Council urged Governments to support IPCC financially to their fullest capacity.

2.6.4 The Council also noted the successful completion of the three Special Reports (Land Use, Land-use Change and Forestry; Methodological and Technological Issues in Technology Transfer; Emissions Scenarios) and the Report on Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories.

2.6.5 The Council requested the Secretary-General to make Mr Watson's report available to Members.

2.6.6 In view of the above, the Council adopted Resolution 1 (EC-LII).

3. WORLD WEATHER WATCH PROGRAMME (agenda item 3)

3.1 WWW BASIC SYSTEMS AND SUPPORT FUNCTIONS; THE IN-DEPTH REPORT OF THE PRESIDENT OF CBS (agenda item 3.1)

3.1.1 The Executive Council noted with appreciation the in-depth report of the president of CBS and the progress made in the activities of the Commission. It noted in particular the strong emphasis being given to the need for support by the basic systems to all WMO Programmes. The Council also expressed its appreciation for the progress made, despite very limited resources, in the relatively new PWS Programme and in the other programmes for which CBS had been asked to take responsibility, such as ERA and WMO satellite activities.

3.1.2 The Council fully recognized the very great responsibility with which CBS had been entrusted in planning, developing and coordinating the implementation of the basic systems which were fundamental to the success of all WMO Programmes and to the ability of NMSs to fulfil their primary functions. The need to make best use of advances in meteorology and related sciences and the ever-increasing complexity and sophistication of modern technology, presented challenges that the Commission was striving to address.

3.1.3 The Council complimented the Commission on the initiative it had taken in adopting new arrangements to carry out its work. Confronted with the difficulty of tackling an increasing workload with no corresponding increase in resources, the Commission had embarked on a trial of more flexible and cost-effective working arrangements, which involved more experts than before, enhanced the flow of information to its members and addressed well defined tasks through several small expert teams. The Council noted that CBS had made a concerted effort to inform members of its activities by disseminating information via the Internet and encouraged other WMO bodies to follow its example. It noted that the next session of the Commission, in November 2000, would take stock of the working results achieved with the new structure and looked forward to a progress report from the president after the next Commission session.

3.1.4 The Council noted that the success of the new structure depended critically upon the dedication of experts to serve on the various teams. It urged Members, individually and collectively, to consider ways and means of providing support to assist CBS in achieving its goals.

3.1.5 In recognizing the continuing attention given by CBS to ensure adequate coordination between the Commission, regional associations, and other technical commissions, the Council agreed that it was important to ensure effective participation of developing countries in the planning and decision process regarding the basic systems. It was pleased to note the efforts CBS had taken in that regard, particularly its explicit inclusion of additional experts in its implementation/coordination teams as a capacity building measure.

3.1.6 The Council emphasized that, while it understood that it was necessary for WMO Members to take

advantage of advances in technology when modernizing their systems, it must be ensured that those advances were made accessible and sustainable for developing countries as far as was possible. It was pleased to note that CBS had begun to address that issue during its planning for future systems by emphasizing the use of standard off-the-shelf solutions that were cost-effective and widely available. That should make systems more affordable and easier to maintain. The Council requested the Commission to continue to develop proposals to help developing countries modernize their systems and improve their capabilities in an affordable and sustainable manner and to coordinate those efforts closely with the regional associations.

3.1.7 As regarded the future work of the Commission, the Council endorsed the views expressed by the president on the main issues and challenges which faced CBS. Those included the following key issues:

- (a) Optimization of various mixes of observing elements in the composite GOS and development of observing networks that were adaptable to changing requirements;
- (b) Exploration of ways for Members to contribute to the GOS, including joint funding arrangements, to ensure that adequate observations were made in remote and data-sparse areas;
- (c) Development of future WMO information systems that took advantage of advances in technology and met the requirements of all WMO and related international programmes;
- (d) Implementation or utilization of suitable telecommunication systems and services, in particular in specific areas where the GTS was weak or deficient;
- (e) Management and coordination of radio-frequency allocations to meteorological systems;
- (f) Further coordination of infrastructure for enhanced operation of extended-range and long-range forecasts;
- (g) Implementation of advances in data assimilation techniques to facilitate the operational utilization of new types of observational data;
- (h) Development and introduction of improved automated monitoring functions;
- (i) Further development of the PWS Programme, in particular with respect to preparedness for, and mitigation of, natural disasters;
- (j) Refinement of the CBS working and management structures and strengthen the links to other WMO programme bodies.

3.1.8 The Council noted that the GOS continued to face a growing demand for observations to meet new requirements such as those of high-resolution NWP (mesoscale, severe weather) and of climate monitoring and prediction. Those new requirements could not be fulfilled, from both a technological and an economic point of view, within the present systems. The Council noted that Thirteenth Congress had placed a high priority on the GOS and had agreed on carrying out a major redesign. A coordinated global project to redesign the GOS was a major undertaking involving many bodies and groups within and outside of WMO and would take

several years to evolve. A fundamental precondition for the redesign project was the compilation and understanding of existing and new requirements for observation data. That involved active collaboration with other applications areas and programmes and regional programmes. The Council noted that to that end, CBS had, in addition to its traditional links to the operational meteorological community, established new links to bodies such as GCOS, and had connected to experts from other WMO technical commissions dealing with aviation, hydrology, air chemistry, agricultural and marine meteorology. The goal was to develop and keep up-to-date a comprehensive reference document on requirements of all relevant programmes. The document would also evaluate the capabilities and performance of existing and new observing systems to meet stated requirements.

3.1.9 The Council noted with appreciation the active role of CBS in the establishment of the GSN, which had been formally approved by presidents of regional associations in mid-1999 and had started its actual implementation in January 2000. It also noted with satisfaction that CBS had carried out a study of the availability of CLIMAT and CLIMAT TEMP messages from GSN and GUAN stations transmitted over the GTS, had defined the reasons of insufficient availability of reports and had developed appropriate recommendations to improve the situation. The Council was also pleased to learn that CBS had established close working contacts with GCOS monitoring centres such as ECMWF and the United Kingdom Meteorological Office/Hadley Centre for GUAN and centres in Offenbach (Germany) and Tokyo (Japan) for GSN.

3.1.10 The Council recalled that, in replacing OMEGA-based equipment, over 50 Members chose GPS-based upper-air systems, but over the past two years, operations had suffered from reliability problems. It noted with satisfaction that following the initiatives of the Secretary-General, the presidents of CBS and CIMO and their expert teams as well as several NMHSs, manufacturers had developed a set of significant improvements to the GPS-based radiosondes and it seemed likely that by mid-2000 the technical problems would be overcome. Despite those improvements, there was still concern regarding the continued high cost of consumables for GPS-based systems.

3.1.11 The Council recognized the tremendous potential of environmental operational and research satellites providing valuable data and services to all WMO Programmes. It further noted the plans of satellite operators for considerable expansion of their programmes and missions over the next decade and the need to prepare Members to make full use of the wealth of information offered to NMHSs. In acknowledging the efforts of the CBS Expert Teams under the OPAG IOS to initiate relevant capacity building and training measures, the Council confirmed the importance of making optimal use of satellite data, products and services. It gratefully noted that the satellite operators had established sponsorship relations with selected RMTCs, thus

enabling them to offer effective training to benefit many Members. The Council further considered that satellite data and products now had a pivotal role for the day-to-day operation of NMHSs. Nevertheless, *in situ* observing systems continued to be an important and complementary system used for data capture and was indispensable as the ground truth for satellite observations. The Council therefore advised CBS to continue its active role in the initiatives to develop an integrated observing strategy, in response to requirements of all WMO Programmes.

3.1.12 The Council noted that the transition from analogue to digital transmission technology (APT/WEFAX to LRPT/LRIT), which the satellite operators would implement starting from 2001, posed a major challenge for the entire user community because a majority of ground-receiving stations might have to be replaced. While a wealth of new satellite data and services would be made available, the immediate problem was to secure a smooth transition for all users. The Council was pleased that projects had been initiated to assist especially developing countries in obtaining the necessary assistance while it expressed concerns at the lack of clarity in some satellite operator's plans as to when the transition would be implemented.

3.1.13 The Council noted that radio-frequency allocations to environmental satellites and meteorological systems, particularly Met-Aids, continued to require serious attention as pressure continued to cede frequency bands to other users. To date, WMO had been successful in the preparatory work for the World Radio Conference 2000 carried out by ITU, in convincing it that giving up part of the 401–406 MHz and 1 675–1 710 MHz bands was not feasible in the foreseeable future. The frequency needs for space-borne remote sensing were also consolidated to reflect technological development. However, new questions had emerged as regarded 2 700–2 900 MHz used by meteorological weather radar. The World Radiocommunication Conference (May 2000) would decide upon those matters and would show where WMO eventually stood. The Council re-emphasized the importance of continuing to defend the frequency allocations to meteorological systems and environmental satellites.

3.1.14 The Council was informed that the GTS was today struggling to satisfy rapidly growing requirements for faster access to larger volumes of a bigger variety of data by a growing number of applications that comprised more than the real-time operational applications of NMCs. Furthermore, users of those applications were often outside of the NMCs, which were currently the only centres connected by the GTS. New demands had emerged from within the WWW, such as the exchange of products from EPSs and from the WCP, for instance for the exchange of climate prediction products. Another example was WMO's ERA programme, where end users of the products were sometimes outside NMHSs.

3.1.15 The WWW system, and in particular the GTS, was technologically heterogeneous and organizationally ponderous. It was therefore difficult to benefit promptly from rapid technology progress while meeting the basic

NMHS's needs for sustainability, efficiency and security. New data communication services, such as the Internet, were offering approaches that should benefit meteorological information exchange, in compliance with needs and requirements.

3.1.16 The Council noted that bold steps had been taken to modernize the GTS, such as the managed data network in RA VI that began operation in 1999. Similar plans were taking shape in other WMO Regions. The development of plans for the use of managed data networks must take into account the telecommunication regulations of the countries concerned and must consider issues regarding the inclusion of non WMO-Member countries. CBS had developed procedures for the implementation and use of the TCP/IP and related protocols on the GTS and was in the process of updating the *Manual on the Global Telecommunication System* (WMO-No. 386) accordingly. TCP/IP implementation had already been carried out on several links. It also noted that standard protocols and systems, such as TCP/IP and PC-based data handling systems, had already enabled cost-effective GTS/GDPS upgrades in several developing countries. It noted that CBS was developing a proposal for a step-wise development of the MTN into several inter-linked managed data networks. The Internet would be used to supplement the GTS for cost-effective access to, and handling of, non-time-critical data. That approach involved technical issues (e.g. security) as well as a host of policy and administrative questions. The Council felt that it was therefore important that, once they became clearer, the fundamental principles and concepts of those projects be submitted to the Council for consideration and approval.

3.1.17 The Council strongly emphasized again that developing countries required assistance in the implementation of the GTS. In particular in Region I, there was an urgent need to assist the countries in the development of the national data-collection systems, for example by using data-collection platforms, and in the connection of the WWW centres to the GTS. The Council also felt that developing countries needed assistance in the implementation of Internet applications (access to Internet and development of servers). It was pleased that CBS had developed guidance material on the use of the Internet and urged the Secretary-General to make it available to Members as quickly as possible.

3.1.18 The Council noted with appreciation that as a longer-term strategy, CBS had initiated a study of the future WMO information systems that would meet the requirements of all WMO and related international programmes. In order to cover all relevant requirements, CBS had included in that work experts from all interested programmes in an inter-programme group. The first preliminary working results seemed to indicate far-reaching implications for GTS. The experts had recommended several tests and semi-operational trials in order to understand better the range of technical options, their benefits and risks, as well as the potential cost. The Council noted that the CBS Technical Conference on Information Systems and Services

planned for November 2000 was expected to generate valuable guidance on that matter.

3.1.19 The Council noted with satisfaction that CBS, through its various teams, had addressed several of the issues concerning GDPS referred to the Commission by Thirteenth Congress. In that connection, it was noted that the focus was on proposing best response strategies to fulfil identified new requirements. Specific areas where recommendations and guidance had been developed were the use of ensemble forecasting and the use of NWP products in forecasting severe weather and on seasonal to inter-annual forecasting. The Council requested CBS to coordinate arrangements to make ensemble forecast products more widely available. Significant progress had also been made in the further development of verification systems for long-range forecasts. The need to refine further user requirements on a regional basis taking into account the different capabilities of NMHSs was noted. The Council emphasized the need to facilitate NWP human resource capacity building in developing NMC/RSMCs through training workshops, attachments to advanced centres and long-term fellowships under the VCP and the ETR Programme as well as through partnership and joint implementation projects related to the operation of regional NWP models by developing NMHSs.

3.1.20 The Council appreciated that a verification system for long-range forecasts had been developed by CBS in collaboration with CCI and CAS. The new system, which was being implemented on an experimental basis, would provide users with guidance on the extent to which they might rely on the product in planning applications and included an implementation action plan up to the first quarter of 2002.

3.1.21 The Council noted that pursuant to Resolutions 2 (Cg-XIII) — World Weather Watch Programme for 2000-2003, and 8 (Cg-XIII) — Climate Information and Prediction Services Project, CBS had developed proposals for an infrastructure for the generation of seasonal to inter-annual long-range forecasts. The proposals had been presented to the presidents of CCI and CAS for input from their relevant working bodies.

3.1.22 The Council noted with satisfaction that following evaluation of results of exercises related to the WMO ERA programme, significant updates in procedures for response to nuclear and non-nuclear incidents had been developed. Plans were in hand to explore better means of transmitting information to NMSs that had the required technology, although faxing would remain the official means for other countries. The new procedures would be tested in a WMO global exercise to be held in June 2000 before they would be considered by CBS-XII.

3.1.23 The Council reviewed progress made in plans for collaborative activities between the CTBTO and WMO and noted with satisfaction that the collaboration would include operational provision of NWP and transport model products to CTBTO, provision of meteorological data from CTBTO monitoring stations to NMHSs, and provision of advice on development and operation of

CTBTO's own atmospheric transport model capacity. The Council noted that those activities had the potential to further the visibility and reputation of WMO.

3.1.24 The Council also noted that the CTBTO Provisional Technical Secretariat had proposed that CTBTO and WMO conclude a formal agreement on collaboration outlining the activities described above, and that efforts in that direction were proceeding.

3.1.25 The Council noted that CBS had undertaken a project to improve procedures for monitoring data availability on the GTS, based on an expansion of the current special MTN monitoring. The improved monitoring system should become, at least among the RTHs, fully automated with a view to reducing costs and making the results as consistent as possible. Other areas being tackled were standards for encoding imagery, file content description and metadata. Finally, proposals were being developed for a strategic transition plan for the universal use of table-driven code forms combined with a "software-support" project. The project should assist countries in related software development, maintenance and distribution and thus facilitate the wider use of the WMO binary data representation forms. The Council noted that following extensive preparatory work, CBS was expected to recommend the implementation of GRIB Edition 2 for operational use commencing in November 2001.

3.1.26 The Council was pleased that there had been no significant interruption in the provision or quality of data and products produced by WMO Members due to computer problems resulting from the transition to the year 2000. It congratulated Members and the satellite operators on their successful efforts, thanked donors for their timely and generous donations and thanked the Secretary-General for the education and coordination conducted by the Secretariat.

3.1.27 The Internet had continued its rapid evolution of coverage and capacity on a global scale. It was estimated that nearly 90 per cent of NMHSs now had e-mail facilities but only 68 NMHSs currently operated Web or FTP servers. The Council noted that the high capacity Internet connections were still prohibitively expensive for many developing NMHSs. Some Members also expressed concern regarding the security of data disseminated via the Internet. The Council noted that CBS would include advice on security in the *Guide on Internet Practices*. The effective utilization of that important new resource continued to be a challenge that CBS must address.

3.1.28 The Council recalled that CBS had established the OPAG on PWS, comprising expert teams on media issues, product development and verification and service evaluation, and warnings and forecast exchange issues, as well as an implementation coordination team. The terms of reference of the teams covered all of the issues of primary concern to the PWS Programme. CBS had requested that the new OPAG on PWS coordinate all activities related to public weather services, in particular the work of the expert and implementation/coordination teams under its responsibility and to liaise and cooperate

with the other OPAGs and the Regional Working Groups on the WWW. CBS had also established a rapporteur to address the PWS-related aspects of the WWRP. The working results achieved under the PWS Programme were recorded under agenda item 6.1.

STATUS OF IMPLEMENTATION OF THE WWW

3.1.29 The Council was informed on the status of implementation of the WWW. It was noted that there had been few significant changes since Thirteenth Congress which had been presented with a full (the nineteenth) status report. Levels of implementation of the surface and upper-air stations in the RBSNs had remained much the same and the most recent monitoring results had not revealed any significant trends in the availability of those data, apart from a serious decrease in availability of upper-air data in the northern part of Region II. However, the continuing increase in the availability of data from aircraft automated reporting systems was encouraging. Regarding the space-based component of the GOS, the constellations of polar and geostationary satellites remained the same.

3.1.30 The continued progress in the upgrading of GTS circuits and procedures, including the implementation of the Regional Meteorological Data Communication Network in RA VI was also noted with appreciation. The steady improvement in the GDPS infrastructure and capability and in the operational systems of major centres had continued. The tremendous computer power now available opened new possibilities into enhanced data assimilation techniques, improved resolution of models, EPSs, and into ambitious goals such as the prediction of severe weather events four to five days ahead.

3.2 INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME; THE REPORT OF THE PRESIDENT OF CIMO (agenda item 3.2)

3.2.1 The Executive Council noted with appreciation the report of the president of CIMO and expressed its gratitude to all CIMO Members for their valuable contributions to the achievements of the Commission, particularly in providing the experienced experts for, and hosting of, specific meetings carried out within the last 12 months.

3.2.2 The Council noted with satisfaction that since its last session, the degree of interaction between CIMO and other technical commissions and the responsiveness of CIMO to the requirements expressed by the other commissions had been enhanced. It was pleased to note that CIMO had concerned itself, in close collaboration with CBS, with the long-term quality assurance of upper-air data. As regarded the reliability of GPS-based radiosondes, CIMO, in collaboration with manufacturers concerned, had made good progress in coordinating technical improvements towards increasing the operational reliability (see also general summary paragraph 3.1.10). The Council was informed that a WMO intercomparison on GPS-based radiosondes planned at the end of 2000 or early 2001 in Brazil was expected to

render objective data on performance and reliability. In addition, the Council was informed that CIMO had addressed, also in close collaboration with CBS, outstanding issues on requirements and representation of data from AWSs and needs related to the coding of related observations. Based on the results of a joint CIMO/CBS expert meeting at which representatives of other interested technical commissions participated, further activities were ongoing within CBS to progress those matters.

3.2.3 The Council expressed its pleasure that, as a result of the request made by Thirteenth Congress to increase involvement of manufacturers in WMO's work, representatives of upper-air equipment firms attended the session of the Working Group on Surface-based Upper-air Observing Systems, held in New Delhi in December 1999, as observers. That meeting had *inter alia* addressed measures towards enhancing the collaboration of WMO with manufacturers. The Council also welcomed a recent new initiative of the Secretary-General through which instrument manufacturers had been invited to consider and comment on options for improving their collaboration and links with WMO.

3.2.4 Furthermore, the Council noted with interest the ongoing activities related to the preparation of an instrument catalogue and expressed its appreciation to the China Meteorological Administration for the commitment to publish the catalogue which was expected to greatly assist the work of NMHSs and manufacturers in that field. The Council felt that consideration should be given to include in future editions of the catalogue also instruments of other relevant application areas, such as hydrological or air pollution measurement instruments, if that was at all possible.

3.2.5 The Council noted with interest that CIMO had convened an Expert Meeting on Matters Related to Capacity Building in the Field of Instruments and Methods of Observations in Beijing in September 1999. The measures proposed in that meeting were particularly related to enhancing the collaboration and links between CIMO and the regional associations and to increasing the effectiveness of the RICs. The importance of training instrument operators was underlined in that context and the Council urged Members to sponsor IMOP training events, instrument intercomparisons and technical conferences, and to make available experts to participate as lecturers in the work of CIMO and its expert teams according to the needs.

3.2.6 The Council was pleased to note that China would host in Beijing in October 2000 the technical conference TECO-2000 and the exhibition of instruments and equipment, METEOREX-2000, which were considered to be important events for information exchange and capacity building.

PROFESSOR DR VILHO VAISALA AWARD

3.2.7 Five papers were received for the fifteenth Dr Vilho Vaisala Award in 2000. The Selection Committee of the Council recommended that Messrs E. R. Westwater, Y. Han, J. B. Snider,

J. H. Churnside, J. A. Shaw, M. J. Falls, C. N. Long, T. P. Ackerman, K. S. Gage, W. Ecklund and A. Riddle (all from the United States) should receive the fifteenth Professor Dr Vilho Vaisala Award for the paper "Ground-based remote sensor observations during PROBE in the tropical western Pacific", published in the *Bulletin of the American Meteorological Society*, Volume 80, Number 2, February 1999. The proposal of the Selection Committee was approved by the Council.

3.3 WMO SATELLITE ACTIVITIES (agenda item 3.3)

WMO MECHANISM FOR POLICY LEVEL INTERACTION WITH OPERATORS OF ENVIRONMENTAL SATELLITES

3.3.1 The Executive Council recalled that at its fifty-first session, it had noted the need to build a new and closer partnership under the auspices of WMO between the Meteorological and Hydrological Services and the environmental satellite communities. As a result, it had requested the Secretary-General to arrange, in consultation with the President and the Permanent Representatives of satellite operating countries, a meeting between representatives of EC and directors of agencies providing environmental observation satellites. The intent of the meeting would be to provide guidance on the best way to deal with the policy-level decisions of the Organization in satellite matters.

3.3.2 The Council noted the guidance provided by the EC Meeting on a Mechanism for Policy Level Interaction with Operators of Environmental Satellites, held from 24 to 25 January 2000 in Geneva. The Council agreed that a mechanism for such discussions should be provided by convening consultative meetings on high-level policy on satellite matters at one- to two-year intervals and endorsed the guidelines for those meetings as given in Annex II to this report, in connection with general summary paragraphs 3.3.3 to 3.3.8.

3.3.3 The Council was of the view that the consultative meetings should give early consideration to:

- (a) Evaluating satellite missions to ensure, *inter alia*, the better use of existing and planned research and development missions in support of WMO Programmes and provide an assessment on their operational utility;
- (b) Reviewing and revising the space-based component of the GOS to take into account both operational and research and development opportunities and the need to maximize cost efficiency and effectiveness of satellite observing programmes.

3.3.4 The Council agreed that the first of the Consultative Meetings on High-level Policy on Satellite Matters would be held in 2001.

3.3.5 The Council noted with pleasure the early preparatory activities undertaken by CBS for the first Consultative Meeting that would take place in 2001. It agreed that WMO should develop, in partnership with the space agencies providing environmental observation satellites, guidelines for minimum requirements that would be agreed upon in order to provide operational users a measure of confidence in the availability of

research and development observational data. Furthermore, the consultative meetings would provide the necessary high-level forum for a review of the present configuration of the space-based GOS.

3.3.6 The Council also noted that the topics for the consultative meetings were germane to the needs of all WMO Programmes. In that regard, the Council suggested that JCOMM, GCOS and WCRP should be invited to participate in the consultative meetings, thus ensuring the direct consideration of the oceanographic and climate observational needs, including research aspects.

3.3.7 While stressing the need for, and potential contributions from, consultative meetings, the Council also noted the need to maintain the present close and ongoing coordination between WMO and CGMS, CEOS and IGOS-P. Such coordination would assist in the implementation of recommendations and decisions derived from consultative meetings.

3.3.8 The Council stressed that the consultative meetings should take into account the needs of developing countries to ensure that they kept up with advances in satellite products and services. The Council also stressed the need for access to satellite data, products and services and appropriate education and training programmes to be able to realize the potential from that most valuable data.

3.3.9 EUMETSAT informed the Council of the present status of its satellite systems; METEOSAT-7 was the primary operational satellite at 0 degrees longitude, METEOSAT-5 was in support of the Indian Ocean Data Coverage mission at 63 degrees East and METEOSAT-6 was in standby. With regard to the new METEOSAT Second Generation programme, the first satellite in the series was now scheduled for launch in mid-2001.

3.3.10 The representative of the Japan Meteorological Agency informed the Council of their plans for the launch of MTSAT-1R in the fiscal year 2002. He indicated that the Agency would soon inform relevant NMHSs of the transition from GMS-5 to MTSAT-1R including the continued operation of GMS-5, the transition from WEFAX to LRIT and the holding of several training seminars on the use of integrated data distributed by LRIT during the period from 2000 to 2002.

3.3.11 The representative of the India Meteorological Department informed the Council of the present status of its INSAT series as well as its plans to develop dedicated meteorological satellites. The present INSAT series were multipurpose where the meteorological payload was one component whereas the dedicated meteorological satellites would be flown in geostationary orbit and known as METSAT, the first to be launched in October 2001. He indicated that the Department intended to maintain two operational satellite in orbit at all times.

3.3.12 The representative of the NOAA/National Environmental Satellite, Data and Information Service of the United States briefed the Council on its successful launch in May 2000 of its newest geostationary satellite, now named GOES-11. The satellite and the planned launch of its next polar-orbiting satellite, NOAA-L, later during the present year, together with other

environmental satellites that would be launched within two years of the new millennium would provide a current and living tribute to 40 years of weather satellites. Satellites now provided critical contributions to the WWW and an ever-growing set of applications for meteorology, climatology, oceanography and many other fields.

3.3.13 The representative of the National Satellite Meteorological Centre of the China Meteorological Administration reiterated the importance of satellite data, service and products for WMO Members and stated that it expected to launch its second geostationary satellite soon. It further noted its intentions to support further the increase of utilization of satellite data by WMO Members through education and training activities and technology exchange.

3.3.14 The Council recalled that ROSHYDROMET had long provided contributions to the space-based global observing system through its polar orbiting satellite series METEOR-2 and METEOR-3, as well as its geostationary operational meteorological satellite series, GOMS.

3.3.15 The Council expressed its deep appreciation to the satellite operators contributing to the space-based GOS and noted specifically the initiatives to support education and training at specialized centres. It was also deeply appreciative of the support to the Task Team on PUMA activities by EUMETSAT, now nearing fruition with the financial support from the European Commission. The Council reiterated recurring issues which must be closely monitored to increase the utilization of satellite data for all WMO Members including access to data, continuity of satellite missions, contingency planning technical exchange of algorithms, standardization and maintenance of ground receiving equipment and strengthening of scientific training. With regard to the maintenance of ground receiving equipment in Africa, the Council noted with pleasure the expertise and capabilities that ASECNA possessed in that area.

3.3.16 In regard to contingency planning, the Council noted that while it was necessary to ensure continuity of services it involved many other factors including financial commitments by both the satellite operators and the user communities. The Council was pleased to note that such planning was discussed on a regular basis at meetings of CGMS.

3.4 TROPICAL CYCLONE PROGRAMME (agenda item 3.4)

3.4.1 The Executive Council urged Members concerned to make full use of technical reports in the TCP series, such as the recently issued *Tropical Cyclone-related NWP Products and their Guidance* (TCP-41, WMO/TD-No. 966) (English only) and *Estimating the Amount of Rainfall Associated with Tropical Cyclones Using Satellite Techniques* (TCP-42, WMO/TD-No. 975) (available in English, French and Spanish), which provided guidance and information for operational usage of forecasters.

3.4.2 With a view to promoting activities in tropical cyclone disaster mitigation of mutual interest to adjacent

regional tropical cyclone bodies in Asia, the Council approved the holding of the WMO Regional Technical Conference on Tropical Cyclones and Storm Surges, in late 2000, for members of the Panel on Tropical Cyclones and of the Typhoon Committee. That event would replace two separate events, namely a technical conference on tropical cyclone forecasting for the Typhoon Committee members and a workshop on storm surge disaster for the Panel members, included in the programme and budget for the first biennium. The Council encouraged the close collaboration that existed between the GOOS programme of JCOMM and the TCP in the improvement of storm surge forecasting. The Council noted with interest that the ESCAP/WMO Typhoon Committee at its thirty-second session (Seoul, Republic of Korea, 23–29 November 1999) had approved the use of Asian and Pacific names for tropical cyclones in the Typhoon Committee region and related procedures which took effect as of 1 January 2000.

3.4.3 The Council was pleased to learn that the RA I Training Course on Tropical Cyclones, organized by *Météo-France* in cooperation with WMO and held at the RSMC La Réunion Tropical Cyclone Centre from 8 to 19 November 1999, had been highly successful. In response to the request made by the RA I Tropical Cyclone Committee, *Météo-France* had offered to continue providing the courses biennially. The Council, therefore, approved WMO co-sponsorship of the courses in 2001 and 2003, in place of the two training workshops on tropical cyclone awareness and preparedness included in the programme for the same period. The Council was pleased to note the very high priority attributed by RA IV to the work of the RA IV Hurricane Committee and supported the request for WMO's continued support to the annual sessions of the Committee. The Council expressed its appreciation to NOAA (United States) for:

- (a) Organizing annual workshops on Hurricane Forecasting and Warning, at the RSMC Miami Hurricane Center;
 - (b) The attachment of forecasters to RSMC Miami;
 - (c) Conducting Hurricane Awareness Tours in Region IV.
- The Council invited the Secretary-General to consult with Haiti with a view to more active participation in the TCP.

3.4.4 The Council noted with satisfaction the significant accomplishment made by the third Tropical Cyclone RSMCs Technical Coordination Meeting, held at the RSMC La Réunion in November 1999. Taking into account the recommendations of the Meeting, the Council:

- (a) Reaffirmed that the "first level" information on tropical cyclones (i.e. basic information covering the tropical cyclone's present and forecast position, movement and intensity) should be provided to users, including the international media, by TC RSMCs, Tropical Cyclone Warning Centres (Brisbane, Darwin, Perth, Port Moresby, Wellington) and the Central Pacific Hurricane Center in Honolulu, each for their regionally-assigned area of responsibility;

- (b) Requested the Secretary-General to promote awareness of the availability and sources of such first-level information and to issue a press release announcing the WMO Web site links to the above centres;
- (c) Invited the Secretary-General to prepare a brochure on TC RSMCs, including information on their role and functions;
- (d) Approved the organization of the fourth coordination meeting in 2002, which would involve not only TC RSMCs, but also relevant Tropical Cyclone Warning Centres (see (a) above) participating at their own expense.

The Council recognized the need for further clarification of responsibilities of TC RSMCs in order to ensure consistent forecasting and warning services after the landfall of tropical cyclones.

3.4.5 The Council noted that an in-depth review was made by an IOC/WMO/UNESCO IHP regional meeting, of the project proposal on the storm-surge disaster reduction in the northern part of the Indian Ocean. It was pleased to learn that the meeting, which was held at the Indian Institute of Technology in New Delhi in October 1999, had developed a plan of action for the project. The Council endorsed to approach international funding agencies by IOC/WMO/UNESCO IHP by 31 July 2000, in accordance with the plan of action for the project. The Council noted that the project covered an expanded hydrological component including the interaction between storm surges and river flows and their combined effect.

3.4.6 The Council was informed that the European Union South Pacific Tropical Cyclone Warning Upgrade Project had ended in March 2000. It noted that the Project had provided valuable contributions to improving facilities and capacity building among the many WMO Member countries in the South-West Pacific. The Council expressed its appreciation to the European Union for the assistance provided and looked forward to its continuing support for the Region.

3.4.7 The Council encouraged the continued close collaboration that existed between TCP and the Land Falling Tropical Cyclones Programme of CAS. It also encouraged the close liaison that existed between the RAs' Working Groups on Hydrology and the regional tropical cyclone bodies concerned.

3.4.8 The Council recognized the importance of the use of reliable seasonal or long-range forecasts in the estimation of the intensity of tropical cyclone seasons.

4. WORLD CLIMATE PROGRAMME (agenda item 4)

4.1 WORLD CLIMATE PROGRAMME AND ITS COORDINATION; THE IN-DEPTH REPORT OF THE PRESIDENT OF CCI (agenda item 4.1)

4.1.1 The Executive Council considered the in-depth report of the president of CCI and noted the important role played by the CCI working groups and rapporteurs in the planning and implementation of WCDMP and WCASP. The Council endorsed, in general, the views of the president of CCI on the future high priority activities of the Commission.

4.1.2 The Council noted with appreciation the accelerated work to revise the *Guide to Climatological Practices* (WMO-No. 100) and to place reviewed sections of the *Guide* on the CCI Internet Web site. The Council acknowledged that that was a difficult and time-consuming task requiring multilateral consultations among the contributors and editors.

4.1.3 The Council noted with appreciation the prominent WMO participation in the United Nations Task Force on *El Niño* in support of the United Nations General Assembly Resolutions on *El Niño*, and took particular note of the study entitled "The 1997-98 *El Niño* event: a scientific and technical retrospective" carried out within the framework of the Task Force. The preparation of that study was coordinated by WMO, with support from UNEP and IOC; the study was presented to the fifty-fourth session of the United Nations General Assembly. The Council also supported the participation by WMO in the project "Reducing the impact of environmental emergencies through early warning and preparedness — the case of *El Niño*/Southern Oscillation (ENSO)." That project was funded through the United Nations Foundation with partnership between UNEP, WMO, NCAR and UNU.

4.1.4 The Council expressed support for the exploration of a training programme on climate affairs, noting that it could enhance the WMO objective of improving the capacity of NMHSs across the broad range of climate activities, including the traditional roles of ensuring data, monitoring, accommodating climate variability and improving prediction techniques. The addition of a climate affairs component to training on those traditional activities would strengthen the ability of NMHSs to participate in the formulation of national policy to address the social and economic consequences of natural climate variability and anthropogenic climate change.

4.1.5 The Council noted with satisfaction the implementation of an Internet Web site oriented towards the work of CCI and endorsed that activity as supporting previous recommendations of WMO constituent bodies to reduce publication and distribution costs by increasing the use of the electronic medium of communication.

4.1.6 The Council endorsed the preparations for the thirteenth session of CCI in 2001 and acknowledged with appreciation the steps being taken to limit the size of the AWG while maintaining its effectiveness and balance of representation. It endorsed the Commission's setting of priorities and its plans to audit its performance. The Council also endorsed the Commission's intention to organize a scientific conference at the next session of CCI on climate applications and adaptive strategies as well as on the use of satellite information in climate services.

WORLD CLIMATE DATA AND MONITORING PROGRAMME

CLIMATE CHANGE DETECTION PROJECT

4.1.7 The Council noted with satisfaction that the CCI/CLIVAR Joint Working Group on Climate Change Detection, at its first meeting in Geneva in November

1999, initiated action to further the development of indices through a recommendation to convene a number of capacity building workshops, focusing on regional development of climate indices. It was furthermore proposed to invite statistical experts for a specific period of the workshops to provide training in statistical methodologies for the analysis of trends and periodicities that were relevant to the development and analysis of climate indices. The Council agreed that that proposal served as an effective response to the urging of Thirteenth Congress for continued efforts to develop standardized methods for homogenization, quality control and detection of trends and/or periodicities in data time-series.

4.1.8 Noting the establishment in 1999 of the GCOS GSN, the Council agreed with the recommendation of the CCI/CLIVAR working group for a scientific evaluation of stations designated as a part of the GSN and GUAN networks that would assess their suitability and priority for climate change detection and attribution studies. The Council urged those WMO Members who had not yet responded to the September 1999 request to provide historical monthly and daily data for their GSN-designated stations to both the World Data Centers A and B for Meteorology and to do so as soon as possible. If Members had difficulty in assembling the data in the required digital format, they should request assistance from the Secretariat.

4.1.9 The working group also recommended that WMO Members should work through the next COP to the UNFCCC to emphasize the importance of historical records and databases which were essential for studies of climate variability, for the detection of climate change, and for the development of climate information and prediction services. Furthermore, the Council considered that urgent action was required to address the decline in traditional *in situ* observation networks and urged Members to take advantage of the UNFCCC process to help them reverse that decline. Additionally, the Council suggested that the WMO Secretariat should work closely with the UNFCCC and GCOS Secretariats to explore options for including suitable references in the UNFCCC Reporting Guidelines on Global Climate Observing Systems. The aim would be to ensure that the identification, preservation, management and exchange of significant historical datasets and associated metadata were incorporated into national plans and capacity building activities.

4.1.10 Noting the growing proliferation of AWSs, the Council echoed the concern of the Working Group that inadequate attention was being given to the archiving and future use of the data, particularly for climate change detection and climate variability studies on global and regional scales. In cases where an AWS replaced a manual observing system that had been in operation for a long time, the Council fully supported the pleas of CCI, CBS and CIMO for a sufficient overlap in observation systems to facilitate maintaining the homogeneity of the historical record. It also urged close collaboration between the CCI Working Group on Climate Data, CBS,

CIMO and GCOS to develop climate specifications for AWSs, especially focusing on the recording of data on the important climate parameters of temperature, precipitation, radiation, humidity, pressure and wind. Particular attention should be paid to ensure that extreme values were accurately and consistently recorded. Where possible, automated and standardized water vapour measurements should be included due to the significance of that parameter in climate change projections. The Council stressed the importance of developing climate standards for AWSs and of maintaining accurate metadata.

CLIMATE SYSTEM MONITORING PROJECT

4.1.11 The Council welcomed the recent efforts of the Secretariat to facilitate access through the WMO Web site to an increasing number of global, regional and national climate system monitoring products. It expressed its support for the continuation and expansion of a pilot project that began earlier in the year to provide Web site links to a variety of national and international climate centres that produced CSM products. Included were links to specific CSM products that previously appeared in the *CSM Monthly Bulletin*. It urged Members to contribute to, and make use of, that valuable source of CSM information.

4.1.12 In noting with satisfaction the initiative within RA VI to generate regional CSM products through a project of the European Climate Support Network, the Council reiterated its endorsement of a regional approach to the development and distribution of climate products and services.

4.1.13 The Council also noted with satisfaction the progress that had been made on the WMO initiative to produce a book on the climate of the twentieth century and welcomed the involvement of Cambridge University Press as co-publisher of the book. Recognizing that there were no funds allocated directly to that project for the thirteenth financial period, the Council agreed with the suggestion of the meeting of the AWG of CCI, held in April 2000, that necessary steps be taken to secure the funding required to complete successfully the project, including sponsorship. As the book would be a commercial product, only two copies would be available for free distribution to each WMO Member. To promote the aim of widespread distribution of the book, WMO Members were encouraged to participate in the sponsorship in order to facilitate distribution of the book in developing countries. Members should also consider facilitating the translation of the book into other languages. That could be done by contacting local publishing firms or by approaching the Secretariat for a version of the book with layout and graphics separate from the text.

CLIMATE COMPUTING PROJECT

4.1.14 The Council noted that with the release of the final enhanced version 3.1 of the CLICOM project software in January 2000 and the considerable interest expressed by Members for a more advanced climate database management system, the project was at a

critical juncture in its evolution. Wishing to see WMO build on the successes of the earlier phases of the CLICOM project, the Council urged that high priority be given to improving the expertise of WMO Members in the use of modern CDMs. The Council welcomed the implementation plan for the next generation of CDMs which was developed at a meeting of the CCI Task Group on a Future CDMs in early May 2000. The plan was based on 96 responses to a detailed questionnaire that was distributed to WMO Members in October 1999. The plan was designed to give WMO Members an opportunity to select from a number of systems that were offered by other WMO Members and that would have undergone testing and evaluation. That would be followed by installation projects in recipient countries in collaboration with donors and developers. Testing, evaluation and installations were scheduled to begin later in the present year. The Council further urged that in implementing the plan, particular attention should be given to ensuring that the data management needs of all developing countries would continue to be met.

4.1.15 The Council expressed its satisfaction with the progress made in implementing a jointly sponsored France/United Kingdom/WMO project entitled Improving the capacity for national climate data management and developing drought preparedness and management strategies in African countries affected by desertification. It urged that planned training workshops should also focus on climate applications and not solely on climate database management.

WORLD CLIMATE DATA INFORMATION REFERRAL SERVICE PROJECT

4.1.16 In noting the similar aims of the INFOCLIMA project and the GOS Information Centre, the Council called for collaboration between the WCDMP, WWW and GCOS with a view to providing interactive Internet access to an enlarged database listing of climate datasets that encompassed a comprehensive range of climate system parameters.

DEVELOPMENT OF THE CLIMATE DATABASES PROJECT

4.1.17 The Council expressed its appreciation to the NCDC in Asheville, United States, for completing the last three volumes of the six-volume regional series of *World Weather Records* for 1981–1990. Recognizing the need to begin preparing the 1991–2000 series, it urged Members to cooperate in the timely provision of data in digital format and acknowledged that the 1991–2000 series might only be made available through the World Wide Web and possibly in a portable digital form.

DATA RESCUE PROJECT

4.1.18 The Council noted with satisfaction the progress made in implementing a number of pilot projects in RA IV and the fact that a survey mission had been conducted to examine the condition of climate records in several countries in Asia. Based on the results of that mission, the Council urged RA II, at their upcoming session, to give consideration to the launching of a DARE II

project in the Region. It considered that the planned Meeting on CLICOM and DARE Implementation in RA IV, to be held in Costa Rica in July 2000, would be a good opportunity to take advantage of any promising results from new techniques being tried in RA IV to expand the DARE IV activities and launch new DARE initiatives in other WMO Regions. Furthermore, noting the need to rejuvenate the DARE I project in Africa, the Council recommended that the Secretary-General initiate action to seek substantial funding to support DARE activities in RA I and in other WMO Regions. Included among the activities should be the digitization of rescued data and the search for useful climate data in archives outside the NMHSs.

ARCHIVAL CLIMATIC HISTORY SURVEY PROJECT

4.1.19 The Council noted that the United States-sponsored preliminary surveys of the National Archives of Chile, Ecuador and Peru had been conducted earlier in the year by an archivist from Mexico. It further noted that, as part of the UNESCO contribution to that jointly-sponsored project, a successful meeting was held in Sucre, Bolivia in which promising results of archive searches in Argentina and Bolivia were presented to a group of South American climatologists and archivists. The Council encouraged continued cooperative efforts with the International Council on Archives and with UNESCO to search for valuable climate data residing in archives outside the NMHSs of WMO Members.

INTERNATIONAL EXCHANGE OF CLIMATE DATA AND PRODUCTS

4.1.20 The Council noted with satisfaction that the AWG of CCI, at its April 2000 meeting, held a special session on advancing the work of CCI on the application of Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, to the exchange of climate data and products. It considered that CCI should take the lead in collaborating with the regional associations in evolving the recommended network of stations needed to provide a good representation of climate on the regional scale in addition to the global scale. To enhance the international exchange of climate data, the Council urged Members to ensure that complete and accurate monthly CLIMAT and CLIMAT TEMP messages were routinely distributed on the GTS using the most recently adopted codes. With respect to the implementation of Resolution 40 (Cg-XII), the Council also urged Members to exercise caution in the distribution of climate data that they held which were from stations in another country. The Council strongly requested that the report of EC-AGE to its fifty-third session should address those important issues.

WORLD CLIMATE APPLICATIONS AND SERVICES PROGRAMME, INCLUDING CLIMATE INFORMATION AND PREDICTION SERVICES

4.1.21 The Council recalled the objectives of the CLIPS Project as agreed by Thirteenth Congress (general summary paragraph 3.2.5.2 of the *Abridged Final*

Report with Resolutions of the Thirteenth World Meteorological Congress (WMO-No. 902)) which were:

- (a) To demonstrate the value and eventual socio-economic benefits of climate information and prediction services;
- (b) To provide an international framework to enhance and promote climate information and prediction, including the establishment of criteria to measure forecast quality and to permit model intercomparison;
- (c) To encourage the development of operational climate prediction;
- (d) To facilitate the definition, the development and the strengthening of a global network of regional/national climate centres.

4.1.22 The Council recognized that the CLIPS Project addressed an area of key international concern, particularly in the light of the known impacts of the *El Niño* event during 1997–1998 and the mitigative benefits that were obtained, or might have been obtained, using climate information and, in particular, predictions. The Council further noted the increasing international level of activity within the climate information and prediction area, including the capabilities of an increasing number of research groups to provide forecasts and confirmed that one objective of the CLIPS Project was to ensure the development of a pivotal role for NMHSs to create and distribute climate information and to enhance prediction services.

4.1.23 In reviewing the current status of activities to demonstrate the value of climate services, the Council noted that one key aspect lay in the development of those decision processes necessary to convert climate information and predictions into actions that maximized benefits. Those decision processes should take into consideration, at the minimum, the known quality of the predictions, the contingencies required to minimize disadvantages resulting from inappropriate decisions and all relevant aspects of risk associated with each specific application. The Council therefore called for the development of CLIPS projects specifically targeted at examining the decision process. The Council also called for the further development of projects expressly designed to enhance the use of climate information (in the absence of climate predictions) in recognition of the benefits that enhanced analysis and use of climate information would provide in the formulation of decision processes. The Council further considered that additional projects designed to demonstrate the overall value of climate information and prediction services should be developed.

4.1.24 Given the current level of international activity within the climate information and prediction area, the Council noted the importance of maintaining user confidence and expressed concern that there was as yet no direct manner in which an overall view of the state-of-the-art of climate predictions and applications was being maintained. The Council requested that methods by which a suitable statement could be developed and maintained should be considered within CLIPS, in collaboration with the WCRP. It also suggested that results

from the activity be added to the CLIPS Web site. In addition, the Council requested the Secretary-General to organize a workshop to review the research requirements required to support the development of climate services through the coming decade. The Council further noted that the provision of forecast verification data to all users of the forecasts, including NMHSs and end-users, was linked to the statement of the state-of-the art of climate predictions and applications and it expressed gratitude to the CLIPS Project for stimulating the development of standardized methods of forecast verification from the application perspective. It was agreed that CLIPS was the appropriate project for undertaking application-focused verification activities and urged CLIPS to work closely with WWW in providing appropriate verification statistics on issued forecasts. In addition, the Council considered that further development of verification information, appropriate for use by those involved in decision making processes and applications, was a high priority for WMO. The Council supported a proposal for the establishment of a CLIPS working group to determine requirements from all users for verification and to examine methods for fulfilling the requirement. The Council further requested that the CLIPS Project Office prepare guidance material on the use of predictions.

4.1.25 The Council noted that applications of climate predictions could be taken and modified on a variety of time-scales and encouraged the development of a greater integration of decision making from predictions on time-scales from the medium-range upwards. The Council was pleased to note the activities undertaken to develop linkages between the research and applications programmes, notably CLIPS and CLIVAR, which would assist in the integration and development of prediction facilities, particularly those based on ensembles, across a range of time-scales.

4.1.26 In order to build the skills base necessary for NMHSs to develop the pivotal role envisaged in the delivery of climate information and prediction services, the Council recognized that the fundamental imperative was one of capacity building. Within that context, the Council supported the creation of networks of national CLIPS Focal Points, including the coordination of those networks by regional association CLIPS Rapporteurs. Furthermore, the Council urged those regional associations currently lacking CLIPS Rapporteurs to consider such appointments at the earliest feasible opportunity. The Council also expressed appreciation of the work to develop a CLIPS Curriculum in collaboration with the ETR Programme and noted the importance of that activity in developing the NMHS skill base. The Council urged all NMHSs to cooperate with the CLIPS Project in the development of the CLIPS Curriculum. Noting the cost of capacity building activities, the Council again reiterated the need for extrabudgetary support for all activities within the CLIPS Project.

4.1.27 The Council noted the fundamental role played by the Regional Climate Outlook Forums in developing skills, applications and links between forecasters and users in several parts of the world. A measure

of the success achieved was given by the increased general awareness of the Forums and the associated demand for application-specific forecasts. Pilot projects with end-users were being developed in association with the Forums. In part, increased awareness had been achieved through incorporation of the media into the forums and dissemination process, and opportunities were thus in place for the further promotion of climate activities of the NMHSs. However, the Council noted that those Forums were unlikely to be sustainable in their present form in the long term and welcomed the activities to review the Forum process in order that outputs from the Forums and any successor process would be more directly focused on the needs of end users and that they be operated on a sustainable basis. The Council also welcomed activities in several parts of the world to develop national empirical seasonal prediction models. Nevertheless, the Council noted the current view that output from as many models as were available should be considered in producing a climate prediction and consequently urged the development of improved methods to incorporate national empirical model outputs with those from alternate sources.

4.1.28 The Council welcomed the broadening range of activities to develop an effective framework for seasonal to interannual prediction and recognized that those activities required close collaboration between various WMO Programmes. The Council also recognized that there were several options for the development of institutional structures. The Council further recognized that, among those options, a concept of regional climate centres had been proposed. The Council considered that in developing a framework for seasonal to interannual prediction, that concept should be further explored through a suitable arrangement involving CCI, CBS, CAS and CAGM. The Council therefore decided to establish an Intercommission Task Team to define the concept and the need for, and the requirements of, RCCs. It adopted Resolution 2 (EC-LII).

4.1.29 The Council welcomed the outcomes of the initial review of ethical issues related to seasonal to interannual predictions, which had not indicated any evidence of misuse of advance knowledge of climate predictions for personal gains. The Council noted with satisfaction that several Members had introduced regulations calling for exemplary conduct by public officers. The Council nevertheless requested the president of CCI to keep that issue under review. Additionally, the Council welcomed the plans to include the recommendation on the methodology for the identification of user requirements for climate services in the second edition of the *Guide to Climatological Practices* (WMO-No. 100). The Council stressed that the user requirements were essential to guide all framework developments and urged CCI to keep those requirements under constant review.

SHOWCASE PROJECT ON CLIMATE AND HUMAN HEALTH

4.1.30 The Council was informed of progress in the Showcase Project on Climate and Human Health and noted the common aspects of the project: that it

involved multi-disciplinary teams, it used proven climate applications that correlated historical climate and health information, it resulted in an integrated warning system that saved lives, and that the ongoing responsibility of the resulting system lay wholly within the local organizations. The Council was particularly impressed with the multi-agency coordination and expressed appreciation for the participation of WHO and UNEP in addition to the NMSs. The Council endorsed the activities planned in Phase I, including the incorporation of an evaluation component in every project to demonstrate the value and benefit of that use of climate information and predictions. It also endorsed the plan of the president of CCI that Mr G. Jendritzky, Lead Rapporteur on Climate and Human Health, prepare a report to CBS and CAS on the intercommission collaboration measures under way with CCI. It encouraged Members from developed countries to join in the Showcase Project by pairing with Members from developing countries and Members with economies in transition in a mentoring structure to implement the system in their cities at risk from health damaging heat waves. The Council also gave strong support to the activities conceived for Phase II, including the critical review of available methods for assessing thermal (dis)comfort, with equal attention to complete heat budget models. In recognition of the Project's significance as a CLIPS component, the Council welcomed CCI's intention to adopt a significant work programme to enhance Members' capabilities to provide health-related climate services and requested the Secretary-General to pursue with WHO, UNEP, and other appropriate bodies the development of an Inter-Agency Action Plan for the Showcase Project in Climate and Human Health. The Council requested the Secretary-General to seek extrabudgetary resources to enable full implementation of the WMO activities planned in Phases I and II.

4.1.31 The Council particularly noted the practical results that accrued from the Showcase Project's self-sustaining nature and its ability to translate climate knowledge into users' actions. It noted that many of the major international funding organizations that participated in the Informal Planning Meeting on the VCP and Related TCO Programmes (Washington, January 2000) had indicated that they were amenable to inclusion of components of meteorology and climatology in projects they supported. Warning services provided by users might be extended through input of meteorological and climatological information, and it was important that the necessary linkages to support such extensions of services were clearly demonstrated through the Showcase Project. The Council noted that the applications and methodology used in the Showcase Project also provided a means to exploit WMO's strengths in the basic technologies in meteorology and hydrology by positively influencing the decisions and actions that must be taken in the user sectors.

4.1.32 The Council noted with satisfaction the other activities planned in climate and health and voiced strong support for the concept of enlisting the broad

community in drafting a science plan. In that regard, the group endorsed the development of a Memorandum of Understanding between WMO and ISB and recommended that the Secretariat proceed immediately with enlisting the aid of ISB in assembling a well qualified group to steer the creation of the science plan.

4.1.33 The Council noted with appreciation WMO's participation in Clean Energy 2000 (the World Clean Energy Conference, Geneva, 24-28 January 2000) and plans to participate in the World Renewable Energy Congress-VI (Brighton, United Kingdom, 1-7 July 2000), in particular since those activities provided international exposure for the full range of WMO's climate services that could be applied to issues in the energy sector. The Council noted that those activities could help to overcome the tendency to consider that the relationship of climate to energy was wholly in terms of climate change (focusing on the impact of the combustion of fossil fuels on the biosphere and the negative implications related to climate change) by raising the converse issue — the impacts that climate could have on energy generation and usage — which would become increasingly important in any transition to greater use of renewable and clean energy technologies. The Council urged CCI to adopt a work programme to enhance Members' capabilities to provide energy-related climate services.

4.1.34 The Council expressed satisfaction with the activities in enhancing climate services related to urban issues. Noting the intricacies of the urban environment caused by microclimates, the Council requested the president of CCI to coordinate actively with the presidents of CBS, CIMO, CHy and CAS the adoption of a work programme to devise and to provide guidelines to enhance Members' capabilities to monitor effectively the urban atmospheric and hydrologic environment and to provide urban-related climate services. In that regard, it noted the potential role of remote sensing in providing observations within the spatial scales needed.

4.1.35 The Council noted with satisfaction the proposal of CCI to relate the issue of human habitat with climate. It fully endorsed the concept of ensuring that building construction was done in harmony with climate and therefore of the necessity of meticulously devising proper building codes which were compatible with the local climate and judiciously choosing the proper building material for increasing human comfort and well-being. It noted the proposal of the president of CCI to establish with United Nations/Habitat a series of regional workshops on urban-climate issues and requested the Secretary-General to explore the concept with the Executive Director of Habitat.

4.2 COORDINATION ACTIVITIES WITHIN THE CLIMATE AGENDA; THE REPORT OF THE EXECUTIVE COUNCIL ADVISORY GROUP ON CLIMATE AND ENVIRONMENT (agenda item 4.2)

4.2.1 The Executive Council reviewed the draft Terms of Reference of the EC-AGCE that it had established at its fifty-first session and which had been agreed at the first session of EC-AGCE (Geneva, 12-13 May 2000),

on the basis of a draft prepared by the Secretary-General in consultation with the chairperson of the Group. The Council approved the terms of reference which are given in Annex III to this report.

4.2.2 The Council was pleased to note the successful completion under the aegis of the Climate Agenda of the *Review of the 1997/98 El Niño Event* that had been distributed at the fifty-fourth session of the United Nations General Assembly.

4.2.3 The Council was briefed by the representative of UNEP on the establishment within the United Nations system of an Environmental Management Group, chaired by the Executive Director of UNEP, for the purpose of enhancing United Nations system-wide inter-agency coordination related to specific issues in the field of environment and human settlements. In that connection, the Council recalled that IACCA dealt with inter-agency coordination concerning climate related issues. The Council was advised that IACCA had not met since its fifty-first session. It reiterated its view that that committee had an important function to perform and requested the Secretary-General to make renewed efforts to improve its effectiveness within the overall advisory and planning framework for climate and environment matters within the United Nations system. The Council noted that climate was one of the most important forcing functions on the environment and that there were many complex interactions between anthropogenic and natural climatic forces acting on environmental systems. The Council requested the Secretary-General, therefore, to take appropriate steps to ensure close coordination between IACCA and the Environmental Management Group so as to minimize any duplication of effort.

4.2.4 The Council also noted that Chapter 9 — Protection of the atmosphere, of Agenda 21 would be the principal focus of the ninth session of CSD in 2001. The Council requested the Secretary-General to bring that to the attention of Permanent Representatives of WMO Members, urging them to participate in the planning process of their respective national delegations to CSD-9. The Council also requested the Secretary-General to ensure appropriate representation of WMO in the preparatory process.

4.2.5 The Council also noted that 2002 would mark the 10-year anniversary of UNCED, which had been held in Rio de Janeiro. It was informed that the United Nations system, through the CSD, was preparing for a major review of progress made on the initiatives that had emerged from Rio, including Agenda 21 and the environmentally-related Conventions dealing with Climate Change, Biodiversity and Desertification. In that regard, the Council recalled that Congress had requested the Secretary-General to identify objectives for a Third World Climate Conference. Some preliminary ideas had been presented for consideration by the EC-AGCE. The Group expressed strong support for a conference that focused on achieving a more active international programme on climate impacts and adaptation. At the same time, the Group recognized the

considerable constraints that the UNCED review would place on the convening of a fully independent event. Accordingly, the Group recommended an initiative that would contribute to the overall UNCED review and would be highly complementary to activities being proposed by other contributing organizations. The Group further recommended that the theme of the Conference should focus on the continuum of variability from weather time-scales through to climate time-scales. In support of that approach, the Group noted that such a theme was central to the interests of WMO and the activities of the NMHSs of its Members. The Group further noted that the predictions of severe weather and climate-related events that precipitated most natural disasters were an essential component of early warning systems and that the recently completed IDNDR had amply demonstrated that fact. The formation of the ISDR (see also agenda item 13.2) as a follow-on to the IDNDR would therefore provide an additional context for the Conference. The ability to adapt to climate variability and to prepare for weather extremes was highly dependent on the lead-time and quality of forecasts and that was where the expertise of NMHSs could be best demonstrated and its value proven. The increasing skill at seasonal to interannual time-scales and the promise of further skill emerging at longer time-scales suggested that the time was ripe for taking a more integrated view for the provision of forecasting and warning services along a continuum from climate to weather time-scales. Coupling that concept to a similar notion of adaptation and response along a time continuum should prove to be a powerful and convincing outcome for the Conference. In meeting the challenge, the Conference would be able to draw on the relevant findings of the IPCC Third Assessment Report.

4.2.6 The Council considered the recommendations of its EC-AGCE at some length and concluded that there was an opportunity for WMO, in collaboration with its Climate Agenda partners, to make a significant, new contribution to sustainable development through the convening of a conference that focused on adaptation to weather and climate. Accordingly, the Council requested the Secretary-General, as a matter of some urgency, to explore the possibility of holding the conference, in consultation with the Executive Heads of the sponsoring agencies of the Climate Agenda. The Council noted that that exploratory process would involve necessary funding actions that would maximize the use of extrabudgetary sources including contributions from co-sponsoring bodies. However, in the light of the budgetary implications, including the potential negative impact on existing WMO Programmes, certain members of the Council were opposed to the fact that WMO raise or spend funds on such a global conference. Other members of the Council reiterated their support for the organization of the conference. Recognizing the very limited time available for planning and fund raising, the Council agreed that the conference would not carry the title Third World Climate Conference but none the less decided to leave open the option of attracting ministerial

representation, particularly from government sectors supporting NMHSs. The Council considered that that initiative might be usefully pursued during the preparatory process for the review of UNCED. The Council requested further that its EC-AGCE provide appropriate guidance and advice on the planning process and that it should inform the Council of progress and make further recommendations, as necessary, in its report to its fifty-third session.

UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

4.2.7 The Council noted with appreciation the actions taken by the Secretary-General to ensure the active participation of WMO and NMHSs of its Member countries in the work of the UNFCCC bodies.

4.2.8 The Council took note of the decisions adopted by the Fifth COP on the revised guidelines for the preparation of national communications relating principally to systematic observation. The Council recorded its decisions under agenda item 4.3.

4.2.9 In welcoming the progress being made with respect to the systematic observation issue, the Council recalled that under Article 5 — Research and systematic observation, of the UNFCCC, Parties should support and develop appropriate research and data collection programmes. As those activities were central to WMO's mission, the Council requested the Secretary-General to continue to provide scientific and technical support to the Convention process to ensure that matters relating to climate research and data were also appropriately addressed. The Council further urged Members to continue to involve their Meteorological Services in the various processes related to the UNFCCC at the national, regional and international levels, including the implementation of the relevant decisions of COP.

4.2.10 The Council noted the decision of COP for the need to identify priorities for action to improve global observing systems for climate and options for their financial support. The Council agreed that it would be appropriate for its recently established EC-AGCE to include an examination of options in that regard within its work plan, but in the broader context of research and data collection as well as observing systems.

UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

4.2.11 The Council expressed its appreciation to the Secretary-General for his wide-ranging actions in support of UNCCD, such as the Roving Seminar on the Application of Climatic Data for Drought Preparedness and Management of Sustainable Agriculture (Accra, Ghana, 1–12 November 1999), the International Workshop on Coping with Drought in Sub-Saharan Africa: Better Use of Climate Information (Kadoma, Zimbabwe, 4–6 October 1999) and the active participation of WMO at COP-3 to the Convention. The Council noted with satisfaction that a special brochure entitled *Early Warning Systems for Drought and Desertification: Role of National Meteorological and Hydrological Services*

(WMO-No. 906) was prepared by WMO for COP-3 and that Members were informed of the major decisions taken at that session.

4.2.12 The Council noted that the priority issue to be addressed in depth at COP-4 by the Committee on Science and Technology should be applications of traditional knowledge, benchmarks and indicators and early warning systems to the monitoring and assessment of sustainable soil and water management in dryland areas for effective implementation of National Action Programmes. It urged Members to work closely with national focal points in ensuring that the input of NMHSs on that priority issue was included in the national reports to COP-4.

4.2.13 The Council invited the Secretary-General to continue the participation of WMO in the UNCCD activities and to keep Members fully informed of ongoing developments in matters related to the Convention.

CONVENTION ON BIOLOGICAL DIVERSITY

4.2.14 The Council expressed its appreciation to the Secretary-General for the initiative taken by WMO to establish collaborative links with the CBD Secretariat. The Council noted that for the first time, WMO had participated in a session of the CBD SBSTTA and that the attention of the participants at the fifth meeting of SBSTTA held in Montreal in February 2000 (SBSTTA-5) was drawn to several important weather- and climate-related issues related to biological diversity.

4.2.15 The Council reiterated that building knowledge on physical processes such as droughts, floods and fires that affected the biological diversity of dry and sub-humid lands, especially ecosystem structure and functioning, was an important issue. The Council also agreed that baseline assessment and long-term monitoring of meteorological variables relevant to coral bleaching, mortality and recovery were crucial to the conservation of marine and coastal biological diversity. The Council was pleased to note that SBSTTA-5 had included those two important aspects in its recommendations to be submitted to COP-5 of CBD, to be held in Nairobi, Kenya in May 2000.

4.2.16 The Council invited the Secretary-General to continue the participation of WMO in CBD activities and to keep Members fully informed of ongoing developments in matters relating to the Convention.

4.3 GLOBAL CLIMATE OBSERVING SYSTEM (agenda item 4.3)

4.3.1 The Executive Council welcomed the report from Mr K. Dawson, Chairperson of the GCOS Steering Committee (GCOS-SC), on the progress being made by the programme. Major activities carried out in the previous year could be categorized under three broad headings, namely implementation and further planning of the GCOS initial operational system; interactions with the UNFCCC; and the pursuit of the resources needed for GCOS and the GCOS Secretariat to meet those substantial demands.

4.3.2 The Council recognized that GCOS must be implemented primarily through cooperation with existing operational and research observation networks and was pleased to note the continuing close collaboration that existed between GCOS and several other WMO Programmes, notably WWW and WCP in relation to GSN and GUAN, AREP with respect to GAW and the HWRP regarding efforts to establish a climate-focused global hydrology network. It also appreciated the cooperation that existed between GCOS and the relevant technical commissions, in particular CBS, CCI, CAS and JCOMM and strongly encouraged the enhancement of that cooperation.

4.3.3 The Council noted with satisfaction the progress made in the implementation of GSN and GUAN under the leadership of the GCOS/WCRP Atmospheric Observation Panel for Climate. It expressed appreciation for the positive response of many Members to the request made by the Secretary-General to provide, *inter alia*, historical data and metadata from their GSN stations. It also noted with appreciation the contributions made of the Deutscher Wetterdienst and the Japan Meteorological Agency in commencing the operational monitoring of GSN performance, as well as the United Kingdom Meteorological Office and the United States NCDC, in cooperation with ECMWF, in augmenting the monitoring of the GUAN network. The Council urged CBS to continue and to enhance coordination efforts with GCOS on the design and implementation of the GSN and GUAN networks. It welcomed the ongoing collaboration that existed between CBS and GCOS lead centres concerning practical aspects of monitoring the performance and data availability of GSN and GUAN stations including follow-up action in case of outages or malfunction. The Council also reiterated that monitoring the operations of the GCOS network in each WMO Region should be carried out by CBS in collaboration with appropriate regional working bodies of the WWW. The Council also urged Members to continue and, where possible, to strengthen their support for the GSN, GUAN and GAW networks, noting that robust, backbone networks which met the goals of GCOS could also provide significant benefits for many other objectives.

4.3.4 The Council was pleased to note the solid progress in establishing an operational ocean observing system for climate under the guidance of the GCOS/GOOS/WCRP OOPC. It noted in particular the positive results of the International Conference on the Ocean Observing System for Climate, held in October 1999 in Saint Raphaël, France and jointly organized by OOPC and the WCRP/CLIVAR Upper Ocean Panel, in reaching a consensus on the optimum mix of measurements needed for ocean observations and in furthering their implementation. It noted the excellent cooperation that existed among GCOS, GOOS, WWW and WCRP in that regard and encouraged its continuation. The Council also noted that implementation and operation of most components of the ocean observing system for climate should be pursued by the recently-established JCOMM.

4.3.5 The Council was informed of the recent meeting of the GCOS/GTOS TOPC and the progress made toward the implementation of both a glacier network and a permafrost network, as well as plans for an international meeting to address the possible establishment of a network of hydrological stations, in close collaboration with HWRP and involving GRDC, WHYCOS and UNESCO's FRIENDS programme. It was pleased to note the recent developments regarding the terrestrial carbon observation initiative aimed at providing the information needed to document and understand the role of terrestrial carbon sources and sinks in the global carbon cycle, and the close cooperation in that activity among GCOS, GTOS, IGBP and other members of the IGOS partnership. The Council also expressed its appreciation that the IGBP had agreed to become a co-sponsor of TOPC.

4.3.6 The Council noted with appreciation the continuing role of the GCOS/GOOS/GTOS GOSSP in consolidating the space-based observations needed for climate applications and in cooperating closely with CEOS to ensure that those requirements were appropriately addressed by the agencies which could provide the measurements. It was pleased that GOSSP had collaborated with the IGOS Ocean Theme Team at its most recent meeting in defining the way forward for the space-based component of ocean observations for climate. The Council was also pleased to note the collaboration that existed between GCOS, CEOS and other IGOS partners regarding integrated space-based and *in situ* observations in the context of the successful IGOS Forum at the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in July 1999.

4.3.7 The Council, noting the progress made in implementing many of the networks that comprised the GCOS initial operational system, expressed its appreciation to those Members that had made significant contributions to the GCOS programme, including past secondments to the GCOS Secretariat, funds for travel and meetings and for improvements in their national observing systems. It recognized, however, the increased demands placed on the GCOS Secretariat as additional networks were implemented and strongly urged Members to consider additional support for GCOS in that regard, especially in the form of secondments to the GCOS Secretariat.

4.3.8 The Council strongly commended the actions taken by the GCOS Secretariat, on behalf of the global observing systems for climate, in responding to Decision 14/CP.4 — Research and systematic observation, of COP-4 to the UNFCCC in accordance with Resolution 7 (Cg-XIII) — Global Climate Observing System. It noted with appreciation the support provided by individual Members to the GCOS Secretariat to assist it in carrying out that work.

4.3.9 The Council noted with appreciation the actions taken by the Secretary-General in addressing the Parties at COP-5 on behalf of WMO and in informing Members on issues of importance to their organizations and programmes, and urged that that be continued. It

noted in particular that the Secretary-General had encouraged Members to include representatives of NMHSs on delegations to COP and urged that that effort be continued.

4.3.10 The Council noted with satisfaction that COP-5 had adopted two new important decisions (4/CP.5 — Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications, and 5/CP.5 — Research and systematic observation) related to research and systematic observation that were expected to advance significantly the implementation of GCOS. It also noted with appreciation the Parties' adoption of the guidance for national communications on systematic observation which had been prepared by the GCOS Secretariat. The Council further noted the need for NMHSs of all Members to become involved in the process of preparing national plans for global observing systems for climate so as to ensure that their hydrometeorological activities were included in any national communications to the UNFCCC. The Council requested the Secretary-General to inform and involve the regional associations in that process so as to ensure that Members could take advantage of the opportunities presented.

4.3.11 The Council strongly endorsed the organization of regional workshops to identify the capacity-building needs of developing countries, in response to Decision 5/CP.5 of the COP to the UNFCCC, and noted that the GCOS Secretariat had already begun to organize such workshops with the support of funding from, *inter alia*, WMO, UNEP, the United States and Australia for a first workshop. It urged the GCOS Secretariat to continue consultations with relevant regional and international bodies, including GEF, towards finding the resources required to conduct those activities in all regions and noted with appreciation the offers made by several Members and other agencies (e.g. Canada, Japan, UNEP, EUMETSAT) to provide support for such workshops. The Council recognized, however, that the organization of regional workshops was only an initial step towards the goal of eliminating the deficiencies in the climate observing systems and that much effort and many resources were required to convert their outputs into the needed long-term, robust operation of the observing systems. The Council also urged Members to take an active role in identifying deficiencies in meteorological and oceanic observations, as called for in Decision 5/CP.5, and to work with the GCOS Secretariat to develop proposals to address those deficiencies and to identify options for funding. It urged, in addition, that regional associations consider how they might further the conduct of specific workshops in their regions, perhaps in concert with their colleagues in the oceanographic and terrestrial communities.

4.3.12 The Council recognized the significant new demand made on GCOS emanating from Decision 5/CP.5 and the burden that those would place on the GCOS Secretariat over the next two years. It therefore strongly urged Members to continue and, where possible, to

enhance their support to the GCOS Secretariat. It noted that that support could come in the form of secondment of experts and/or contributions to the Climate Observing System Fund to implement regional workshops, to develop proposals for building capacity in developing countries, to enhance their participation in global observing systems for climate and to foster national reporting on plans for, and deficiencies in, those systems.

4.3.13 The Council requested that the Secretary-General continue to give high priority to supporting the activities of the GCOS Secretariat during the present biennium, as urged by Thirteenth Congress, using whatever flexibility existed within approved resources. It also requested that the Secretary-General, in collaboration with the other sponsors of GCOS, take steps to identify additional financial support for the GCOS Programme.

4.3.14 The Council noted with appreciation the contribution of Canada in hosting an informal meeting to investigate the issue of an intergovernmental process for GCOS. It concurred that there were already in existence a number of intergovernmental mechanisms which could be more fully engaged in the implementation of GCOS. It encouraged the GCOS Secretariat to utilize the relevant constituent bodies and other relevant bodies of the Sponsoring Agencies to develop further the links with, and the involvement of, Governments in all aspects of GCOS using a consistent and complementary message, perhaps through the mechanism of common resolutions. It noted that in order for that to be more effective the sponsorship of GCOS would benefit from the inclusion of the FAO to ensure that the terrestrial aspects of GCOS could be adequately addressed. The Council urged the Secretary-General to consult with the Executive Heads of the other Sponsoring Agencies to develop more effective strategies to identify and implement GCOS as a cross-cutting mechanism for obtaining climate observations, rather than as a domain-based observing system.

4.3.15 The Council agreed that the process currently under way of engaging the UNFCCC and its subsidiary bodies in the consideration of systematic observations should be actively continued in order that Governments be clearly given the opportunity to address deficiencies in the observational system required to meet their needs in all aspects of climate change and variability. The Council also agreed that there should be an increase in the number of "operational" and/or senior governmental representatives on the GCOS-SC so that it could more properly perform its implementation role.

4.3.16 The Council urged the GCOS Secretariat and the GCOS-SC to give urgent attention to the development of a clear implementation strategy showing how GCOS and its partners proposed to respond to the policy needs of the UNFCCC; the research needs to understand climate variability and change; and the operational needs for predictions, impacts assessment and adaptation. Such an implementation strategy for GCOS should make full use of the national reports to be submitted to the UNFCCC in 2001 and the subsequent

analysis called for in Decision 5/CP.5, including further analysis of the costs and benefits of maintaining and enhancing observing systems. It urged the GCOS-SC to develop priorities for moving ahead and report to the Council at its next session.

4.3.17 The Council recognized that the GCOS Secretariat did not currently have the resources to develop and pursue such an implementation strategy in an effective manner and urged that the Executive Heads of the Sponsoring Agencies consider how they might collectively assist the work of the GCOS Secretariat.

4.3.18 The Council strongly endorsed the activities being carried out in support of the GCOS Programme, especially its interaction with the UNFCCC process and the proposed next steps in that process. It therefore adopted Resolution 3 (EC-LII).

4.4 WORLD CLIMATE IMPACT ASSESSMENT AND RESPONSE STRATEGIES PROGRAMME (agenda item 4.4)

4.4.1 The Executive Council noted the report by the representative of UNEP on the implementation of the WCIRP, including UNEP's activities in the area of climate monitoring, assessment and variability as well as on the impacts of climate change.

4.4.2 The Council further noted the contribution of UNEP to the IPCC and UNFCCC. It also noted the technical and administrative support provided, in cooperation with the Climate Change Secretariat and the GEF, to several countries in the areas of enabling activities, adaptation, capacity building and public awareness.

4.4.3 The Council noted with appreciation UNEP's commitment to the implementation and coordination of Thrust 3 — Studies of climate impact assessments and response strategies to reduce vulnerability, and its valuable contribution to Thrust 4 — Dedicated observations of the climate system, of the Climate Agenda including GCOS. The Council noted that the GCOS Secretariat was working with WMO, UNEP, SPREP and other regional organizations in supporting the workshops in the South Pacific and Africa on systematic observations and that they would ensure adequate representation of NMHSs in those workshops (see also general summary paragraph 4.3.11).

4.5 WORLD CLIMATE RESEARCH PROGRAMME (agenda item 4.5)

4.5.1 The Executive Council noted the information provided on the progress of the WCRP core projects. The Council was particularly encouraged that steps towards the implementation of a number of specific regional activities in the WCRP CLIVAR — namely VAMOS, the Asian-Australian monsoon system and the African climate variability — were now being taken. Bearing in mind the considerable potential socio-economic benefits of progress in those activities, the Council urged all Members in the Regions concerned to participate to the limit of available resources. The Council pointed out the importance of PIRATA in CLIVAR studies of the effects of

changes in ocean conditions in the tropical Atlantic on the atmospheric circulation and seasonal climate anomalies. An extension of the array off the coast of north-west Africa was being planned with the support of several NMHSs in the region. That would underpin further global climate and regional studies.

4.5.2 The Council expressed interest in the various regional hydrological and atmospheric studies (GCIP, BALTEX, MAGS, and LBA) proceeding under the auspices of the WCRP GEWEX. The investigation of CATCH in the Sahel region in west Africa was recognized as another important initiative in that respect. The Council looked forward to being informed of the results of the GEWEX Coordinated Enhanced Observing Period over the period 2002–2003, in which common datasets from all the regional GEWEX studies would be collected, thus offering the possibility of assessing the influence of continental heat and moisture sources and sinks on the global climate system and its anomalies.

4.5.3 In respect to GAME, the Council noted that the placement of a geostationary satellite (METEOSAT-5) over the data-sparse Indian Ocean since 1998 by EUMETSAT had made a major contribution to advancing the understanding of the energy processes and water cycles playing a crucial role in the Asian monsoon. The Council acknowledged with appreciation the efforts made by EUMETSAT and the successful accomplishment of the difficult manoeuvres of the satellite involved.

4.5.4 The Council observed that another key element in studies of global energy cycles in GEWEX was the data collected by the WCRP BSRN. That network was providing frequent state-of-the-art measurements of surface radiation fluxes according to internationally-agreed standard procedures and had stimulated significant progress in developing surface radiation measurement capability. The network now comprised some 30 stations in diverse climatic regions, the majority of which were operated by NMHS.

4.5.5 The Council was informed that the Chairperson of the Standing Meteorological Committee of the League of Arab States had written to the Secretary-General of WMO urging that attention be given to the improved understanding of climate processes and the potential effects of climate change in arid and desert areas, especially those prevalent in many Arab States. The Council strongly encouraged the JSC for the WCRP to consider the additional research that needed to be undertaken in CLIVAR and GEWEX to meet that challenge. The Council advised the JSC to draw fully on the scientific interest in, and expertise on, that topic that already existed in Arab States.

4.5.6 The Council stressed the importance of close collaboration between WCRP projects and GCOS in building up the multi-year global observational datasets required in the investigation of all aspects of climate. The Council reiterated the complementary roles of the research being undertaken in WCRP and the work of GCOS in improving global climate observing systems and in fostering the capacity of developing countries to participate in those systems.

4.5.7 The Council welcomed the developing cooperation between WCRP and the other global environmental change programmes (ICSU's IGBP and IHDP) in addressing in a comprehensive manner the overall issue of global environmental change, in particular such topics as the global carbon cycle and interactions between a changing hydrological cycle and the biosphere. The Council noted that the WCRP/IGBP/IHDP Global Change Open Science Conference would be held in Amsterdam in July 2001 to review the overall scientific understanding of natural and human-induced changes on the Earth's environment and habitability, highlight the increasingly integrated environmental research of WCRP, IGBP and IHDP, and point the way towards the next decade of global change research.

4.5.8 The Council decided on its guidance on the list of candidates to serve on the JSC for the WCRP. The list would be discussed with ICSU and IOC in order to select replacements for outgoing members or extend their terms of appointment.

5. ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME (agenda item 5)

WMO RESEARCH AWARD FOR YOUNG SCIENTISTS

5.0.1 The Executive Council Selection Committee for the WMO Research Award for Young Scientists conferred the 2000 award upon Mr Charles Koronje Gatebe (Kenya) for his paper entitled "Characterization and Transport of Atmospheric Aerosols at High Altitude on Mount Kenya".

5.0.2 The Council re-established the Selection Committee to consist of Messrs F. Camargo Duque, F. J. B. Hounton, L. P. Prahm and R. Prasad.

5.1 ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME; THE REPORT OF THE PRESIDENT OF CAS; SUPPORT TO OZONE AND OTHER ENVIRONMENT-ORIENTED CONVENTIONS (agenda item 5.1)

5.1.1 The vice-president of CAS, Mr Yan Hong, presented the Executive Council with a report of recent Commission activities, on behalf of its president, Mr A. Eliassen, drawing attention to the steady progress evident in areas such as GAW, WWRP, the Tropical Meteorology Research Programme and the Programme on Physics and Chemistry of Clouds and Weather Modification Research.

5.1.2 With regard to ozone and other environmental-oriented Conventions, the Council recalled that the atmospheric composition information provided by the GAW network of measuring stations was a major WMO contribution to the implementation and further development of the Convention on Long-range Transboundary Air Pollution, the UNFCCC and its Kyoto Protocol, and the Vienna Convention for the Protection of the Ozone Layer and its subsequent protocols. With respect to ozone matters, the Council noted with satisfaction that the first WMO international Dobson spectrophotometer intercomparisons held in developing countries had been successfully conducted in Latin

America and in southern Africa. The Council emphasized the important technological transfer and capacity building aspects associated with those events and expressed support for other similar intercomparisons in the future. The Council also noted that an evaluation was to be conducted on ozonesonde data collected from MacQuarie Island, representing a particularly data sparse area of the Southern Ocean.

5.2 GLOBAL ATMOSPHERE WATCH (agenda item 5.2)

5.2.1 In its consideration of the GAW programme, the Council was satisfied with the continued progress evident in the implementation of that activity, which would play an increasing role as the world community tackled a number of environmental issues. In that regard, the Council recognized the important role played by the Scientific Advisory Groups in providing advice to the programme. The Council also recognized that implementing the GAW programme required effective collaboration with a number of international organizations and programmes together with the full support of NMHSs. The Council therefore welcomed the increased participation of WMO in EMEP by co-chairing the EMEP Task Force on Monitoring and Modelling.

5.2.2 The Council noted that the last session of the EC Panel of Experts/CAS Working Group on Environmental Pollution and Atmospheric Chemistry had recommended a shift in emphasis in the work of the QA/SACs from regional to global quality assurance. The Council recalled, however, that the existing three QA/SACs had been established on the basis of providing QA functions on a regional basis. It therefore proposed that the future role of those existing SACs would require discussions between the relevant agencies and centres to optimize the QA system for further review by the EC Panel of Experts/CAS Working Group at its next session.

5.2.3 The Council noted with satisfaction that WMO, as Executing Agency, had successfully implemented the GEF Project on Global Monitoring of Greenhouse Gases, including Ozone. That major project had resulted in the establishment of new GAW Global Observing Stations in Algeria, Argentina, Brazil, China, Indonesia and Kenya. The Council recognized that in order to assure operations at those sites at their full potential would require maintaining the twinning arrangements with centres in developed countries and, where possible, expanding those arrangements to include station partnerships with individual scientists from developed countries. The Council urged WMO Members with the requisite expertise to consider such assistance. The Council noted with satisfaction that a GAW baseline station was being considered for Malaysia which would provide important additional information in a region subject to episodic smoke and haze events. The Council noted that the GAW regional network of stations with more than 300 stations worldwide played an important role in providing atmospheric information at the regional and subregional scales. Members were urged to continue supporting that network, as regional air quality problems were becoming more critical.

5.2.4 In order for the GAW monitoring network to fulfil its responsibilities of delivering quality atmospheric information to the WMO World Data Centres, it required continual efforts to provide appropriate training. The Council noted with satisfaction the number and scope of training activities that WMO had arranged over the past year, ranging from individual expert visits to stations, to international workshops. The Council emphasized that such training events and provision of spare parts, especially for developing countries, would need to be continued and urged Members to contribute expertise and other resources to that effort, where possible.

5.2.5 In reviewing the progress of GURME, the Council noted that the project had had a successful start following its establishment by Thirteenth Congress. The Council noted that the issue of urban pollution and its impact on human health was becoming an urgent topic for many NMHSs and welcomed the initiation of pilot projects within GURME in Beijing and Moscow as well as the planned Workshop on Urban Modelling to take place in Malaysia in August 2000. The Council also recognized that many developing countries would require assistance to engage fully in GURME and urged the project to develop guidelines for that purpose. The involvement of WHO in some of the activities of GURME was viewed as a positive development. The Council urged that, in order to optimize resources during the conduct of the GURME Project, cooperation within WMO Programmes should be strengthened. The GURME Project, whenever appropriate, should be conducted in cooperation with the WCP Showcase Project on Climate and Human Health.

5.2.6 The Council was informed of the initiative by ROSHYDROMET and the Government of the City of Moscow, to organize the implementation of the pilot project "Meteorological servicing for the sustainable development of the Moscow megapolis" within the framework of GURME. The project concept was discussed at the International Scientific and Technical Seminar on Meteorological Aspects of the Urban Environment, organized in December 1999 by ROSHYDROMET and the Government of the City of Moscow with WMO support, and recommended for submission to the Council as one of the GURME pilot projects.

5.2.7 The Council agreed with the project programme and noted that the implementation of both that project and of other initiatives taken within the GURME Project would favour more active study by the NMSs of meteorological, hydrological and other aspects of the urban environment for the sustainable development of large urban complexes.

5.2.8 The Council recommended that the Secretary-General provide further support for the further implementation of the aforementioned projects.

5.2.9 The Council expressed satisfaction with the active participation of WMO in the work of GESAMP and for the preparation of two comprehensive reports *The State of the Marine Environment-current Major Issues and Emerging Problems* and *Land-based Sources and Activities Affecting the Quality and Use of Marine, Coastal*

and *Associated Freshwater Environment*. The Council supported the intention of GESAMP to allow non-governmental organizations and the Member States of the GESAMP co-sponsoring agencies to request GESAMP directly to provide advice and to undertake studies on urgent marine environment related issues and to participate in GESAMP meetings as observers.

5.3 WORLD WEATHER RESEARCH PROGRAMME (agenda item 5.3)

5.3.1 With respect to the WWRP, the Executive Council noted with satisfaction the progress made in that programme and its associated projects, in particular, the very successful launch of the Special Observation Period (7 September–15 November 1999) for MAP as the first WWRP Research and Development Project. The Council noted also the positive progress made by the WWRP Sydney 2000 initiative as the first Forecast Demonstration Project, in support of the next Olympic Games. In association with that initiative, the Council welcomed the offer made by the Australian Bureau of Meteorology to host a WMO Training Workshop on Nowcasting later during the present year.

5.3.2 The Council took note that the Aircraft In-flight Icing Project and the International Tropical Cyclone Landfall Programme were both approved by the Science Steering Committee for the WWRP. The Council considered those important initiatives with large potential benefits in terms of saving human lives.

5.3.3 The Council was encouraged by the significant progress made in the development of other potential WWRP projects such as the MEDEX project focused on cyclones that produced high impact weather in the Mediterranean Basin, the ASAPRO aimed at improved monitoring and prediction of dust and sand storms in Arab countries, and other projects related to the WWRP. The Council urged all interested Members to participate whenever possible in those projects.

5.3.4 The Council noted with interest the success of the Third International Symposium on Assimilation of Observations in Meteorology and Oceanography, held in Québec City, Canada in June 1999. The Council was encouraged by the developments reported at that symposium, which would assist a number of the projects being carried out under the WWRP.

5.3.5 The Council noted with satisfaction the collaboration that existed between CAS and the CCI/CLIPS project in organizing the International Workshop on Long-range Forecasting and its Applications in Cairo in January 2000. The workshop's primary purposes were to review the current status of long-range forecasting and especially the use of, and needs for, climate prediction applications. The Council took note of the strong emphasis given by the workshop on the probabilistic character of long-range forecasting and the need for WMO to increase the awareness of users and decision makers on that matter. The Council, recognizing the value of that workshop for transferring important technological capacities to developing country Members, urged NMHSs to give the report of the workshop wide

distribution to potential users and decision makers within their country.

5.3.6 The Council welcomed the establishment of the ISWG under the auspices of the WWRP and the CAS/JSC Working Group on Numerical Experimentation for coordinating research on the predictability of the atmospheric circulation and design of the future WWW observation systems in the northern hemisphere. The Council further encouraged a close cooperation between the ISWG and relevant CBS activities.

5.4 TROPICAL METEOROLOGY RESEARCH PROGRAMME (agenda item 5.4)

5.4.1 In considering developments in the Tropical Meteorology Research Programme, the Executive Council was satisfied with the continuing progress made in the transfer of expertise to developing countries. In that regard, the Council was pleased that the Fourth WMO International Workshop on Tropical Limited Area Modelling (Florida, November 1999) had been attended by participants from Regions I, II, III, IV and V.

5.4.2 The Council welcomed the close collaboration that existed between the Tropical Meteorology Research Programme and the WWRP in developing the International Tropical Cyclone Landfall Programme, which promised to make a substantial contribution to the reduction of tropical cyclone impacts on societies and economies.

5.4.3 The Council noted and welcomed the planned International Workshop on the Dynamics and Forecasting of Tropical Weather Systems (Darwin, Australia, 22-26 January 2001) and encouraged the active participation of WMO Members.

5.5 PROGRAMME ON PHYSICS AND CHEMISTRY OF CLOUDS AND WEATHER MODIFICATION RESEARCH (agenda item 5.5)

5.5.1 The Executive Council welcomed the Secretary-General's initiative to begin the process of developing an umbrella project on precipitation enhancement involving Members from the Mediterranean, south-east Europe and the Middle East, in line with the sentiments expressed by Thirteenth Congress. The Council recognized the potentially important contribution that a small augmentation in precipitation could make to the region's water resources. It cautioned however, that first actions should be aimed at developing a suitable infrastructure to support the necessary research and training prior to any future experiment.

5.5.2 The Council noted with interest the outcome of the Workshop on Hygroscopic Seeding (Mazatlán, Mexico, November/December 1999), tested in South Africa, Thailand and Mexico. The workshop recommended a strategy for the future including an in-depth review of past precipitation enhancement experiments, theoretical studies, numerical simulations and large field experiments. The Council urged WMO and its Members to play an active part in implementing the strategy, particularly with respect to understanding the precipitation processes within clouds. In view of the interest of many

Members in that matter, the Council requested the Secretary-General to give the report of the workshop wide distribution.

6. APPLICATIONS OF METEOROLOGY PROGRAMME (agenda item 6)

6.1 PUBLIC WEATHER SERVICES PROGRAMME (agenda item 6.1)

6.1.1 The Executive Council noted with appreciation the report on the PWS Programme and expressed satisfaction that the programme had contributed to the increased visibility of NMSs, especially those in developing countries. The Council further noted that the discussion on the mode of operation of the PWS Programme had been included under the in-depth report of the president of CBS (agenda item 3.1).

6.1.2 The Council agreed that through the PWS Programme, considerable success had been achieved in continuing an ongoing dialogue with representatives of international broadcast organizations. Discussions and negotiations had especially emphasized the importance of broadcasters respecting the authority of NMSs in the framework of "single official voice" and give proper acknowledgement of the role of NMSs in producing data and products used in dissemination of the media broadcasts. The Council recognized that the two major concerns of Members were consistency between information disseminated by the international media and that issued officially by NMSs, and strengthening links and improving relations between NMSs and both national and international media bodies.

6.1.3 The Council appreciated that the PWS Programme had given particular attention to the activities of the international broadcast media in the dissemination of weather information and the impact of those activities on the recognition and visibility of the NMSs. The Council was informed that experts within the PWS Programme were in the process of formulating guidance on improving coordination and on developing partnership with the media. Efforts in that direction included studying the feasibility of a centralized Web site with links to relevant information and warnings produced by NMSs. To that end, a pilot project had been proposed involving a number of regionally-based sites that worked through the existing NMS/RSMC structure. The Council expressed its support for the pilot project and requested that all operational and other aspects of the project be carefully considered prior to its implementation. The Council welcomed the offer made for participation by the RSMC Bracknell in the pilot project.

6.1.4 The Council noted furthermore, that under the PWS Programme, guidance materials were being developed on identification and documentation of technical requirements as regarded public weather services data and products; on graphical presentation of public weather services products; and on user-based performance assessment including verification. The Council welcomed that those guidelines would be developed keeping in mind the particular needs of NMSs in developing countries. The Council further expressed

appreciation for the publication of *Public Weather Services in Focus* (WMO/TD-No. 974) published in 1999, which contained the results of a global survey on the status of public weather services of Members and had provided valuable input for addressing further the strategic goals of the PWS Programme.

6.1.5 The Council stressed that contributing to the mitigation of loss of life and property caused by natural disasters was among core functions of NMSs and that appropriate coordination with disaster management authorities was essential in the timely dissemination of warnings in such a form that risks could be evaluated for example through a risk scale. The Council appreciated that guidelines on "best practice" regarding relationships between NMSs and emergency management organizations were under preparation.

6.1.6 In response to the request made by Congress to give high priority to capacity building activities and transfer of knowledge and technology, the Council reiterated that WMO should assist Members to strengthen and improve their national public weather services by placing special emphasis on the education and training component of the PWS Programme. The Council was informed that specific guidelines were being prepared on PWS training programmes with increasing involvement of WMO RMTCs designed to provide training to all levels of meteorological staff. In that connection, the Council emphasized that public weather services should be included as part of the basic education and training in meteorology and that Members should be encouraged to ensure that training in traditional areas of meteorology was complemented with that in development and delivery of services, skills in communicating with the public and media, and consultations with users.

6.1.7 The Council noted with satisfaction that since its fifty-first session, several training events had been organized on a regional basis. A training Workshop on Public Weather Services for the South-West Indian Ocean Region was held in September/October 1999 in Mauritius, following the fourteenth session of the RA I Tropical Cyclone Committee. In view of the success of the workshop, the Council requested that consideration be given to the organization of similar workshops in the future in conjunction with the sessions of the RA I Tropical Cyclone Committee. Close cooperation continued between WMO and the European Union South Pacific Tropical Cyclone Warning Upgrade Project. The Second Training Workshop on Public Weather and Warning Services for Class I and Class II meteorologists in the South Pacific organized under the umbrella of that project was a major training event in RA V. The workshop was hosted by the Government of Fiji in October 1999 and jointly organized by the European Union and WMO. The Council expressed its appreciation to the European Union for the support provided in the organization of that workshop and expressed the desire that although the South Pacific Tropical Cyclone Warning Upgrade Project had been concluded, the level of training provided to Members in the South Pacific Region continued to be maintained. The participants at

the thirty-second session of the ESCAP/WMO Typhoon Committee attended the Workshop on PWS organized for them in Seoul in November 1999. Finally, a workshop on PWS was held for forecasters from the Hurricane Committee region in Miami in April 2000 in conjunction with the RA IV Workshop on Hurricane Forecasting and Warning. The Council expressed its appreciation to Members who had hosted and/or provided resource persons for those training events as part of the PWS Programme. The Council further appreciated the kind offers made by Members to host PWS training events in the future. In that connection, the Council was informed of the plan to hold a training workshop on public weather services by the RMTC Nairobi and requested WMO to consider co-sponsoring the workshop.

6.1.8 The Council expressed appreciation to those Members who had provided equipment through the VCP for the improvement of public weather services in developing countries and urged donors to continue such support in the future.

6.1.9 The Council noted with appreciation that the second edition of the *Guide to Public Weather Services Practices* (WMO-No. 834) was published in 1999 in English and was distributed to Members, with the versions in other WMO official languages to follow. That new edition particularly highlighted the concept of user-focused service provision and delivery. A CD-ROM containing examples of national practices in providing public weather services had also been prepared to complement the *Guide*. The CD-ROM aimed at providing additional material to assist Members in improving their national public weather services programmes.

6.1.10 The Council was pleased to note that the Sydney 2000 Olympic weather support Web site had now been linked to the WMO Web site so that international media and visitors to the Olympics could access official forecasts and warnings issued by NMSs. Similarly, the PWS Web site was linked to the Sydney 2000 Olympics Web site to allow viewers of the PWS site to find directly all the information available about the Sydney Olympics.

6.1.11 The Council agreed that the key strategic issues that should be given high priority as the focus of attention within the PWS Programme were:

- (a) Building the capacity of NMSs to provide effective public weather services and especially to raise the level of public response to those services, in particular warnings of severe weather;
- (b) Enhancing the visibility of NMSs, in particular during disaster situations resulting from severe weather;
- (c) Improving public weather products and services in support of safety of life and property, including early warning systems for disaster mitigation through the use of climate prediction products;
- (d) Taking an active part in disaster mitigation and reduction through collaboration with other scientific and technical programmes including CLIPS, and participating in the work of the proposed Emergency Assistance Response Teams;

- (e) Keeping abreast of new technology especially as related to information (in particular warnings) dissemination, and graphical data visualization and product generation;
- (f) Improving the exchange of PWS products on national, regional and international levels;
- (g) Developing guidelines for strengthening links and improving relations between NMSs and both national and international media bodies and emergency management authorities;
- (h) Addressing the lack of systematic practices and procedures as regarded public weather services in developing countries;
- (i) Focusing attention on determining user needs and requirements;
- (j) Performing user-based service assessment including verification through a quality management system which could include one that was associated with ISO 9001.

6.2 AGRICULTURAL METEOROLOGY PROGRAMME; THE REPORT OF THE PRESIDENT OF CAgM (agenda item 6.2)

6.2.1 The Executive Council noted with appreciation the report of the president of CAgM, Mr R. P. Motha, on the recent activities of the Commission. The Council considered the progress achieved as significant, especially in publishing four CAgM reports, two proceedings, one training manual and one brochure and in organizing three international workshops, one expert group meeting and seven training events.

6.2.2 The Council noted the emphasis placed by the Commission on extreme meteorological events affecting agriculture, cattle, forestry and fisheries and the organization of an RA III/IV Expert Group Meeting on Extreme Events in Caracas, Venezuela in July 1999. It recommended that the Commission should continue to focus on improving our understanding of extreme events and the ways and means to cope with them. The Council also noted that, in accordance with the decision of the Interstate Council on Hydrometeorology of the Countries of the CIS, preparatory work was undertaken to organize the Drought Monitoring Centre in the Russian Federation. The Centre would supply the necessary information to members of the CIS, in particular to Armenia, Belarus, Kyrgyzstan, Tajikistan and Uzbekistan.

6.2.3 The Council noted with great satisfaction the organization of the Consultants Meeting in Geneva from 1–2 November 1999 to prepare a background document highlighting the major issues and proposing actions that would lead to better agrometeorological bulletins, and the plans to organize in 2001 an inter-regional workshop on improving agrometeorological bulletins. Timely provision of agrometeorological information in a user-friendly format was an essential component of agrometeorological services. The Council considered that that initiative of the Commission was crucial to the provision of improved agrometeorological services.

INTERNATIONAL WORKSHOPS

6.2.4 The Council was pleased to note the initiative taken by the Commission to collaborate closely with START of IGBP, WCRP and IHDP in the CLIMAG Project and the successful organization of the International Workshop on Climate Prediction and Agricultural Production in September 1999 in Geneva. The Council agreed that potentially significant enhancement in agricultural production was possible by using strategies based upon climate prediction information and that implementation of CLIMAG should occur on a regional scale tailored to the specific climatological and agricultural regimes of specific areas. Noting that the partnership between WMO and START, IRI, APN, IAI and other relevant organizations was an essential ingredient underpinning the CLIMAG effort, the Council encouraged WMO's continued participation in the activities of the CLIMAG Project and requested the Secretary-General to ensure that there was close cooperation between CLIMAG and CLIPS.

6.2.5 The Council noted with appreciation the collaboration that existed between WMO and UNDP/UNSO to strengthen drought preparedness and mitigation efforts in Africa. Considering the recommendations of the International Workshop on Coping with Drought in Sub-Saharan Africa: Best Use of Climate Information, organized by UNDP/UNSO and WMO in Kadoma, Zimbabwe in October 1999, the Council fully supported the continued collaboration with UNDP/UNSO in the implementation of pilot projects in Africa to promote the best use of climate information at the farm level.

6.2.6 The Council was pleased to note that the International Workshop on Automated Weather Stations for Applications in Agriculture and Water Resources Management: Current Use and Future Perspectives, co-sponsored by the National Weather Service (United States), the United States Department of Agriculture, the University of Nebraska and WMO, was held in March 2000 in Lincoln, Nebraska. The Council emphasized that addressing operational issues, including data collection, management and quality control, as well as calibration, maintenance and applications of AWS observations in agriculture and water resource management, was crucial for improving the AWS networks.

TRAINING EVENTS

6.2.7 The Council noted with appreciation the initiative taken by the programme in developing roving seminar series on five new topics including data management for applications to agriculture, instrumentation and operation of automatic weather stations for application in agrometeorology, crop-yield weather modelling, application of climatic data for drought preparedness and management of sustainable agriculture, and geographical information systems and agroecological zoning. The Council was pleased to note the initiative taken by Ghana, India, Iran, Malaysia, Morocco, Slovenia and Uzbekistan in hosting those roving seminars. The Council recorded its appreciation for the participation and collaboration of several international, regional and national

organizations in those training activities, in particular FAO, UNEP, the UNCCD Secretariat, ACMAD, the Institute of Agrometeorology and Environmental Analysis for Agriculture (Italy) and the United States Department of Agriculture. The Council noted with satisfaction the fruitful cooperation that existed between the RMTCs in Nigeria and Israel in the organization of the Postgraduate Course in Agrometeorology and Technology Transfer in Lagos, Nigeria in 1997 and 1998 and between the RMTCs in Kenya and Israel in conducting the Third Regional Courses in Agrometeorology in Nairobi, Kenya in July 1999. The Council requested the Secretary-General to continue to seek co-sponsorship for the organization of training events in agricultural meteorology.

COOPERATION BETWEEN THE COMMISSIONS

6.2.8 Noting that the current activities of CAgM were complementary with those of CCI, CIMO, CBS and CHy, the Council suggested that the five Commissions enhanced collaboration in the areas of climate database management systems (CCI), instrumentation, operation and applications of automated weather stations data in agriculture and water resource management (CIMO and CBS) and applications of climatic data for drought preparedness and management of sustainable agriculture (CHy). In addition, the Council suggested that collaboration between CAgM and CHy in the revision of the *Guide to Agricultural Meteorological Practices* (WMO-No. 134) would be most desirable.

REGIONAL WORKING GROUPS AND RAPORTEURS ON AGRICULTURAL METEOROLOGY

6.2.9 The Council noted with appreciation that the activities of the Working Groups and Rapporteurs on Agricultural Meteorology of all the regional associations were proceeding well and that two meetings of the Working Groups on Agricultural Meteorology in RAs IV and II were organized in 1999. The Council stressed the importance of the continued and active participation of the regional working groups and rapporteurs in addressing the key issues of importance to agricultural meteorology in the Regions.

6.2.10 In order to improve and strengthen the linkages between WMO's Agricultural Meteorology Programme and the user community, the Council suggested that CAgM, at its next session, should study the way in which advice on agricultural matters could be provided, where needed, to the regional associations or to the Members and to recommend a proposed course of action for discussion at Fourteenth Congress.

NORBERT GERBIER-MUMM INTERNATIONAL AWARD

6.2.11 The Council approved the proposal of the Selection Committee for the Norbert Gerbier-MUMM International Award for 2001 and conferred the 2001 award on Messrs Lu Chun-Lian and Chen Shun-Hua for their paper entitled "Multiple linear interdependent models (MLIM) applied to typhoon data from China", published in *Theoretical and Applied Climatology*, Volume 61, Number 3-4, 1998.

6.3 AERONAUTICAL METEOROLOGY PROGRAMME; THE REPORT OF THE PRESIDENT OF CAeM (agenda item 6.3)

6.3.1 The Executive Council noted with appreciation the goal-oriented report of the president of CAeM and expressed its gratitude to all CAeM members for their valuable contribution to the achievements of the Commission, particularly in the training and implementation of WAFS. The Council recalled that Thirteenth Congress had re-emphasized the importance it attached to an expanded and vigorous Aeronautical Meteorology Programme and requested the Secretary-General to give high priority to training requirements.

6.3.2 The Council noted with satisfaction that, since its last session, three Regional Seminars on Cost Recovery for Aeronautical Meteorological Services had been conducted for participants from Region I in Dakar (Senegal, November 1999) and Gaborone (Botswana, December 1999), and from Regions II and V in Bali (Indonesia, November 1999). The Council complimented the United Kingdom Meteorological Office and the United States National Weather Service for funding, respectively, the annual United Kingdom/WMO Aviation Seminar held in Reading, United Kingdom, in July 1999, and the United States/WMO WAFS Seminar held in Kuala Lumpur, Malaysia, in November 1999. The Council expressed its appreciation to the Permanent Representatives with WMO of Botswana, Indonesia, Malaysia and Senegal for hosting the seminars and for their valuable contribution to the success of those training events. The Council welcomed the effective participation of the president and vice-president of CAeM at the Bali and Dakar seminars, respectively, and thanked ICAO, the United States National Weather Service and the United Kingdom Meteorological Office for providing experienced lecturers for the seminars. The Council noted with satisfaction that a large volume of training material had been posted on the updated Web Site of the Aeronautical Meteorological Programme, while realizing that not all Members would have access to the material via the Internet. Noting the disparity that existed between earmarked training resources and the growing needs for training in aeronautical meteorology, the Council urged other Members to support relevant training activities and requested the Secretary-General to direct savings that could be made from the budget to support, as appropriate and where possible, training activities in aeronautical meteorology. The Council was informed that, in close collaboration with Members in Regions III and IV, the Secretariat was planning to hold a WAFS seminar and a cost recovery seminar for participants in the Americas during the year 2000. The Council welcomed the assistance from Mexico in hosting the two seminars. It also welcomed the offer made by the United States to contribute to both seminars. The Council was pleased to learn that ASECNA would convene two seminars on the application of NWP products to aviation and on the implementation of Amendment 72 to Annex 3/WMO Technical Regulation [C.3.1], both co-sponsored by WMO.

6.3.3 The Council was pleased to note the progress made in the implementation of WAFS and, in particular, the installation, to date, of over 200 satellite broadcast terminals in nearly 150 countries worldwide. The Council noted with satisfaction that the implementation of transition plans for the transfer of responsibility of the remaining RAFCs to London and Washington WAFCs was being actively pursued. Furthermore, the two WAFCs had improved backup procedures to ensure the continued availability of aviation data and products to users. Important measures related to WAFS, proposed for implementation to meet aviation operational requirements including, among other things, the addition of two extra aviation NWP model runs per day at 0600 and 1800 UTC and the broadcast of GRIB relative humidity fields up to 500 hPa. The Council noted with interest that BUFR coded SIGWX forecast transmission trials would resume during 2000 to ascertain that the system was robust enough to meet WAFS operational requirements. The Council reinforced the need to ensure that there was harmonization of the forecasts issued by the two WAFCs and was pleased to learn that a coordination meeting had been held between the two WAFCs in early 2000 to address such issues. The Council noted the benefits that could come from the partnership with local NMHSs to study significant local or regional weather influences and hazards, to ensure that they were captured by global aviation models.

6.3.4 The Council noted that, in cooperation with ICAO, amendments to WMO Technical Regulation C.3.1 were being developed as part of Amendment 72 to ICAO Annex 3 with the applicability date of November 2001. Those amendments included provisions for operational requirements for WAFS, visibility, information on volcanic ash, turbulence reporting, SIGMET information and global exchange of OPMET information. In line with the decision of the CAeM to establish an Expert Group on TAF Verification, the Council was informed that such a Group was established in September 1999 to work on the standardization of TAF verification methods. That Group was expected to provide an interim report on the results of its work to the CAeM Working Group on TREND, due to meet in October 2000. The Council recognized that verification of TAFs could be considered as just one aspect of an overall quality management system. It noted with interest that there was consideration of the adoption of formal requirements for quality assurance in the ICAO and WMO regulatory material which would be further developed over the next few years. With regard to policy matters on arrangements for the provision of aeronautical meteorological services, considerations by the Council could be found in general summary paragraph 11.2.14.

6.3.5 The Council requested the Commission to examine, together with ICAO, the possibility of updating Attachment E to ICAO Annex 3/WMO Technical Regulation [C.3.1] — Operationally desirable accuracy of forecasts, to take into account current levels of forecast accuracy and in particular different achievable accuracies in the tropics versus other latitudes.

6.3.6 The Council recognized the importance of the AMDAR programme and the positive role played by the AMDAR Panel in establishing an effective upper-air observing system. The Council noted with satisfaction that the current volume of AMDAR data was estimated to be about 78 000 observations per day and that that volume was expected to reach 150 000 observations per day over the next five to 10 years. The proven positive impacts of that important and growing new data source were highlighted. The Council noted with interest that the Second Meeting of the AMDAR Panel, held in Geneva in October 1999, had reviewed, among other issues, the Panel work programme and had agreed on an AMDAR budget estimate for the biennium 2000–2001. The Council was concerned to learn that the activities of the Panel could be curtailed unless adequate contributions to the AMDAR Trust Fund were forthcoming. The Council encouraged Panel members who had taken the lead for implementing the AMDAR high priority activities to pursue vigorously their tasks and urged all Members to cooperate in the implementation of the AMDAR programme. The Council noted with appreciation the assurance from Canada and the United States that they would continue to support the AMDAR Trust Fund and Panel activities, in particular, the pilot projects in the Middle East and southern Africa. It noted that all that was needed for the southern Africa pilot project to start data collection was identified funding for air-ground transmission costs. The Council expressed its appreciation to the United Kingdom Meteorological Office for funding the services of an expert on data exchange and quality control, who had started his assignment on 1 April 2000. It also noted and welcomed the close collaboration that existed between the Panel and the EUMETNET AMDAR programme. In addition, the Council urged the Panel to ensure that collected AMDAR data were made readily available to Members.

6.3.7 The Council was informed that WMO was represented at meetings of the ICAO WAFS Study Group held in September 1999, of the Caribbean, Central and South America Regional Air Navigation, of the European Meteorological Group, both held in October 1999, and of the Meteorological Information Link Study Group, held in February 2000. The main recommendations from those meetings included the implementation of the WMO basic synoptic observation network to meet aviation requirements, the safety implication and financial impacts of WAFS products being posted on the Internet, training on meteorological codes, radar and satellite products and workstation processing techniques. The Council welcomed the establishment by ICAO of AMOSSG with active WMO participation to examine operational requirements for automated observing systems on aerodromes. That Group held its first meeting in May 2000 in Montreal. With regard to volcanic ash, the Council noted the important role of the VAACs in providing advisory information which would assist aviation users to avoid that serious hazard.

6.3.8 The Council welcomed the publication of the *Guide on Aeronautical Meteorological Services Cost Recovery*:

Principles and Guidance (WMO-No. 904) in October 1999. Bearing in mind that the implementation of cost recovery was a national decision, the Council recognized that there would be an ongoing need for additional support and guidance from WMO on the matter of cost recovery. The Council was informed that a global conference on the economics of airports and air navigation services would be held in Montreal in June 2000 and that the results of that conference could have an impact on overall cost recovery principles that could necessitate revision of current ICAO and WMO guidance material. The Meeting was informed that the preparation of the *Compendium on Tropical Meteorology* was at an advanced stage and that the WMO Secretariat was expected to publish it in the near future.

6.4 **MARINE METEOROLOGY AND ASSOCIATED OCEANOGRAPHIC ACTIVITIES PROGRAMME; THE REPORT OF THE PRESIDENT OF THE FORMER CMM (INTERIM CO-PRESIDENT OF JCOMM)** (agenda item 6.4)

6.4.1 The Executive Council noted with interest the report of the president of the former CMM, Mr J. Guddal, highlighting the major achievements of the Commission in the period between CMM-XII and the formation of the new JCOMM, as well as the priority activities for the new Commission in the immediate future. It expressed its considerable appreciation to Mr Guddal, to the chairperson of the former Joint IOC/WMO Committee for IGOSS, Mr D. Kohnke, to the chairpersons of the working groups and subgroups, and to the rapporteurs for the substantial work already accomplished as well as for the dynamic and innovative approach being adopted in the development and implementation of the JCOMM workplan.

6.4.2 The Council was pleased to learn that, following approval of JCOMM by Thirteenth Congress and the twentieth IOC Assembly, a first JCOMM Transition Planning Meeting had taken place in St Petersburg, Russian Federation, in July 1999. Participants in that meeting included members of the AWG of the former CMM, members of the former IGOSS Bureau, officers (or their representatives) of all the existing bodies to be coordinated under JCOMM, and officers of GOOS and the OOPC. The principal objectives of that meeting were to propose an interim management structure for JCOMM, to act until, and prepare for, the first formal session of the Commission (scheduled for June 2001 in Iceland); to prepare an integrated workplan for the Commission; to develop a proposed Commission substructure to address most effectively the workplan for consideration by JCOMM-I; and to ensure that the existing work programmes of CMM and IGOSS, in particular, continued to be implemented. With regard specifically to the first of those objectives, the Council approved (subject to similar approval by the IOC Executive Council) the proposals of the meeting that:

- (a) The president of the former CMM, Mr J. Guddal, and the chairperson of the former Joint IOC/WMO Committee for IGOSS, Mr D. Kohnke, should act as

interim co-presidents of JCOMM, until formal elections for those positions were held at JCOMM-I;

- (b) An interim Management Group for JCOMM should comprise the former CMM AWG, the former IGOSS Bureau, the chairpersons of the DBCP, the ASAP Panel, the GLOSS Group of Experts, the TAO Implementation Panel, the GTSP and the OOPC, with the participation also by officers of I-GOOS, the GOOS Steering Committee and the IOC/IODE;
- (c) WMO would take lead responsibility for the preparation, organization, conduct and immediate follow-up of the first session of JCOMM (Iceland, June 2001), which would thus take place using WMO procedures and regulations governing technical commissions.

6.4.3 The Council recalled that:

- (a) At its twentieth session, the IOC Assembly had pointed out that it would be important to draft appropriate rules of procedure for JCOMM;
- (b) The First Transition Planning Meeting for JCOMM, referred to in general summary paragraph 6.4.2, emphasized the necessity to resolve a number of small but important and constitutional differences between the corresponding organizations. It urged the Secretariats to ensure that those issues were resolved as soon as possible and in the most transparent way as possible to ensure that they provided no future impediment to the implementation and operation of JCOMM.

6.4.4 The Council noted that a comparative study was prepared by the Secretary-General on the differences in the Regulations of WMO and IOC relating to the functioning of WMO technical commissions and equivalent bodies of IOC. The Council requested the Secretary-General, in consultation with the Executive Secretary of IOC, to prepare a suitable set of common rules of procedure for the functioning of JCOMM in order to meet the basic objectives of the relevant Regulations of WMO and IOC within the context of General Regulation 180. The Secretary-General was requested to submit a report on that matter at the next session of the Council.

6.4.5 The Council recalled that Thirteenth Congress had agreed that the officers of JCOMM should comprise two co-presidents who should be drawn one from oceanographic and one from meteorological sciences to guide the Commission, alternating as decided by the Commission. The Council agreed that that decision should be interpreted as meaning that, for JCOMM as a technical commission sponsored jointly by another international organization, the two co-presidents were the equivalent of the normal president and vice-president as officers of a technical commission.

6.4.6 The Council further noted with approval the substantial progress that had been made by the interim Management Committee towards the development of concrete proposals for an integrated workplan and substructure for the Commission, a JCOMM capacity building strategy, as well as an agenda for JCOMM-I. It urged the interim Management Committee to make every effort to finalize that work as soon as possible in

order that the proposals could be made available for review by WMO Members/IOC Member States well in advance of JCOMM-I. The Council further stressed that, in developing an integrated workplan and substructure for JCOMM, the interim Management Committee should take particular care to identify the core processes and activities of the new commission and clearly set priorities so that JCOMM could be as efficient as possible in addressing both ongoing and new marine issues and requirements. In addition, JCOMM should continue to give priority to maintaining links and institutional arrangements with other major marine-related organizations such as IMO.

6.4.7 With regard to recent specific activities within the JCOMM work programme, the Council noted with appreciation the establishment of a project to implement a subset of the VOS to provide high quality data and metadata for global climate studies; the planned restructuring by the SOOP Implementation Panel of the global low-density XBT network in the light of the new Argo project; the successful Workshop on Advances in Marine Climatology (Vancouver, September 1999) and ongoing enhancements to marine climate data management; and the development of the concept of an integrated polar region strategy for JCOMM to embrace the diverse existing polar ocean and sea ice observing, data management and services activities. With regard to the restructured low-density XBT network, the Council stressed that that network remained complementary to the Argo project and that it was therefore important to maintain at least the present level of XBT deployments within the restructured network. The Council further recognized that JCOMM now represented the major mechanism for the implementation of an ocean observations network for climate, as identified in the International Conference: The Ocean Observing System for Climate (St Raphaël, France, October 1999), and as such would be an important contributor to, and partner for, GCOS. In that context, the Council very much welcomed the statement by the representative of EUMETSAT, concerning the importance which CEOS placed on the operational implementation of expressed requirements for ocean data from satellites as part of the space component of an integrated global observing strategy.

6.4.8 The Council expressed its appreciation to the DBCP for its substantial ongoing work in expanding buoy programmes worldwide and in enhancing the quantity and quality of buoy data available on the GTS. It offered particular thanks to the technical coordinator of the Panel for his work, at the same time noting with approval that he was also now working as technical coordinator for SOOP. In view of the critical importance of that position to both programmes, the Council urged Members to continue and, if possible, to enhance their financial contributions towards its support. The Council approved the proposal from the Panel to modify slightly its terms of reference, to reflect the decision of Congress that the DBCP should in future report through JCOMM. Resolution 4 (EC-LII) was adopted to effect that decision. The Council particularly stressed the vital

importance of the ocean surface pressure observations made by drifting buoys to both operational meteorology and global climate monitoring and prediction. Such data could not presently be obtained from satellites. The Council, therefore, urged all Members to increase their efforts wherever possible to enhance the deployment of buoys with atmospheric pressure sensors, particularly in the data sparse oceans of the southern hemisphere.

6.4.9 The Council recognized the critical importance of the international network of PMOs to the maintenance of the VOS and to the continued flow of high quality VOS data in support of maritime safety, operational meteorology and global climate studies. It therefore expressed appreciation for the ongoing series of regional training workshops for PMOs and, specifically, for the Training Workshop for PMOs in Regions II and V, which took place in Melbourne in November 1999, with generous support from Australia and the United States. It urged that that workshop series should be continued in the future to ensure that all Regions could benefit from that important activity, and in that context noted with appreciation that a Training Workshop for PMOs in RA I was planned to take place in Cape Town in November 2000, hosted by the South African Weather Bureau. More generally, the Council recognized that lack of trained personnel was a major impediment to the further development of marine activities in Africa. It therefore urged that the project document for the Western Indian Ocean Marine Applications Project, including in particular its capacity building component, should be finalized and submitted for funding as soon as possible and that more long-term fellowships should be made available for training experts from Africa in marine meteorology and physical oceanography.

6.4.10 The Council noted and reiterated the support and approval of Congress for the new Argo project, to implement a global network of autonomous subsurface ocean floats to provide temperature and salinity profiles of vital importance to climate monitoring and prediction. In that context, it recognized that Argo constituted a component of the WCRP, GOOS and GCOS, and that it would also become part of an integrated operational ocean observing system coordinated and regulated through JCOMM. The Council noted with approval the efforts being made, jointly by WMO and IOC, to inform Members/Member States of Argo float deployments, to facilitate access to Argo data (which would be freely available in real time on the GTS) and information, and also to facilitate participation in the project. It agreed that an effective way of implementing those actions, as well as of addressing technical aspects of data distribution and of assisting in the integration of Argo with other ocean observation networks, would be through a technical coordinator who could work in close collaboration with the existing DBCP/SOOP coordinator. It therefore urged Members to make appropriate financial contributions to enable the rapid establishment and long-term maintenance of that position. The Council expressed its appreciation to Japan for hosting the Argo Implementation Planning Meeting for the Pacific

(Tokyo, 13–14 April 2000), which was co-sponsored by WMO, IOC and the United States and included participation from Australia, Canada, France, the Republic of Korea, PICES and SOPAC. The Council supported the statement adopted by that meeting, in particular regarding the need for a global implementation strategy for Argo, as well as for broad regional participation in, and support for, that implementation. It also underlined the need for JCOMM to develop a mechanism to incorporate eventually Argo into the overall JCOMM structure.

6.4.11 The Council recognized the importance of the ongoing work of the ASAP Panel (formerly ASAP Coordinating Committee), which would now be coordinated under JCOMM, in providing vital *in situ* upper air data from remote ocean areas, in particular in support of WWW and the G3OS. It particularly supported the project of the Panel to establish one or more ASAP lines in the southern hemisphere and urged all interested Members to make every effort to ensure implementation of the project. The Council also expressed its appreciation for the work by EUMETNET to establish two new ASAP lines in the Mediterranean Sea and North Atlantic Ocean, within the EUMETNET ASAP Project, and for the close cooperation maintained with the ASAP Panel.

6.4.12 The Council noted with appreciation the statement made by the representative of IOC, reiterating the importance which IOC attached to the already high level of cooperation that existed between WMO and IOC, including the two Secretariats, covering JCOMM, GOOS, GCOS, WCRP and many other activities. It thanked IOC for hosting the planned Second JCOMM Transition Planning Meeting and supported the concern expressed by the IOC Assembly that JCOMM should make efforts to develop mechanisms to collect and manage ocean data not previously dealt with by CMM and IGOSS. In that context, close cooperation would be required with IODE of IOC. The Council welcomed the strong and extensive support being offered by IOC to Argo, including the management of a trust fund for the proposed Argo coordinator, and also noted with appreciation that the Second International Implementation Meeting for Argo in the Atlantic Ocean would take place in Paris in July 2000.

7. HYDROLOGY AND WATER RESOURCES PROGRAMME (agenda item 7)

PROGRAMME ON BASIC SYSTEMS IN HYDROLOGY

7.1 The Executive Council was informed of the status of the activities undertaken by the CHy Working Group on Basic Systems. Those were in the final stage of completion for submission to CHy-XI. It was noted that the working group had chosen not to hold a second session but had used the resources available to support the work of its members.

7.2 The Council noted that the Secretariat had continued its efforts to promote the use of the methodology contained in the WMO/UNESCO *Water Resources Assessment: Handbook for Review of National Capabilities*.

7.3 The Council was informed of the adoption by the Steering Committee for HOMS of the Implementation Plan for HOMS in the Twenty-first Century and noted that the Plan clearly set the guidelines for the further development and updating of the system. It was pleased to learn that the process of updating the existing contents of the *HOMS Reference Manual* was nearing completion.

7.4 The Council invited CIMO to consider the facility offered by HOMS to publicize and distribute the information on instruments that it was compiling. That would have the multiple benefit of strengthening HOMS and of enhancing the visibility and usefulness of both programmes.

WORLD HYDROLOGICAL CYCLE OBSERVING SYSTEM

7.5 The Council was pleased to note that the WHYCOS programme continued to generate considerable interest in the hydrological community around the world. The Council welcomed the continued progress with the implementation of MED-HYCOS and SADC-HYCOS. It was informed that a two-year pilot phase of the AOC-HYCOS project had been launched in January 2000 with funding from France. It expressed its appreciation to the various agencies for the financial support provided.

7.6 The Council was informed that a number of HYCOS projects were at various stages of development: those with project documents already developed, those with a project being developed and those under preliminary consideration.

7.7 The Council noted that the WHYCOS coordination mechanism established by the Secretary-General continued to serve as a very valuable vehicle for reviewing programme activities and for developing future plans. It recommended that the WHYCOS International Advisory Group ensure that the global objectives and concept of the programme be maintained, while seeking pragmatic means to implement it through regional components that built up the capacity of national and regional systems so that they might benefit fully from the system.

7.8 The Council welcomed the offer made by the Caribbean Meteorological Organization to assist in seeking funds for the early implementation of the CARIB-HYCOS project.

PROGRAMME ON FORECASTING AND APPLICATIONS IN HYDROLOGY

7.9 The Council was informed on the activities carried out by the CHy Working Group on Applications including its proposal for two new activities: the establishment of an international groundwater resources assessment centre, possibly supported by The Netherlands, and a pilot project on flash floods.

7.10 The Council was further informed that WMO was active in the preparation of the GWP Associated Programme on Flood Management and recommended that the hydrological component within the TCP should be strengthened to mitigate better the hydrological effects of tropical cyclones.

7.11 The Council was informed of plans for an expert meeting, under the joint auspices of the HWRP and GCOS, on the establishment of a global hydrological network for climate.

7.12 The Council noted the continued work of the GRDC and the offer made by the Russian Federation to establish a global data centre on lakes and reservoirs which was being studied by CHy. It recommended that work proceed to assess the feasibility of its establishment on the same basis as GRDC.

7.13 The Council discussed the need to strengthen links between the HWRP and the other WMO Programmes, including the mutual benefit of cooperation in activities related to GEWEX.

PROGRAMME ON SUSTAINABLE DEVELOPMENT OF WATER RESOURCES

7.14 The Council noted that five specific topics had been identified by CHy-X for priority attention under that Programme and that many relevant activities had been undertaken under the 4LTP. In view of the limited funds allocated to implement that Programme under the 5LTP, the Council invited CHy-XI to consider further the priorities that had been proposed and to advise on a long-term strategy for the implementation of the Programme.

PROGRAMME ON CAPACITY BUILDING IN HYDROLOGY AND WATER RESOURCES

7.15 The Council recalled that that Programme covered activities related to the organization and development of hydrological services, education and training in hydrology and product delivery and public awareness in hydrology and water resources.

7.16 The Council was advised of support provided by WMO to training courses, in particular those conducted in Nairobi, Kenya; Caracas, Venezuela; and Silver Spring, United States. A request was made for support of a three-month training course for technicians in Nairobi, Kenya.

7.17 The president of CHy expressed his satisfaction that a representative of the Commission had been appointed to the EC Panel of Experts on Education and Training.

PROGRAMME ON WATER-RELATED ISSUES

7.18 The Council noted the report of the Secretary-General as regarded the ongoing high-level debate over the pending water crisis and the increasing demands made on WMO to contribute to associated activities. It saw the ACC Subcommittee on Water Resources as having a key role in that regard. Information was provided on the plans of the Subcommittee to publish a world water development report on a biennial basis. The Council encouraged Members and the WMO Secretariat to provide support and to take that new opportunity to enhance cooperation between WMO and UNESCO.

7.19 The representative of UNESCO brought greetings from its Director General, Mr K. Matsuura, and noted that cooperation between UNESCO and HWRP

had achieved good results and had set an example of successful inter-agency collaboration. He expressed the view that that was a wise and logical policy which needed to be supported further in the form of financial and human resources so as to enhance the impacts and visibility of the results for the benefit of Member States at the time of a looming water crisis.

7.20 The Council was also pleased to note that the CHy AWG and the Bureau of UNESCO's IHP had met in parallel sessions in the new WMO Headquarters in September and that joint activities were progressing well. There was particular interest in the prospect of an international groundwater resources assessment centre being established under joint WMO/UNESCO auspices as a counterpart to GRDC and GPCC.

7.21 Information was provided on the Second World Water Forum that had been organized by the Netherlands in The Hague in March 2000. The Council saw as significant the recognition given in the Ministerial Declaration to the central role of the agencies of the United Nations system.

7.22 The Council called on Members and the WMO Secretariat to take an active part in the Rio+10 process in respect of freshwater, in particular as regarded the follow-up to the Dublin Conference and Chapter 18 — Protection of the quality and supply of freshwater resources: application of integrated approaches to the development, management and use of water resources, of Agenda 21.

REGIONAL ACTIVITIES

7.23 The Council noted that considerable expertise was available in the Working Group on Hydrology of the regional associations and recognized the benefits which could accrue from cooperation between CHy and the associations.

7.24 It was also noted that, following a request from the RA I Working Group on Hydrology, WMO/VCP funds were being used to support a pilot project on hydrological data rescue in five countries in Africa. The Council recommended that that data rescue project be extended to other regions, at the request of the Members concerned.

7.25 The Council was pleased to note that the needs of small islands of the South-West Pacific in the areas of operational hydrology and water resources management were addressed at a Meeting of Experts on Hydrological Needs of Small Islands, held in Fiji in October 1999. The meeting identified a number of specific areas for action and immediate action was recommended for technician training and the development of a regional component of the World Hydrological Cycle Observing System, namely the Pacific-HYCOS.

FUTURE DEVELOPMENTS

7.26 The president of CHy, Mr K. Hofius, submitted to the Council an in-depth report on the activities of the Commission, prefaced by a presentation on the important links that existed between NHSs and NMSs.

7.27 The Council thanked the president of the Commission for his report and recorded its appreciation

for the leadership he had provided to CHy over the previous eight years and for his vigorous commitment to enhancing the role of WMO in resolving global water issues.

7.28 It took note of the proposals of the CHy AWG for the future work programme of the Commission and offered the following comments:

- (a) NHSs, especially those of developing countries, needed the aid of the international hydrological community in order to improve their contribution to the sustainable development of their water resources. In that context, activities related to technology transfer, such as HOMS and WHYCOS, became extremely important;
- (b) Emphasis should be given to hydrological forecasting, but activities should be carried out not only in relation to floods but also on low flow forecasting and the management of droughts, particularly in view of the widespread and devastating effect of the latter;
- (c) There was the need for closer cooperation between NMSs and NHSs in providing more timely and accurate forecasting, one example being in the estimation of rainfall from tropical cyclones;
- (d) In the coming years, particular attention should be paid to the problems faced by arid and semi-arid zones and by small island States and coastal zones, particularly in the face of the potential impact of climate change on their hydrological regimes;
- (e) The more open-ended terms of reference given to the experts nominated by the Commission gave them the ability to respond to the needs of Members and WMO in general during the inter-sessional period;
- (f) The change in the terms of reference of the Commission, adopted under Resolution 37 (Cg-XIII) — Terms of reference of the technical commissions, enabled CHy to widen its traditional field of activity to respond more fully to the needs of society and CHy-XI should take account of that;
- (g) The Council noted the request of Thirteenth Congress that EC should study further the possibility of adding a subtitle to the name of the Organization to reflect its work in hydrology. It invited CHy-XI to make proposals in that regard.

7.29 After considering the range of future activities that might be undertaken by the Commission and implemented under the HWRP in general, the Council recognized the limitations set by the funding available to the Secretary-General to support them. It therefore invited Members to offer all support to the work of the Programme, whether in cash or in kind, and called for a careful review of the budgetary situation of each sub-programme to ensure that maximum use was made of the funds available.

7.30 On a much broader front, the Council took note of the continuing evolution of the role and status of NHSs in their national and regional context and the implications of that for their relations with WMO. It was recognized that changes in the purposes and structure of

WMO could serve to strengthen those relations, but it would be necessary to take account of the complex administrative and economic environment in which NHSs operated so as to ensure that such an outcome was achieved.

8. EDUCATION AND TRAINING PROGRAMME (agenda item 8)

GENERAL

8.1 The Executive Council noted the decisions of Thirteenth Congress on WMO activities in the field of education and training and, in particular, Resolution 17 (Cg-XIII) — Education and Training Programme. It noted that Congress had requested the Council to continue the overall coordination of the ETR Programme to ensure that all necessary actions were taken to meet the objectives of the 5LTP. The Council also noted with satisfaction the information on WMO activities which had taken place in education and training since its last session.

8.2 The Council stressed that training activities were vital for the success of all WMO Programmes and commended the efforts of its Panel of Experts on Education and Training, regional and national training centres, trainers and educators in various relevant institutions in supporting the activities of the ETR Programme. Concerned that the present staffing was inadequate to handle the large range of coordination issues in the ETR Programme, the Council requested the Secretary-General to consider the possibility of strengthening it.

EC PANEL OF EXPERTS ON EDUCATION AND TRAINING

8.3 The Council noted the report of the nineteenth session of its Panel of Experts on Education and Training, held in Bridgetown, Barbados, from 3 to 7 April 2000 and commended the work carried out by the Panel under the chairpersonship of Mr J. W. Zillman (Australia). The Council considered the views and recommendations of the Panel. Its comments and decisions thereon were recorded in the relevant general summary paragraphs below.

8.4 The Council noted that the Panel had discussed thoroughly the possible issues that would confront NMHSs and have an impact on the education and training requirements in the next 10 years and recommended that the elaboration and discussions of the Panel on those issues should be forwarded to the Working Group on Long-term Planning for their consideration.

HUMAN RESOURCES DEVELOPMENT

8.5 The Council noted that, in connection with the entry into force of the new WMO classification of personnel in meteorology on 1 January 2001 (as approved by its fiftieth session), a consolidated text of the fourth edition of the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258), Volume I — Meteorology, had been prepared with the help of an Editorial Task

Force and with the guidance of the EC Panel of Experts on Education and Training. A preliminary issue (English only) would be released before the end of the year. The Council recommended that the final version be translated into other WMO official languages.

TRAINING ACTIVITIES

8.6 The Council noted with satisfaction that the WMO Symposium on Continuing Education and Training in Meteorology and Operational Hydrology had been successfully held in Tehran, Islamic Republic of Iran in November 1999. The Council expressed its appreciation to the Islamic Republic of Iran Meteorological Organization for the excellent arrangements and for the facilities provided.

8.7 The Council agreed that the recommendations of the symposium were of considerable value as a guide to Members in their efforts to strengthen their human resources by improving the staff's skills and knowledge through continuing education and training. Considering those recommendations addressed to the NMHSs, the Council understood that they should be applied in a wider context to WMO Members. Noting the importance and usefulness of those events in guiding the education and training activities of the Organization, the Council requested its Panel of Experts on Education and Training to propose a relevant theme for the next symposium, planned to be organized in 2003.

8.8 The Council noted with satisfaction the existing contacts and common activities between some RMTCs and recommended that such exchanges be expanded and supported by all possible means, such as through the assistance of WMO funding programmes, and by bilateral and TCDC arrangements. The Council also noted the need for assisting national training institutions of developing countries in order to carry out the necessary training activities to cope with increasing training needs and the application of the new classification of meteorological and hydrological personnel.

8.9 The Council was pleased to note that the Meeting of Directors of RMTCs had been held on 11 November 1999 in Tehran, Islamic Republic of Iran. Noting the reduced participation of Directors/Representatives at that meeting in spite of the available financial support from WMO, the Council encouraged Members hosting RMTCs to be represented at such meetings in the future, in order to allow RMTCs to take full advantage of direct contacts between themselves.

8.10 The Council noted with satisfaction that following the mechanism for the continuous monitoring of RMTC's activities agreed upon in its forty-eighth session and endorsed by Thirteenth Congress, four RMTCs, namely those located in Argentina, Barbados, Costa Rica and Egypt, were externally reviewed. It agreed with the Panel's recommendations, which considered the reports of the external assessment teams, that those training centres should continue to be recognized as WMO RMTCs and that the external assessment reports should be transmitted, together with the associated Panel's recommendations, to those RMTCs for appropriate

consideration. It also agreed with the Panel's views that the assessment process not only helped the concerned individual RMTCs but also broadened the understanding of the role and operation of RMTCs in general.

8.11 The Council noted with appreciation the activities of SCHOTI. In particular, the Fourth International Conference on Computer-aided Learning and Distance Learning in Meteorology, which was held in Helsinki, Finland, from 14 to 18 June 1999 and was organized by the SCHOTI Working Group on CAL. It also noted that the Meeting of Directors of RMTCs had nominated a representative and an alternate to serve as a member of the Coordinating Committee of SCHOTI, with the main objective of promoting initiatives from RMTCs and fostering contacts.

8.12 The Council noted with appreciation that a considerable number of training events on several subjects areas of the major WMO scientific and technical programmes had been organized and co-sponsored by WMO, including training in specialized areas such as the management of meteorological training centres and the marketing of meteorological products and services. The Council noted that advanced operational centres, such as the ECMWF, offered high-quality training in specialized areas and requested the Secretary-General to explore the possibility of organizing training activities in those centres for the benefit of other WMO Members.

8.13 The Council noted that, following a request made by the Panel in a previous session and supported by Thirteenth Congress, a policy had been established for the inclusion of new titles in the series of training publications as well as criteria for deletion of older titles.

8.14 The Council noted with satisfaction the information on the activities of the Training Library and the use made of its services by the Members. It also appreciated the continuous updating of the Virtual Training Library in an effort to provide the latest and most suitable available training material through Internet and recommended that those actions should be encouraged and continued.

8.15 The Council noted the activities of the CBS OPAG on IOS, which followed up on the CBS-endorsed Strategy to Improve Satellite System Utilization, and included the Strategy for Education and Training in Satellite Matters endorsed by the Council in its forty-fifth session. The Council also noted the participation of the satellite operators to strengthen further the training in satellite system utilization, including sponsorship of "centres of excellence". Six such centres were now sponsored by the satellite operators and, thus, provided a worldwide nucleus (RMTCs in Niger and Kenya for RA I, in China for RA II, in Costa Rica and Barbados for RA IV and the Australian Bureau of Meteorology Training Centre for RA V).

8.16 The Council also noted with satisfaction the various activities of satellite operators, both individually and jointly with WMO, and the ETR Programme in particular, in the form of direct assistance to RMTCs, user forums, seminars, workshops, etc. It recognized the potential for expansion of the training component by

linking the RMTCs and recommended the establishment of close coordination and interactions between RMTCs by involving relevant science groups in a systematic manner and by using the idea of a virtual laboratory for training in satellite meteorology (see general summary paragraph 3.3.15).

EDUCATION AND TRAINING FELLOWSHIPS

8.17 The Council noted with appreciation the generous contributions made by several donor Members, which continued to provide fellowships under the VCP. It appealed to VCP donors to increase further as much as possible their contributions to the WMO fellowship programme, including long-term fellowships. It encouraged the Secretariat to continue the promotion of cost-sharing arrangements and the use, as far as possible and when available, of extrabudgetary funds. Noting the increasing demand for training through fellowships, the Council encouraged Members and the Secretariat to make every effort to assist in satisfying those needs.

8.18 The Council reviewed and approved the criteria developed by its Panel for the award of WMO fellowships under the regular budget, as contained in Annex IV to this report, and requested the Secretariat to review the present fellowship nomination form in order to comply with those criteria. The Council requested the Secretary-General to continue his efforts aimed at sensitizing private institutions and foundations to complement the fellowship financial resources.

9. TECHNICAL COOPERATION PROGRAMME (agenda item 9)

9.1 The Executive Council reviewed the progress made in the implementation of the TCO Programme and noted that several Members continued to benefit from the activities carried out under the Programme, particularly in the areas of identification of requirements, formulation of project and programme proposals, resource mobilization as well as planning and development of their NMHSs. The Council also noted that those activities continued to be implemented within the framework of various funding sources, namely UNDP, VCP, Trust Funds, GEF, the World Bank and development banks, the regular budget and other sources.

9.2 The Council noted that contributions to the VCP in 1999 provided by Members amounted to approximately US\$ 8.5 million. One hundred and seventy-one VCP projects for equipment and 128 requests for fellowships were circulated among donor Members. Ninety-nine VCP projects for equipment obtained partial or full support and 115 short-term and 23 long-term fellowships were awarded under the VCP in 1999. The Council noted further that in spite of the offers of support obtained every year, approximately 300 VCP projects for equipment and 150 requests for fellowships remained not fully supported or unsupported. Noting with appreciation that donor Members had indicated their willingness to continue to support the VCP Programme at the Informal Planning Meeting on the VCP and related TCO Programmes, held in January 2000,

the Council urged Members to maintain and enhance further their contribution to the Programme through resource mobilization activities with Government organizations, funding institutions and collaborating technical cooperation organizations in the country.

9.3 The Council noted with appreciation that the WMO Secretariat had deployed considerable efforts towards seeking further resources from funding agencies and the private sector, such as the World Bank, regional development banks, including the IDB, and the European Commission. It further noted that during the 2000 Informal Planning Meeting a special session was dedicated to presentation by, and discussion with, some international funding agencies and technical cooperation organizations, and that various agencies were more and more sensitized on impacts of weather- and climate-related phenomena on national welfare and economies.

9.4 The Council noted that there were eight national and three regional projects being implemented with UNDP funding during 1999, some of those with Government cost-sharing. It also noted that the total delivery from those projects was approximately US\$ 2.5 million. The Council noted, in that respect, that the GEF/UNDP project to monitor greenhouse gases, including ozone, was almost satisfactorily completed, that the GAW stations established in Algeria, Argentina, Brazil, China, Indonesia and Kenya were all operational, and that the IAI/WMO project for capacity building in Latin American countries was completed. The Council was pleased to note that despite the decline of UNDP resources, UNDP had launched a new partnership initiative to encourage increased collaboration with agencies such as WMO through participation in the CCA and UNDAF processes at the country level. The Council requested the Secretary-General to continue his efforts in enhancing cooperation with UNDP and other United Nations agencies to address the new local, regional and global challenges.

9.5 The Council noted with satisfaction that during 1999 the implementation of several trust fund projects continued satisfactorily and that a number of new projects were approved. In that connection, the Council noted that in Brazil, WMO continued the implementation of two major projects with the Brazilian Institute for the Environment and the Renewable Natural Resources related to the environment preservation. The Council also noted that the preparatory phase of the project with the National Agency for Electric Energy related to the production of hydroelectric energy was successfully completed. The document for the executive phase of the project had been approved and its budget allocated. In addition, the Council noted that the WMO trust fund project for the establishment of a radar network in the Islamic Republic of Iran and the Mexico Water Resources Project were progressing satisfactorily. The Council also noted that the Italian-funded projects, launched to support early warning systems for the NMSs of Burkina Faso, Mali and Niger as well as early warning and agricultural yield forecasting for the nine CILSS countries, were being implemented. It further noted that the two Drought

Monitoring Centres based in Harare and Nairobi continued to provide the participating countries with weather and climate information, products and advisories under trust fund projects funded by the Belgian Government and USAID, respectively. It was also noted that the second phase of the Saudi Arabia Cloud Physics Experiment Project for rain enhancement would contribute towards the provision of more detailed information about the physics of clouds and the enhancement of rain amount in the target area. In addition, the Council noted the completion in November 1999 in the Sultanate of Oman of a meteorological data communication facility comprising of automatic switching and data presentation systems which were year 2000-problem compliant.

9.6 The Council noted that the important Programme to Address ASEAN Regional Transboundary Smoke for ASEAN countries had been developed and was being implemented with the support of Australia, the United States, the Asian Development Bank and other partners for the detection and monitoring of transboundary pollutants. The Council requested the Secretary-General to assist in accelerating the implementation of the relevant components of the project. The Council reiterated that the trust fund scheme was an efficient modality for technical cooperation activities and encouraged Members to use it.

9.7 The Council noted with appreciation that WMO had concluded Memoranda of Understanding with the World Bank and the IDB to improve collaboration in areas of common interest, particularly natural disaster prevention and mitigation, climate change and water resources. The Council also requested the Secretary-General to continue his efforts in strengthening the liaison with the Banks, especially the African and Asian Development Banks. The Council also noted that WMO participated actively in the World Bank initiative for establishing the ProVention Consortium, the objectives of which were to promote safety by raising the awareness of disaster-related risks among Governments and communities so they could devise effective preventive measures, support public policies that reduced the risk of natural and technological disasters in developing countries by, for example, the integration of prevention and mitigation mechanisms in development plans, the adoption of improved building codes and more effective management of both land use and emergency response agencies, and develop the governments' ability to anticipate and respond effectively to disasters when they struck through the use of early warning systems and civil defence. Furthermore, the Council noted that under the World Bank Grant, assistance was provided to SATCC to develop a regional strategy for enhanced meteorological applications in southern Africa. Other activities carried out under the Grant included training workshops in seasonal forecasting, climate outlook forums and pilot projects in the application of climate information and products.

9.8 The Council noted that an agreement on the Study on the prediction and amelioration of socio-economic impacts of ENSO in Latin America and the Caribbean was concluded with the IDB in September

1999. In that connection, the Council noted that other regions were also affected by ENSO-related natural disasters. The Council, therefore, requested the Secretary-General to develop similar projects for those regions, in particular for eastern and southern Africa.

9.9 The Council also noted with satisfaction that WMO had successfully completed the feasibility study of the Ibero-American Climate Project, funded by the IDB, Canada, Spain and the United States covering 13 countries from Latin America. The cost of the feasibility study amounted to US\$ 2.9 million of which Spain contributed US\$ 965 000. In September 1999, the final result of the study was delivered to the IDB and to the participating countries. The Council further noted that as a result of that study, 13 project proposals had been prepared for the modernization of 13 NMHSs in Latin America with an estimated global cost of US\$ 408 million. Taking into account the importance of that project for the NMHSs of the countries concerned, the Council requested the Secretary-General and the participating countries to continue their efforts in securing resources with the relevant national authorities for the implementation of those projects.

9.10 The Council also noted that WMO continued to collaborate with regional and subregional economic groupings such as ECOWAS, NBA, SADC, SPREP and other regional institutions.

9.11 The Council further noted that several new projects were being developed and negotiated with potential donors. The Council encouraged the Secretariat to continue its efforts in assisting Members in developing new projects and programmes in support of their NMHSs and regional organizations, including regional strategies for developing and enhancing NMHSs infrastructure, especially telecommunications and data processing. The projects should be geared towards developing capabilities of NMHSs in playing their role in natural disaster prevention and mitigation efforts at the national and regional levels. In that regard, it also encouraged Members to contribute to the recently established trust fund for programme development activities.

9.12 The Council noted that WMO assisted the NMHSs of Ecuador and Peru in the revision of strategic development plans and a national restructuring exercise plan, respectively. Both activities were successfully accomplished. The Council also noted that assistance was provided to Mauritius, Sao Tome and Principe, and Togo for the formulation of the meteorological and hydrological components of the programme aimed at food security, climate change, desertification and environment. The Council also noted the assistance provided by Israel, in cooperation with WMO, to Costa Rica, Kenya and Uzbekistan in the field of technology transfer through training events in agrometeorology in their respective countries in 1999.

9.13 The Council noted that during 1999, equipment and services were purchased for 56 field projects, one Regional and four Subregional Offices. The number of purchase orders totalled 168 for a value of US\$ 3.48 million, exceeding that of 1998.

REPORT OF THE EC ADVISORY GROUP OF EXPERTS ON TECHNICAL COOPERATION

9.14 The Council noted that the third session of the EC Advisory Group of Experts on Technical Cooperation was held in Geneva from 11 to 13 May 2000. The group reviewed the progress made in the implementation of the TCO Programme including follow-up actions taken on relevant decisions of Thirteenth Congress and the fifty-first session of the Executive Council. The Council expressed its appreciation to the members of the group and invited experts.

9.15 Following the recommendations of the Group and taking into consideration the needs of Members, the Council approved the following VCP-coordinated programmes:

- (a) Improvement of the global network of upper-air stations with special emphasis on GCOS upper-air network;
- (b) Improvement of the GTS;
- (c) Automation of NMCs;
- (d) Support to transition to low-resolution picture/image transmission satellite receivers;
- (e) Support to the TCP;
- (f) Support to Internet capabilities at NMHSs;
- (g) Support to PWS activities;
- (h) Support to climate data management and CLIPS;
- (i) Support to training and human resource development for meteorology and operational hydrology;
- (j) Support for ACMAD activities.

9.16 The Council reviewed the report on the use of the VCP(F) in 1998–1999 and approved the allocations of VCP(F) for 2000, based on estimated income amounting to approximately US\$ 320 000 as given Annex V to this report. The Council authorized the Secretary-General to implement the projects as funds became available. In that regard, the Council noted that technical guidance was required when assigning priorities for supporting observing systems and requested CBS to continue giving priority to the redesign of the GOS.

9.17 The Council also reviewed the status report on the use of the WWW Implementation Support Revolving Fund. It noted that, at the request of Thirteenth Congress, the Secretariat utilized the diplomatic channels to facilitate the reimbursement by Members which had not yet reimbursed their loans at the end of the 24-month repayment period. With that measure and with the assistance of Regional and Subregional Offices, two Members had reimbursed their loans in 1998–1999 and one Member was reimbursing its loan in 2000.

9.18 The Council noted that within the framework of emergency assistance activities, coordinated efforts were made to address urgent requirements of Members in Central America and the Caribbean, Asia and southern Africa in 1999–2000 for the restoration of observing and telecommunication facilities. Considering the need to ensure appropriate coordination of assistance in such cases, the Council endorsed several measures including the concept of establishing emergency assistance response teams and the simplification of procedures for the WMO Emergency Assistance Fund and the WMO

VCP. The Council requested the Secretary-General to continue ensuring that appropriate measures were taken in that regard to assist NMHSs in a timely manner. The Council encouraged Members to participate actively and support the Secretariat efforts in that regard, and to develop national emergency response plans within the framework of WMO.

9.19 The Council noted the efforts made by the Secretariat to promote further TCO activities and encouraged Members to establish stronger partnerships with the WMO Secretariat in the development and implementation of joint projects and programmes and in the mobilization of resources from bilateral and multilateral agencies. The Council further encouraged Members to enhance the promotion of trust fund projects and the collaboration with the private sector, especially with foundations and non-governmental organizations, taking into account the intergovernmental nature of WMO and based on a mutual recognition of roles and expectations.

9.20 The Council also noted that several Members were providing assistance to NMHSs through bilateral arrangements. In that regard, the Council requested Members to provide, on a regular basis, information to the WMO Secretariat on bilateral activities for dissemination.

9.21 The Council noted that the criteria selected, although useful, were not sufficient for making qualitative and quantitative assessments of TCO activities of Subregional Offices. It recommended that for future assessments, the criteria should bring out more clearly the following:

- (a) The outputs and achievements realized by the Subregional Offices in more qualitative and quantitative terms;
- (b) The contribution by Subregional Offices in creating close links between the WMO Secretariat and Members as well as the level of visibility of WMO and NMHSs in the respective subregions;
- (c) The regional characteristics and requirements;
- (d) The views of NMHSs and the presidents of regional associations.

The Council recognized that from the results of the study carried out on the performance of Subregional Offices, those Offices had made a significant contribution in support of NMHSs, mainly in the areas of identification of requirements, project formulation and implementation and mobilization of resources. Further views of the Council on the Subregional Offices were provided under agenda item 10.

10. REGIONAL PROGRAMME (agenda item 10)

10.1 The Executive Council noted with satisfaction that the implementation of the regional events as approved for the biennium 1998–1999 was completed satisfactorily and that the Regional Offices continued to serve effectively their respective regional associations and to assist their presidents in the discharge of their responsibilities.

10.2 The Council noted the activities of the WMO Subregional Offices for Northern America, Central

America and the Caribbean in San José (Costa Rica), for Western Africa in Lagos (Nigeria), for Eastern and Southern Africa in Nairobi (Kenya) and for the South-West Pacific in Apia (Samoa). The Council expressed its appreciation to the Secretary-General for ensuring that the activities of the Subregional Offices contributed effectively to supporting the efforts of the NMHSs of the respective subregions.

10.3 The Council reviewed the assessment report on the Subregional Offices and expressed its appreciation for the effective manner in which those Offices had been performing their duties. It also noted the joint activities carried out by the WMO Subregional Office for the South-West Pacific in Apia (Samoa) in collaboration with SPREP to enhance the development of the NMHSs in that Region.

10.4 The Council agreed that the Subregional Offices had made a significant contribution in support of NMHSs of their respective subregions by being closer to Members and by enhancing the visibility of WMO in the regions. In particular, it recognized the timely response of the Offices to emergency situations as demonstrated during Hurricanes *Mitch* and *Georges* in Central America, the disastrous floods in Mozambique and the severe drought situation in the Horn of Africa.

10.5 In the light of the valuable contribution of the Subregional Offices, the Council supported the establishment of a Subregional Office for Asia and a Subregional Office for Europe. In that regard, it requested the Secretary-General to make the necessary arrangements, within the available resources and in consultation with the presidents of the regional associations concerned to establish those Offices during the thirteenth financial period.

10.6 With regard to the future assessment of the functioning and operation of the Subregional Offices, the Council invited the Secretary-General to take into account the additional criteria for the assessment given in general summary paragraph 9.21.

10.7 The Council was informed that a study regarding the financial implications of a possible transfer of the Regional Office in Asunción would be submitted for consideration by RAs III and IV at their forthcoming sessions, as requested by Thirteenth Congress (see general summary paragraph 3.8.1.5 of the *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902).

10.8 The Council also noted the views regarding the upgrading of the Subregional Office for Northern America, Central America and the Caribbean in San José (Costa Rica) to a Regional Office in the future.

11. MAJOR ISSUES FACING WMO (agenda item 11)

11.1 MAJOR ISSUES OF INTEREST TO MEMBERS OF WMO (agenda item 11.1)

11.1.1 The Executive Council recognized that there was a wide range of major issues of interest which presented WMO, its Members and their respective NMHSs with related challenges and opportunities. The Council had an extensive discussion on that subject. Notes

containing an extended summary of the interventions were prepared by the Secretariat for possible use by the relevant subsidiary bodies of the Executive Council.

11.1.2 The Council recalled that Thirteenth Congress had also addressed a number of major concerns which were reflected in its Geneva Declaration. That Declaration helped a number of Members in having a better appreciation of those concerns and in taking appropriate action. The Council felt that there was scope for further enhancing the visibility and status of WMO and the NMHSs, as well as for further improving the appreciation of their roles and contributions by government authorities and other decision makers. In that connection, the Council requested the Secretary-General to study the possibility of organizing a ministerial-level conference to provide an important occasion to address the relevant major issues. The Council suggested that such a conference could take place at the time of Fourteenth Congress. The Council felt that that should be an event to draw special attention to the unique and integrated international system which had been successfully facilitating the provision by NMHSs of the relevant meteorological, hydrological and related products and services in support of sustainable development, national security and well-being, and help Members meet their international commitments.

11.1.3 The Council recognized that in the light of the changes in the environment influencing the NMHSs as well as in their role and operation (such as in connection with their core functions and other activities), there was a need to take account of those changes in the basic framework and activities of WMO. It requested its Advisory Group on the Role and Operation of NMHSs, its Advisory Group on the International Exchange of Data and Products, its Working Group on Long-term Planning and its Task Team on WMO Structure to take those changes into account in their work. It also requested the Secretary-General to provide appropriate support, including in connection with studying pertinent possible changes to the WMO Convention and Regulations.

11.1.4 The Council took special note of the widening gap that existed between the level of relevant services provided by the NMHSs in the developed countries, on the one hand, and the developing countries and those with economies in transition, on the other hand. It reaffirmed that that was a matter of major concern for all Members due to the high level of interdependence among all countries. The Council requested the Secretary-General both to ensure that that concern was further addressed in the relevant forums and to assist in developing an enhanced strategic approach to bridging the gap, especially in connection with the establishment, operation, maintenance and enhancement of observing and telecommunication systems, particularly in the light of recent technological advances.

11.1.5 The Council also felt that an area of critical importance was the evolution of global observing systems with emphasis on remotely-sensed data. Concern was expressed that that might lead to a situation where availability and access to the observational data and

products might become limited. The Council requested the Secretary-General to undertake an in-depth study on that subject to help the Organization address that issue in a proactive way. It requested the presidents of technical commissions, among others, to assist in that endeavour.

11.1.6 The Council recognized the importance of ensuring that Members were able to benefit more fully from, and participate in, WMO Programmes and activities. In particular, it recognized the importance of participation in the relevant constituent body sessions especially from the developing countries and those with economies in transition. It requested the Secretary-General to study further that matter, including the possibility of setting up a special fund and/or other financial arrangements.

11.1.7 The Council's discussions on the above-mentioned issues were taken into consideration in connection with other relevant agenda items. The Council requested that account be taken of the pertinent discussions in progressing the work of its subsidiary bodies, particularly the Working Group on Long-term Planning, the Task Team on WMO Structure, the Advisory Group on the Role and Operation of NMHSs, the Advisory Group on the International Exchange of Data and Products, the Advisory Group on Climate and Environment, the Advisory Group of Experts on Technical Cooperation, and the Panel of Experts on Education and Training. It requested the chairpersons concerned to ensure that appropriate actions were taken. The Council requested the Secretary-General to provide appropriate support to the relevant Executive Council subsidiary bodies. In that connection, the Council recalled its earlier considerations on that topic which should also be taken into account (see general summary paragraph 11.1.3 of the *Abridged Final Report with Resolutions of the Forty-eighth Session of the Executive Council* (WMO-No. 846)).

11.1.8 The Council also noted the views expressed in connection with appropriate regional representation at sessions of the WMO Bureau.

11.2 ROLE AND OPERATION OF THE NMHSs (agenda item 11.2)

11.2.1 The Executive Council considered the report of the chairperson of the EC Advisory Group on the Role and Operation of NMHSs, which had met in Geneva from 31 January to 3 February 2000. The Council noted that the report of the first session of the group had been made available to all members of the Council and expressed its appreciation for the work done by the group.

11.2.2 The Council recalled its discussion during its fifty-first session on the handling of the topic of involvement of the media, the private sector and academia in the work of WMO and the NMHSs. It noted that following consultations with the vice-presidents, the President, who was also the chairperson of the Advisory Group, had decided that that topic should be considered by the group at its first session.

MAJOR ISSUES FACING NMSs

11.2.3 The Council noted the group's initial identification of major issues relevant to the role and operation of NMSs and agreed that they should be further considered as part of the work programme of the group. The Council agreed that addressing the relevant topics and resolving the pertinent issues should be seen as an evolutionary process leading towards building a consensus.

11.2.4 The Council stressed the need for further careful analysis of issues bearing on the appropriate mission and role of NMSs in the light both of emerging global trends and of individual national circumstances. It reaffirmed that the primary role of the NMS remained in the area of protection of life and property. That role was in the domain of public good and was in support of government responsibility for the overall well-being of its people; hence the Council stressed that appropriate government funding was of crucial importance. The Council reiterated that whatever form or model the NMS took, it was imperative that government financial support, directly or through "government-as-customer" contracts, was provided to operate and maintain the required relevant basic infrastructure. It was also noted that it was unlikely that the total market potential would ever be sufficient to cover fully the costs of the basic infrastructure, hence state funding was seen as essential.

11.2.5 The Council re-stressed that a greater number of economic sectors were calling on the expertise of NMSs to provide a wider range of products and services in response to expanding user requirements in areas such as seasonal forecasting as well as in addressing complex issues such as water management, health, climate change and other environmental concerns, in addition to the spectrum of PWS. While it would be important for NMSs to focus on their primary responsibilities, they would also need to keep closely involved with a range of related fields in order to ensure that they were well positioned to meet the future needs of their national communities.

11.2.6 The Council agreed that some NMS functions might, in the future, appropriately be carried out to a greater extent on the basis of regional cooperation while ensuring that appropriate national infrastructure and capabilities were maintained. In that connection, the Council emphasized the need for extensive consultations between the NMHSs concerned to reach possible agreements or arrangements in that regard.

11.2.7 The Council encouraged Members to put in place appropriate legal instruments, if that had not yet been done, and requested the Secretary-General to provide advice, as appropriate. The Council recognized that further analysis of the legal instruments received from Members would provide a useful indication of what countries had already identified their NMSs' activities and priorities. On the basis of analysis of national legal instruments, it might be possible to describe more clearly the role and operation of NMSs and especially their primary responsibilities.

11.2.8 The Council agreed that there was an increasing need for a rigorous methodology for economic

valuation of meteorological services to ensure a better understanding of the benefits accruing from the NMSs. There was also a need for guidelines on methodologies for evaluating economic and social benefits, as well as for a range of case studies by independent experts. In addition, there was a need for sound performance measures to help to establish and to improve the value of products and services.

11.2.9 The Council recognized the need for developing a guiding framework for the consideration of funding and related issues as well as, eventually, for describing and evaluating a range of funding models which Members might wish to consider. The Council further recognized that the identification of NMSs primary responsibilities was critical in that connection.

11.2.10 The visibility and status of NMSs were of importance, particularly in obtaining government support, and had been continually addressed by regional associations and regional technical conferences on management. The importance of ensuring the usefulness of NMSs products and services through closer user interaction and product/service branding had been acknowledged. The Council recognized the role of effective PWS in improving the visibility of NMSs.

11.2.11 Moreover, the Council felt the need for enhanced promotion of the status and visibility of NMSs, particularly through a better appreciation of their roles by Governments. In that light, it requested the Secretary-General to explore the possibility of organizing a WMO conference on the role of, and socio-economic benefits provided by, NMHSs with special attention on the participation of high-ranking governmental officials. The conference should also emphasize to Governments the important role of NMHSs regarding the protection of life and property, the contribution to sustainable development, addressing environmental issues, assisting policy-formulation and meeting international commitments (e.g., UNFCCC).

11.2.12 The Council agreed that ways should be found to provide rapid access to warnings of severe weather issued by NMSs such as through appropriate links to NMSs Web sites on the WMO Home Page, among other things.

11.2.13 The Council agreed that in many respects, capacity building might be the greatest challenge now facing WMO. Given that bridging the gap had long been one of WMO's priority objectives, a broad assessment of the overall effectiveness of WMO capacity building activities should be considered, including the possible identification of a specific overarching programme in that area.

11.2.14 The Council noted that changes in the arrangements for the provision of aeronautical meteorological services were causing concern to a number of NMSs. The Council agreed that guidance should be developed on how to ensure the quality of meteorological services provided to support the safety and efficiency of aviation. It noted that consultation with ICAO was being undertaken to explore enhanced cooperation in defining the most appropriate arrangements for the

provision of aeronautical meteorological services (see also general summary paragraph 6.3.4).

11.2.15 The Council also recognized that in order to help to ensure the enhanced role and operation of NMSs, effective leadership in those Services was crucial. Such leadership should provide direction, values, purpose and motivation in working together towards the realization of the NMS's mission in the context of rapid change. It was suggested that the possibility of certain WMO RMTCs being designated as centres for the relevant leadership/management training should be explored.

COOPERATION WITH RELATED DATA AND SERVICE PROVIDERS

11.2.16 The Council recognized that there was a need in some countries to develop strategic alliances with various sectors as well as with other national agencies, and in particular, to develop enhanced cooperation with related data and service providers.

11.2.17 The Council also recognized that, in some countries, the service providers went through a national certification process and that many of those providers had a high level of competence. Such competent service providers could be useful allies of NMHSs in helping to ensure the integrity of the basic infrastructure and responsibilities of the NMHSs. At the same time, it was recognized that the effectiveness of those providers relied on the full functioning of NMHSs and that the overall meteorological/hydrological system would be severely hampered if there was inadequate financial support to the NMHSs.

11.2.18 The Council agreed that a more generalized and continuing international certification process and/or the concept of a professional code of conduct under the auspices of WMO should be explored, including cooperation with professional societies and other similar bodies.

INVOLVEMENT OF THE MEDIA, THE PRIVATE SECTOR AND ACADEMIA IN THE WORK OF WMO AND THE NMHSs

11.2.19 The Council reiterated that the consideration of issues related to the involvement of the media, academia and the private sector in the work of WMO was of great importance both to the Organization and to the future role and operation of NMHSs. It recognized the need for guidance to ensure a coordinated approach to safeguard the integrity of the primary responsibilities of NMHSs, particularly those in developing countries and countries with economies in transition.

11.2.20 In considering the involvement of the media, the private sector and academia, the Council recognized that each sector had particular characteristics. The Council considered that such involvement should lead to strengthening the overall meteorological system for the delivery of relevant services to citizens and other users, including carrying out the primary responsibilities of NMHSs.

11.2.21 Furthermore, the Council considered that an objective in addressing the relevant issues was to contribute to the improved overall effectiveness of NMHSs in serving their communities by providing them with

appropriate information, insight and analysis for guidance on their role and operation. Any guidance provided must not infringe on national sovereignty or legislation. The Council recognized the need for WMO guidance, since a coordinated approach would better position NMHSs to deliver their mandated services, particularly those in developing countries and countries with economies in transition.

11.2.22 The Council recognized the need to have an appropriate definition of the term “private sector” in the context of the role and operation of NMHSs as that could have various meanings, such as encompassing instrument manufacturers, those who provided services to NMHSs through outsourcing, and meteorological services providers.

11.2.23 While noting the difficulties that some NMHSs had experienced in their relations with the private sector, the Council felt that it was important to develop a constructive interaction between the private sector and the NMHSs in order to address ways to define and to build a mutually beneficial relationship which would be in the best interests of the full range of users of meteorological and related services. There was a need to refine the appropriate framework for international cooperation in connection with the relations between NMHSs and the private sector, as well as between NMHSs, including in situations where NMHSs themselves were engaged in commercial activities in other countries. Such a framework should include elements contained in the Geneva Declaration adopted by Thirteenth Congress which had been favourably received by Members.

11.2.24 The Council recognized the scope for both cooperation and competition in the relationship between NMHSs and the private sector. There was a need to investigate further which areas involved cooperation and which involved competition, as well as relevant guidelines that might be appropriate to maximize synergy and reduce tension, recognizing that conditions might differ from country to country.

11.2.25 The Council agreed that there was a need to initiate and to sustain a dialogue between NMHSs and the private sector which was based on mutual recognition of roles and expectations, and that a strategy should be developed for those interactions so that they would be mutually beneficial. Such interaction should promote the visibility, credibility and operational effectiveness of NMHSs in their countries, especially as the single authoritative voice in the provision of warnings bearing on the safety of life and property.

11.2.26 The Council welcomed the statement made by the representative of IABM indicating that the Association shared the goal of ensuring support to NMHSs and to the international system coordinated by WMO which enabled the provision of the related services. IABM's offer to assist in connection with certification and setting of standards was appreciated.

11.2.27 The Council was informed that there had been increasing interest and activities in relation to private sector involvement and cooperation in the United Nations system and that that had been a topic in the agenda of ACC.

11.2.28 In connection with the above, the Council agreed that some of the actions that needed to be undertaken included:

- (a) Review of the annexes to WMO Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, especially those relating to guidelines on commercial activities in the light of developments since that resolution was adopted;
- (b) Development and/or acquisition of new skills in WMO and NMHSs to deal with issues of economics, law and other social sciences;
- (c) Consideration of capacity building needs of Members, especially developing countries and those countries with economies in transition, related to the improvement of the provision of services;
- (d) Identification of ways to provide better advice to users of NMHSs data and products;
- (e) Preparation of guidance to Directors and other senior officials of NMHSs on the handling of issues related to the role and operation of NMHSs;
- (f) Provision of more relevant and detailed information to others concerning the primary responsibilities of NMHSs including at the national level and in connection with meeting international obligations (e.g., UNFCCC).

COOPERATION WITH OTHER INTERNATIONAL ORGANIZATIONS AND REPRESENTATIVES

11.2.29 The Council recognized the importance of enhancing cooperation with international representatives of the various sectors and the need to find out the existing situation, especially in respect of groups with which cooperation should be enhanced.

11.2.30 The Council agreed that following the identification of the international representation of the sectors concerned, steps could be taken towards mutual recognition, participation in relevant sessions, and joint meetings and cooperative activities.

DEFINITION OF RELEVANT TERMS

11.2.31 The Council agreed with the Advisory Group on the Role and Operation of NMHSs that there were some terms whose definitions and use should be agreed upon, in the context of work on the clearer characterization of the role and operation of NMHSs. Such terms could be placed in an appropriate glossary. The Group was requested to pursue that aspect as part of its overall work programme.

11.2.32 The Council also agreed that the relevant national institutions should have the following designations:

- (a) NMS(s) – National Meteorological or Hydro-meteorological Service(s);
- (b) NMHS(s) – National Meteorological and Hydro-logical Service(s);
- (c) NHS(s) – National Hydrological Service(s).

ROLE AND OPERATION OF NHSS

11.2.33 The Council was pleased to learn of the progress achieved in the preparation, under the auspices of CHy, of a first draft of a document on the role and operation of NHSS. It was felt that the document satisfactorily highlighted the common aspects as well as the differences between the meteorological and hydrological situations.

11.2.34 The Council requested that the president of CHy work further on the draft, in particular to ensure an appropriate regional balance, calling on the assistance of the CHy AWG and on the Regional Hydrological Advisers, and to submit it to the Advisory Group on the Role and Operation of NMHSs for its consideration.

FUTURE WORK

11.2.35 The Council agreed that the work being undertaken by the Group should lead to:

- (a) A WMO policy statement on the role and operation of NMSs which either confirmed, updated and/or refined the Executive Council Statement of April 1999 on the NMS and Alternative Service Delivery and elaborated the Geneva Declaration adopted by Thirteenth Congress;
- (b) A consolidated set of guidelines on the role and operation of NMSs, making use when possible of relevant WMO material already available;
- (c) A comprehensive Executive Council report to Fourteenth Congress on action taken in response to Resolution 26 (Cg-XIII) — Role and operation of national Meteorological Services, possibly including proposals for modification of the WMO Convention and Regulations to represent more clearly the essential role and primary responsibilities of NMSs in carrying out the purposes of WMO.

11.2.36 The Council also agreed that the Group should aim, with the assistance of CHy, to carry out similar tasks in respect of the role and operation of NHSS.

11.2.37 The Council noted that in order to provide an adequate factual database for its analysis for the many issues affecting the role and operation of NMSs and NHSS, it would be necessary to proceed with a comprehensive questionnaire to Permanent Representatives. That should be prepared to assemble a global database on the operation of NMSs covering matters such as legal status, organization, budget, sources and objects of funding, and relationship with national user sectors. It was agreed that a pilot version of the questionnaire would be sent to Executive Council members on a trial basis, then further revised and circulated to all Permanent Representatives before the end of 2000.

11.2.38 The Council also requested CAS to prepare the draft of a WMO policy statement on the scientific basis for, and limitations of, weather and climate forecasting.

11.2.39 The Council requested that an up-to-date analysis of the role and operation of private sector providers of meteorological services relative to the role of NMSs, as well as an overview paper on the strategy for interaction between NMHSs and the private sector, be prepared.

11.2.40 The Council agreed on the need for an analysis of possible changes to the WMO Convention and Regulations in line with the discussions concerning the role and operation of NMHSs.

11.2.41 The Council recognized that there were potential risks and difficulties in proposing a revision of the WMO Convention and that appropriate caution should be exercised. The Council felt, none the less, that the possible changes should be explored and assessed, to examine the benefits and risks. It agreed that a task team be established, from members of the Advisory Group on the Role and Operation of NMHSs, to study the matter. In that connection, the Council recalled that WMO was an organization of Member countries and agreed that the role and relationship between the various relevant stakeholders in the meteorological and hydrological communities also need to be addressed.

11.2.42 The Council requested its Advisory Group on the Role and Operation of NMHSs to continue its work on the various topics considered at its first session in the light of the Council's discussion and decisions on that agenda item. It also requested the other bodies concerned as well as the Secretary-General to provide appropriate assistance to help ensure that the Group was able to carry out successfully the tasks assigned to it.

11.3 INTERNATIONAL EXCHANGE OF DATA AND PRODUCTS (agenda item 11.3)

11.3.1 The Executive Council noted the information provided in connection with developments relevant to the international exchange of meteorological, hydrological, climatological, oceanographic and related data and products.

11.3.2 The Council recalled its request in Resolution 4 (EC-LI) — EC Advisory Group on the International Exchange of Data and Products, for the president of CBS to assist the Council with respect to monitoring of the implementation of Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, and to arrange for a survey relating to the changes in volume of meteorological and related data and products available on the GTS. It noted the results of the survey undertaken in late 1999 in response to that request, which covered the period 1994 to 1998. The Council noted that less than one third of Members had responded to the survey and felt that the results, therefore, needed to be regarded with caution. The Council expressed its satisfaction that the survey indicated that there had been no decrease in the volume of data and products exchanged, which was one of the principal goals of Resolution 40 (Cg-XII). The results of the survey indicated that about 75 per cent of responses reported no change in the volume of data transmitted and about 12 per cent reported a slight increase. Nearly 90 per cent reported that the volume of products transmitted had remained the same throughout the period and about 10 per cent reported that it had increased slightly. Responses on changes in the volume of data and products received were evenly divided

between a significant increase, slight increase and no change. Only one respondent reported an increase in transmission of data attributed to the adoption of Resolution 40 (Cg-XII). Most increases in transmission were reportedly due to changing requirements, technological progress or implementation of improved models. The results of the survey indicated that there had been a slight increase in the volume of data transmitted over the GTS in the past six years but that it could not be attributed to the adoption of Resolution 40 (Cg-XII).

11.3.3 The Council was pleased to note that CBS experts had proposed new systematic monitoring procedures that would collect the information necessary to assess any future changes in the volume of data and products exchanged on the GTS. The proposed procedures would be submitted to the CBS session for its consideration. Noting the increasing importance of data and product exchange taking place outside of the GTS, the Council felt that those monitoring procedures should, in the future, be expanded to include also that traffic. However, the Council also recognized the reported difficulty in isolating the impact of individual factors influencing variation in GTS traffic volume.

11.3.4 The Council also noted the follow up action being undertaken through CHy relating to the implementation of Resolution 25 (Cg-XIII) — Exchange of hydrological data and products, on the international exchange of hydrological data and products. It encouraged the Commission to continue its work on the publication of a brochure on that resolution and a technical note on the types of data and products that were exchanged. The Council welcomed the solidarity that was developing throughout the hydrological community in the adoption of the policy set out in the resolution and noted that it would be advantageous to begin monitoring hydrological data flow prior to the full implementation of that resolution.

11.3.5 The Council recalled that the findings of the CCI Task Team on Climate Aspects of Resolution 40 (Cg-XII) had been presented to its fiftieth session and had been published in the *Report of the Meeting of the CCI Task Team on Climate Aspects of Resolution 40* (WCDMP-36, WMO/TD-No. 925). The Council noted that, following the request made by Thirteenth Congress, the Commission had further considered the application of Resolution 40 (Cg-XII) to climatological information, concluding that that resolution could not practically be applied to climatological data and products whose exchange predated the adoption of the resolution. It noted that several Members had adopted the policy contained in Resolution 40 (Cg-XII) by seeking permission from the country of origin of historical data before providing them to third parties. The Council requested that that matter should be further examined by the CCI Task Team (see also general summary paragraph 4.1.20).

11.3.6 The Council noted that in accordance with the UNFCCC reporting guidelines on global climate observing systems adopted by its COP-5, Parties should describe the extent to which national data on

systematic observations were exchanged with other Parties and provided to international data centres, and any barriers to the exchange of data or provision of data to international data centres. Also, Parties should, as necessary, describe any national policy or guidance relevant to the exchange of data relevant to meeting the needs of the UNFCCC.

11.3.7 The Council strongly endorsed the recommendation of the CCI/CLIVAR Joint Working Group on Climate Change Detection, made at its first session in Geneva in November 1999, that the historical monthly and daily data and metadata from all CLIMAT and CLIMAT/TEMP stations, including those designated as part of GSN and GUAN, should be considered as part of the set of data and products which were essential to support WMO Programmes as identified in Annex 1 to Resolution 40 (Cg-XII).

11.3.8 The Council noted with interest and appreciation the statement made by the representative of the IOC regarding actions now under way within the Commission towards a restatement and further elaboration of the IOC policy and practice of the international exchange of oceanographic and related data and products. As a follow-up to a resolution of the twentieth IOC Assembly in 1999, an ad hoc IOC Working Group on Oceanographic Data Exchange Policy had been established and had held its first meeting in Paris in May 2000. That meeting had reviewed the existing IOC policy and those of its partner organizations and programmes and had discussed at length the issues of data commercialization and operational oceanographic data exchange needs. In particular, Resolutions 40 (Cg-XII) and 25 (Cg-XIII) were widely referred to and provided a basis for much of the discussion at the meeting. The ad hoc group brought together a substantial amount of relevant information to aid the decision-making process in IOC, and that information would be conveyed to the thirty-third session of the IOC Executive Council in June 2000.

11.3.9 The IOC representative reiterated that the issues relating to oceanographic data exchange policy were very complex and that the eventual IOC policy would have far-reaching implications for all the programmes of the Commission, many of which were undertaken jointly with WMO, including the development of operational oceanography through JCOMM. In that context, he expressed the appreciation of IOC for the assistance provided and for the experience shared by the WMO Secretariat on those issues and hoped that that assistance would continue in the future.

11.3.10 The Council expressed its appreciation for the information provided by IOC on the work being undertaken regarding oceanographic data exchange policy, which was very relevant and important to a large number of WMO Members as well as for the consideration being given in that work to the WMO policy and practice as described in Resolutions 40 (Cg-XII) and 25 (Cg-XIII). In doing so, it noted that Resolution 40 (Cg-XII) had specified many types of physical oceanographic data to be exchanged without charge and with

no conditions on use. That was of vital importance to Members, in particular in the context of maritime safety services and the operation of coupled atmosphere/ocean models. The Council recognized that the development of an IOC data exchange policy would be an arduous and lengthy process and reiterated the full support of WMO in that work. It also expressed the hope that the policy and practice eventually adopted by IOC would be fully compatible with those of WMO as expressed in Resolution 40 (Cg-XII), in particular with regard to the data of common interest.

11.3.11 It reiterated its request to EC-AGE to keep abreast of developments, with the assistance from the Secretary-General, and to address concerns as well as differences of views and interpretations that might arise, as appropriate. The Council noted that the EC-AGE was expected to meet in the early part of 2001 and would report to its fifty-third session.

12. LONG-TERM PLANNING (agenda item 12)

12.1 The Executive Council considered the report of the chairperson of both the WGLTP and the Task Team on WMO Structure, which held their first session jointly from 13 to 17 March 2000. The final report of the session had been made available to the Council members. The Council expressed its appreciation for the work done by both groups.

PREPARATION OF THE SIXTH WMO LONG-TERM PLAN

THE PURPOSE OF THE LONG-TERM PLAN

12.2 The Council agreed that the Long-term Plan should be a document which outlined what the Organization was trying to achieve as a whole, with three main purposes:

- (a) Serve as a basis for guiding the Secretariat and constituent bodies on the preparation of their programme plans and the monitoring of progress;
- (b) For use by Members as a reference point to help guide planning at the national level;
- (c) Provide a basis for briefing and informing other organizations/entities which potentially contributed to, and benefited from, the work of WMO and its Members.

GENERAL APPROACH, PERIOD OF COVERAGE AND OVERALL STRUCTURE/CONTENTS OF THE PLAN

12.3 The Council was advised that the WGLTP had reviewed the WMO planning process in the light of the experience gained in the preparation, monitoring and implementation of the earlier Long-term Plans, the guidance provided by Thirteenth Congress and developments relating to the major issues facing WMO. It noted that the WGLTP had considered and made proposals on the general approach, period of coverage and overall structure/contents of the 6LTP. The Council endorsed the working group's proposals in that respect as given in Annex VI to this report.

12.4 The Council considered that by identifying the desired outcomes, the Plan would be more strategic and

outward-looking. The Plan would also be more useful in better informing other organizations/entities outside WMO, thus raising the profile of WMO and its activities. It also agreed that, in supporting the aim of raising awareness of the activities of WMO and its Members, a separate publication summarizing the Plan and putting it into a broader context should also be prepared for policy setters and decision makers.

VISION, STRATEGIC GOALS AND DESIRED OUTCOMES FOR WMO

12.5 The Council noted that a questionnaire had been sent by the chairperson of the WGLTP (through the Secretary-General) to all Permanent Representatives of Members of WMO as well as to the presidents of technical commissions and regional associations, asking them for their views on the following:

- (a) The trends and/or developments which would significantly influence the way WMO and NMHSs would function in the future;
- (b) The evolving needs of Members, NMHSs or the society that needed to be met, or issues that needed to be addressed, which WMO and its Members should consider when setting the objectives of the Organization;
- (c) The WMO vision;
- (d) Desired outcomes;
- (e) Objectives;
- (f) Strategy.

12.6 The Council was informed that the summaries and analyses of the responses to the questionnaire were considered by the WGLTP and were used as a basis for elaborating some ideas regarding what might be included in the vision and strategic goals for WMO and what the wider desired outcomes might be. The Council considered the proposals of the WGLTP regarding:

- (a) The need for a clear and succinct statement of vision of WMO and the key elements which should be included in such a vision;
- (b) An example set of strategic goals, which would set the overall direction that WMO would take towards realizing its vision;
- (c) An example set of desired outcomes which the vision and strategic goals would support.

12.7 After some discussion, the Council agreed upon the contents as given in Annex VII to this report, which it decided should be used as a basis for further work by the WGLTP in defining the vision, strategic goals and desired outcomes, and subsequently for setting the objectives of the Organization.

THE LONG-TERM PLANNING PROCESS

12.8 The Council agreed that the Long-term Plan should form the basis for the preparation of the programme and budget as well as the relevant programme activities. It therefore considered that the timing of the Long-term Plan preparation was crucial and agreed that the draft 6LTP should be prepared for consideration and endorsement by its fifty-third session in 2001. That would provide more substantive guidance to the

Secretary-General in the preparation of the programme and budget which its fifty-fourth session would consider in 2002. The earlier availability of the draft 6LTP would also provide guidance to the technical commissions and regional associations in detailed planning of their programmes. The final draft of the Plan would be presented to Fourteenth Congress for final approval and adoption, in the usual way. The Council noted that the second session of the WGLTP was currently planned for 2002. To facilitate the preparation of a draft 6LTP by its fifty-third session, the Council agreed that an extra session of the WGLTP should be held in early 2001.

12.9 The Council noted that the WGLTP, with the assistance of the Secretariat, was aiming at developing guidelines for the preparation of the 6LTP soon after the present session, which would clearly describe the role of the various contributors. The Council asked the Secretary-General to distribute the guidelines, as soon as they were available, to presidents/chairpersons of WMO bodies concerned and to others involved in the preparation of the 6LTP.

12.10 The Council further agreed that the technical commissions and regional associations should have an opportunity to provide input to the 6LTP. It agreed that technical commissions and regional associations should address the topic of the WMO long-term planning and the related process at their sessions. In addition, their respective presidents should be kept informed of relevant developments to enable their enhanced interaction in the long-term planning process, particularly in the preparation of the 6LTP and especially in relation to its overall structure and contents as well as on the elements specifically relevant to the constituent body. The Council noted that the technical commissions and one regional association had AWGs which the presidents could call upon to assist in that connection.

MONITORING AND EVALUATION OF WMO LONG-TERM PLANS

MONITORING AND EVALUATION OF THE 6LTP

12.11 The Council was informed that the WGLTP considered the guidelines for monitoring and evaluation of the WMO Long-term Plans and suggested new ways of carrying out the monitoring and evaluation for the 6LTP. The Council agreed that, in the preparation of the 6LTP, the monitoring and evaluation approach, including performance indicators and milestones, should be clearly outlined to facilitate its subsequent monitoring and evaluation; it further agreed upon the ideas presented in Annex VIII to this report regarding the monitoring and evaluation process for the 6LTP.

12.12 The Council agreed that the proposals for monitoring the 6LTP, as presented in Annex VIII to this report, were in agreement with the idea that Congress and the Executive Council were responsible for identifying the goals, objectives and priorities to be met and the resources to be provided, while the Secretary-General was responsible for overseeing the overall implementation of the Plan and was accountable for the realization of those goals and objectives within the purview of the

approved programme and budget. It agreed that the Secretary-General should have the flexibility to achieve such goals and objectives in the most cost-effective way, within the approved resources. The Council recognized the essential role of the various constituent bodies in the implementation of the Plan as well as in its monitoring and evaluation.

MONITORING AND EVALUATION OF THE 5LTP

12.13 The Council noted that the evaluation report presented to Thirteenth Congress covered the years 1994–1997 (the third and fourth years of the 3LTP and the first and second years of the 4LTP).

12.14 With respect to the evaluation during the current financial period, the Council agreed that it was not sensible to evaluate across the 4LTP and the 5LTP nor would it be feasible to put in place any ongoing monitoring/evaluation of the type envisaged for the 6LTP. It agreed to recommend a methodology and a procedure for evaluating the 5LTP. It was agreed that the technical commissions and regional associations should carry out an evaluation of their programmes against their own objectives in their sessions or through their presidents or AWGs, as appropriate. An integrated report would then be prepared by the WGLTP.

12.15 It was noted that the evaluation would not be prepared in time to be used as a basis for the draft 6LTP for its fifty-third session in 2001, but could be the basis for a later draft of the 6LTP. It requested the WGLTP to undertake an initial evaluation covering the first two years of the 5LTP (2000 and 2001) for consideration by its fifty-fourth session in 2002. Subsequently, that evaluation could be further updated and submitted to Fourteenth Congress in 2003 by the President of WMO on behalf of the Executive Council.

GUIDELINES

12.16 In the light of its discussions, the Council agreed that the WGLTP, with the assistance of the Secretariat, should revise after its present session the guidelines for monitoring and evaluation of WMO Long-term Plans, along the lines given in Annex VIII to this report and in general summary paragraphs 12.11 to 12.15.

REVIEW OF THE WMO STRUCTURE

12.17 The Council was informed that, within the framework of the first session of the WGLTP, the first session of the Task Team on WMO Structure was held to undertake its own review, to identify areas of concern that needed to be addressed and to plan its work.

12.18 The Council reiterated the view expressed by Thirteenth Congress and its fifty-first session that the review of the WMO structure should be undertaken in the light of the WMO vision for the years to come and that the Long-term Plan should be formulated on the basis of that vision. It felt that any resulting structural change should better facilitate the realization of the Long-term Plan. The Council further agreed that, in the review process, it would be essential to identify future developments in meteorology and hydrology, related

technological advances, globalization and the evolution of the NMHSs, including their interaction with the private sector.

12.19 The Council recalled the results of the earlier review of the WMO structure undertaken before Thirteenth Congress and the decisions adopted by Congress on additional measures to increase the efficiency and reduce the cost of constituent body sessions, as well as cooperation among technical commissions and regional associations. The Council considered that those developments, together with thorough analysis of various aspects of the WMO structure undertaken at that time, demonstrated the advantages of a continuing review process.

12.20 The Council agreed that a major challenge facing WMO in the development of its structure would be to ensure that the Organization was more responsive to evolving societal demands. In addition, the Organization should also be able to initiate and promote ideas and concepts that were beneficial to the sustainable development of its Members.

12.21 The Council further agreed that another key element of the WMO structure should be the concept of delegation of responsibility, including that from the governing bodies to other constituent bodies, such as technical commissions and regional associations.

12.22 In addition to those two desired basic features of the WMO structure, namely, responsiveness and delegation of responsibility, the Council identified some other important issues which should be given appropriate attention in reviewing the WMO structure:

- (a) Possible matrix design of the structure, as opposed to a compartmentalized approach, thereby promoting and ensuring coordinated and integrated implementation of the programmes with extensive use of lateral relationships;
- (b) Taking full account of regional needs, including provisions for viable subregional involvement;
- (c) Ensuring that the structure served as a means to assist in addressing the growing gap between developed and developing countries in the provision of related services;
- (d) Enabling the effective and efficient operation of the WMO bodies, including conduct, duration and frequency of meetings, size and membership of bodies and documentation;
- (e) Providing for dynamic partnership with other international agencies and national non-State actors.

12.23 The Council agreed that the Task Team should aim to submit its review and the first set of proposals on the WMO structure to its fifty-third session in 2001. To help achieve that, the Council noted that the Task Team had agreed that its members and other co-opted experts, as appropriate, should undertake an exchange of views and proposals through electronic means using a background document to be prepared by the Secretariat soon after its present session. The Council agreed that the next session of the Task Team should be convened concurrently with the proposed session of the WGLTP in early 2001.

12.24 The Council noted that the Task Team was informed of the results of consultations with Members of the different Regions on regional representation in the Executive Council, which had been undertaken by the Secretary-General at the request of its fifty-first session (see general summary paragraph 12.28). It further noted that the Task Team was briefed on the review of the Secretariat which was undertaken to ensure enhanced effective and efficient Secretariat response to the decisions of Thirteenth Congress during the current financial period. It was recalled that the Permanent Representatives of Members of WMO were informed of that review and of related developments through circular letters.

LINKAGE WITH OTHER WORK IN PROGRESS

12.25 The Council noted that, during its first session, the WGLTP had taken account of the work of the Advisory Group on the Role and Operation of NMHSs, in particular in connection with the summary of the responses of the questionnaire referred to in general summary paragraph 12.5.

12.26 The Council requested the WGLTP to continue to draw the attention of pertinent Executive Council bodies on matters of relevance to them as identified by the WGLTP in due course. The Council also requested the Secretary-General to ensure that the WGLTP was made aware of any developments in the activities of other Executive Council bodies which might be relevant to its work.

12.27 The Council requested its WGLTP progress the work in that area in the light of the Council's discussions and decisions on the present agenda item. It also requested the other bodies concerned as well as the Secretary-General to provide the appropriate assistance to help to ensure that the Group was able to carry out successfully its work.

REVIEW OF THE PROCESS OF ELECTING MEMBERS OF THE EXECUTIVE COUNCIL

12.28 The Council noted the results of consultations with Members on the regional representation in the Executive Council undertaken by the Secretary-General at the request of its fifty-first session. The Council expressed regret that less than 25 per cent of Members had responded to the Secretary-General's letter, by which he had solicited the views of Members. At the same time, the Council considered that the responses available presented a wide range of views and proposals concerning that very complex and important issue. The Council emphasized the need to present suitable proposals to Fourteenth Congress and requested the Secretary-General to inform all Members on their views presented until now and to arrange for further consultations with Members on that most important matter. The Council particularly noted the concern expressed by the president of RA V regarding the representation of Region V. In that respect, the Council recognized that a number of Members had explicitly proposed in their responses an increase of membership for RA V.

13. COOPERATION WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS (agenda item 13)
- 13.1 UNITED NATIONS (agenda item 13.1)

RESOLUTIONS ADDRESSED TO SPECIALIZED AGENCIES BY THE UNITED NATIONS

13.1.1 The Executive Council took note of the following resolutions addressed to the Organization by the fifty-fourth session of the United Nations General Assembly:

7, 9, 16, 23, 31, 67, 68, 85, 93, 94, 95, 96(j), 96(k), 96(l), 96(m), 97, 100, 106, 114, 139, 141, 201, 207, 208, 209, 211, 214, 215, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 232, 233, 234, 235, 238 and 254.

REPORTS OF THE JOINT INSPECTION UNIT

13.1.2 The Council noted the reports of the JIU referred to WMO and, where appropriate, the comments of the Secretary-General. In particular, the Council noted that the reports were also useful to the work of the External Auditor. The Council emphasized the importance of the cooperation that existed between WMO and other United Nations system organizations in areas of interest and relevance to WMO.

13.1.3 The Council adopted Resolution 5 (EC-LII) in connection with the reports of the JIU.

- 13.2 INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION (agenda item 13.2)

13.2.1 The Executive Council noted with appreciation the report on the activities and efforts to meet the goals of the IDNDR during the last year of the Decade. The IDNDR came to an end in December 1999 with success in achieving substantial progress in natural disaster reduction at all levels. The Council paid particular attention to the closing events and to the new structure for continuing natural disaster reduction activities beyond the Decade.

13.2.2 The Council particularly expressed its appreciation to the Secretary-General for the leading role played by WMO through its major scientific and technical programmes in the framework and support of the IDNDR efforts as regarded mitigation of, and preparedness for, natural disasters of meteorological and hydrological origin. The Council was informed that the IDNDR Programme Forum had been successfully held in July 1999 as the consolidation and closing event of the Decade under the title "A safer world in the twenty-first century: disaster and risk reduction".

13.2.3 The Council noted with satisfaction that WMO and UNESCO, as the two principal United Nations agencies concerned with the scientific and technological aspects of disaster reduction, convened the Sub-forum on Science and Technology in Support of Natural Disaster Reduction as a special contribution to the IDNDR Programme Forum. The participants at the Sub-forum came from both the natural and social sciences and with both research and operational background in developing and developed countries. The Sub-forum reviewed the various ways in which science and technology contributed to the disaster reduction process in particular, through:

- (a) Assessment of vulnerability and enhancement of community awareness of the nature of the risk;
- (b) Operation of integrated warning systems;
- (c) Preparedness and education programmes.

The Sub-forum reviewed recent progress and debated future prospects in each of those three aspects of the application of science and technology to reduction of the impacts of tropical cyclones, extratropical storms, storm surges, severe local storms and tornadoes, sand and dust storms, drought, extreme and persistent temperatures, fire weather, floods, landslides, avalanches, volcanoes, earthquakes and tsunamis. The Council was pleased to note that the proceedings of the Sub-forum had been published and distributed to Members.

13.2.4 The Council agreed that many of the most significant achievements in natural disaster reduction during the 1990s were largely a result of science and technology and, in particular, of the ability to issue more accurate and timely early warnings for many natural hazards. It further agreed that the achievements in scientific understanding and its application during the Decade had provided significant increase in evacuation times, better building standards and improved risk assessment.

13.2.5 The Council was informed that the IDNDR had been succeeded by a new substantive programme, the ISDR, which included an Inter-agency Task Force and an Inter-agency Secretariat. On 22 December 1999, the United Nations General Assembly adopted Resolution 54/219 — International Decade for Natural Disaster Reduction: successor arrangements, which provided specific guidance for the future work of the ISDR. The main objective of ISDR was to enable communities to become resilient to natural hazards and to proceed from an approach of protection against hazards to the management of risk. It was structured around four main themes for action: public awareness, community and public authorities commitment, disaster resilient communities and the reduction of socio-economic loss. The primary function of the Task Force would be to devise strategies and policies for the reduction of natural hazards, identify gaps in existing policies and programmes, ensure complementary action by agencies, provide policy guidance and convene ad hoc meetings of experts on issues relating to disaster reduction.

13.2.6 The Council also noted that the United Nations General Assembly had passed, in the context of natural disaster reduction, a further resolution relating to international cooperation to reduce the impact of the *El Niño* phenomenon (United Nations Resolution 54/220 — International cooperation to reduce the impact of the *El Niño* phenomenon). The Council recalled the important role that WMO had played in the work of the United Nations Task Force on *El Niño* in reviewing the effects of the 1997/1998 *El Niño* event and in the implementation of earlier United Nations General Assembly Resolutions (52/200 and 53/185 — International cooperation to reduce the impact of the *El Niño* phenomenon). The Council agreed that WMO should continue to take a central role in providing scientific guidance and technical support in the implementation of United Nations General

Assembly resolutions relating to the *El Niño* phenomenon. The Members of WMO had been informed of those resolutions. The Council further agreed that in addition, as a major contribution to natural disaster reduction and mitigation, ongoing efforts should also be made towards improving the accuracy of monthly and seasonal predictions and strengthening the overall warning systems of NMSs including the ability to warn effectively the public.

13.2.7 The Council drew attention to the efforts within the TCO Programme as regarded the provision of assistance in emergency situations arising from natural disasters. The Council requested that in coordinating the work of the WMO and ISDR Secretariats in disaster mitigation activities, due account should be taken of those developments and decisions.

13.2.8 The Secretary-General had taken various initiatives including those at the level of the ACC and the United Nations Secretary-General on the structure of the ISDR that would ensure a prominent role of science and technology and the operational activities of NMHSs in the implementation of the strategy. WMO had been designated a member of the Inter-Agency Task Force. The first meeting of the Task Force was held in Geneva from 27 to 28 April 2000. The main outcome of that meeting was the identification of areas of concern to be addressed by the Task Force and the establishment of ad hoc working groups to address those concerns. In that regard, the Task Force established:

- (a) The Ad hoc Working Group on *El Niño/La Niña* and climate change and variability for which WMO was designated as lead agency;
- (b) The Ad hoc Group on Early Warning in which WMO was a member;
- (c) The Ad hoc Group on Quantification of Impacts, Vulnerability/Risk Assessment in which WMO was also a member.

The Task Force also decided to establish additional groups in the future as the need arose. In addition, the Task Force recommended that the IDNDR national committees continue their work as national committees for ISDR. The Council endorsed a lead role for WMO in the Inter-Agency Task Force.

13.3 SPECIALIZED AGENCIES AND OTHER INTERNATIONAL ORGANIZATIONS (agenda item 13.3)

WORKING ARRANGEMENTS WITH THE LAKE CHAD BASIN COMMISSION

13.3.1 The Executive Council took note of the request submitted by LCBC for the establishment of working arrangements with WMO.

13.3.2 Having considered the objectives and functions of LCBC and taking into account the practice followed by WMO in establishing working arrangements concerning its scientific and technical cooperation with other organizations, the Council agreed that it would be in the mutual interest of both WMO and LCBC to establish a close working relationship.

13.3.3 The Council therefore authorized the Secretary-General to finalize the working arrangements

with the Executive Secretary of LCBC on the basis of the text contained in Annex IX to this report.

14. INFORMATION AND PUBLIC AFFAIRS PROGRAMME (agenda item 14)

14.1 The Executive Council decided that the theme for WMD in 2002 would be "Reducing vulnerability to weather and climate extremes". The Council also decided that, subject to confirmation by its fifty-third session, the theme for WMD for 2003 would be "Our future climate". The Council requested that in preparing materials for WMD, the target audience should be identified and appropriately catered for.

14.2 The Council expressed satisfaction with the initiatives and events undertaken to commemorate the fiftieth anniversary of WMO, particularly during the period of celebration of the WMD both at the national and the international levels.

14.3 The Council noted with appreciation the number of public information products developed and distributed to all Members in support of national plans for the celebration of the fiftieth anniversary. Those included a message of the Secretary-General, a year 2000 calendar, a series of posters, a brochure on the achievements of WMO, a special information kit with a series of media briefs on WMO Programmes and the WMO50 video. Jointly with the United Nations Economic Commission for Europe, a special brochure for teenagers was developed. Kensington Publications, a United Kingdom publisher, also published a special publication entitled *Weather, Climate and Water* in conjunction with the celebrations for WMO50. Other products under development for WMO50 included a radio programme, public service video spots, a CD-ROM and two success video stories on the Tropical Ocean and Global Atmosphere Programme and on the ozone hole. The Council also noted with appreciation the development of a special WMO50 Web site, a WMO50 Homepage and a photographic exhibitions.

14.4 The Council also noted with appreciation the successful organization of a week of special WMO50 events that took place at the WMO Headquarters from 18 to 23 March 2000 with a view to enhancing the image of WMO and NHMSs, including:

- (a) Open days for general public visits (18–19 March);
- (b) School visits programme (20–22 March);
- (c) A WMO-sponsored Scientific Media Conference jointly organized with IABM (23 March);
- (d) A press conference jointly organized with FIM (23 March);
- (e) The official World Meteorological Day ceremony (23 March);
- (f) A Roundtable Discussion co-sponsored by FIM, the European Meteorological Society and WMO (23 March);
- (g) Live television transmissions jointly organized with the European Broadcast Union and the *Télévision Suisse Romande*.

14.5 The Council was informed that those events were highly successful. About 3 500 visitors toured the WMO Headquarters and exhibition. The open days were

inaugurated by the Secretary-General and representatives of the Swiss and Geneva authorities. The school visits programme involved 22 schools, of which more than 600 students of an average age of 15 years visited the WMO Headquarters and exhibition and were briefed on the activities and Programmes of the Organization. Over 100 television weather presenters and media representatives attended the Scientific Media Conference, the Press Conference and the WMD official ceremony on 23 March. Some 26 live television transmissions were carried out from the WMO Headquarters by international television networks. Many other stations transmitted reports, prepared in advance, the same day while others aired post-production tapes the following days. Several live and taped reports were broadcast by a number of radio stations.

14.6 The Council expressed its support for the media alliance initiative, which was launched in 1995 among broadcasters and other media representatives to promote WMD. The Council took note of the successful organization by WMO of media events in conjunction with the fiftieth anniversary celebrations at the WMO Headquarters, including the Scientific Media Conference jointly organized with IABM and FIM. The Council underlined the importance of organizing such international conferences for the media, particularly the broadcast community, on a regular basis, in order to bring the media closer to WMO and the scientific community.

14.7 The Council expressed its appreciation for the additional efforts undertaken by a large number of Members to celebrate WMO50 on the occasion of WMD. Special events included lectures and seminars, open doors for public visits, video shows, exhibitions, posters and distribution of information materials and publications. Media campaigns were also organized comprising radio and television transmissions and the publication of press articles and the issuance of stamps, postcards and calendars commemorating the anniversary.

14.8 The Council further encouraged efforts to continue celebrating WMO50 through the rest of the year 2000 at both the international and the national levels. The Council called upon the Secretariat to ensure that press releases were sent to the IPA Focal Points of NMHSs through e-mail to ensure their timely distribution to the media at the national level.

15. PROGRAMME SUPPORT SERVICES AND PUBLICATIONS (agenda item 15)

15.1 LANGUAGES (agenda item 15.1)

The Executive Council noted that, as requested by Thirteenth Congress, a study had been started on the WMO languages services system, whose results should be submitted to its fifty-fourth session with a view to making a recommendation to Fourteenth Congress. It further noted that the Secretary-General had already restructured the publications, conference and language services with a view to rationalizing and improving the quality of those services. Since the delay between the issue of documents in the original language and in translation was sometimes too long, it requested the Secretariat to continue its efforts

to ensure the timely production of documents in all languages as well as the equitable treatment of all official and working languages of the Organization.

15.2 PUBLICATIONS (agenda item 15.2)

15.2.1 The Executive Council noted with satisfaction the report on the Publications Programme, which summarized the activities carried out in 1999. Reiterating the importance of issuing publications in all the required languages as close together as practical, the Council noted the provision of services by Members and other contractors for translating, preparing and/or printing WMO publications and requested the Secretary-General to expand such external collaboration to the extent possible. Nevertheless, it was recognized that the engagement of temporary staff, such as designers, editors, electronic publishers and desktop publishing clerks, would continue to be essential to the completion of the programme.

15.2.2 The Council noted particularly general summary paragraph 4.3.3 of the *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902), which re-affirmed that the prime function of the Organization's Publications Programme was the widest possible distribution to NMHSs of information needed to attain its objectives. The Council confirmed that while the cost of printing publications, in particular mandatory publications, should be covered to an appropriate extent by income from the sales, consideration of potential sales income should not interfere with distribution of the information contained in publications to NMHSs by the most economic means.

15.2.3 The Council recognized the importance of further developing the Programme to make the best use of electronic distribution media, while retaining the character and utility of the publications and maintaining their full availability to all Members. Noting that the cost of distributing printed publications was nearly as high as printing them, the Council considered that demonstrable savings in mailing costs could be used to offset the costs of preparing for electronic distribution.

15.2.4 Reiterating the importance of maintaining the existing divisions of responsibilities for publications, including control of all aspects of the Programme by the Publications Board, the Council encouraged the Secretary-General to build onto the Secretariat's expertise in preparing publications for both printed and electronic forms of distribution.

15.2.5 The Council recognized that electronic publication technologies and techniques were changing so rapidly that it might have to re-examine the Publications Programme before the end of the financial period and agreed that such a re-examination might include the operation of the Publications Fund, which could possibly be considered by the Council when it undertook its preliminary discussion on the programme and budget for the fourteenth financial period at its fifty-fourth session.

15.2.6 The Council adopted Resolution 6 (EC-LII) to ensure adequate guidance for the implementation of the Publications Programme.

15.3 OFFICE AUTOMATION AND INFORMATION TECHNOLOGY SUPPORT (agenda item 15.3)

15.3.1 The Executive Council noted the value of the Information Systems Strategy document approved by the Secretary-General, which provided clear directives to run in a more structured manner the WMO information systems.

15.3.2 The Council noted the steps taken by the Secretary-General to improve and modernize the provision of services in the area of information technology, specifically, the establishment of a modern network infrastructure in the new building, with capabilities to implement voice-mail, internal video broadcasting and video conferencing in addition to the services already established of e-mail, network and Internet access throughout the Secretariat.

15.3.3 The Council further noted with appreciation the new plan being initialized in the Information Systems Services to increase the functional capacity and efficiency of the Secretariat's normal operations. The implementation of a relational database management system and an electronic document management system was expected to contribute to significant simplification and increased efficiency in the administrative procedures of the Secretariat and to establish an efficient integrated classification, storage and retrieval of the Secretariat's data and documentation.

15.3.4 The Council noted the importance given by the Secretary-General to make the WMO Web site more reliable, structured, efficient and user-friendly. The Council was informed of the new elements included in the WMO Web site such as vacancy announcements, staff address book, etc. and the progress reached to have available in the WMO Homepage the mailing list of experts and working groups of regional associations and technical commissions. The Council recognized and supported the initiatives taken by the Secretary-General to establish an Intranet and Extranet service during the current financial period.

15.3.5 The Council requested the Secretary-General to consider the possibilities of broadcasting meetings held at the WMO Headquarters on the Web using Internet technology and to make recorded key events of those meetings accessible. It also requested the Secretary-General to produce a core set of pages on the WMO Web site in all the official languages of the Organization and encouraged such development to be extended.

15.3.6 The Council requested the Secretary-General to make available on the Web site, as appropriate, the documents for all relevant meetings once they were available in electronic form.

16. GENERAL, LEGAL AND ADMINISTRATIVE MATTERS (agenda item 16)

16.1 FORTY-FIFTH INTERNATIONAL METEOROLOGICAL ORGANIZATION PRIZE (agenda item 16.1)

16.1.1 The Executive Council awarded the forty-fifth IMO Prize to Professor Emeritus E. N. Lorenz.

16.1.2 Mr Z. Alpers was appointed to the Selection Committee to replace Mr J. Zielinski. The Committee now consisted of Messrs R. R. Kelkar (chairperson), Z. Alpers, A. Diouri and Lim Joo Tick.

16.2 CONSTITUTIONAL AND REGULATORY MATTERS (agenda item 16.2)

APPLICATION OF GENERAL REGULATIONS 177 AND 194

16.2.1 The Executive Council noted that, as requested by Thirteenth Congress, the Secretary-General had sought the advice of the United Nations Legal Counsel as to whether the term "decisions" included "election" in General Regulations 177 and 194 (193 in the 1995 edition of the *Basic Documents* (WMO-No. 15)) concerning sessions of regional associations and technical commissions, respectively, when the required quorum was not obtained.

16.2.2 The Council noted that it was the view of the United Nations Legal Counsel that "as the Members of the Organization were masters of their own procedures, it would be for them to take a decision on whether the term "decision", as used in General Regulations 177 and 193 (present 194), included "election". "In addition, the Legal Counsel referred to a number of Regulations related to "Voting by correspondence including elections" between sessions of WMO constituent bodies which were of general nature.

16.2.3 The Council requested the Secretary-General to submit to Fourteenth Congress the views of the United Nations Legal Counsel on the application of General Regulations 177 and 194.

16.2.4 The Council considered, however, that there was a need for guidance to the regional associations and technical commissions on the application of General Regulations 177 and 194, respectively, if such a case arose before Fourteenth Congress. The Council, bearing in mind the discussions held during Thirteenth Congress, decided to adopt the following statement on the application of General Regulations 177 and 194 which should be reviewed by Fourteenth Congress in accordance with the provision of General Regulation 2(f).

In the application of General Regulations 177 and 194, the term "decisions" does not include "election". In the case where no election is held due to the absence of the quorum, the President of the Organization becomes the acting president of the body concerned after the closure of the session in accordance with General Regulation 16. He shall arrange for the election by correspondence of the president of the body concerned who shall, in turn, arrange for the election of the vice-president by correspondence as envisaged in General Regulation 16.

16.2.5 The Council requested the Secretary-General to submit that statement to Fourteenth Congress for its consideration when examining the issue of the application of General Regulations 177 and 194.

16.3 STAFF MATTERS (agenda item 16.3)

ANNUAL REPORT OF THE INTERNATIONAL CIVIL SERVICE COMMISSION

16.3.1 The Executive Council took note of the twenty-fifth annual report of the International Civil Service Commission, submitted in accordance with Article 17 of the Commission's Statute.

AMENDMENTS TO THE STAFF RULES

16.3.2 The Council noted the amendments to the Staff Rules, applicable to Secretariat staff and to technical assistance project personnel made by the Secretary-General since its fifty-first session.

SALARIES OF UNGRADED OFFICIALS

16.3.3 The Council noted that in December 1999 the United Nations General Assembly had adopted a new base salary scale for staff in the Professional and higher categories which came into effect on 1 March 2000. It further noted that that scale reflected the consolidation, on a no-gain no-loss basis, of 3.42 multiplier points of post adjustment into the net base salaries.

16.3.4 The Council noted that in accordance with Staff Regulation 3.1, the revised salary scale showing the new net amounts had been implemented in the Secretariat in respect of staff members in grades P.1 to D.2.

16.3.5 The Council recalled that Thirteenth Congress had decided to authorize the Executive Council to carry out any adjustment of salary in respect of the Secretary-General, the Deputy Secretary-General and the Assistant Secretary-General, which might become necessary if an increase in the salaries of comparable United Nations staff occurred during the thirteenth financial period.

16.3.6 The Council noted that comparable United Nations agencies (ITU and UPU) were adjusting or had adjusted the salaries of their ungraded officials in accordance with the rates below.

16.3.7 Based on the decisions of the United Nations General Assembly, the Council decided to set the annual rates of net basic salary of WMO ungraded officials with retroactive effect from 1 March 2000 as followed:

	<i>Net with dependants</i>
Secretary-General	US\$ 122 183
Deputy Secretary-General	US\$ 112 153
Assistant Secretary-General	US\$ 103 035

16.3.8 The Council requested the Secretary-General to take appropriate action as required by the decisions thus taken.

IMPLEMENTATION OF THE STRATEGIC VISION OF THE HUMAN RESOURCES MANAGEMENT ISSUES

16.3.9 The Council took note of the progress report on the implementation of the Strategic Vision of the Human Resources Management Issues as requested by its fifty-first session.

EMPLOYMENT OF TEMPORARY STAFF, INCLUDING THE STUDY ON THE IMPACT OF MAINTAINING A VACANCY FACTOR

16.3.10 The Council noted the steps taken by the Secretary-General to develop a policy under which long-serving temporary staff could be employed under one-year fixed-term contracts with the same salaries, allowances and benefits as those of staff employed under two-year fixed-term and permanent contracts. The Council noted with satisfaction that the implementation of that policy with effect from 1 July 1999 had resulted in 18 one-year fixed-term contracts being offered to long-serving temporary staff. The Council, however, urged the

Secretary-General to continue his efforts towards rationalizing the situation with respect to any remaining temporary staff employed over long periods of time and to restrict temporary appointments to those tasks which were truly short term, temporary in nature and thus required more flexibility than fixed-term appointments provided.

16.3.11 The Council noted the information provided by the Secretary-General on the impact of maintaining a vacancy factor on the employment policy of the Secretariat, particularly on the employment of temporary staff. Besides the actions already undertaken as referred to in the preceding paragraph, the Council urged the Secretary-General to replace the funds required to be generated by maintaining a post vacancy factor, with an equivalent amount of resources from other objects of expenditure in the regular budget. The Council urged the Secretary-General to identify functions to be performed on an essentially permanent, continuing basis and to employ staff to perform those tasks on a fixed-term basis, using staff cost funds.

16.3.12 The Council requested the Secretary-General to review the Organization's present staffing and post management policy, with a view to increasing flexibility in the employment of staff in order to meet the staffing requirements of new or changing programmes. The Council further requested the Secretary-General to review the current policy in respect of granting permanent contracts with the goal of limiting or phasing out such contracts in the future.

VIEWS OF THE STAFF ON THEIR CONDITIONS OF SERVICE

16.3.13 The Council noted the report of the president of the Staff Association expressing the views of the staff on their conditions of service.

16.3.14 The Council noted the appreciation of staff for the measures implemented so far to improve the conditions of long-serving temporary staff. It noted actions taken by the Secretary-General to minimize employment of additional long-serving temporary staff on other than an exceptional basis. It welcomed the improvements that had been possible so far and noted the plans for increased flexibility in post management, allowing fixed-term appointments to be made where essential and where permanent continuing staffing needs existed. That would facilitate limitation of short-term, temporary appointments to those tasks which were truly short-term, temporary in nature and, thus, required more flexibility than fixed-term appointments provided.

16.3.15 The Council noted with satisfaction that the staff had participated in, and contributed to, the first phase of the review of the Secretariat initiated by the Secretary-General to improve the effectiveness and efficiency of the Secretariat, and that the staff would be actively involved in the upcoming stage of the review exercise, namely the process of identifying specific recommendations.

16.3.16 The Council noted that initial steps had been taken to implement the institutional change called for by the review of the WMO Secretariat. However, specific recommendations on steps to be taken to improve

management practices, human resources development and communication, and to simplify processes, awaited the recommendations of the Task Forces/Project Teams established to address those concerns. The Council noted the concerns of the Staff Association regarding the creation of additional high-level Director positions. The Council also noted the steps taken by the Secretary-General to use delegation and enhanced responsibility, together with accountability, to facilitate increased efficiency.

16.3.17 The Council noted the view of the staff that there was a need for a staff training strategy aimed at ongoing updating of professional and managerial knowledge and skills of staff. The Council noted that the terms of reference established for the above-mentioned teams would address that and other critical issues.

16.3.18 The Council noted that the staff were in support of the review of the International Civil Service Commission proposed by the Secretary-General of the United Nations, of which the modalities would be considered at the fifty-fifth session of the United Nations General Assembly. The staff hoped that the Executive Council would express the support of WMO for that long-awaited initiative of the Secretary-General of the United Nations on that matter.

REPORT ON APPOINTMENTS, PROMOTIONS, NOMINATIONS AND TRANSFERS OF STAFF IN THE PROFESSIONAL CATEGORY AND ABOVE

16.3.19 In accordance with Article 21(b) of the Convention, the Executive Council examined and approved the appointments made by the Secretary-General since its fifty-first session, as followed:

<i>Name and nationality</i>	<i>Title, grade and organizational unit</i>	<i>Effective date</i>
Mrs K. J. CHARLES (United States)	Director (D.2), Resource Management Department	13 November 1999
Mr D. J. CARSON (United Kingdom)	Director (D.2), Joint Planning Staff for the World Climate Research Programme	1 June 2000
Mr W. E. E. GRABS (Germany)	Chief (P.5), Water Resources Division, Hydrology and Water Resources Department	1 December 1999
Mr S. BENARAFI (Morocco)	Scientific Officer (P.4), Aeronautical Meteorology Unit, World Weather Watch Department	4 November 1999
Mr H. KONTONGOMDE (Burkina Faso)	Scientific Officer (P.4), World Climate Data and Monitoring Programme Division, World Climate Programme Department	15 December 1999
Mr B. BARONDEAU (France)	Translator (P.4), Languages, Publications and Conferences Department	3 January 2000
Mrs N. C. LOMARDA (Philippines)	Scientific Officer (P.4), Tropical Cyclone Programme Division, World Weather Watch Department	29 April 2000

Mrs Z. KEFELEW (Ethiopia)	Librarian (P.3), Technical Library, Atmospheric Research and Environment Programme Department	1 April 2000
Mr R. MAHARAJ (Trinidad and Tobago)	Scientific Officer (P.3), Public Weather and Operational Information Unit, World Weather Watch Department	27 December 1999
Mrs M. SINCHOLLE (France)	Chief (P.3), Travel Unit, Finance and Budget Division, Resource Management Department	1 January 2000
Mrs N. YERSIN (Switzerland)	Social Welfare Officer, part-time (P.3), Secretary-General's Office	1 May 2000
Mrs V. J. GERARD (United Kingdom)	Programmer-Analyst (P.4), World Climate Data and Monitoring Programme Division, World Climate Programme Department	1 July 1999
Mr J.-S. LEE (Republic of Korea)	Junior Professional Officer (P.2), Regional Office for Asia and the South-West Pacific	25 July 1999
Mr R. YAMADA (Japan)	Junior Professional Officer (P.2), Satellite Activities Office, World Weather Watch Department	1 October 1999

16.3.20 The Council noted the nominations and/or promotions made by the Secretary-General since its last session as a result of competition after issuance of vacancy notices, as followed:

<i>Name and nationality</i>	<i>Title, grade and organizational unit</i>	<i>Effective date</i>
Ms V. MITCHELL (United Kingdom)	Chief (P.5), Languages Division, Languages, Publications and Conferences Department	1 October 1999

16.3.21 The Council further noted the promotions resulting from classification of posts made by the Secretary-General since its last session, as followed:

<i>Name and nationality</i>	<i>Title, grade and organizational unit</i>	<i>Effective date</i>
Mr T. ABRATE (Italy)	Scientific Officer, Hydrology Division, Hydrology and Water Resources Department, from P.3 to P.4	1 January 2000
Mr L. A. NGWIRA (Malawi)	Accountant, Finance and Budget Division, Resource Management Department, from P.3 to P.4	1 January 2000

16.3.22 The Council also noted the transfers initiated by the Secretary-General since the last session, as followed:

<i>Name and nationality</i>	<i>Title, grade and organizational unit</i>	<i>Effective date</i>
Mr M. J. COUGHLAN (Australia)	Reassigned Director Coordinator for Climate Activities (D.2)	17 April 2000
Mr R. A. DE GUZMAN (Philippines)	Reassigned Director, Strategic Planning Office (D.2)	17 April 2000

Mr R. C. LANDIS (United States)	Reassigned Director, World Weather Watch, Applications Department (D.2)	17 April 2000
Mr J. K. MURITHI (Kenya)	Reassigned Director, Special Duties (D.2)	17 April 2000
Mr S. CHACOWRY (Mauritius)	Reassigned Director, External Relations Office (D.1)	17 April 2000
Mr F. R. HAYES (United Kingdom)	Reassigned Director, Publications and Distribution Services Department (D.1)	17 April 2000
Mr G. LIZANO (Costa Rica)	Reassigned Special Assistant to the Director, Strategic Planning Office (D.1) with change of duty station from Asunción to Geneva	To be determined
Mr D. C. SCHIESSL (Germany)	Reassigned Director, World Weather Watch, Basic Systems Department (D.1)	17 April 2000
Mr P. E. DEXTER (Australia)	Senior Scientific Officer (P.5) transferred to the Observing System Division of the World Weather Watch Department	1 April 2000
Mr D. E. HINSMAN (United States)	Satellite Activities Officer (P.5) transferred to Deputy Secretary-General's Office	17 April 2000

16.4 FINANCIAL MATTERS (INCLUDING THE REPORT OF THE EXTERNAL AUDITOR) (agenda item 16.4)

CONSIDERATION OF THE ACCOUNTS FOR THE BIENNIUM 1998–1999

16.4.1 The Executive Council noted that the certificate of the External Auditor on the accounts did not contain any qualification. With respect to the detailed report, the Council had before it the replies of the Secretary-General on the matters raised. The Council expressed its satisfaction at the steps taken by the Secretary-General to address the issues raised in the report of the External Auditor.

16.4.2 The Council considered and approved the audited financial accounts of the General Fund, the Working Capital Fund and the other special and trust funds for the biennium 1998–1999.

16.4.3 The Council noted with concern the substantial amounts of outstanding assessed contributions of certain Members. It decided to urge the Members to clear their dues at an early date. It also decided to keep the matter under review and requested the Secretary-General and the Financial Advisory Committee to report any new developments to its fifty-third session.

16.4.4 The Council adopted Resolution 7 (EC-LII).

CONSIDERATION OF THE ACCOUNTS FOR 1998–1999 FOR WMO PROJECTS FINANCED FROM THE UNITED NATIONS DEVELOPMENT PROGRAMME

16.4.5 The Council considered and approved the audited financial statements for the periods ended 31 December 1998 and 31 December 1999 in respect of those UNDP projects and trust funds being administered by WMO. In that respect, it adopted Resolution 8 (EC-LII).

INTERIM REPORT OF THE SECRETARY-GENERAL ON THE FINANCIAL AND BUDGETARY SITUATION OF THE ORGANIZATION FOR THE BIENNIUM 2000–2001

16.4.6 The Council considered the report of the Secretary-General on the financial and budgetary situation of the Organization for the biennium 2000–2001.

16.4.7 The Council once again expressed its concern at the financial position of the Organization and urged the Members to pay their dues at an early date.

16.4.8 The Council examined the budgetary information presented to it and noted with satisfaction that actions were being taken as necessary to adjust programme levels, staffing and support activities in order to remain within the approved budget and that the situation was being managed by the Secretary-General with foresight and care.

RESULTS-BASED BUDGETING

16.4.9 The Council considered the report of the Secretary-General on results-based budgeting in connection with the preparation of the 6LTP and the programme and budget for the next financial period.

16.4.10 The Council found the recommendations of the report generally acceptable and requested:

- (a) The Secretary-General to make available to all Members a comprehensive description of the concept of results-based budgeting as applied to WMO, comparing it with past and present practices;
- (b) The Secretary-General to implement Option 1, as reflected in the Annex to Recommendation 5 (see Annex I to this report) of the Financial Advisory Committee for the 2002–2003 programme and budget which would be considered by the fifty-third session of the Executive Council;
- (c) The chairperson of the WGLTP to ensure that objectives established in the 6LTP enabled the development of meaningful performance measures in the programme and budget developed for the fourteenth financial period;
- (d) The Secretary-General to prepare on a pilot basis the WCP for the biennium 2002–2003 using the results-based budgeting Option 2, as reflected in the Annex to Recommendation 5 of the Financial Advisory Committee and to present it to the fifty-third session of the Executive Council for consideration;
- (e) The Secretary-General, with reference to Resolution 24 (Cg-XIII) — Preparation of the Sixth WMO Long-term Plan, and in consultation with the chairperson of the WGLTP and based on the outcome of the pilot presented to the fifty-third session of the Executive Council, to prepare the programme and budget for the fourteenth financial period.

ANNUAL REPORT OF THE INTERNAL AUDITOR

16.4.11 The Council noted with appreciation the annual report of the Internal Auditor submitted by the Secretary-General.

16.4.12 That report was the first operational one after the establishment of the Internal Audit function in WMO. The work done during 1999 addressed several

important aspects of WMO operations. The Council was satisfied with the support provided to IAIS by the Secretary-General and the excellent response to the audit exercise by the auditees. Also, the cooperation between IAIS, the External Auditor and the other audit/oversight units of the United Nations organizations appeared to be effective.

16.4.13 The Council, however, notes that with the present resources dedicated to it, IAIS was not in a position to provide full audit coverage of WMO activities. None the less the Council believed that the level of audit was consistent with the risk to WMO and the need to balance its resources to carry out its primary activities. The Secretary-General was invited to renew his efforts to mobilize extrabudgetary funds through an Oversight Trust Fund and the Associate Experts programmes.

16.4.14 The Council noted the IAIS long-term and biennial workplans for the periods 2000-2003 and 2000-2001, respectively.

16.5 DESIGNATION OF ACTING MEMBER(S) OF THE EXECUTIVE COUNCIL (agenda item 16.5)

The Executive Council designated Mr K. Yamamoto (Japan) as acting member of the Council in replacement of Mr Y. Takigawa.

16.6 REVIEW OF PANELS AND OTHER BODIES REPORTING TO THE EXECUTIVE COUNCIL (agenda item 16.6)

Following changes in the membership of the Council, the Executive Council decided on the following replacements and changes in the composition of its panels and other bodies:

(a) Executive Council Working Group on Long-term Planning

Mr K. Yamamoto replaced Mr Y. Takigawa;

(b) Selection Committee for the Norbert Gerbier-MUMM International Award

Mr I. Mersich replaced Mr C. Finizio.

17. SCIENTIFIC LECTURES AND DISCUSSIONS (agenda item 17)

17.1 SCIENTIFIC LECTURES AND DISCUSSIONS (agenda item 17.1)

17.1.1 The Executive Council, at its last session, had selected the following three specific lecture themes:

(a) Stratospheric ozone and its impact on weather and climate change;

(b) Biometeorology: looking at the links between weather, climate and health;

(c) New developments in the seasonal climate predictions; and had requested the Secretary-General to select two themes and to make the necessary arrangements for two lectures to be prepared for its present session.

17.1.2 The President introduced the two distinguished experts who had been invited to deliver the following lectures:

Topic (a) — Stratospheric ozone and its impact on climate change (Ms M.-L. Chanin, France); and

Topic (b) — Biometeorology: looking at the links between weather, climate and health (Mr L. Kalkstein, United States).

17.1.3 The President thanked Ms Chanin and Mr Kalkstein on behalf of the Council for their excellent lectures, which had been followed by lively discussions. The Council requested the Secretary-General to arrange for the appropriate publication of the lectures.

17.2 ARRANGEMENTS FOR SCIENTIFIC LECTURES DURING THE FIFTY-THIRD SESSION OF THE EXECUTIVE COUNCIL (agenda item 17.2)

17.2.1 The Executive Council decided that the following should be the subjects of the scientific lectures to be presented at its fifty-third session:

(a) The use of climate information and seasonal prediction of climate related disasters; and

(b) Energy towers: using solar and wind energy in desert regions.

17.2.2 The Council requested the Secretary-General to make the necessary arrangements, including the selection of lecturers for that purpose.

17.3 ARRANGEMENTS FOR THE TENTH INTERNATIONAL METEOROLOGICAL ORGANIZATION LECTURE (agenda item 17.3)

The Executive Council selected the theme "Water resources as a challenge of the twenty-first century" for the tenth IMO Lecture to be presented at Fourteenth Congress. It requested the Secretary-General to draw up a list of scientists who would be invited, in order of preference, to deliver the lecture and to submit the report to its fifty-third session.

18. REVIEW OF PREVIOUS RESOLUTIONS OF THE EXECUTIVE COUNCIL (agenda item 18)

In accordance with Rule 27 of its Rules of Procedure, the Executive Council reviewed those of its previous resolutions which were still in force at the time of the fifty-second session and adopted Resolution 9 (EC-LII).

19. DATE AND PLACE OF THE FIFTY-THIRD AND FIFTY-FOURTH SESSIONS OF THE EXECUTIVE COUNCIL (agenda item 19)

19.1 The Executive Council agreed that its fifty-third session would be held at the WMO Headquarters from 5 to 15 June 2001.

19.2 The Council also agreed that its fifty-fourth session would be held at the WMO Headquarters from 11 to 21 June 2002, subject to any change which might be decided by the Executive Council.

20. CLOSURE OF THE SESSION (agenda item 20)

The fifty-second session of the Executive Council closed at 12.30 p.m. on 26 May 2000.

RESOLUTIONS ADOPTED BY THE SESSION

RESOLUTION 1 (EC-LII)

INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

THE EXECUTIVE COUNCIL,

NOTING:

- (1) Resolution 6 (Cg-XIII) — Intergovernmental Panel on Climate Change,
- (2) Decision 1/CP.3 — Adoption of the Kyoto Protocol to the United Nations Framework Convention on Climate Change, paragraph 5(a) of the Subsidiary Body for Scientific and Technological Advice (SBSTA) of the Conference of the Parties to the United Nations Framework Convention on Climate Change at its eighth session (Bonn, 2–12 June 1998) and the subsequent conclusions adopted by SBSTA,

COMMENDS the Panel on completing the:

- (1) Special Report: *Land Use, Land-Use Change and Forestry*;
- (2) Special Report: *Methodological and Technological Issues in Technology Transfer*;

- (3) Special Report: *Emissions Scenarios*;
- (4) Report: *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*;

EXPRESSES its appreciation to the Coordinating Lead Authors, Lead Authors, Contributing Authors, Reviewers and Review Editors of the above IPCC reports for their generous contribution of time and effort;

URGES Governments, in a position to do so, to support the IPCC financially through increased contributions to the WMO/UNEP IPCC Trust Fund;

URGES the Panel to maintain its objectivity under all circumstances;

REQUESTS the Panel to convey, as appropriate, its findings and conclusions to the bodies of the United Nations Framework Convention on Climate Change;

REQUESTS the Secretary-General to arrange, as appropriate, for dissemination of the IPCC findings to the National Meteorological and Hydrological Services.

RESOLUTION 2 (EC-LII)

INTERCOMMISSION TASK TEAM ON REGIONAL CLIMATE CENTRES

THE EXECUTIVE COUNCIL,

NOTING:

- (1) Resolution 2 (Cg-XIII) — World Weather Watch Programme for 2000-2003,
- (2) Resolution 8 (Cg-XIII) — Climate Information and Prediction Services Project,
- (3) Report of the Meeting of the Presidents of Technical Commissions, 1999,
- (4) General Regulations 37 and 38,

RECOGNIZING:

- (1) The need for the development of an effective infrastructure for seasonal to interannual climate predictions that consolidates, within an operational framework, the progress made by climate monitoring and research programmes sponsored by WMO in this area,
- (2) The suitability of a regional mechanism for the interpretation and interface to users of seasonal to

interannual predictions which may be achieved through the development of a system of Regional Climate Centres (RCCs),

- (3) That there is a need to define more clearly the role and potential functions of RCCs, especially with respect to those of national centres,
- (4) That definition of the role of RCCs would be facilitated through the development of a detailed user requirement for seasonal to interannual predictions that covers the infrastructure required to produce them and to transmit them for effective use by end users,
- (5) The important role of regional cooperation for capacity building and infrastructure development,
- (6) That activities related to the development of infrastructure requirements for seasonal to interannual prediction, and within that context to RCCs, would require close cooperation and coordination between several WMO Programmes,

DECIDES:

- (1) To establish an Intercommission Task Team on Regional Climate Centres comprising six experts from the Commissions for Climatology (two experts), Basic Systems (two experts), Atmospheric Sciences (one expert) and Agricultural Meteorology (one expert) to define the needs for, and the roles of, the RCCs;
- (2) To define the terms of reference of the Intercommission Task Team on RCCs as follows:
 - (i) To develop the concept of RCCs taking account of existing WMO regional centres and, as appropriate, to recommend the procedure for their designation;
 - (ii) To take into consideration during the review process the Statement of User Requirements being prepared by the president of the Commission for Climatology (CCI), once available;
 - (iii) To review the existing methodologies for the production and verification of seasonal to interannual forecasts;
 - (iv) To propose an infrastructure for the dissemination of seasonal to interannual forecasts to the Members, both globally and regionally, that satisfies user requirements;
 - (v) To evaluate the existing facilities in terms of the proposed infrastructure for seasonal to interannual prediction defined through 2(iv);
 - (vi) To advise mechanisms and options for future cross-programme cooperation between the technical commissions concerned;
 - (vii) To report on its deliberations to the presidents of CCI and of those other commissions involved prior to the fifty-third session of the Executive Council;
- (3) To designate in accordance with General Regulation 38, CCI as the constituent body to which the Intercommission Task Team shall report;

REQUESTS the presidents of the four commissions mentioned in DECIDES (1) above to designate, taking into account regional balance, experts to participate in the work of the Intercommission Task Team;

REQUESTS the president of CCI:

- (1) To arrange in accordance with General Regulation 38 the election of a chairperson of the Intercommission Task Team from among its members;
- (2) To report on the work of the Intercommission Task Team to the fifty-third session of the Executive Council;

REQUESTS the Secretary-General to provide the necessary assistance and Secretariat support for the Intercommission Task Team on RCCs, within the available budgetary resources.

RESOLUTION 3 (EC-LII)

GLOBAL CLIMATE OBSERVING SYSTEM

THE EXECUTIVE COUNCIL,

NOTING:

- (1) Resolution 7 (Cg-XIII) — Global Climate Observing System,
- (2) Decisions 2/CP.4 — Additional guidance to the operating entity of the financial mechanism, and 14/CP.4 — Research and systematic observation, of the Fourth Session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC),
- (3) Decisions 4/CP.5 — Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications, and 5/CP.5 — Research and systematic observation, of the Fifth Session of COP to the UNFCCC,
- (4) The conclusions of the recent Informal Meeting on Developing an Intergovernmental Mechanism or Process for the Global Climate Observing System (GCOS),

RECOGNIZING:

- (1) That there are in existence a number of intergovernmental and international agencies and processes involved in systematic observations for climate that

should be more fully engaged in the implementation of GCOS,

- (2) That COP to the UNFCCC provides an important mechanism whereby Members can address deficiencies in the observing systems required to meet their commitments to the Convention,
- (3) That, in view of the November 2001 deadline for reporting to COP to the UNFCCC, Members need to start now to prepare reports on their activities in relation to systematic observation for inclusion in the next national communications to COP to the UNFCCC,
- (4) That, as GCOS moves forward with its implementation, there will be a need for senior operational and governmental advice as well as scientific and technical expertise,
- (5) That there is a need for full coordination also at the national level to ensure balanced development of national observing systems for climate,

URGES Members to:

- (1) Ensure that their delegations to sessions of COP to the UNFCCC and its subsidiary bodies are properly informed of the key role played by National Meteorological and Hydrological Services (NMHSs)

- in implementing and operating observing systems necessary to meet national obligations under the Convention and take steps to provide appropriate scientific advice to national delegations through the inclusion therein of representatives of NMHSs;
- (2) Cooperate in the development of regionally-based action plans that address deficiencies in observing systems for climate and in the presentation of these plans to potential funding agencies and the Global Environment Facility for their consideration;
 - (3) Support regional workshops and assist developing Members in improving their observing systems for climate;
 - (4) Ensure that NMHSs actively participate in the preparation of their detailed reports and national communications to the UNFCCC due in November 2001, in particular in reporting on their actions with regard to global climate observing systems, to the development of observational networks and, as appropriate, to support capacity-building in developing countries related to the collection, exchange and utilization of data to meet local, regional and international needs;
 - (5) Coordinate, as necessary, among the national counterparts of the GCOS international sponsoring agencies in order to identify a national focal point for GCOS to ensure appropriate action in regard to observing systems for climate change and variability, in particular, in regard to the preparation of comprehensive national GCOS plans and reporting to the UNFCCC in relation to research and systematic observation;
 - (6) Enhance their support to the GCOS Secretariat to the extent possible, for example in the form of secondment of experts or through contributions to the Climate Observing System Fund;

REQUESTS the GCOS Secretariat to:

- (1) Develop an implementation strategy for GCOS and report on it to the next session of the Executive Council and, as appropriate, to the other sponsoring bodies;
- (2) Organize, in consultation with relevant international and regional bodies, regional workshops on improving observing systems for climate;
- (3) Assist Members, especially developing countries, in the preparation of implementation plans to improve their observing systems for climate;

REQUESTS the presidents of technical commissions, in particular the Commissions for Atmospheric Sciences, for Basic Systems, for Climatology and the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, to strengthen the cooperation between GCOS and their respective technical commissions;

REQUESTS the Secretary-General to:

- (1) Consult with the other GCOS sponsoring agencies to develop effective strategies to implement GCOS, including common resolutions, and to strengthen senior operational and governmental involvement in GCOS;
- (2) Inform Members of the urgent need to commence preparation of material for inclusion in national reports and communications to COP on their contribution to systematic observation;
- (3) Advise developing country Members about the potential availability of funding from the Global Environment Facility to assist them in preparing their reports to COP to the UNFCCC;
- (4) Give high priority to GCOS, using whatever flexibility might exist within the regular budget;
- (5) Keep Members informed on other recent important developments in regard to GCOS.

RESOLUTION 4 (EC-LII)

DATA BUOY COOPERATION PANEL

THE EXECUTIVE COUNCIL,

NOTING:

- (1) Resolution 9 (EC-XLV) — Data Buoy Cooperation Panel (DBCP),
- (2) IOC Assembly Resolution IOC-XVII.6 — Data Buoy Cooperation Panel,
- (3) Resolution 14 (Cg-XIII) — Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),
- (4) IOC Assembly Resolution IOC-XX.12 — Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),
- (5) Final report, DBCP-XIV, paragraph 7.3 and Annex VI,

NOTING FURTHER the decision by Congress and the IOC Assembly “that JCOMM will become the reporting and coordinating mechanism for the DBCP....”,

RECOGNIZING that this decision necessitates some small modifications to the terms of reference of the DBCP, DECIDES that the terms of reference for the DBCP and for its Technical Coordinator should be as given in the annex to this resolution;

REQUESTS the Secretary-General to continue to provide the necessary Secretariat support to the Panel, within the available budgetary resources.

NOTE: This resolution replaces Resolution 9 (EC-XLV), which is no longer in force.

ANNEX TO RESOLUTION 4 (EC-LII)

DATA BUOY COOPERATION PANEL**PART A****Terms of reference for the Data Buoy Cooperation Panel**

The Data Buoy Cooperation Panel shall:

1. Consider the expressed needs of the international meteorological and oceanographic communities for real-time or archival data from ocean-data buoys on the high seas and request action from its members, the Technical Coordinator or action groups to meet these needs;
2. Coordinate activity on existing programmes so as to optimize the provision and timely receipt of good quality data from them;
3. Propose, organize and implement, through the coordination of national contributions, the expansion of existing programmes or the creation of new ones to supply such data;
4. Support and organize, as appropriate, such action groups as may be necessary to implement the deployment of data gathering buoys to meet the expressed needs of oceanographic and meteorological programmes such as the World Weather Watch, the World Climate Research Programme, the Global Ocean Observing System and the Global Climate Observing System;
5. Encourage the initiation of national contributions to data buoy programmes from countries which do not make them;
6. Promote the insertion of all available and appropriate buoy data into the Global Telecommunication System;
7. Promote the exchange of information on data buoy activities and encourage the development and transfer of appropriate technology;
8. Ensure that other bodies actively involved in buoy use are informed of the workings of the Panel and encourage, as appropriate, their participation in the Panel deliberations;
9. Make and regularly review arrangements to secure the services of a Technical Coordinator with the terms of reference given in Part B;
10. Report formally to the Joint WMO/IOC Technical Commission for Oceanography and Marine

Meteorology (JCOMM) and participate in, and contribute to, an integrated global operational ocean observing system, implemented and coordinated through JCOMM;

11. Submit annually to the Executive Councils of WMO and IOC, to JCOMM and to other appropriate bodies of WMO and IOC, a report which shall include summaries of the existing and planned buoy deployments and data flow.

PART B**Terms of reference for the Technical Coordinator of the Data Buoy Cooperation Panel**

The Technical Coordinator of the Data Buoy Cooperation Panel shall:

1. Under the direction of the Data Buoy Cooperation Panel take all possible steps within the competence of the Panel to assist in the successful achievement of its aims;
2. Assist in the development, implementation and management of quality control procedures for data buoy systems;
3. Assist in setting up suitable arrangements for notifying the appropriate user communities of changes in the functional status of operational buoys;
4. Assist in the standardization of buoy data formats, sensor accuracy, etc.;
5. Assist, when requested, with the development of cooperative arrangements for buoy deployment;
6. Assist in the clarification and resolution of issues between Service Argos and buoy operators;
7. Assist in promoting the insertion of all available and appropriate buoy data into the Global Telecommunication System;
8. Supply information about buoy developments and applications to the WMO and IOC Secretariats and assist the Data Buoy Cooperation Panel to promote an international dialogue between oceanographers and meteorologists;
9. Coordinate and monitor the flow of buoy data into appropriate permanent archives.

RESOLUTION 5 (EC-LII)

REPORTS OF THE JOINT INSPECTION UNIT

THE EXECUTIVE COUNCIL,

RECALLING the procedures for transmitting and handling the reports of the Joint Inspection Unit adopted by the Economic and Social Council of the United Nations in its Resolution 1457 (XLVII),

NOTING that the following reports of the Joint Inspection Unit have been formally transmitted to the World Meteorological Organization:

- (1) Fellowship in the United Nations system (JIU/REP/98/1),
- (2) More coherence for enhanced oversight in the United Nations system (JIU/REP/98/2),
- (3) The United Nations University — enhancing its relevance and effectiveness (JIU/REP/98/3),
- (4) United Nations system common services at Geneva (Part I: Overview of administrative cooperation and coordination) (JIU/REP/98/4),
- (5) United Nations Office for Project Services (UNOPS): broader engagement with United Nations system organizations (JIU/REP/98/5),
- (6) Review of the Administrative Committee on Coordination and its machinery (JIU/REP/99/1),
- (7) An evaluation of the United Nations International Research and Training Institute for the Advancement of Women (INSTRAW) (JIU/REP/99/2),

(8) Result-based budgeting: the experience of the United Nations system organizations (JIU/REP/99/3),

(9) Private sector involvement and cooperation with the United Nations system (JIU/REP/99/6),

(10) Policies and practices in the use of the services of private management consulting firms in the organizations of the United Nations system (JIU/REP/99/7),

NOTING FURTHER the annual report on the activities of the Joint Inspection Unit for the period 1 July 1997 to 31 December 1998,

TAKING NOTE of these reports of the Joint Inspection Unit and comments therein,

EXPRESSES its appreciation to the Inspectors for the recommendations they have submitted in their reports;

REQUESTS the Secretary-General:

- (1) To give careful consideration to the implementation, as appropriate, of the recommendations included in the reports mentioned under NOTING which are pertinent to WMO and to report to the Executive Council under the relevant agenda items;
- (2) To transmit this resolution to the Secretary-General of the United Nations for transmission to the Economic and Social Council in accordance with established procedures.

RESOLUTION 6 (EC-LII)

PUBLICATIONS PROGRAMME

THE EXECUTIVE COUNCIL,

NOTING that the functions of the Secretariat (as stated in General Regulation 201(6)) include “to prepare or edit, arrange for the publication of and distribute the approved publications of the Organization”,

CONSIDERING that each session of Congress reviews the Publications Programme, approves a list of mandatory publications, delegates the day-to-day management of the Programme to the Secretary-General (within the framework established by Congress and guidance given by the Executive Council), and requests the Executive Council to carry out regular reviews of the Programme, ADOPTS, in line with the decisions of Congress currently in force:

- (1) Guidelines on the planning, production and distribution of WMO publications, as contained in Annex 1 to this resolution;

(2) The definition of the purpose and limits of the Publications Fund, as contained in Annex 2 to this resolution;

(3) The scheme for the free distribution of publications, as given in Annex 3 to this resolution, on the understanding that the Secretary-General, at his discretion, may exceed these numbers or include new recipients when it is clearly in the best interests of the Organization to do so;

(4) The categories of regular WMO programme-supporting publications, as given in Annex 4 to this resolution.

NOTE: This resolution replaces Resolution 7 (EC-XLVIII), which is no longer in force.

ANNEX 1 TO RESOLUTION 6 (EC-LII)

GUIDELINES ON THE PLANNING, PRODUCTION AND DISTRIBUTION OF WMO PUBLICATIONS

1. General

The publications of the Organization generally fall into two broad categories:

- (a) Mandatory publications, defined by Congress as those which WMO is under an obligation to produce within the given financial period;
- (b) Programme-supporting publications, produced within the series defined by the Executive Council.

2. Planning of WMO publications

(a) Planning and funding of the Publications Programme:

- (i) The programme of producing mandatory publications during a given financial period is defined by the resolution of Congress. Funding is provided by Congress on the basis of the Secretary-General's programme and budget proposals under the Publications Programme;
- (ii) The programme-supporting publications, such as WMO Technical Notes, WWW Planning Reports, Operational Hydrology Reports, Marine Science Affairs Reports, Special Environmental Reports, the WMO Training Publications, etc. form part of the relevant scientific and technical programmes and their production is planned and funded under those programmes;

(b) Languages

Congress defines the languages in which the mandatory publications shall be issued. Programme-supporting publications are generally issued in the original language only, unless the technical bodies initiating their publication request that they be issued also in other languages. As a general policy, translation of operational and technical publications, and especially the education and training publications, into the official languages of the Organization should be regarded as having a high priority in order to facilitate the transfer of knowledge and proven methodology.

3. Production of WMO publications

(a) Preparation and approval of manuscripts

The preparation of manuscripts of new publications may be initiated by Congress, other WMO bodies, or the Secretariat.

The quality of the manuscripts for mandatory publications is, for the most part, ensured by the constituent bodies. To ensure the high quality of WMO's programme-supporting publications, the Secretary-General should maintain a list of criteria by which they should be judged and arrange to obtain an appraisal of each manuscript from a

carefully chosen referee, assisted by advisers, as necessary. The president of a technical commission shall normally act as referee for publications related to the work of the commission concerned. The technical commission itself or its advisory working group (or alternatively, an Executive Council panel) may also make recommendations in this regard;

(b) For new programme-supporting publications, the referee(s) and, in some cases, the Publications Board should consider the following criteria:

- (i) The work should make an original contribution to the literature within WMO's sphere of activity and the information should not be largely already available in easily-accessible published material;
- (ii) The content must be scientifically valid and of wide interest;
- (iii) The text will remain valid and of significant interest to Members and the wider meteorological community for a reasonable period of time;
- (iv) The addition of the title would not unduly imbalance the total list of WMO publications toward one aspect of the Organization's activities;
- (v) The information is presented as precisely as practical and the text is complete and accompanied by all the necessary illustrative material in a format easily accessible by the Secretariat;
- (vi) The author has the right to offer the material to WMO for publication and has obtained written permission from the copyright holders to include any material taken from other sources;

(c) Editing and printing

Mandatory and programme-supporting publications are edited by the Publications Division in consultation with the technical division responsible for their content. The Publications Division also arranges for the page layout, camera-ready copy preparation, printing and binding and/or preparation for electronic distribution.

The presentation and method of reproduction of the publications, as well as the most economic use of the available publication funds including the revenue from sales of publications, shall be the responsibility of the Secretary-General within the framework established by Congress and taking into account the general guidance given by the Executive Council. A concerted effort will be made to use, as appropriate, recycled, recyclable and other environmentally-sound materials in the production of WMO publications.

In addition to the mandatory and programme-supporting publications, certain scientific and technical publications (such as proceedings of technical conferences, etc.) provided in camera-ready form may be reproduced directly. These publications would be produced in their original language only, with a note indicating that no editing has been done in the Secretariat. This is similar to the procedure for the production of technical documents, which are excluded from the Publications Programme and not offered for sale.

4. Distribution of WMO publications

(a) Catalogue of WMO publications

The Secretariat shall publish, on a regular basis, a catalogue to provide basic information for meteorologists interested in ordering WMO publications. This catalogue may also serve as a reference work for librarians, institutes and scientists in other fields and may be of use for sales promotion. It should be divided into sections showing separately a historic listing and the publications at present available for sale;

(b) Numbering of WMO publications

The mandatory and programme-supporting publications shall receive a WMO publication number and an ISBN (International Standard Book Number, which identifies the publication within the book trade and is coded to indicate the language, edition and WMO number of each publication). In addition, the individual volumes of a series shall receive a serial number. For example:

Technical Note No. 152 (serial number)

WMO-No. 467 (WMO number)

ISBN 92-63-10467-0 (ISBN)

(c) Free distribution

A specified number of each WMO publication shall be made available free of charge to Member countries, officers and members of WMO bodies,

participants in meetings, regional training centres, depository libraries, United Nations and its specialized agencies, etc. For this purpose the Executive Council establishes a "List of free distribution of WMO publications" and authorizes the Secretary-General, at his discretion, to exceed this when it is clearly in the best interest of the Organization to do so.

Publications prepared for public information purposes, including *Annual Reports* and WMO Long-term Plans, shall not normally be sold. They shall receive free distribution according to lists approved from time to time by the Secretary-General in the best interest of promoting the Organization's aims to the widest practical audience;

(d) Pricing of publications

When pricing a publication — other than the WMO *Bulletin* — no account shall be taken of the cost of preparing the manuscript or of the translation and editing. The only costs to be calculated shall be those relating to the actual graphic and layout work, typesetting, printing, cover and binding, multiplied by a factor to cover partially the costs of the copies distributed free of charge. The same price shall be charged for each language version of a given publication.

5. Review of the Publications Programme

(a) The Executive Council should continue to review regularly the status of the Publications Programme taking into account the funds and facilities available, and to review the continuing needs resulting from the introduction of new technology;

(b) The Secretary-General should assist in these reviews by providing sessions of the Executive Council with information on available funds, facilities, sales potentials and any possible limitations.

ANNEX 2 TO RESOLUTION 6 (EC-LII)

PUBLICATIONS FUND

1. Purpose of the Publications Fund

The Publications Fund is established to support the implementation of the Publications Programme.

2. Income

(a) Appropriations made by Congress for mandatory publications under the Publications Programme;

(b) Appropriations made by Congress for relevant scientific and technical programmes credited to the Fund in the amount estimated for the purpose of producing specified programme-related publications and other printed and visual materials;

(c) Revenues from the sales of publications and subscriptions;

(d) Revenues derived from advertisements in the WMO *Bulletin*;

(e) Voluntary contributions, gifts and donations accepted by the Organization in accordance with the Financial Regulations for the promotion and/or the production of WMO publications.

3. Expenditures

Expenditures which are incurred for the following purposes shall be debited to the Fund:

<p>(a) Cost of services for translation, editing, illustration, design, text processing, typesetting, page preparation for mandatory publications when extra assistance is needed for these services;</p> <p>(b) Where funds have been transferred from scientific and technical programmes for the purpose, the cost of services for translation, editing, illustration, design, text processing, typesetting, page preparation for programme-supporting publications and other items, when necessary;</p> <p>(c) Costs of all equipment necessary for the production of publications and costs of maintenance and repair of such equipment;</p> <p>(d) Costs of printing, cover, binding, and/or electronic publishing of WMO publications and reprints as required;</p> <p>(e) All costs relating to the production and distribution of catalogues and other sales-promotion material;</p>	<p>(f) Direct and identifiable administrative costs involved.</p> <p>4. Management of the Fund Unless otherwise specified herein, all financial transactions of the Fund shall be subject to the WMO Financial Regulations.</p> <p>5. Surplus At the end of each financial period, subject to the approval of Congress, the unobligated cash balance available in the Publications Fund shall be transferred to the credit of the Fund on the first of January of the subsequent biennium. Should it be decided to close the Publications Fund, then the unobligated cash balance will be credited as miscellaneous income to the General Fund.</p> <p>6. External audit The Secretary-General shall submit the accounts of the Fund for audit by the External Auditor in the same way as the regular accounts of the Organization.</p>
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ANNEX 3 TO RESOLUTION 6 (EC-LII)

FREE DISTRIBUTION OF WMO PUBLICATIONS

Mandatory publications	(1) ¹	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1. Basic documents												
• <i>Basic Documents</i> (WMO-No. 15)	1(+1)	1	1	1					1	1		
• <i>Agreements and Working Arrangements with Other International Organizations</i> (WMO-No. 60)	1	1	1						1	1		
• <i>Technical Regulations</i> (WMO-No. 49)	1	1	1	1				(a)	1			
• Annexes to the <i>Technical Regulations</i> and related regional regulations (WMO <i>Manuals</i> ; see Resolution 21 (Cg-XIII))		1	(b)	(c)	(d)			(a)	1			
2. Operational publications												
• <i>Meteorological Services of the World</i> (WMO-No. 2)		1							1			
• <i>Composition of the WMO</i> (WMO-No. 5)		1	1	1				(a)	1			
• <i>Weather Reporting</i> (Volumes A, B, C1, C2 and D) (WMO-No. 9)		1							1			
• <i>International List of Selected, Supplementary and Auxiliary Ships</i> (WMO-No. 47)		1							1			
• <i>Compendium of Training Facilities for Meteorological and Operational Hydrology</i> (WMO-No. 240)		1	1	1				1	1			
3. Official records												
• Abridged reports with resolutions of Congress	1	1	1	1	1		1		1	1		
• Proceedings of Congress	1	1	1					(a)	1			
• Abridged reports with resolutions of the Executive Council	1	1	1	1	1		1	(a)	1	1		
• Reports of sessions of regional associations	1	1	(e)	1			1	1	1			
• Reports of sessions of technical commissions	1	1	(b)	1	(c)	(d)	1	1	1			
4. WMO Guides		1	(b)	(c)				1	1			
5. <i>International Meteorological Vocabulary</i> (WMO-No. 182)		1	1						1			
<i>International Glossary of Hydrology</i> ²		1	1						1			
6. <i>Annual Reports</i> of WMO³	1(+1)	1	1	1	1			1	1	1		1
7. <i>WMO Bulletin</i>	1(+1)	1	1	1	1			1	1	1	(a)	1
Programme-supporting publications (see Annex 4 to Resolution 6 (EC-XLII))												
1. <i>WMO Long-Term Plan</i>												
Part I	1(+1)	1	1	1				2	1	1		
2. Other programme-supporting publications³		1	(b)	(c)				2 ⁴	1			

¹ See explanatory notes; ² Published jointly with UNESCO; ³ Free distribution of *Annual Reports* and public information material is decided by the Secretary-General;

⁴ WMO Training Publications.

<p>Explanations:</p> <ol style="list-style-type: none"> (1) Governments (Foreign Ministers): Additional copy, indicated in brackets, to Permanent Missions with the United Nations Office in Geneva; (2) Permanent Representatives of Members; Meteorological and Hydrometeorological Services (NOTE: Directors who are not Permanent Representatives receive two copies of all publications free of charge); World and Regional Specialized Meteorological Centres; (3) Hydrological Advisers to Permanent Representatives of Members; (4) Presidents and vice-presidents of technical commissions; (5) Members of technical commissions (NOTE: As designated in accordance with General Regulation 182); (6) Members of working groups and rapporteurs of technical commissions who are not members of the technical commission concerned; (7) Participants at meetings of constituent bodies (provided the publication is not available under another capacity); (8) Regional Meteorological Training Centres; (9) Depository libraries (one per regional association); (10) United Nations and specialized agencies (NOTE: The United Nations Dag Hammarskjöld Library is entitled to 	<p>one free copy of all WMO publications. Additional reference copies are available on request to other United Nations documentation services. On an exchange basis, one free copy of publications not specified in this column is available to all United Nations specialized agencies and other international or scientific organizations and institutions);</p> <ol style="list-style-type: none"> (11) Retired WMO staff members; (12) United Nations Information Centres and Resident Representatives of UNDP. <p>NOTES:</p> <ol style="list-style-type: none"> (a) Available upon written request, provided the publication is not available under another capacity; (b) One copy of those publications related to hydrology; (c) One copy of those publications related to the work of each specific technical commission; (d) One copy of those publications directly related to the work of the specific working group for chairpersons of working groups and rapporteurs; (e) Reports of that regional association to which the Hydrological Adviser belongs.
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ANNEX 4 TO RESOLUTION 6 (EC-LII)

REGULAR WMO PROGRAMME-SUPPORTING PUBLICATIONS

A. Regular series

1. WMO Long-term Plan, PART I: Overall policy and strategy
2. WWW Planning Reports
3. WWW Status Reports (biennial)
4. Technical Notes
5. Special Environmental Reports
6. Reports on Marine Science Affairs
7. Operational Hydrology Reports
8. WMO Training Publications
9. Voluntary Cooperation Programme Reports

B. Other WMO programme-supporting publications

1. Handbooks (and service information)
2. Climatic atlases
3. Catalogues
4. Bibliographies
5. Proceedings of scientific conferences and symposia

6. IMO lectures, lectures presented at Congress and sessions of the Executive Council
7. Booklets (including those on the subject of World Meteorological Day)
8. Instruments and Observing Methods Reports
9. Casebooks

C. Joint inter-agency publications

1. Joint IGOSS and IOC/WMO publications
2. Joint WMO/UNESCO publications
3. Joint IAHS/WMO publications
4. Joint WMO/UNEP publications
5. Any other joint publication as may be agreed between the Secretary-General of WMO and the Executive Head of another agency.

This list may be amended by the Secretary-General by the deletion or addition of series at the request of any constituent body.

RESOLUTION 7 (EC-LII)

CONSIDERATION OF THE ACCOUNTS OF THE WORLD METEOROLOGICAL ORGANIZATION FOR THE BIENNIUM 1998–1999

THE EXECUTIVE COUNCIL,
NOTING Article 15 of the Financial Regulations,
CONSIDERING the financial report of the Secretary-General on the accounts of the Organization for the

biennium ended 31 December 1999 and the report of the External Auditor to the Executive Council,
GIVES formal approval to the audited financial accounts of WMO for the biennium 1998–1999;

REQUESTS the Secretary-General to transmit the financial statements of the accounts together with his report and the report of the External Auditor thereon to all Members of WMO;

NOTING with concern the financial difficulties arising from delayed and non-payment of assessed contributions, URGES the Members still in arrears to clear their dues at an early date;

NOTING that the sum of six million three hundred and forty-six thousand seven hundred and fifty-nine Swiss francs (SFR 6 346 759) appears as fixed assets in the statement of assets and liabilities as at 31 December 1999,

AUTHORIZES this amount to be written down to the nominal sum of one Swiss franc (SFR 1) and to record this transaction in the accounts for the biennium ending 31 December 1999;

NOTING that the sum of one hundred and fifteen thousand one hundred and eighty-five Swiss francs (SFR 115 185) in respect of the Technical Library (books, periodicals, etc.) appears in the statement of assets and liabilities as at 31 December 1999,

AUTHORIZES that this amount be written down to the nominal sum of one Swiss franc (SFR 1) and to record this transaction in the accounts for the biennium ending 31 December 1999;

NOTING that the liabilities for post-retirement benefits of WMO staff are not provided for in the accounts,

AUTHORIZES the establishment of a Reserve for post-retirement benefits to be funded from a 2 per cent loading on the payroll costs, with effect from 1 January 2002.

RESOLUTION 8 (EC-LII)

CONSIDERATION OF THE ACCOUNTS FOR 1998–1999 — WMO PROJECTS AND TRUST FUNDS FINANCED FROM THE UNITED NATIONS DEVELOPMENT PROGRAMME

THE EXECUTIVE COUNCIL,

NOTING Article XV of the United Nations Development Programme Financial Regulations and Rules,

CONSIDERING the financial reports of the External Auditor to the Executive Council on the statements showing the status of funds of WMO, as at 31 December 1998 and 31 December 1999, under the United Nations Development Programme,

GIVES FORMAL APPROVAL to the audited financial accounts in respect of those projects and trust funds administered by WMO and financed by the United Nations Development Programme during the years ended 31 December 1998 and 31 December 1999;

REQUESTS the Secretary-General to transmit certified copies of the financial statements of the accounts, together with the report of the External Auditor thereon, to the United Nations Board of Auditors.

RESOLUTION 9 (EC-LII)

REVIEW OF PREVIOUS RESOLUTIONS OF THE EXECUTIVE COUNCIL

THE EXECUTIVE COUNCIL,

NOTING:

- (1) General Regulation 155(9) concerning the review of the Executive Council resolutions,
 - (2) Rule 27 of its Rules of Procedure on the same subject,
- HAVING examined its previous resolutions still in force,

DECIDES:

- (1) To keep in force the following resolutions:

EC-X	2
EC-XII	6, 30
EC-XIX	9
EC-XXI	15
EC-XXII	18
EC-XXV	8, 12
EC-XXIX	11
EC-XXXIV	13, 18
EC-XXXV	18, 21
EC-XXXVI	1, 2, 6
EC-XXXVII	13
EC-XXXVIII	8, 9, 10

EC-XXXIX 5, 7, 17, 24

EC-XL 2, 4

EC-XLI 4, 6

EC-XLII 4, 5, 13, 19

EC-XLIV 1, 14 (except paragraphs under DECIDES), 15, 20

EC-XLV 3, 5, 7, 13, 16, 19

EC-XLVI 5, 11, 12, 19

EC-XLVII 3, 5, 8

EC-XLVIII 1, 3, 4, 5, 8, 11, 12

EC-XLIX 1, 2, 3, 4, 5, 8, 9, 11, 13

EC-L 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14

EC-LI 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

- (2) Not to keep in force the other resolutions adopted before its fifty-second session.

NOTE: This resolution replaces Resolution 15 (EC-L), which is no longer in force.

ANNEXES

ANNEX I

Annex to paragraph 2.4 of the general summary

REPORT AND RECOMMENDATIONS OF THE FINANCIAL ADVISORY COMMITTEE

- (a) *Financial matters (including the report of the External Auditor) — Consideration of the accounts for the second biennium (1998–1999) of the twelfth financial period (1996–1999)*

General Fund and other funds

Recommendation 1:

That the Executive Council:

- 1.1 Approve the audited accounts for the biennium 1998–1999;
- 1.2 Adopt the draft text for inclusion in the general summary of its report, as contained in EC-LII/Doc. 16.4(1), Appendix A;
- 1.3 Adopt the draft Resolution 16.4/1 (EC-LII), submitted by the Secretary-General, as contained in EC-LII/Doc. 16.4(1), Appendix B;
- 1.4 Schedule future sessions at a later date to allow the Secretariat adequate time to prepare the documents.

- (b) *Financial matters (including the report of the External Auditor) — Consideration of the UNDP project accounts for 1998–1999*

WMO projects financed from the United Nations Development Programme

Recommendation 2:

That the Executive Council:

- 2.1 Approve the audited accounts for WMO projects financed from the United Nations Development Programme (UNDP) for the biennium 1998–1999;
- 2.2 Adopt the draft text for inclusion in the general summary of its report, as contained in EC-LII/Doc. 16.4(2), Appendix A;
- 2.3 Adopt the draft Resolution 16.4/2 (EC-LII), submitted by the Secretary-General, as contained in EC-LII/Doc. 16.4(2), Appendix B.

- (c) *Interim report of the Secretary-General on the financial and budgetary situation of the Organization for the biennium 2000–2001*

Recommendation 3:

That the Executive Council, once more, urge Members in arrears of contributions to settle their dues as early as possible so that the approved programmes of WMO may be implemented in the time-frame and at the level foreseen in the plans.

Recommendation 4:

That the Executive Council take note of the measures adopted by the Secretary-General in order to face the heavy pressures on budgetary and cash resources available by controlling expenditure to the level of available resources and that the Secretary-General would adjust the programme and budget proposal for the second biennium based on actual expenditure through 31 December 2000. This proposal should incorporate the assessment by the Secretary-General of the need for long-serving temporary staff and consultants.

- (d) *Results-based budgeting*

Recommendation 5:

That the Executive Council:

- 5.0 Request the Secretary-General to make available to all Members a comprehensive description of the concept of “results-based budgeting” as applied to WMO, comparing it with past and present practices;
- 5.1 Request the Secretary-General to implement Option 1, as reflected in the annex, for the 2002–2003 programme and budget which will be considered by EC-LIII;
- 5.2 Request the chairperson of the EC Working Group on Long-term Planning to ensure that objectives established in the Sixth WMO Long-term Plan enable development of meaningful performance measures in the programme and budget developed for the fourteenth financial period;
- 5.3 Request the Secretary-General, to prepare on a pilot basis the World Climate Programme for the biennium 2002–2003 using the results-based budgeting Option 2, as reflected in the annex, and present it to EC-LIII for consideration;

5.4 Request the Secretary-General, with reference to Resolution 24 (Cg-XIII) — Preparation of the Sixth WMO Long-term Plan, and in consultation with the chairperson of the EC

Working Group on Long-term Planning and based on the outcome of the pilot presented to EC-LIII, to prepare the programme and budget for the fourteenth financial period.

ANNEX TO RECOMMENDATION 5

OPTIONS FOR RESULTS-BASED BUDGETING

OPTION 1: MAINTAIN CURRENT PLANNING AND BUDGET SYSTEMS WITH PROCESS AND PRESENTATION IMPROVEMENTS

1. This option would not merge planning and budgeting processes, but would improve the linkage of the two by incorporating the WMO goals and objectives in the budget document and require presentation of justification as to how the proposed expenditure of funds would accomplish the goal objective. Performance measurements would be included. Internal operating processes would be examined separately for greater efficiency and the oversight role of the Resources Management Department in using funds would be increased.

A. Recommended changes to the existing budget presentation

2. Develop a new streamlined format for the budget document which provides funding requirements by Department and Office and specifies in the budget document the goals and objectives to be accomplished under the WMO Long-term Plan rather than simply incorporating the Plan by coding reference. This requires a narrative justification of how the expenditure of funds carries forward those goals/objectives and how each Department and Office will measure results. Timing of accomplishments should be clear.

3. Performance measurement is a key new aspect of the streamlined budget. WMO reviewed the budgets of some United Nations system Organizations that have some experience with results-based budgeting, especially their use of performance measures. It was generally felt that WMO Programmes would not easily lend themselves to output analysis. Creation of the best measures for WMO will require management commitment and involvement. Examples of use of performance measurement by some diplomatic and scientific government agencies are available, such as the Australian Department of Foreign Affairs and Trade, the United States National Science Foundation and the United States National Institute of Standards and Technology.

B. Recommended changes to the budget process

4. A budget manual should be prepared which describes the process, procedures and time-frames and which provides formats for budget requirements. The manual should be augmented by guidance for each key step in the budget process provided by memorandum or e-mail. The documents would promote better understanding of the budget within WMO.

5. It is felt that the Organization should review the long-standing limit of 246 positions in the Secretariat. A limitation like this makes it difficult to apply resources effectively and ensure accountability. Funding limitations are the effective limit of personnel.

6. To carry out effectively the budget format changes, staff should continue to be trained in preparing goals, objectives and performance measures.

OPTION 2: MERGE STRATEGIC PLANNING AND BUDGETING SYSTEMS IN THE SECRETARIAT AND LINK WITH WMO LONG-TERM PLANS

7. This option calls for making one seamless planning and budgeting process within WMO. It can build on Option 1 above, but is intended to have WMO examine ways to create a single management system rather than focus on clarifying document contents. The current complex WMO process of a rolling 10-year strategic plan, revised every four years with two biennial programme and budget documents, has not led to increased accountability or clarity in achieving goals or measurement, according to some WMO Members. This option would include the following actions:

- (a) Evaluate means to develop a strategic planning process that produces biennial programmes and budgets. Develop revised time-lines to facilitate the merged planning and budget process in the WMO Secretariat, linked to the Long-term Plans;
- (b) Focus the WMO Secretariat on developing outcome proposals for the strategic plan and making appropriate revisions through the programme and budget follow-on processes;
- (c) Train managers and staff on strategic planning and budgeting;
- (d) Use planned outcomes and performance measures in the decision process.

ANNEX II

Annex to paragraph 3.3.2 of the general summary

CONSULTATIVE MEETINGS ON HIGH-LEVEL POLICY ON SATELLITE MATTERS**Background**

In the opening decade of the new millennium, a major opportunity to support and enhance WMO Programmes could be obtained through existing and planned satellite programmes. At the same time, there was a need to demonstrate the value of those satellite programmes to all concerned and to ensure that future plans took into account WMO needs. Within the above context, the satellite operators and WMO propose that regular consultative meetings to discuss high-level policy matters would be beneficial to all parties concerned. Such meetings would build on the good relationships that existed today between satellite operators and WMO and would enhance the working relations already in place through existing mechanisms. Those meetings would promote the achievement of further efficiencies in the satellite observing system and would ensure a common understanding of objectives and lead to better harmonization of programmes, requirements, usage of satellite data products and services, and high-level policy matters.

High-level policy matters could have a substantial impact on satellite operators and on most, if not all, WMO Members as well as on the allocation of resources. For WMO, the relevant decision-making authority is the Executive Council; for the satellite operators, the equivalent decision-making organ would be their relevant governing bodies.

Purpose

The purpose of the Consultative Meetings on High-level Policy on Satellite Matters would be to discuss matters of mutual interest between the satellite operators and WMO. One outcome of the meetings would be to ensure a better understanding of issues. A second, and more important objective, would be to agree on recommendations to be forwarded to the WMO Executive Council and/or satellite operators.

Organization and resource implications

It was anticipated that the meetings would be attended by the Directors of satellite operating agencies, members of the WMO Bureau, the president of the WMO Commission for Basic Systems and sufficient members of the Executive Council to reflect adequately the broad interests of WMO Members (including consideration of regional balance, user representation and the role of the Permanent Representatives of those Members with satellite operating agencies). The satellite operators would attend those meetings at their own expense and the timing would be harmonized with WMO Bureau sessions. Preparation for the meetings would be assured by existing Secretariat staff of all parties as part of their normal duties, and the meetings would normally be called by WMO.

Possible meeting topics

The meetings could focus on an initial list of topics including:

- (a) Discussion with satellite operators on WMO Programmes and WMO-sponsored Programmes, on meteorology (including climatology), oceanography and hydrology. That would provide WMO with a forum to present its requirements for meteorological and environmental satellites (operational, research and technology programmes) in a coordinated fashion;
- (b) Consideration of the evolutionary design of the space component of the Global Observing System to take account of future technological developments and the evolution of the present day *in situ* networks. WMO would become more proactive in providing a vision on future state-of-the-art systems;
- (c) Preparation for the implementation of the transition between research and operational programmes through: (i) development of a WMO position for better convergence and transition of appropriate research and development instruments, missions and their corresponding new products and services into operational use; (ii) demonstration of the use of new capabilities by WMO Members and work with satellite operators to evaluate the contributions towards meeting societal needs; and (iii) WMO assessments of new satellite systems from a user perspective to provide formal evaluation results to the satellite operators;
- (d) Consideration of the ways and means to reduce costs, including standardization of equipment, taking into account the efficiency and effectiveness of the total observing system (including ground systems), as well as consideration of the needs for compatibility among satellite systems, particularly ground stations and product requirements;
- (e) Maximizing the benefits to be derived from existing and planned satellite products and services in order to improve utilization of existing satellite data, products and services and to provide for better coordination of these benefits for all WMO Members.

Interests of developing countries

In all deliberations, the meetings should take into account the needs of developing countries to ensure that they keep up with advances in satellite products and services. In particular, attention should be given to the access to satellite data, products and services and appropriate education and training programmes, especially those at the WMO Regional Meteorological Training Centres.

ANNEX III

Annex to paragraph 4.2.1 of the general summary

DRAFT TERMS OF REFERENCE OF THE EXECUTIVE COUNCIL ADVISORY GROUP ON CLIMATE AND ENVIRONMENT

The Executive Council Advisory Group on Climate and Environment will recommend an overall strategy through which National Meteorological and Hydrological Services nationally and collectively, and WMO internationally, could enhance their participation in, and contributions to, national and international activities related to climate and environment. In developing this strategy the group will:

- (a) Review present WMO activities in the field of climate and the environment and make recommendations with respect to their effectiveness in supporting national and international activities related to sustainable development;
- (b) Review and recommend strategies to increase the support from national funding agencies and from international development agencies, the Global Environment Facility and the United Nations Development Programme for National Meteorological and Hydrological Service activities relating to WMO Programmes on climate and environmental matters;
- (c) Review current agreements between WMO and other intergovernmental and non-governmental agencies on matters related to climate and the environment and make recommendations for new or modified agreements, as appropriate;
- (d) Promote and strengthen cooperation between, and coordination of, existing efforts of the WMO technical commissions, regional bodies and Members in general on climate and related environment issues;
- (e) Provide advice on the policy implications for WMO of the decisions of other international organizations and conventions on climate and related environmental issues;
- (f) Determine the need for more effective and, where possible, simpler mechanisms to facilitate the development and implementation of specific programmes and projects on climate and environment supported by WMO.

ANNEX IV

Annex to paragraph 8.18 of the general summary

CRITERIA FOR THE AWARD OF WMO FELLOWSHIPS FROM THE REGULAR BUDGET

1. The aim of the WMO fellowship programme is to support the education and training of qualified and suitable candidates, particularly from developing countries.
2. Both long- and short-term fellowships will be awarded but the emphasis will be on the awarding of fellowships for continuing education and training in meteorology and hydrology rather than on the acquisition of basic education.
3. To be considered for a fellowship, candidates must:
 - (a) Be of sound health as confirmed by their completed medical certificates;
 - (b) Be proficient in the language of study;
 - (c) Possess the required qualification and/or relevant experience for the proposed course of study;
 - (d) Only apply for courses of study directly applicable to meteorology or hydrology.
4. In awarding a fellowship, priority will be given to candidates who:
 - (a) Come from countries with the least developed Meteorological and Hydrological Services as well as developing countries, countries with economies in transition and countries more vulnerable to natural disasters;
 - (b) Request only partial support (e.g. when a requesting country meets the travel costs and/or the host country waives tuition fees);
 - (c) Apply for courses at Regional Meteorological Training Centres or other training institutions in their own Region;
 - (d) Apply for long-term fellowships not exceeding 18 months in duration or short-term fellowships, although long-term fellowships lasting more than 18 months may be granted in special circumstances;
 - (e) Are expected to continue to work in their country, preferably in their national Service, in a suitable post, on completion of the fellowship;
 - (f) Not have been awarded a long-term WMO fellowship within the previous four years.
5. In awarding a fellowship, account will be taken of:
 - (a) Whether the candidate comes from a country that has not recently benefited from a WMO fellowship;
 - (b) The need for regional proportional balance;
 - (c) Whether the candidate has been awarded a fellowship in the past;
 - (d) The extent to which the course of study is relevant to the national development objectives and the

- priorities identified in the Surveys of Members' Training Requirements;
- (e) The extent to which the nominating Member shows a clear commitment to continuing education and training by indicating a structured approach to the planning, implementation and evaluation of training activities;
- (f) Any information available (in the Nomination Form) about the ability or commitment of the candidate to complete successfully the course of study;
- (g) The need to practice equal opportunity policies. (See Resolution 29 (Cg-XIII) — Equal opportunities for participation of women in meteorology and hydrology).

ANNEX V

Annex to paragraph 9.16 of the general summary

PROVISIONAL VCP(F) STATUS AND PROPOSAL FOR FUTURE ALLOCATIONS
(in US\$)

Currently active projects new proposed projects	Allocations approved by EC 1968-1997	Expenditure in previous years 1968-1997	Balance (01/01/98)	Allocations and adjustments approved by EC-L and LI 1998 and 1999	Expenditure and obligations 1998-1999 (excluding admin. costs)	Balance (31/12/99)	Proposed allocations for 2000	Balance after expected new allocations
1 VCP spares/shipping of equipment in good working condition	508 750	470 588	38 162	55 000	42 631	50 531	10 000	60 531
2 Expert services	1 259 300	1 214 705	44 595	30 000	40 981	33 614	30 000	63 614
3 Short-term fellowships	2 022 200	2 022 527	-327	170 000	172 427	-2 754	100 000	97 246
4 TCDC activities	353 285	313 755	39 530	40 000	57 377	22 153	30 000	52 153
5 Improvement of GTS	82 841	19 080	63 761			63 761		63 761
5.1 Improvement of GTS Caribbean	139 020	89 961	49 059			49 059		49 059
5.2 Improvement of GTS Asia/Pacific	129 900	82 077	47 823	40 000	9 506	78 317		78 317
5.3 Improvement of GTS Africa	549 995	503 188	46 807	30 000	40 740	36 067	20 000	56 067
5.4 Improvement of GTS South America	337 900	311 864	26 036	20 000	24 294	21 742	10 000	31 742
5.5 Improvement of GTS South-East RA V	196 750	163 207	33 543		8 574	24 969		24 969
5.6 Improvement of GTS Central and Eastern Europe/Newly Independent States (NIS)	51 213	16 322	34 891	10 000	12 697	32 194		32 194
6 Improvement of upper-air observing subsystem of GOS and GCOS	364 729	236 190	128 539	40 000	61 158	107 381	10 000	117 381
6.1 Upper-air stations in Central and Eastern Europe/Newly Independent States (NIS)	282 000	238 845	43 155	90 000	68 108	65 047	10 000	75 047
7 Improvement of GDPS	100 000	41 357	58 643		41 353	17 290	10 000	27 290
8 Agricultural meteorology activities	55 000	45 965	9 035			9 035		9 035
9 Support to CLICOM and climatological activities	133 500	69 713	63 787		12,892	50 895		50 895
10 Mitigation of natural disasters (IDNDR)	80 000	44 414	35 586		1 194	34 392		34 392
10.1 Emergency disaster assistance				40 000	22 436	17 564	30 000	47 564
11 ASMC	111 000	67 569	43 431			43 431		43 431
12 ACMAD	120 000	76 532	43 468	30 000	73 171	297	20 000	20 297
13 EAMAC	20 000	5 541	14 459	20 000	22 083	12 376	10 000	22 376
14 Operational hydrology activities	100 000	38 463	61 537	15 000	47 829	28 708	10 000	38 708
15 Improvement of satellite reception	10 000		10 000		732	9 268		9 268
16 Internet capabilities**				40 000	7 808	32 192	10 000	42 192
17 Year 2000 problem**				30 000	12 190	17 810	10 000	27 810
18 Reserve	15 332	4 764	10 568			10 568		10 568
TOTAL	7 022 715	6 076 627	946 088	700 000	780 181	865 907	320 000	1 185 907

**New project lines approved by EC-LI.

ANNEX VI

Annex to paragraph 12.3 of the general summary

**PROPOSED GENERAL APPROACH, PERIOD OF COVERAGE AND OVERALL STRUCTURE/
CONTENTS OF THE SIXTH WMO LONG-TERM PLAN**

1. The Sixth WMO Long-term Plan should contain the following hierarchical elements:

- (a) Vision — where and what we want WMO to be;
- (b) Strategic goals — a small number (around 10) of high level goals;
- (c) Objectives — what we aim to achieve within the period of the Plan towards realizing the strategic goals;
- (d) Programme of activities — activities to be undertaken to meet the objectives.

The elements should be related to the desired outcomes to which WMO and its Members wish to contribute. In this context, a desired outcome is a result or impact which is not necessarily the sole responsibility of WMO. As an example, a desired outcome might be to reduce the number of storm-related deaths, a related strategic goal might be to improve warnings of severe weather and a related objective might be to improve forecast accuracy or improve the delivery of the warnings. The related programme of activities might include improving the observing network to help improve forecasting accuracy.

2. The period of coverage of the Plan should be eight years, aligned with the four-yearly Congress sessions, with the start corresponding to the beginning of a programme and budget cycle (i.e. the financial period). Furthermore:

- (a) The Plan should be a clear detailed plan for the first four years, with the second four years being less detailed but giving guidance, focus and direction, and describing prospects for the future;
- (b) The programme and budget should be guided by, and closely linked with, the first four years of the Plan, recognizing that the Long-term Plan has a scope broader than that covered by the programme and budget;
- (c) The Plan should be updated or reviewed every Congress, such that each Congress would agree on plans for eight years ahead and a programme and budget for four years ahead;
- (d) When preparing a new detailed first four-year Plan, the second four years of the previous Plan should

be used as the basis, while also taking into account any new developments.

3. The Plan needs to:

- (a) Be more strategic, more visionary;
- (b) Be more focused, proactive and give direction;
- (c) Provide clear and precise strategies and objectives;
- (d) Set priorities;
- (e) Be optimistically realistic;
- (f) Be meaningful and prepared in a timely fashion;
- (g) Be relevant to national needs;
- (h) Address cross-cutting issues.

4. The Plan should drive the programme and budget, such that the latter reflects the goals and objectives presented in the Plan and the resources required to achieve them, recognizing that the Plan contains objectives and activities which will depend upon action by Members and resources outside the WMO regular budget. The Plan and the programme and budget should therefore remain distinct documents.

5. Having identified, in the Sixth WMO Long-term Plan, strategic goals and the objectives to support them, the programme activities that contribute to the realization of the objectives will be identified, noting that a particular programme may support a number of objectives.

6. Priorities will be set to identify both the most important objectives to be achieved and the most important activities which will need to be carried out to achieve the objectives. The first four years of the Plan will clearly define the priorities for the different objectives and activities and will take full account of the resources required. In the second four years of the Plan, there will be a broader consideration of priorities and the likely resources. At the same time, consideration will be given to other options which may be pursued were the resources to be available.

7. In the preparation of the Sixth WMO Long-term Plan, the monitoring and evaluation approach, including performance indicators and milestones, should be clearly outlined to facilitate its subsequent monitoring and evaluation (see Annex VIII to this report).

ANNEX VII

Annex to paragraph 12.7 of the general summary

**CONSIDERATION ON THE WMO VISION, STRATEGIC GOALS AND DESIRED OUTCOMES
TO BE USED IN THE PREPARATION OF THE SIXTH WMO LONG-TERM PLAN****Vision**

1. It is crucial to formulate a statement of the vision of WMO to serve as a basis for developing the Sixth WMO Long-term Plan. It should capture in a clear, succinct and

balanced manner the essence of the Organization. The vision should clearly reflect the role that WMO seeks to play in its areas of competence and take into account the wider meteorological and hydrological communities.

2. Examples of possible vision statements:

- (a) To be the world reference in the domains of meteorology and related fields contributing to the protection of life and property, to sustainable development and to safeguarding the environment;
- (b) To help create a capability within the National Meteorological and Hydrological Services that will enable them to contribute effectively to the socio-economic development of their countries;
- (c) To provide an authoritative international voice on the protection of life and property, safeguarding the environment and climate, and climate change;
- (d) The WMO National Meteorological and Hydrological Services working together to contribute to the protection of life and property, economic development and safeguarding the environment;
- (e) The WMO National Meteorological and Hydrological Services working together to make a difference for people, the economy and the environment.

3. The vision statement might be a combination of the elements given above but should also include a sense that people are enabled to make the most/best use of weather and climate and the idea of service to citizens in their daily lives.

Strategic goals

4. Following the formulation of a vision statement, a small number of strategic goals (about 10) will be identified. This will set the overall direction that WMO will take towards realizing its vision.

5. An example of a set of possible strategic goals:

To achieve its vision, WMO and its Members, through enhanced international cooperation, will strive:

- (a) To observe, record and report on the weather, climate and natural environment, including water resources;
- (b) To provide information services to the public, Governments and various sectors about weather, water, climate and the environment; including contributing to relevant international conventions, protocols, and other legal instruments, ensuring that relevant

agreements are scientifically based, as well as inputting to scientifically-based policies of Governments;

- (c) To inform and educate the public, governments and various sectors about the socio-economic benefits of understanding the weather, climate and the environment, and how to make best use of weather forecasts, climate predictions and other related products and services, enabling them to be more responsive;
- (d) To improve the quality and reliability of severe weather warnings and forecasts and to ensure that they are able to reach the right people (individuals, emergency services, decision makers) in a timely and useful manner;
- (e) To bridge the gap between National Meteorological and Hydrological Services and to increase cooperation among them, allowing people in all countries to benefit from the advances in science, technology and information services;
- (f) To be an effective, efficient and flexible Organization able to respond rapidly to the changing needs of society and new opportunities provided by technological advances;
- (g) To work effectively with international partners, other science-based organizations, academia and the private sector.

Desired outcomes

6. The vision and strategic goals should be in support of a number of desired outcomes, examples of which are listed below:

- (a) Improved protection of life and property;
- (b) Increased safety on land, sea and air;
- (c) Enhanced quality of life (both in terms of basic human needs such as food, water, shelter and in making the most of the weather in leisure, sports and every day life);
- (d) Sustainable economic growth;
- (e) Greater protection of the environment.

ANNEX VIII

Annex to paragraph 12.11 of the general summary

CONSIDERATIONS FOR THE MONITORING AND EVALUATION OF THE SIXTH WMO LONG-TERM PLAN

Monitoring

1. Monitoring is an ongoing proactive process in which implementation of the Plan is checked to see if things are on track, taking corrective action, as appropriate.

2. For effective monitoring, there should be appropriate performance indicators. On the basis of such indicators, the Secretary-General should report regularly

to the Executive Council on the status of implementation. The monitoring should report on progress, identifying what had been achieved. In this connection, consideration should be given to undertaking monitoring reports by exception, i.e. only on those elements whose progress does not correspond to that expected to be made. Having highlighted things that had not or

were not going according to plan, any corrective action which had been taken to try to keep a particular objective on track should also be indicated.

3. The monitoring should also identify corrective action for which the Executive Council's endorsement and support might be required (e.g. action required by and/or from the Members, recognizing that meeting an objective will often depend upon action by the Members' constituent bodies as well as the Secretariat). This ties in with the idea that Congress and the Executive Council are responsible for identifying the goals, objectives and priorities to be met, and the resources to be provided, while the Secretary-General is responsible for overseeing the overall implementation of the Plan and is accountable for the realization of these goals and objectives within the purview of the approved programme and budget. It follows that the Secretary-General would have flexibility to achieve such goals and objectives in the most cost-effective way, within approved resources.

4. The indicators, targets and milestones should be preferably measurable to allow objective assessment of whether or not they have been met and should be based on outputs.

5. The monitoring could be carried out at various levels, but should not be carried out at too detailed a level, so that the task does not become too onerous.

Evaluation

6. Evaluation is a retrospective process to assess whether programme objectives were achieved and, possibly, whether they contributed to the desired outcomes in the way originally envisaged.

7. Evaluation should be carried out in such a way and on such a time-scale as to enable the preparation of a subsequent plan to benefit from the evaluation.

8. In addition to the evaluation, the idea of carrying out a more in-depth audit on a rolling basis will be explored, such that the work of one or two constituent bodies would be audited during each four-year period. It should be noted that during the financial period, each of the presidents of technical commissions provides an in-depth report to the Executive Council; this could be an opportunity for such an audit for the activities related to a particular technical commission. In addition, this could also be an element in the report of the presidents of regional associations to the Executive Council.

ANNEX IX

Annex to paragraph 13.3.3 of the general summary

DRAFT WORKING ARRANGEMENTS BETWEEN THE WORLD METEOROLOGICAL ORGANIZATION AND THE LAKE CHAD BASIN COMMISSION

The Secretary-General of the World Meteorological Organization (WMO) and the Executive Secretary of the Lake Chad Basin Commission (LCBC), with a view to facilitating the effective attainment of the objectives set forth in their respective constituent instruments, will work in close cooperation with each other and will consult each other regularly with regard to matters of common interest. In particular, such cooperation and consultation shall be set up for the purpose of effective coordination of activities and procedures arising from the activities of both Organizations with a view to

ensuring optimum benefits for meteorological and hydrological operations and research.

Both Organizations, LCBC and WMO, agree to keep each other informed of all programmes of work and projected activities in which there may be mutual interest and shall exchange publications concerning these and related fields.

Suitable arrangements will be made so that each party to these Working Arrangements may participate as observer in those sessions and meetings of the other party, which relate to areas of common interest.

APPENDIX A

LIST OF PERSONS ATTENDING THE SESSION

1. MEMBERS OF THE EXECUTIVE COUNCIL

J. W. Zillman	President
J.-P. Beysson	First Vice-President
A.-M. Noorian	Second Vice-President
R. A. Sonzini	Third Vice-President
M. S. Mhita	President RA I
Z. Batjargal	President RA II
N. Salazar D.	President RA III
A. J. Dania	President RA IV
Lim Joo Tick	President RA V
I. Mersich	Acting president, RA VI

Z. Alperson	}	Elected members
A. I. Bedritsky		
F. Camargo Duque		
E. Coca Vita		
A. Diouri		
P. D. Ewins		
U. Gärtner		
F. J. B. Hounton		
A. Jaime		
R. R. Kelkar		
J. J. Kelly		
K. Konaré		
G. A. McBean		
E. A. Mukolwe		
F. Oyou		
L. P. Prahm		
R. Prasad		
G. K. Ramothwa (Ms)		
Y. Salahu		
G. C. Schulze		
T. Sutherland		
N. B. I. Tawfiq		
Wen Kegang		
J. Zielinski		

2. ALTERNATES AND ADVISERS

V. K. Tsui	Alternate to J. W. Zillman
D. J. Gauntlett (part-time)	Adviser to J. W. Zillman
L. Gordon (Ms) (part-time)	Adviser to J. W. Zillman
K. L. Green (Ms) (part-time)	Adviser to J. W. Zillman
D. Lambergeon	Alternate to J.-P. Beysson
F. Duvernet	Adviser to J.-P. Beysson
A. A. Soltanieh	Alternate to A.-M. Noorian
A. Delju (part-time)	Adviser to A.-M. Noorian
E. Farman (Ms) (part-time)	Adviser to A.-M. Noorian
L. Salimabadi (Ms) (part-time)	Adviser to A.-M. Noorian
F. P. Requena	Alternate to R. A. Sonzini
C. A. Damboriana (part-time)	Adviser to R. A. Sonzini

N. Nascimbene de Dumont (Ms) (part-time)	Adviser to R. A. Sonzini
A. Repetti (Ms) (part-time)	Adviser to R. A. Sonzini
M. Noteboom (Ms)	Adviser to A. J. Dania
Leong Chow Peng (Ms)	Alternate to Lim Joo Tick
J. R. Lumsden	Adviser to Lim Joo Tick
Z. Varga	Adviser to I. Mersich
A. Maximov	Alternate to A. I. Bedritsky
P. Chernikov (part-time)	Adviser to A. I. Bedritsky
A. V. Frolov (part-time)	Adviser to A. I. Bedritsky
A. Kovalenko (part-time)	Adviser to A. I. Bedritsky
A. Vasiliev (part-time)	Adviser to A. I. Bedritsky
C. Martinez (Ms)	Alternate to E. Coca Vita
A. Bulon	Adviser to E. Coca Vita
E. Cormenzana	Adviser to E. Coca Vita
M. L. Selassi (16-20/5)	Alternate to A. Diouri
A. El-Kadiri (22-26/5)	Alternate to A. Diouri
D. Shaw	Alternate to P. D. Ewins
J. Bradley (part-time)	Adviser to P. D. Ewins
P. Mason (part-time)	Adviser to P. D. Ewins
G. Ryall (Ms) (part-time)	Adviser to P. D. Ewins
A. Spice (Ms) (part-time)	Adviser to P. D. Ewins
D. Frömming	Alternate to U. Gärtner
U. Einsfelder (Ms)	Adviser to U. Gärtner
R. Sorani	Adviser to U. Gärtner
C. Espinosa	Alternate to A. Jaime
R.-M. Gomez (Ms)	Adviser to A. Jaime
S. K. Srivastav	Alternate to R. R. Kelkar
S. Kumar	Adviser to R. R. Kelkar
A. Pande	Adviser to R. R. Kelkar
M. Yerg	Alternate to J. J. Kelly
R. Masters (part-time)	Adviser to J. J. Kelly
C. McMahan (Ms) (part-time)	Adviser to J. J. Kelly
W. McPherson (part-time)	Adviser to J. J. Kelly
J. E. Parein (part-time)	Adviser to J. J. Kelly
M. Pirone (Ms) (part-time)	Adviser to J. J. Kelly
C. Sprinkle (part-time)	Adviser to J. J. Kelly
E. Wilson (Ms) (part-time)	Adviser to J. J. Kelly
G. W. Withee (part-time)	Adviser to J. J. Kelly
B. Angle (16-20/5 and 26/5)	Alternate to G. A. McBean
P. Dubreuil (22-25/5)	Adviser to G. A. McBean
A. Tellier	Adviser to G. A. McBean
A. Shaka	Adviser to E. A. Mukolwe
L. Wester-Andersen (Ms)	Alternate to L. P. Prahm
E. D. Udoeka	Adviser to Y. Salahu

N. Murshid	Adviser to N. B. I. Tawfiq	O. Pilifossova (Ms)	United Nations Framework Convention on Climate Change (UNFCCC)
J. A. Bantan	Adviser to N. B. I. Tawfiq	A. L. Alusa	United Nations Environment Programme (UNEP)
Wang Caifang	Alternate to Wen Kegang	S. Demeke	} Joint Inspection Unit (JIU)
Guocai Zhang	(part-time) Adviser to Wen Kegang	E. Kudryavtsev	
Han Li (Ms)	(part-time) Adviser to Wen Kegang	A. Nour	
Xin Xianhua	(part-time) Adviser to Wen Kegang	P. Konandreas	Food and Agriculture Organization of the United Nations (FAO)
Xu Xiaofeng	(part-time) Adviser to Wen Kegang	A. Salih	United Nations Educational, Scientific and Cultural Organization (UNESCO)
T. Kitade	Alternate to K. Yamamoto	P. Bernal	} United Nations Educational, Scientific and Cultural Organization (UNESCO)/ Intergovernmental Oceanographic Commission (IOC)
T. Manabe (Ms)	(part-time) Adviser to K. Yamamoto	C. Summerhayes	
H. Nanao	(part-time) Adviser to K. Yamamoto	I. Oliouline	
H. Sasaki	(part-time) Adviser to K. Yamamoto	I. Also	African Centre of Meteorological Applications for Development (ACMAD)
T. Klinski	Alternate to J. Zielinski	L. Finke-Fictime	} Agency for Air Safety in Africa and Madagascar (ASECNA)
J. Sadon	Adviser to J. Zielinski	J.-P. Makosso	
3. PRESIDENTS OF TECHNICAL COMMISSIONS		T. Mohr	Committee on Earth Observation Satellites (CEOS)
N. D. Gordon	Commission for Aeronautical Meteorology	A. Hollingsworth	European Centre for Medium-Range Weather Forecasts (ECMWF)
R. Motha	Commission for Agricultural Meteorology	T. Mohr	} European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)
Yan Hong	Adviser to the president of the Commission for Atmospheric Sciences	P. A. Counet	
S. Mildner	Commission for Basic Systems	Fleming	} International Association of Broadcast Meteorology (IABM)
Y. Boodhoo	Commission for Climatology	T. Molina	
K. Hofius	Commission for Hydrology	I. Niedeck (Ms)	
S. K. Srivastav	Commission for Instruments and Methods of Observation	J. Teather	
J. Guddal	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (Co-chairperson)	D. Walch	} International Strategy for Disaster Reduction (ISDR)
D. Kohnke	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (Co-chairperson)	P. Boullé	
		I. Harding	
4. HYDROLOGICAL ADVISERS		C. Rose (Ms)	
J. Wellens-Mensah	Regional Association I	R. List	International Union of Geodesy and Geophysics (IUGG)
Z. Kopaliani	Regional Association II	S. Seif Al-Yazal	League of Arab States (LAS)
R. Coimbra	Regional Association III	N. Wege	Organization of African Unity (OAU)
R. Raj	Regional Association V	P. Lefale	South Pacific Regional Environment Programme (SPREP)
F. Nobilis	Regional Association VI		
5. INVITED EXPERTS			
K. Dawson			
M.-Ch. Dumesnil (Ms)			
V. Hamayon-Tardé (Ms)			
C. Strassel			
R. Watson			
6. REPRESENTATIVES OF INTERNATIONAL ORGANIZATIONS			
A. S. Cissoko	United Nations Convention to Combat Desertification (UNCCD)		

APPENDIX B

AGENDA

<i>Agenda item</i>	<i>Document Nos.</i>	<i>PINK Nos. and person submitting</i>	<i>Resolutions adopted</i>
1. ORGANIZATION OF THE SESSION		1, President of WMO	
1.1 Opening of the session			
1.2 Approval of the agenda			
Provisional agenda	1.2(1)		
Explanatory memorandum relating to the provisional agenda	1.2(2)		
1.3 Establishment of committees			
1.4 Programme of work of the session			
1.5 Approval of the minutes			
2. REPORTS			
2.1 Report by the President of the Organization	2.1	2.1, President of WMO	
2.2 Report by the Secretary-General	2.2	2.2, President of WMO	
2.3 Reports by the presidents of regional associations		2.3, President of WMO	
Report by the president of RA I	2.3(1)		
Report by the president of RA II	2.3(2)		
Report by the acting president of RA III	2.3(3)		
Report by the president of RA IV	2.3(4)		
Report by the president of RA V	2.3(5)		
Report by the acting president of RA VI	2.3(6)		
2.4 Report of the Financial Advisory Committee	2.4(1)	2.4, President of WMO	
2.5 Report on the 1999 Meeting of the Presidents of Technical Commissions	2.5	2.5, President of WMO	
2.6 Report of the Chairperson of the Intergovernmental Panel on Climate Change	2.6	2.6, President of WMO	Res. 1
3. WORLD WEATHER WATCH PROGRAMME			
3.1 WWW basic systems and support functions; the in-depth report of the president of CBS	3.1	3.1, Chairperson, Committee A	
3.2 Instruments and Methods of Observation Programme; the report of the president of CIMO	3.2	3.2, Chairperson, Committee A	
3.3 WMO satellite activities	3.3	3.3, Chairperson, Committee A	
3.4 Tropical Cyclone Programme	3.4(1); 3.4(2)	3.4, President of WMO	
4. WORLD CLIMATE PROGRAMME			
4.1 World Climate Programme and its coordination; the in-depth report of the president of CCI	4.1	4.1, Chairperson, Committee B	Res. 2
4.2 Coordination activities within the Climate Agenda; the report of the Executive Council Advisory Group on Climate and Environment	4.2(1); 4.2(1), ADD. 1; 4.2(2); 4.2(3); 4.2(3), ADD. 1	4.2(1), Chairperson, Committee B	
United Nations Framework Convention on Climate Change		4.2(2), Chairperson, Committee B	
United Nations Convention to Combat Desertification		4.2(3), Chairperson, Committee B	
Convention on Biological Diversity		4.2(3), Chairperson, Committee B	
4.3 Global Climate Observing System	4.3; 4.3, ADD. 1	4.3, Chairperson, Committee B	Res. 3

<i>Agenda item</i>	<i>Document Nos.</i>	<i>PINK Nos. and person submitting</i>	<i>Resolutions adopted</i>
4.4 World Climate Impact Assessment and Response Strategies Programme	4.4	4.4, Chairperson, Committee B	
4.5 World Climate Research Programme	4.5	4.5(1), Chairperson, Committee B	
Nomination of new members of the Joint Scientific Committee		4.5(2), President of WMO	
5. ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME	5	5, Chairperson, Committee B	
5.1 Atmospheric Research and Environment Programme; the report of the president of CAS; support to Ozone and other Environment-oriented Conventions			
5.2 Global Atmosphere Watch Demonstration Project	5.2		
Meteorological Servicing for the Sustainable Development of the Moscow Megapolis			
5.3 World Weather Research Programme			
5.4 Tropical Meteorology Research Programme			
5.5 Programme on Physics and Chemistry of Clouds and Weather Modification Research			
6. APPLICATIONS OF METEOROLOGY PROGRAMME			
6.1 Public Weather Services Programme	6.1	6.1, Chairperson, Committee C	
6.2 Agricultural Meteorology Programme; the report of the president of CAgM	6.2	6.2, Vice-chairperson Committee B	
6.3 Aeronautical Meteorology Programme; the report of the president of CAeM	6.3	6.3, Chairperson, Committee C	
6.4 Marine Meteorology and Associated Oceanographic Activities Programme; the report of the president of the former CMM (interim co-president of JCOMM)	6.4(1); 6.4(2)	6.4, Chairperson, Committee C	Res. 4
7. HYDROLOGY AND WATER RESOURCES PROGRAMME	7.1(1); 7.1(2)	7.1, Vice-chairperson, Committee C	
8. EDUCATION AND TRAINING PROGRAMME	8; 8, ADD. 1	8, Vice-chairperson, Committee C	
9. TECHNICAL COOPERATION PROGRAMME	9	9, Chairperson, Committee C	
Report of the EC Advisory Group of Experts on Technical Cooperation	9, ADD. 1		
10. REGIONAL PROGRAMME	10	10, Chairperson, Committee C	
11. MAJOR ISSUES FACING WMO			
11.1 Major issues of interest to Members of WMO		11.1, Chairperson, Committee of the Whole	
11.2 Role and operation of NMHSs	11.2	11.2, President of WMO	
11.3 International exchange of data and products	11.3(1); 11.3(2)	11.3, President of WMO	
12. LONG-TERM PLANNING		12(1); 12(2), Chairperson, Committee A	
Review of WMO structure	12(1)		
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<i>Agenda item</i>	<i>Document Nos.</i>	<i>PINK Nos. and person submitting</i>	<i>Resolutions adopted</i>
13. COOPERATION WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS			
13.1 United Nations		13.1, Vice-chairperson, Committee C	Res. 5
Reports of the Joint Inspection Unit	13.1(1)		
Resolutions addressed to Specialized Agencies of the United Nations	13.1(2)		
13.2 International Decade for Natural Disaster Reduction	13.2	13.2, Vice-chairperson, Committee A	
13.3 Specialized agencies and other international organizations		13.3, Vice-chairperson, Committee C	
Working arrangements with the Lake Chad Basin Commission	13.3(1)		
14. INFORMATION AND PUBLIC AFFAIRS PROGRAMME	14	14, Vice-chairperson, Committee B	
15. PROGRAMME SUPPORT SERVICES AND PUBLICATIONS			
15.1 Languages	15.1	15.1, Vice-chairperson, Committee B	
15.2 Publications	15.2	15.2, Vice-chairperson, Committee B	Res. 6
15.3 Office automation and information technology support	15.3	15.3, Vice-chairperson, Committee B	
16. GENERAL, LEGAL AND ADMINISTRATIVE MATTERS			
16.1 Forty-fifth International Meteorological Organization Prize	16.1	16.1, President of WMO	
16.2 Constitutional and regulatory matters		16.2, Chairperson, Committee A	
Application of General Regulations 177 and 194	16.2		
16.3 Staff matters		16.3(1); 16.3(2); 16.3(3), Chairperson, Committee A	
Report on staff appointments, promotions, nominations and transfers		16.3(4), President of WMO	
Employment of temporary staff, including study of impact of maintaining vacancy factor	16.3(1)		
Annual Report of the International Civil Service Commission	16.3(2)		
Amendments to Staff Rules	16.3(3)		
Salaries of Ungraded Officials	16.3(4)		
Implementation of strategic vision of the human resource management issue	16.3(5)		
Views of the staff on their conditions of service	16.3(6)		
16.4 Financial matters (including the report of the External Auditor)			Res. 7; 8
Consideration of the accounts for 1998–1999	16.4(1); 16.4(1), ADD. 1	16.4(1), Chairperson, Committee A	
Consideration of the accounts for 1998–1999 for WMO projects financed from the United Nations Development Programme	16.4(2); 16.4(2), ADD. 1	16.4(2), Chairperson, Committee A	
Interim report of the Secretary-General on the financial and budgetary situation of the Organization for the biennium 2000–2001	16.4(3); 16.4(3), ADD. 1	16.4(3), Chairperson, Committee A	
Results-based budgeting	16.4(4); 16.4(4), ADD. 1	16.4(4), Chairperson, Committee A	
Annual report of the Internal Auditor		16.4(5), President of WMO	

<i>Agenda item</i>	<i>Document Nos.</i>	<i>PINK Nos. and person submitting</i>	<i>Resolutions adopted</i>
16.5 Designation of acting member(s) of the Executive Council	16.5	16.5, President of WMO	
16.6 Review of panels and other bodies reporting to the Executive Council		16.6, President of WMO	
17. SCIENTIFIC LECTURES AND DISCUSSIONS	17		
17.1 Scientific lectures and discussions		17.1, President of WMO	
17.2 Arrangements for scientific lectures during the fifty-third session of the Executive Council		17.2, Chairperson, Subcommittee on Scientific Lectures	
17.3 Arrangements for the tenth International Meteorological Organization Lecture		17.3, Chairperson, Subcommittee on Scientific Lectures	
18. REVIEW OF PREVIOUS RESOLUTIONS OF THE EXECUTIVE COUNCIL	18	18, Rapporteur to Review Previous Resolutions of the Executive Council	Res. 9
19. DATE AND PLACE OF THE FIFTY-THIRD AND FIFTY-FOURTH SESSIONS OF THE EXECUTIVE COUNCIL		19, President of WMO	
20. CLOSURE OF THE SESSION		20, President of WMO	

APPENDIX C

LIST OF ABBREVIATIONS

ACC	United Nations Administrative Committee on Coordination
ACMAD	African Centre of Meteorological Applications for Development
AMDAR	Aircraft Meteorological Data Relay
AMOSG	Aerodrome Meteorological Observing Study Group
AOC-HYCOS	West and Central Africa Hydrological Cycle Observing System
APN	Asia-Pacific Network
APT	Automatic Picture Transmission
ARCHISS	Archival Climatic History Survey Project
AREP	Atmospheric Research and Environment Programme
ASAP	Automated Shipboard Aerological Programme
ASAPRO	Arab Sandstorm Project
ASEAN	Association of South-East Asian Nations
ASECNA	Agency for Air Safety in Africa and Madagascar
ASMC	ASEAN Specialized Meteorological Centre
AWG	Advisory Working Group
AWS	Automatic Weather Station
BALTEX	Baltic Sea Experiment
BSRN	Baseline Surface Radiation Network
CAL	Computer-aided Learning
CAeM	Commission for Aeronautical Meteorology
CAGM	Commission for Agricultural Meteorology
CARIB-HYCOS	Caribbean Hydrological Cycle Observing System
CAS	Commission for Atmospheric Sciences
CATCH	Coupling of the Tropical and Hydrological Cycle
CBD	Convention on Biological Diversity
CBS	Commission for Basic Systems
CCI	Commission for Climatology
CCA	Coordination Activities within the Climate Agenda
CDMS	Climate Database Management System
CEOS	Committee on Earth Observation Satellites
CGMS	Coordination Group for Meteorological Satellites
CHy	Commission for Hydrology
CIMO	Commission for Instruments and Methods of Observation
CILSS	Permanent Inter-State Committee on Drought Control in the Sahel
CIS	Commonwealth of Independent States
CLICOM	Climate Computing
CLIMAG	Climate Prediction for Agriculture
CLIPS	Climate Information and Prediction Services
CLIVAR	Climate Variability and Predictability
CMM	Commission for Marine Meteorology
COP	Conference of the Parties
CSD	United Nations Commission on Sustainable Development
CSM	Climate System Monitoring
CTBTO	Comprehensive Nuclear Test Ban Treaty Organization
DARE	Data Rescue
DBCP	Data Buoy Cooperation Panel
EAMAC	African School of Meteorology and Civil Aviation
EC	Executive Council
EC-AGCE	Executive Council Advisory Group on Climate and Environment
EC-AGE	Executive Council Advisory Group on the Exchange of Meteorological and Related Data and Products
ECMWF	European Centre for Medium Range Weather Forecasts
ECOWAS	Economic Community of West African States

EMEP	Cooperative Programme for the Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ENSO	<i>El Niño/Southern Oscillation</i>
EPS	Ensemble Prediction System
ERA	Emergency Response Activities
ETR	Education and Training
ESCAP	Economic and Social Commission for Asia and the Pacific
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
EUMETNET	European Meteorological Network
5LTP	Fifth WMO Long-term Plan
4LTP	Fourth WMO Long-term Plan
FAO	Food and Agriculture Organization of the United Nations
FIM	International Weather Festival
FRIENDS	Flow Regimes from International Experimental and Network Data Set
FTP	File Transfer Protocol
G3OS	Interagency Sponsors Group for the Three Global Observing Systems
GAME	GEWEX Asian Monsoon Experiment
GAW	Global Atmosphere Watch
GCIP	GEWEX Continental-scale International Project
GCOS	Global Climate Observing System
GCOS-SC	GCOS Steering Committee
GDPS	Global Data-processing System
GEF	Global Environment Facility
GESAMP	Group of Experts on the Scientific Aspects of Marine Pollution
GEWEX	Global Energy and Water Cycle Experiment
GLOSS	Global Sea Level Observing System
GOOS	Global Ocean Observing System
GOS	Global Observing System
GOSSP	Global Observing Systems Space Panel
GPCC	Global Precipitation Climatology Centre
GPS	Global Positioning System
GRDC	Global Runoff Data Centre
GTOS	Global Terrestrial Observing System
GSN	GCOS Surface Network
GTS	Global Telecommunication System
GTSP	IGOSS-IODE Global Temperature Salinity Pilot Project
GUAN	GCOS Upper-air Network
GURME	GAW Urban Research Meteorological Environment Project
GWP	Global Water Partnership
Habitat	United Nations Centre for Human Settlements
HOMS	Hydrological Operational Multipurpose System
HWRP	Hydrology and Water Resources Programme
IABM	International Association of Broadcast Meteorology
IACCA	Inter-agency Committee for the Climate Agenda
IAI	Inter-American Institute
IAIS	Internal Audit and Investigation Service
ICAO	International Civil Aviation Organization
ICSU	International Council for Science
IDB	Inter-American Development Bank
IDNDR	International Decade for Natural Disaster Reduction
IGBP	International Geosphere-Biosphere Programme
I-GOOS	Intergovernmental Committee for the Global Ocean Observing System
IGOS	Integrated Global Observing Strategy
IGOS-P	Integrated Global Observing Strategy Partnership
IGOSS	Integrated Global Ocean Services System
IHDP	International Human Dimensions Programme

IHP	International Hydrological Programme
IMO	International Maritime Organization
IMO	International Meteorological Organization
IMOP	Instruments and Methods of Observation Programme
INFOCLIMA	World Climate Data Information Referral Service
INSTRAW	United Nations International Research and Training Institute for the Advancement of Women
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange
IOS	Integrated Observing Systems
IPA	Information and Public Affairs
IPCC	Intergovernmental Panel on Climate Change
IRI	International Research Institute for Climate Prediction
ISB	International Society of Biometeorology
ISDR	International Strategy for Disaster Reduction
ISO	International Organization for Standardization
ISWG	International Science Working Group
ITU	International Telecommunication Union
IUGG	International Union of Geodesy and Geophysics
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JIU	Joint Inspection Unit
JSC	Joint Scientific Committee
LAS	League of Arab States
LBA	Large-scale Biosphere-Atmosphere Experiment in Amazonia
LCBC	Lake Chad Basin Commission
LRIT	Low Rate Information Transmission
LRPT	Low Resolution Picture Transmission
MAGS	Mackenzie River GEWEX Study
MAP	Mesoscale Alpine Programme
MEDEX	Mediterranean Experiment
MED-HYCOS	Mediterranean Hydrological Cycle Observing System
METEOSAT	EUMETSAT Series of Meteorological Geostationary Satellites
MLIM	Multiple Linear Interdependent Models
MTN	Main Telecommunication Network
NBA	Niger Basin Authority
NCAR	National Center for Atmospheric Research
NCDC	National Climatic Data Center
NHS	National Hydrological Service
NIS	Newly Independent States
NMC	National Meteorological Centre
NMHS	National Meteorological and Hydrological Service
NMS	National Meteorological or Hydrometeorological Service
NOAA	National Oceanic and Atmospheric Administration
NWP	Numerical Weather Prediction
OUA	Organization of African Unity
OOPC	Ocean Observations Panel for Climate
OPAG	Open Programme Area Group
PACIFIC-HYCOS	Pacific Hydrological Cycle Observing System
PC	Personal Computer
PICES	North Pacific Marine Sciences Organization
PIRATA	Pilot Moored Research Array in the Tropical Atlantic
PMO	Port Meteorological Officer
PROBE	Pilot Radiation Observation Experiment
PUMA	Preparation for the Use of Meteosat Second Generation in Africa
PWS	Public Weather Services

QA/SAC	Quality Assurance/Science Activity Centre
RA	Regional Association
RAFC	Regional Area Forecast Centre
RBSN	Regional Basic Synoptic Network
RCC	Regional Climate Centre
RIC	Regional Instrument Centre
RMTC	Regional Meteorological Training Centre
RMTN	Regional Meteorological Telecommunication Network
ROSHYDROMET	Russian Federal Service for Hydrometeorology and Environmental Monitoring
RSMC	Regional Specialized Meteorological Centre
6LTP	Sixth WMO Long-term Plan
SADC-HYCOS	South African Development Community-HYCOS
SATCC	Southern African Transport and Communications Commission
SBSTA	Subsidiary Body for Scientific and Technological Advice
SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SCHOTI	Standing Conference of Heads of Training Institutions of National Meteorological Services
SIGWX	Significant Weather
SOOP	Ship-of-opportunity Programme
SOPAC	South Pacific Applied Geoscience Commission
SPREP	South Pacific Regional Environment Programme
START	System for Analysis, Research and Training
3LTP	Third WMO Long-term Plan
TAO	Tropical Atmosphere Ocean
TC	Tropical Cyclone
TCDC	Technical Cooperation Among Developing Countries
TCO	Technical Cooperation
TCP	Tropical Cyclone Programme
TCP/IP	Transmission Control Protocol/Internet Protocol
TOPC	Terrestrial Observation Panel for Climate
TREND	Working Group on Training, the Environment and New Developments in Aeronautical Meteorology
TRUCE	Tropical Urban Climate Experiment
UNCCD	United Nations Convention to Combat Desertification
UNCED	United Nations Conference on Environment and Development
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNISPACE	United Nations Conference on the Exploration and Peaceful Uses of Outer Space
UNOPS	United Nations Office for Project Services
UNSO	United Nations Sudano-Sahalian Office
UNU	United Nations University
UPU	Universal Postal Union
USAID	United States Agency for International Development
VAAC	Volcanic Ash Advisory Centre
VAMOS	Variability of the American Monsoon System
VCP	Voluntary Cooperation Programme
VCP(F)	Voluntary Cooperation Fund
VOS	Voluntary Observing Ship
WAFC	World Area Forecast Centre
WAFS	World Area Forecast System

WCASP	World Climate Applications and Services Programme
WCDMP	World Climate Data and Monitoring Programme
WCIRP	World Climate Impact Assessment and Response Strategies Programme
WCP	World Climate Programme
WCRP	World Climate Research Programme
WEFAX	Weather Facsimile
WGLTP	Executive Council Working Group on Long-term Planning
WHO	World Health Organization
WHYCOS	World Hydrological Cycle Observing System
WMD	World Meteorological Day
WMO	World Meteorological Organization
WMO50	World Meteorological Organization Fiftieth Anniversary
WWRP	World Weather Research Programme
WWW	World Weather Watch
XBT	Expendable Bathythermograph
