

**WORLD METEOROLOGICAL ORGANIZATION**

**THIRTEENTH**

**WORLD METEOROLOGICAL CONGRESS**

**GENEVA, 4–26 MAY 1999**

**ABRIDGED FINAL REPORT WITH RESOLUTIONS**

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**Secretariat of the World Meteorological Organization - Geneva - Switzerland**

## REPORTS OF RECENT WMO SESSIONS

### Congress and Executive Council

- 827 — **Twelfth World Meteorological Congress**. Geneva, 30 May–21 June 1995.
- 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.

### 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, 14–23 October 1998.

### Technical commissions

- 825 — **Commission for Agricultural Meteorology**. Eleventh session, Havana, 13–24 February 1995.
- 852 — **Commission for Hydrology**. Tenth session, Koblenz, 2–12 December 1996.
- 854 — **Commission for Basic Systems**. Eleventh session, Cairo, 20 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.

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

WMO issues authoritative publications on scientific and technical aspects of meteorology, hydrology and related subjects.  
These include manuals, guides, training materials, public information and the WMO *Bulletin*.

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# GENERAL SUMMARY OF THE WORK OF THE SESSION

The World Meteorological Organization (WMO) held its Thirteenth Congress at the Geneva International Conference Centre (CICG) from 4 to 26 May 1999, under the chairpersonship of Mr J. W. Zillman, President of WMO. The list of participants is given in Appendix A to this report.

## 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 Thirteenth Congress at 10.15 a.m. on 4 May 1999 in the main conference room of the new WMO Headquarters building and welcomed all delegates and the following distinguished guests:

H.E. Mrs Ruth Dreifuss	President of the Swiss Confederation
Mrs Martine Brunschwig Graf	President of the State Council of the Republic and Canton of Geneva
Mr André Hediger	Mayor of Geneva
H.E. Mr Walter B. Gyger	Ambassador, Permanent Mission of Switzerland

He also welcomed the Ministers, Ambassadors, and Heads of International Organizations or their representatives who also participated in the opening ceremony. He asked Congress to stand for one minute's silence in honour of the former President of WMO, Mr Zou Jingmeng of China, who had passed away in February 1999.

1.1.2 In her opening remarks, *H.E. Mrs R. Dreifuss*, President of the Swiss Confederation, referred to the recent 20-day balloon voyage around the world by Bertrand Piccard and Brian Jones which made millions of people a lot more familiar with the scientific work of meteorologists. The meteorologists had demonstrated extraordinary expertise in piloting the balloon through wind tunnels, and success would not have been possible without close collaboration and constant contact with Meteorological Services throughout the world.

She underscored the key role of WMO in promoting research to improve scientific knowledge of natural phenomena, in the global approach to addressing environmental threats and in the promotion of international cooperation.

The Organization had two critical missions: ensuring high quality scientific observation on Earth and by satellite, and warning both politicians and the public of environmental threats such as the destruction of the ozone layer, the shortage of drinking water and climate change. That work was carried out through scientific programmes such as the World Weather Watch, the World Climate Programme and the Atmospheric Research and Environment Programme.

Meteorology was a field that touched everyone's lives, mainly through climate, the weather, and water. The shortage of water would be a critical problem for many

regions of the world in the future. Switzerland had experienced disastrous avalanches during the past winter which had claimed many lives and caused great damage. That had brought about an awareness of how vulnerable the Alps were to variations in climate and weather and of their importance to the Mesoscale Alpine Programme. It was hoped that such awareness would lead to a greater understanding of the conditions which sparked off extreme weather conditions in the Alpine region, and subsequently to the development of more effective early warning systems in ensuring the safety of mountain populations.

Mrs Dreifuss stated that Switzerland was ready to support WMO, not only through fulfilling its own contractual obligations to the Organization but also by putting forward concrete management proposals. The Swiss delegation was planning to put forward a resolution on the introduction of an observer status on the WMO Executive Council for Members of the Organization whose Directors of Meteorological and Hydrometeorological Services were not Executive Council members.

She thanked WMO and its Members for their work in the fields of meteorology and operational hydrology and hoped that during Congress particular attention would be given to the role of national Meteorological Services and to the need for qualified staff and resources to carry out their work. Switzerland was currently involved in passing a new law on meteorology, including climatology, which would ensure a strong foundation for the country's Meteorological Service in the years to come.

1.1.3 At 11.15 a.m., the opening ceremony was suspended for the inauguration ceremony of the new Headquarters building. The opening plenary resumed at 2.40 p.m. at the CICG.

1.1.4 *Mr K. Annan*, Secretary-General of the United Nations, honoured Congress by addressing a plenary meeting on 14 May 1999. He began by referring to his words during the inauguration of the new WMO Headquarters building that the vessel-shaped structure reminded people that the inhabitants of our planet were all in the same boat. No other Organization had understood that better than WMO. Throughout its history, WMO had promoted a better understanding of weather, water and climate. It had helped others to understand that those phenomena knew no national boundaries — that they vitally affected the health and well being of all life on Earth.

By the same token, WMO had helped humankind to understand that there were no distinct boundaries between scientific disciplines such as atmospheric science, hydrology, oceanography, biological and agricultural sciences. Nor were the scientific challenges isolated from one another. Whether it was the expected harmful consequences of a climate change induced by greenhouse gases, or the depletion of the ozone in the upper atmosphere, those issues were by their very nature interdisciplinary and must be tackled by

interdisciplinary means. WMO had recognized that at an early stage. Instead of focusing on expanding its own activities, WMO realized it was more effective to establish joint projects and programmes with other United Nations agencies and with the global scientific community. It thus devoted more time to harnessing the resources of potential partners than to pursuing turf battles against them. And in that way, it also became a model of inter-agency cooperation, as well as a "pioneer of partnerships with civil society in the form of the academic world".

That collaborative spirit gave birth to many landmark initiatives: for instance, the inter-agency collaboration with regard to water; the joint WMO/ICSU Global Atmospheric Research Programme, which led to unprecedented advances in weather prediction on various time scales; the WMO/UNEP/ICSU World Climate Research Programme which, with the active participation of many other organizations, both governmental and non-governmental, explored ways of predicting climate changes, whether natural or man-made.

He referred to WMO as the original networker at a time when everyone in the United Nations system was talking about network solutions and looking for ways to find them. He emphasized the future increasing important role of WMO in the growing debate about possible global climate change, and the expected impacts on small island developing States, on sea-level rise, on the increase in natural disasters, and on the increasing water shortage in many parts of the world.

Mr Annan noted that immense progress in weather prediction had enabled WMO to provide vital information for advance warnings that saved lives and reduced damage to property and the environment. Every cent invested in the Meteorological and Hydrological Services yielded an economic return of more than 10 times the initial outlay. There was no doubt that the issues before WMO would require ever greater vigilance and creativity in the decades to come. The Organization and its partners were being looked at with confidence to develop concrete and realistic plans.

Knowing WMO's proven ability to forge close partnerships with other organizations both within and outside the United Nations system, he expressed his confidence that he could rely on WMO to take the initiative in anticipating, identifying and addressing the many new challenges that were bound to confront humanity in the next century. He concluded by saying, "As you meet in your beautiful vessel in days and years to come, may you continue to ensure a safe passage for the rest of us, no matter how stormy the conditions out there."

1.1.5 A message from H.E. Mr E. Primakov, Prime Minister of the Russian Federation, was read by *Mr A. I. Bedritsky*, Permanent Representative of the Russian Federation with WMO. With Members from all over the world, WMO had created a unique system of partnership aimed at forecasting meteorological and climatological processes. WMO was a key agency within the United Nations system for implementing scientific and technical programmes for a better and more efficient use of hydrometeorological information and for the protection of

the environment. The decisions of Thirteenth Congress would contribute to furthering constructive cooperation between the Members of WMO in the twenty-first century.

1.1.6 A message from H.E. Mr U. Sultanov, Prime Minister of Uzbekistan, was read by *Mr V. E. Chub*, Permanent Representative of Uzbekistan with WMO. He highlighted the need for global cooperation between Meteorological Services in solving global, regional and national environmental problems and related concerns for the central Asian region, which suffered from adverse effects of unsustainable use of the environment in areas such as the Aral Sea. Through WMO, Uzbekistan was working to forge new links with the global community. He noted both the high level of cooperation that existed with WMO as well as the Organization's remarkable attention paid to Uzbekistan and to the development of Hydrometeorological Services throughout the central Asian region.

1.1.7 *Professor P. Bernal*, Assistant Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO) and Executive Secretary of IOC, extended warm greetings from Dr Federico Mayor, Director-General of UNESCO, for Thirteenth Congress and drew attention to the constructive, cooperative and friendly dialogue that now existed between WMO and IOC. He thanked the WMO Secretariat for establishing operational links between meteorological and oceanographic agencies and organizations at the national, regional and global levels.

During 1998, the International Year of the Ocean and the World Exhibition on the Oceans in Lisbon had put the global spotlight on oceans and had highlighted some of the risks that threatened the sustainable use and enjoyment of its resources.

He urged greater cooperation between IOC and WMO and cited some good examples of the existing cooperation such as the joint *El Niño* studies, the establishment of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology and the development of the storm surges project proposal for the northern part of the Indian Ocean.

1.1.8 *Mr J. W. Zillman*, President of WMO, highlighted some of the outstanding achievements of national and international meteorology over the past decade. First, he drew attention to the major advances in the meteorological and related earth sciences, our improved understanding of the basic weather and the climate systems and models that clearly demonstrated the power of science in improving weather prediction and in simulating accurately the global patterns of climate, including phenomena such as *El Niño* and the Southern Oscillation.

He noted that the meteorological community had developed high performance computing skills and had pioneered the use of outer space for Earth observation. During the GARP Global Weather Experiment which ended in 1979, the cooperation between the meteorological and space communities had become strong. Today, in an effort to develop a more integrated approach to ongoing observation and monitoring of the global environment in the twenty-first century, there was again a need to forge new partnerships between the atmospheric science and satellite communities under the auspices of WMO.

Turning to natural disaster reduction, he referred to the progress made during the IDNDR and noted that the world had been shaken by events such as the tsunami which hit the northern coast of Papua New Guinea, and *Hurricane Mitch* which caused devastation in Central America during 1998. One of the most outstanding achievements of recent years had been the improvements in the provision of weather services for the general public. Much of that progress had been achieved through partnership with the mass media. In the event of life-threatening weather conditions, that partnership was of critical importance.

He noted with concern that the long-standing collaboration that existed between the meteorological and civil aviation communities had come under great pressure as a result of the airlines' need to keep their operational costs down in order to remain highly competitive. There was now a need to strengthen the aviation-meteorology partnership in a way that served the interests of both more effectively in a highly competitive world.

Another key partnership was that between WMO and the IOC of UNESCO. That had resulted in joint efforts in vital initiatives such as GOOS and GCOS. Meanwhile, research scientists and service providers in both the oceanographic and meteorological communities had been involved in efforts to institutionalize better the partnership. The outcome was a bold initiative involving the proposed restructuring of CMM as a joint technical commission of WMO and IOC. For WMO, that would first require the approval of Congress.

The President noted that, despite its complexity, weather and climate forecasting was gradually becoming a highly skilful scientific process. The forecasts and warnings provided to society had great economic, social and environmental value. However, in view of the need to ensure continued investment in national and international meteorological infrastructure, the meteorological community should put more effort into demonstrating the value of the services provided. Recent research on the economic valuation of meteorological services had produced some impressive findings. Further work on valuation of services should be a particular focus for WMO over the next few years.

The existence of NMHSs had ensured that virtually all Governments were able to give advance warning of weather-induced natural disasters; underpin the safety of travel by air, land and sea; enhance the reliability and productivity of agriculture and the availability of food and fibre; manage their natural resources in an efficient way; and take steps to avert or minimize the impact of global environmental threats such as desertification, acid rain and depletion of the ozone layer. That had been made possible through a unique system of cooperation between nations dating back to the nineteenth century and nurtured by WMO in the second half of the twentieth century.

One of the greatest challenges today was to maintain the stability of international cooperation and the free and unrestricted exchange of data and products, in line with the letter and spirit 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. That was essential in view of the differing views of Governments on the issue of whether charges should be levied for the use of publicly-funded meteorological data. He stated his own belief that nothing in the almost 50-year history of WMO had been as important for the future of international cooperation as the need for Thirteenth Congress to reaffirm and strengthen its commitment to Resolution 40 (Cg-XII).

On climate issues, the President said that WMO must collaborate closely with IOC, UNEP and ICSU to ensure that the vision of an integrated GCOS became an operational reality and the other thrusts of the Climate Agenda were pursued vigorously; on sustainable development, he noted that IOC and WMO had the scientific skill and collective will to help those in the political sphere to pave a more sustainable way in the future.

He urged Congress, the last before the new millennium, to commit the entire WMO community to help build a world in which nations would continue to work closely together within the framework of the WMO Convention; the principle of free and unrestricted international exchange of basic meteorological data and products would be maintained and strengthened; nations and scientific institutions and communities would strengthen their commitment to collaborative study and monitoring of the Earth's natural systems; the potential of meteorological and hydrological systems in forecasting natural disasters, strengthened through the activities of the IDNDR, would be fully realized early in the twenty-first century; collaboration among the geosciences would lead to the development and use of effective systems for seasonal forecasts and climate predictions; increasing cooperation between the meteorological, oceanographic and hydrological communities would help establish an integrated global environmental monitoring and service system based on the WWW; and WMO would collaborate with other international agencies to provide an effective forum and voice for the application of meteorological, hydrological and related sciences to serve the global community.

1.1.9 On behalf of the Chinese delegation, *Mr Wen Kegang*, Administrator of the China Meteorological Administration, expressed gratitude to the President and to all delegations for their condolences and kind words concerning the untimely passing away of Mr Zou Jingmeng.

Mr Zou had been an outstanding Chinese meteorologist who devoted his life to the Chinese Meteorological Service and to world meteorological cooperation. Mr Zou Jingmeng, who served as a member of the Executive Council, as second Vice-President and as President of the Organization contributed significantly to the implementation of WMO Programmes. Mr Zou's tragic death brought much sadness to Chinese meteorologists. They had, however, pledged to continue to engage in the modernization of Chinese meteorological services and in international meteorological cooperation.

1.1.10 *Professor Y. Israel*, former Head of the former USSR State Committee on Hydrometeorology and Environmental Monitoring, expressed gratitude for the warm words spoken

in memory of Mr Zou Jingmeng by the Administrator of the China Meteorological Administration and of his activities as Head of the China Meteorological Administration. Congress knew him very well in the context of WMO, as Vice-President, as President and as an individual. Members could witness his goodwill outside of politics. Developing and developed countries alike worked hand-in-hand under his leadership. He was a very good friend and would remain in everyone's memory not only as an administrator, an outstanding professional and meteorologist but also as a dear friend.

1.1.11 *H.E. The Honourable M. Moleleki*, M.P., Minister of Natural Resources of Lesotho, conveyed warm greetings and best wishes for the success of Thirteenth Congress from H.M. the King, the Right Honourable Prime Minister and the entire Basotho nation.

He cited international cooperation in meteorology as a good example of avoiding conflicts and the unprecedented exploitation of land resources that occurred during the present century. The dawn of the twenty-first century was more promising, under the banner of Agenda 21 espousing environmentally-sound and sustainable development underpinned by democratic principles. It was clear that humankind acknowledged the importance of scientific advice as one of the factors in planning for the future. That was particularly true for the science of meteorology and its applications as well as the advice being provided by the WMO/UNEP IPCC and IACCA.

The Lesotho Government believed that meteorology was fundamental to the provision of security of life and sustainable development through its application to air navigation, agriculture and water resources. The people of Lesotho attached importance to climate as it had, in the past influenced migration and settlement patterns, even wars. The national greeting "Khotso, Pula, Nala" literally meant "Peace, rain and prosperity". Several successful regional projects illustrated the application of meteorology in sustainable economic development. Those included the Early Warning System on Food Security, DMCs for southern and eastern African countries and HYCOS. Despite the current unfavourable financial situation, the Government was strengthening meteorological activities, starting with the Lesotho Meteorological Services whose 1999–2000 budget represented an investment of US\$ 0.40 for every citizen of Lesotho. It recognized the importance of WWW, ETRP and WCP in strengthening the capabilities of developing countries and in addressing some of the biggest challenges facing the meteorological community in the next millennium.

Lesotho was proud to be associated with WMO which it believed would remain a truly objective and scientific specialized agency, free from political bias. WMO must jealously guard against erosion of its tradition of international and inter-organizational collaboration and cooperation even in the face of political differences among Member States.

1.1.12 *H.E. Mr C. M. A. Rasolonay*, Minister of Transport and Meteorology of Madagascar, expressed honour and pleasure in greeting all participants of Thirteenth Congress in the name of the Government of Madagascar.

Meteorology was a major concern of the Government, as witnessed by the large delegation to Congress headed for the first time by a minister and further demonstrated by the inclusion of the term "meteorology" in the name of the Ministry itself (Ministry of Transport and Meteorology).

Madagascar was particularly affected by meteorological catastrophes (tropical depressions, cyclones, floods and droughts) which caused serious material damage and even deaths. Currently, a plague of locusts covered three quarters of the country. The Government attached much importance to WMO's activities, which among others, enhanced exchange of information and transfer of technology. The Government took the opportunity to thank WMO and those Member countries who had helped Madagascar in recent years through the VCP and other means, in particular China and the United Kingdom. Madagascar appreciated such assistance.

Mr Rasolonay wondered whether WMO could consider developing emergency programmes as had other specialized United Nations agencies. After a cyclone, for example, international funding organizations acted to rebuild social and educational infrastructures but rarely meteorological infrastructures that would help forecast better such natural disasters. The Government of Madagascar appealed to WMO and the international community for assistance in hydrology as few observation stations existed. Current equipment was so obsolete as to threaten the collection of national hydrological and meteorological data. Madagascar placed great hopes in ACMAD.

1.1.13 On behalf of His Majesty's Government, the people of Swaziland and himself, *H.E. Senator P. M. Dlamini*, Minister for Public Works and Transport of Swaziland, thanked the WMO Secretariat for providing excellent facilities for Congress and extended appreciation to WMO for the support it provided.

Climate was in itself a resource which provided for the necessities of life. Throughout the ages, human beings had adapted to that resource by arranging shelter, food production, energy provision and lifestyles in harmony with climate and the Earth's atmospheric environmental conditions. Information on weather, climate and water-related events provided by NMHSs was appreciated by the general public since, when properly applied, that information not only saved lives and property but also contributed to economic and social development. Internationally, WWW provided valuable contributions. He commended WMO for the establishment of WWW and other cooperative partnerships.

The Kingdom of Swaziland had received much assistance from WMO through coordinated bilateral and multilateral programmes, for which it was greatly indebted. The major technological changes to be addressed were not always affordable by developing countries.

Swaziland's policies on atmospheric, environmental and related issues were commensurate to those of RA I (Africa) and SADC. With the many challenges and threats posed by such concerns as global warming, shifts in agricultural zones, depletion of the ozone layer, incidence

of droughts and tropical storms, the position of Swaziland and the region at large was a precarious one. To implement those policies, all forms of relevant support should continue to be made available to the developing world, given the limited economic and technical abilities of such countries to address environmental hazards related to severe weather and atmospheric activities.

WMO was to be congratulated on the completion of its new Headquarters building. It was hoped that a better working environment would facilitate the continued delivery of the Organization's services.

1.1.14 *H.E. Mr M. S. Alrawahy*, Undersecretary of the Ministry of Communication of Oman, conveyed greetings on behalf of the Minister of Communication of the Sultanate of Oman and deep appreciation for the efforts made by WMO in the interests of the international community.

Meteorology and hydrology in the Sultanate of Oman benefited right from the start in view of the keen interest of the Government. Despite financial constraints, vital projects had been undertaken in order to promote meteorology and to replace obsolete observing stations with modern systems. Support from WMO's technical commissions and education and training programmes was of paramount importance for developing countries. It allowed the national Service to play a very important role in the efforts for sustainable development and help bridge the gap between developed and developing countries by strengthening local capacities.

In 1997–1998, several countries were affected by *El Niño*. Once again that phenomenon showed how important it was to have proper observations and forecasts. Such services were particularly important for developing countries. It was vital to follow closely such phenomena in order to make appropriate economic and social decisions. Thanks were due to the countries belonging to EUMETSAT. He expressed the hope that they would continue to help the Indian Ocean countries in continuing to provide satellite services within the region.

1.1.15 *Mr S. C. Nwokedi*, speaking on behalf of the Minister of Aviation, H.E. The Honourable Captain (Pilot) B. Briggs, of the Government of Nigeria, brought warm greetings from H.E. General Abdulsalami Abubakar, Head of State, and from the people of his country. He noted that Congress would consider how best to deal with meteorological and hydrological challenges affecting humanity. Policy makers in Member countries were anxious to know how soon more concrete solutions could emerge for ameliorating the adverse effects of climate variability and changes on human life and property. Severe weather occurrences had persisted despite the various technological and scientific advances and the many laudable programmes of WMO and other United Nations agencies.

Significant improvements had taken place in forecasting severe weather systems, including tropical storms and cyclones. Such improvements had been aided by the enhancement of the infrastructure of NMSs, by the introduction of sophisticated meteorological satellite-receiving systems as well as by the establishment of upper-air measuring devices within the framework of the global observing system of WMO's WWW Programme.

Progress had also been made in monthly and seasonal climate forecasts. None the less, further efforts were needed, particularly in improving the accuracy of long-term forecasts in support of agriculture, so as to improve food production, natural disaster mitigation and sound water resources management.

WMO and UNEP were to be commended for the work of IPCC which had produced invaluable assessment reports on the science, impact and mitigation options relating to climate change. Countries were increasingly aware of the need for global cooperation in the search for a lasting solution to the threat posed by global warming and climate change. It was essential to ensure a legacy of a cleaner environment for future generations. The world community looked to WMO for the continued role and efforts aimed at finding viable solutions to those and other meteorological and hydrological global problems. Nigeria attached great importance to WMO's support for developing countries through its programmes of technical cooperation and education and training, the United Nations Economic Commission for Africa/WMO ACMAD and the number of subregional offices established to enhance its services to Members. Nigeria confirmed its support to WMO's Subregional Office for West Africa, in Lagos and would be willing to host some regional working group meetings or sessions of other constituent bodies of WMO.

Nigeria paid tribute to the leadership of WMO for the high degree of efficiency and cost-effectiveness with which the affairs of the Organization were being piloted. In particular, it was to be commended for its various contributions towards the completion of the new and magnificent Headquarters building. Nigeria was proud to be associated with that achievement.

1.1.16 *Mr F. Malele*, Head of Delegation of the Independent State of Samoa, expressed his pleasure to address Congress for the first time. He extended warm greetings from his Highness Malietoa Tanuamafili II, Head of State of Samoa, the Prime Minister, Honourable Tuilaepa Malielegaoi, and all the people of Samoa. He stated that his Government's wish to join WMO stemmed from the recognition of the importance of international collaboration and cooperation in the areas of meteorology and hydrology.

The domain of operations of WMO in the areas of the atmosphere, land, water and ocean did not recognize any geopolitical or economic boundaries and it was through that spirit that his Government recognized the importance of becoming a Member of WMO. Since joining WMO in 1996, Samoa had benefited enormously from WMO Programmes and activities. Such assistance had contributed to the improvement of the Service in the last four years.

Samoa had experienced, like many of the Members of WMO, social suffering and economic drawbacks from natural disasters such as tropical cyclones. The peak of the 1990–1992 *El Niño* episode generated tropical cyclones which adversely affected Samoa. But with the support of the regional and global communities, the country had now gradually recovered. Samoa looked forward to working with all Members.

1.1.17 *Mr H. A. Diallo*, Executive Secretary of the Secretariat of the United Nations Convention to Combat

Desertification (UNCCD), extended warm greetings to all the delegates and dignitaries taking part in the work of Thirteenth Congress. He informed Congress that the United Nations Convention to Combat Desertification was signed in Paris on 14 October 1994 and came into force on 26 December 1996. It had been ratified by 151 countries, which demonstrated that the instrument was an adequate means of promoting sustainable development in regions affected by recurrent droughts and degradation of soils.

The Convention did not only aim at protecting the quality of the soil; it had much more ambitious goals. It would pave the way towards a real sustainable development policy, taking preventive actions and rehabilitating degraded areas, improving water supply and reforestation, and creating new mechanisms to benefit from scientific and technical progress. Some countries had already begun to prepare their National Action Programme and relevant intergovernmental organizations had begun to coordinate action programmes at the subregional or regional levels. No effort would be spared to implement the Convention through partners, including the national focal points of the Convention.

WMO was playing a key role through the continued strengthening of its research activities in the area of climatology which was a priority in the Fifth WMO Long-term Plan, in the Hydrology and Water Resources Programme as well as in the Agricultural Meteorology Programme. WMO also played an essential role in the creation and use of specialized regional centres in the field of agriculture, desertification and drought monitoring. The joint efforts of UNCED and WMO had led to the drafting of an important document on water resources management, and a scientific paper on drought and desertification.

Mr Diallo expressed his deep gratitude to all countries and Organizations helping to implement the Convention. He thanked the President of WMO and its Secretary-General for their active support in the negotiation process and in follow-up actions, and noted that Professor Obasi had always shown great interest personally and had frequently encouraged the Secretariat with his presence.

1.1.18 *Mr E. Bonev*, Representative of the United Nations Development Programme (UNDP), addressing Congress on behalf of the Administrator of UNDP, noted that UNDP and WMO had worked together ever since the inception of UNDP. As a result, numerous Meteorological Services had been set up in developing countries worldwide. Today, on the eve of a new millennium, that partnership required a fresh impetus to meet the challenges of an ever-changing world.

He recalled that a new initiative, "Towards a new partnership between UNDP and the specialized agencies" was launched in March 1998. He said that several consultations had been held. The new partnership initiative was in response to the wish of all Member States to contribute towards making the United Nations system an effective partner in the definition and implementation of joint strategies for sustainable development.

It was important that other United Nations agencies, particularly the small technical agencies like WMO, should join the partnership initiative. WMO had always been

in the front line of such initiatives, taking the leadership role for the small agencies and it was hoped that that group could be revived to play a proactive role in the coordinating mechanism of the United Nations system. WMO also had a particular contribution to make in the field of poverty reduction through sustainable development.

1.1.19 *Mr F. Schlingemann*, Director, Regional Office for Europe, addressing Congress on behalf of Mr K. Töpfer, Executive Director of the United Nations Environment Programme (UNEP), stated that WMO and UNEP had a long history of collaboration, through WCP and the Climate Agenda, IPCC, GCOS, GTOS, GOOS, and Earthwatch in general.

The most visionary collaboration between UNEP, WMO and Governments was exemplified in the IPCC, which provided the basis, through its assessments for the negotiation of the Climate Convention, for the UN/FCCC and its Second Assessment Report and the Kyoto Protocol. IPCC's fifteenth session in Costa Rica considered recent severe climatic events such as droughts, floods and hurricanes and their relationship to climate change. In particular, he referred to *Hurricane Mitch* and the prolonged and intense *El Niño/La Niña* events in 1997 and 1998.

Other areas of close collaboration included the implementation of the Climate Agenda and the activities of the Scientific Committee on Problems of the Environment. UNEP itself was tasked to implement the WCIRP of the WCP and Thrust 3 of the Climate Agenda. In the last few years, resource limitations had made it difficult for UNEP to meet its obligations in implementing the programme. But the resource base had improved and the work would now receive highest priority. UNEP requested the support of Congress and the climate community in the implementation of WCIRP.

In response to the new guidance by UN/FCCC to GEF, UNEP was organizing a series of think-tank meetings in developing regions to identify and prepare proposals on climate impact and adaptation. Every opportunity would be taken to make proposals to UNFIP and WMO's collaboration was sought in preparing those proposals. UNFIP had approved in principle a project proposal made by UNEP on the assessment of the impacts of the 1997-1998 ENSO event. Another project approved by UNFIP was the one implemented by IDNDR, WMO, the United Nations University and the National Center for Atmospheric Research.

1.1.20 *Mr J.-P. Makosso*, speaking on behalf of Mr Ousmane Oubandawaki, the Director-General of the Agency for Air Safety in Africa and Madagascar (ASECNA), said that ASECNA, which involved 15 African States and France, would celebrate its fortieth anniversary during 1999. He noted the exemplary cooperation that had always existed between WMO and ASECNA, in particular, the excellent collaboration with WMO over the past four years in the joint organization of seminars for French-speaking countries.

He informed Congress that ASECNA, had signed protocol agreements with regional organizations such as AGRHYMET, ACMAD and EUMETSAT. ASECNA, together with its Member States, had already prepared a plan of action for the year 2000. The guidelines adopted by Thirteenth Congress would assist the studies now being

carried out by ASECNA. Regional and international cooperation in that area should be strengthened.

1.1.21 *Mr O. Turpeinen*, speaking on behalf of the Secretary-General of the International Civil Aviation Organization (ICAO), Mr Costa Pereira, expressed his sincere thanks at having the opportunity to address Congress. ICAO and WMO had worked closely together for the benefit of international air navigation ever since the first WMO Congress established CAeM, which had become a vital link between the two Organizations.

Through that link and on the basis of the joint Working Arrangements of 1953, WMO had greatly contributed to the success of international air navigation. Since Twelfth Congress, an impressive list of issues had been addressed jointly by WMO and ICAO, including the development of WAFS and the development of the ICAO International Airways Volcano Watch. In particular, the designation by ICAO of nine Volcanic Ash Advisory Centres was made on the advice of WMO.

Mr Turpeinen expressed ICAO's appreciation for the cooperation and support received from WMO technical commissions, regional bodies, expert groups and the Secretariat, mentioning specifically the active involvement of CAeM. He expressed the wish that WMO's magnificent new Headquarters building, with its futuristic, aerodynamic shape, would provide the perfect framework for the Organization to face the future challenges of international aeronautical meteorology.

## 1.2 ESTABLISHMENT OF A CREDENTIALS COMMITTEE (agenda item 1.2)

In accordance with General Regulations 22 and 23, the President proposed the establishment of a Credentials Committee, recommending that all Regions be represented as at previous sessions of Congress. The membership comprising the principal delegates of the following Members was approved, as followed:

Regional Association I	: Gabon, Guinea, Lesotho and Sudan
Regional Association II	: Maldives, Republic of Korea and Uzbekistan
Regional Association III	: Ecuador
Regional Association IV	: Canada and Cuba
Regional Association V	: Indonesia
Regional Association VI	: Ireland, Portugal, Russian Federation and Sweden

Mr Sri Dihartha (Indonesia) was elected chairperson of the Credentials Committee.

1.3 **APPROVAL OF THE AGENDA** (agenda item 1.3)  
Congress approved the agenda given in Appendix B of this report.

1.4 **ESTABLISHMENT OF COMMITTEES** (agenda item 1.4)  
The following committees were set up:

### NOMINATION COMMITTEE

1.4.1 In accordance with the provisions of General Regulations 24 and 25, the Committee was composed of the principal delegates of the following 12 Members:

Regional Association I	: United Republic of Tanzania, Senegal and Tunisia
Regional Association II	: Mongolia and Nepal
Regional Association III	: Peru
Regional Association IV	: Netherlands Antilles and Aruba and Bahamas
Regional Association V	: Malaysia
Regional Association VI	: Italy, Lebanon and Ukraine

Mr C. Finizio (Italy) was elected chairperson of the Nomination Committee.

### WORKING COMMITTEES

1.4.2 Mr B. Berridge (First Vice-President) chaired the meetings of the Committee of the Whole.

1.4.3 Two working committees were set up to consider various agenda items as indicated below:

#### (a) Working Committee A:

Chairperson: Mr N. Sen Roy (Second Vice-President)

Vice-Chairperson: Mr Bwango Apuuli (Uganda)

That Committee reported to Congress on the following agenda items:

2.1, 2.2, 2.4, 3.6, 3.7, 3.8, 4, 5, 7.1, 7.2, 7.3, 8, 9, 10, 11.1, 11.2, and 11.3

#### (b) Working Committee B:

Chairperson: Mr J.-P. Beysson (Third Vice-President)

Vice-Chairperson: Mr N. Tawfiq (Saudi Arabia)

That Committee reported to Congress on the following agenda items:

3.1, 3.2, 3.3, 3.4, 3.5, 6, and 7.4

## 1.5 REPORT OF THE CREDENTIALS COMMITTEE (agenda item 1.5)

The Credentials Committee submitted four reports concerning the credentials of the delegates of Members and those of international organizations. Those reports were approved by Congress.

## 1.6 APPROVAL OF THE MINUTES (agenda item 1.6)

The minutes of the first and second plenary meetings were approved during the session. Congress decided to approve by correspondence the minutes of other plenary meetings. A full list of documents presented at the session is contained in Appendix B to this report.

## 2. REPORTS (agenda item 2)

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

2.1.1 Congress noted with appreciation the report by the President of the Organization and in particular the information contained on the progress made in the activities of the Organization during the twelfth financial period. In that regard, Congress noted that WMO provided an effective framework for Directors of NMHSs to pool efforts, share experiences, explore new concepts and develop common approaches on the major scientific and technical issues faced by meteorological and hydrological communities.

2.1.2 Congress expressed its appreciation for the way the Executive Council had carried out the responsibilities entrusted to it by Twelfth Congress. The Organization was able to address in an effective manner a large number of important issues, in spite of the difficult financial situation. Those included the international exchange of data and products, the role and operation of NMHSs and the increasing requests for support from Members. Congress also welcomed the action being taken to promote meteorology and hydrology.

2.1.3 Congress confirmed the actions taken by the President on behalf of the Executive Council since its fiftieth session. It further noted that those questions in the President's report which called for special action by Congress were considered under the appropriate agenda items.

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

2.2.1 Congress noted that the report of the Secretary-General was covered in the documents submitted to Congress under various agenda items. It further noted that the financial report by the Secretary-General was discussed under agenda item 10.1.

2.2.2 Congress congratulated the Secretary-General for his effective leadership and for the excellent performance of the Organization under the difficult financial circumstances that continued to prevail during the twelfth financial period. Congress expressed its appreciation to the Secretary-General and the staff of the Secretariat for the achievements of the Organization which were largely due to their commitment, devotion and support to the NMHSs in the implementation of the Programmes and activities of the Organization.

2.2.3 Congress expressed its appreciation to the Secretary-General on the completion of the new WMO Headquarters building, which would improve not only the working environment of the Secretariat staff but also the image of WMO and the support to NMHSs. The building was a reflection of the commitment of Members to WMO and to the preservation of the environment for future generations.

## 2.3 REPORT BY THE CHAIRPERSON OF THE FINANCIAL ADVISORY COMMITTEE (agenda item 2.3)

2.3.1 Congress 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. Congress took account of those recommendations in making its decisions under the various related agenda items.

2.3.2 Congress decided to keep in force Resolution 29 (Cg-X) — Financial Advisory Committee, regarding the establishment of the Financial Advisory Committee during the thirteenth financial period.

## 2.4 CONSOLIDATED REPORT ON AMENDMENTS TO THE TECHNICAL REGULATIONS (agenda item 2.4)

2.4.1 Congress noted with satisfaction the work carried out by the technical commissions, regional associations and the Executive Council in keeping under review the

Technical Regulations in their respective fields of responsibility.

2.4.2 Congress noted that a substantial number of amendments to Annexes II, III, IV and V to the *Technical Regulations* (WMO-No. 49), which had been proposed by CBS, and to Annex VI, which had been proposed by CMM, had been approved by the Executive Council in accordance with the authority delegated to it by Twelfth Congress. Congress further noted that in view of the urgency of implementing a modified version of a certain number of codes, the President had approved, on behalf of the Executive Council, relevant CBS recommendations under the authority given to him in General Regulation 9(5).

2.4.3 Congress confirmed the approval by the Executive Council of Recommendation 1 (CBS-XI) — Requirements for the international exchange of data and products — amendments to the *Technical Regulations*, on the inclusion of the list of data and products for international exchange in the introductory section of Volume I of the *Technical Regulations* and of Recommendation 3 (CHy-X) — Amendments to the *Technical Regulations*, Volume III — Hydrology. In that connection, Congress re-affirmed the authority delegated to the Executive Council to approve amendments to the Technical Regulations. That decision was reflected in Resolution 1 (Cg-XIII).

2.4.4 Congress also confirmed the usefulness of the provision of Article 14(c) of the Convention and General Regulation 9(5) in enabling prompt action by the Executive Council or the President in cases of new or amended regulations which had to be implemented before the next session of Congress.

2.4.5 Congress requested the Executive Council, when considering the report of the extraordinary session (1998) of CBS, to review and consider for approval the new amendments, proposed by the Commission, to annexes to Volume I of the *Technical Regulations*.

## 3. SCIENTIFIC AND TECHNICAL PROGRAMMES (agenda item 3)

### 3.1 WORLD WEATHER WATCH PROGRAMME (agenda item 3.1)

#### 3.1.0 WWW BASIC SYSTEMS AND SUPPORT FUNCTIONS; THE REPORT OF THE PRESIDENT OF CBS (agenda item 3.1.0)

##### REPORT OF THE PRESIDENT OF CBS

3.1.0.1 Congress noted with appreciation the report of the president of CBS on the activities of the Commission since Twelfth Congress. The continued progress in the development of the WWW, especially with regard to the introduction of new technology, was noted, as were the steps taken by the Commission in fulfilling its responsibilities for PWS.

3.1.0.2 The membership of the CBS continued to grow. At the end of 1998, 139 Members had designated 311 experts to serve on the Commission. That compared with 301 experts from 129 Members four years previously.

3.1.0.3 Congress noted that CBS had shortened the duration of its sessions from the traditional 10 working days at the eleventh regular session held in Cairo, Egypt



(October/November 1996) to seven and one-half working days at the extraordinary session held in Karlsruhe, Germany (September/October 1998). The latter was preceded by a two-day Technical Conference on Integrated Upper-air Observing. Both sessions were well attended, with 115 participants representing over 60 Members and seven international organizations including the International Association of Broadcast Meteorology which participated for the first time in CBS-Ext.(98).

3.1.0.4 Congress noted that the coordination of the inter-sessional activities and much of the preparatory work for the sessions was carried out by the CBS Advisory Working Group. All CBS working groups held sessions as approved by Executive Council. Numerous expert and implementation/coordination meetings covered component programmes of the WWW, WMO satellites activities, data representation and codes, radio frequency issues, emergency response activities, COSNA and GCOS matters and the PWS programme. High priority issues referred to CBS by the Executive Council, such as a study on the use of the Internet, monitoring of, and advice on, the technical aspects of the implementation of Resolution 40 (Cg-XII), and the future working structure of CBS, were addressed by task teams. Congress noted with satisfaction that CBS intensified collaboration with other technical commissions, in particular CAS, concerning environmental emergency response issues and WWRP and CCI concerning infrastructure needs for seasonal to interannual climate predictions as well as data management and GCOS matters, and CIMO concerning observing practices and standards.

3.1.0.5 The president was also involved in considerations related to a possible merger between CIMO and CBS (see agenda item 6.4). Furthermore, he participated in sessions of the Executive Council Advisory Group on the Exchange of Meteorological and Related Data and Products and the Working Group on Long-term Planning. He also briefed CAeM-XI on the new CBS working structure.

3.1.0.6 Since Twelfth Congress, CBS submitted to the Executive Council recommendations concerning amendments to the Technical Regulations and the *Manuals* as followed: three concerning GOS, two concerning GTS, four concerning GDPS, three concerning codes, two concerning emergency response activities and one on the requirements for the international exchange of data and products. The Commission adopted a resolution on the encouragement of equal opportunities for participation of men and women in the work of the Commission and recommended amendments to the 5LTP (see agenda item 6.2).

#### NEW CBS WORKING STRUCTURE

3.1.0.7 Congress noted with particular interest that the Commission had implemented a new working structure in view of its further growing tasks and responsibilities. It noted that the new structure was aimed at increasing efficiency while strengthening the participation of experts from developing countries and addressing the requirements of all regions.

3.1.0.8 Congress noted that CBS had replaced its system of large "open" working groups with a system of smaller, task-oriented and non-standing expert and implementation/

coordination teams that were organized under four main programme areas: integrated observing systems; information systems and services; data-processing and forecasting systems; and PWS. Each programme area was associated with an OPAG. Different from the smaller teams, those groups would not meet in sessions and their chairpersons were members of the CBS Advisory Working Group. Congress welcomed that CBS had emphasized that the WMO language support would need to meet the requirements of the members of the Commission, so as to allow full participation in the working structure. Congress noted that the role of the Advisory Working Group was strengthened under the new structure. Therefore, as it was important that its work be well coordinated and transparent, Congress requested that the reports of the Advisory Working Group meetings be distributed to all members of CBS.

3.1.0.9 Congress stressed the importance of the links between CBS and the regional associations with respect to achieving a coordinated implementation of the WWW, and urged the regional associations to strengthen their collaboration with CBS.

3.1.0.10 Noting that CBS would review the new working structure in 2000 in the light of the experience gained, Congress encouraged CBS to develop the new working structure further with a view to realizing its full benefits. It requested the Secretary-General to support in an optimal way the new working mechanisms of the Commission and to adjust the foreseen relevant meetings/events within the approved financial allocations to match the meetings required by CBS.

#### GLOBAL OBSERVING SYSTEM

3.1.0.11 Congress noted that although the level of implementation of surface observing stations in the RBSNs varied from region to region, the overall status, despite the reduction in the number of stations required in RBSN was much the same as it had been during the last 10 years. In addition to the stations included in RBSNs, the GOS surface subsystem included about 6 000 supplementary stations, and the total number of surface synoptic stations and the number of observations had increased steadily over the past 10 years. As regarded upper-air observations, Congress was pleased to note that thanks to prompt coordinated action taken by the Members concerned, CBS in consultation with CIMO, the Secretary-General and donors, dramatic loss of upper-air data due to the cessation of the Omega radionavigation system had been prevented. Congress requested CBS and donors to continue to monitor the replacement of Omega-based upper-air equipment by alternative systems and to continue to assist developing countries in that matter. Congress noted with some concern that the LORAN-C system was expected to continue to operate through the year 2008 but could cease operations at an earlier date. It also noted with concern that there was a danger that the negative impact of conversion from Omega might continue to grow since the consumables for the replacement systems were more expensive. Furthermore, some Members noted that GPS-based radiosondes had a higher than expected failure rate. Congress urged manufacturers to work towards making GPS-based

radiosondes more reliable and affordable to all Members. It requested CBS to keep that matter under permanent review and to report to the Executive Council on that issue. Congress also expressed its concern regarding the low availability of upper-air data from some WMO Regions due to economic constraints experienced by developing countries and countries with economies in transition and encouraged Members, in particular potential donors, to provide assistance in improving the current situation.

3.1.0.12 Congress noted with satisfaction the continuing increase in the availability of data produced by other components of the GOS, such as the AMDAR system, drifting and moored buoys, radar and wind-profilers. In view of the marked concentration in the AMDAR data available over Australia, Europe, North America and the North Atlantic, Congress stressed that attention should be focussed on data-sparse areas; in particular, the NMSs in developing countries should have access to real time wind and temperature data. Congress welcomed the initiative by the AMDAR Panel to conduct a pilot project in southern Africa.

3.1.0.13 Congress supported the view of CBS that it was important to integrate the space-based and the surface-based observing system components into a single programme area to address better the technical aspects, while underlining that the liaison between WMO and the satellite operators also included policy and technical aspects.

3.1.0.14 In light of the critical situation that had developed in the implementation of upper-air networks in some WMO Regions, and bearing in mind the rapid development of new observing technology, including satellite, aircraft and marine observations, Congress confirmed the need for a coordinated approach to achieve what would be a fundamental redesign on the GOS. That would involve experts and decision makers in observing technology, network design, data assimilation techniques and NWP, and could require new joint funding mechanisms for the deployment of observations in remote and/or extraterritorial areas. Congress was pleased to note that CBS had undertaken several important actions in that respect, in particular, expert meetings, workshops, studies and a Technical Conference on Integrated Upper-air Observing (Karlsruhe, 28–29 September 1998). Congress requested CBS to continue vigorously its efforts in that regard, making the best use of the results of impact studies and trials already carried out by various NWP Centres within the framework of regional programmes such as COSNA, NAOS and EUCOS, as well to identify the needs for future studies. Congress emphasized that Members had a great interest in optimizing their investment in observing systems and that advancing scientific knowledge and technology were providing opportunities for increasing the availability of observational data while reducing costs. It was recognized, however, that the task of establishing an optimum composite observing system required access to scientific and technical resources which were normally made available within national and regional studies to assist in local-decision making. In light of the above, Congress requested CBS through its appropriate mechanisms to collect the results of such studies, and as appropriate, to broaden and extend its

findings to the global scale and to develop design criteria for FCGOS. Congress further requested CBS to encourage activities that would further the use of satellite sounding data, and other alternative datasets. It urged Members to develop further the Observing Systems Simulation Experiment capability that would evaluate alternative datasets as well as the very high spectral and spatial resolution satellite sounding data that would become available during the first decade of the next century. Congress also noted the need for the FCGOS design to address the requirements of other programmes, in particular WCP, and recommended that experts from those programmes be involved in the development of FCGOS concepts and design. Congress concluded that CBS should promote the use of the results in investment decisions of Members.

#### GLOBAL TELECOMMUNICATION SYSTEM

3.1.0.15 Congress noted with satisfaction the significant progress made in the implementation of the GTS. All MTN circuits (except one) were operating at data rate greater than 4.8 kbit s<sup>-1</sup>, one third using digital technology at data rate from 64 to 128 kbit s<sup>-1</sup>. Point-to-point circuits and multi-point telecommunications systems via satellite had been significantly improved in all RMTNs, although serious shortcomings still existed in some Regions at the regional and national levels. Considerable progress was also made in the implementation of automated telecommunications facilities in RTHs and NMCs.

3.1.0.16 Congress was pleased to note the complementary strategies of CBS and the regional associations for development and implementation of the GTS. Those strategies assimilated new opportunities in telecommunication techniques and services, with a view to attaining a more cost-effective GTS, while taking into account the telecommunications infrastructure and costs available in various areas. Congress noted with appreciation the various events that were implemented for providing information and advice to Members on those new data-communication techniques and services, and it requested the Secretary-General to pursue those activities in the future.

3.1.0.17 Congress welcomed, in particular, the introduction of the TCP/IP on the GTS. Congress stressed the importance of adopting standard data-communication protocols and applications for the GTS to the largest extent possible in order to improve the cost effectiveness of the implementation and operation. It noted that the rapid development of industry standards and technology had resulted in a significant reduction of costs of equipment for GTS implementation (e.g. PC-based message switching and data handling systems). Congress underlined that that trend was providing better opportunities for considerable enhancements in the capacity and flexibility of the GTS and for effective cooperation assistance towards strengthening the GTS. It also supported the improved MTN project being developed by CBS with a view to implementing it operationally in 2002.

3.1.0.18 Congress was pleased to note the rapid development of the RMTNs. In Region IV, the two-way satellite-based RMTN was fully operational. Region VI was

modernizing the RMTN by implementing a commercially-provided managed network service which was expected to be operational by the end of 1999 in most of the Region. Region III had just started a similar project. In Region I, sub-regional satellite-based networks — such as SATCOM coordinated by ASECNA, covering the western and central part of Africa and complemented by satellite-based telecommunications and leased circuits in other parts — were increasing the capacity of the RMTN. In Regions II and V, a combination of medium or high-speed circuits, as well as public data-communication networks were being used to improve the RMTNs. Congress encouraged Members and the regional associations, with the technical support of CBS, to pursue their fruitful efforts towards cost-effective upgrade of the GTS, while giving particular attention to the specific areas where the GTS was weak or deficient, particularly in developing regions and areas with adverse conditions.

3.1.0.19 Congress noted the extensive implementation of satellite-based multipoint telecommunications systems, each WMO Region being completely covered by at least one system. It was pleased to note that the satellite facilities, which were implemented to support the WAFS distribution, were also supporting data-distribution components for the GTS. The international satellite communications system, operated by the United States, was supporting the RMTN in Region IV as well as WWW data distribution as a regional complementary component of the RMTN in Region V. A project was developed for the dissemination of meteorological data and products via the satellite facilities operated by the United Kingdom, which also supported the satellite distribution system. The MDD service would continue to be provided via the current Meteosat and the future Meteosat second generation satellites (MDD and LRIT/HRIT, respectively). Congress expressed its gratitude to all Members and organizations operating satellite-based MDD systems for the benefit of all NMHSs.

3.1.0.20 Congress noted that while past deployment of DCPs had not been entirely successful, advances in technology had made newer systems much more reliable. It encouraged Members and donors to utilize those systems, while keeping in mind that they should be deployed in a manner that ensured that observational data collected via DCPs were successfully transmitted and made available to the WWW system.

3.1.0.21 Congress was pleased to note that the GTS was also supporting efficient telecommunication for other WMO Programmes, in particular WHYCOS, joint programmes with other international organizations and environmental programmes. Congress noted that public data-communication networks, and in particular the Internet, were providing NMHSs with cost-effective communication services to complement the GTS. Congress welcomed the fact that CBS was developing guidance and recommendations for facilitating the implementation and operation in WWW centres of both the GTS and open data-communication networks such as the Internet, while paying due attention to the operational security aspects.

3.1.0.22 Congress noted with satisfaction the assistance towards capacity building in GTS development provided to many developing countries through the WWW System

Support Activity programme. The activities implemented included expert visits, assistance in system installation and repair and technical advice.

#### GLOBAL DATA-PROCESSING SYSTEM

3.1.0.23 Congress noted with appreciation the continued improvement in quality and accuracy of products generated at WMCs, RSMCs and other GDPS centres. That was largely brought about by improvements in areas such as data assimilation techniques, ensemble techniques, and coupled models for long-range predictions. Significant upgrades to massive parallel processing facilities took place at advanced centres and computing facilities were enhanced at many centres in all WMO Regions. It noted with satisfaction capacity building efforts at developing centres with co-sponsorship from major GDPS centres which resulted in new or enhanced NWP capabilities. Congress invited donor Members to enhance their co-sponsorship activities where possible, with a view to assisting in upgrading and sustaining the data processing and forecasting facilities in developing countries.

3.1.0.24 Congress noted with appreciation that CBS had addressed issues of development of NWP and long-range forecast production up to multi-seasonal scale and their related verification systems including skill scores to be attached to products and exchanged between centres. Congress agreed that Members had invested heavily over the years in a robust operational global WWW infrastructure, and that the emergence of long-range forecasting was placing an additional challenge on the WWW system to expand and serve new longer time-scale requirements.

3.1.0.25 Congress noted that the Initial Planning Meeting on the Coordination of Infrastructure Needs for Seasonal to Interannual Climate Prediction (Geneva, April 1999) had developed guiding principles for the operational framework and had agreed that the WWW GDPS provided the basis for the operational framework for climate monitoring, diagnostic and prediction activities. Congress also noted that the seasonal to interannual forecasts and outlook component, consisting of delivery of user-oriented products and interface, was addressed in the framework of WCP and its CLIPS project taking into account and effectively using existing GDPS and forecasting system facilities (see agenda item 3.2.5).

3.1.0.26 Congress noted that the Initial Planning Meeting, having considered several options regarding designation of seasonal to interannual centres within the GDPS framework, expressed preference to utilizing the present RSMC designation and to create RSMCs with climate monitoring and prediction specialization. Congress invited CBS in consultation with CCI, CAS and the climate research community to address organizational and implementation issues. With regard to requirements for prediction products, Congress endorsed the Initial Planning Meeting recommendation that WCP should undertake, as a matter of urgency, an analysis of requirements for operational prediction and forecast products and their delivery. Congress emphasized the need for capacity building of regional centres and NMHSs through development of relevant guidance materials and training activities based on the statement of requirements (see also agenda item 3.2.5).

3.1.0.27 Congress noted with satisfaction that CBS-Ext.(98) had adopted initial measures of the standard verification system for long-range forecasts, which satisfied the requirement that the procedures were applicable to, and appropriate for, both objective numerical prediction products and the more empirical seasonal to interannual forecast and outlook products. Congress encouraged CBS to implement the verification system in collaboration with CCL.

3.1.0.28 With regard to delivery and reception systems, Congress noted efforts to develop the GTS to an Internet-like data communication network with adequate security protection for additional products and seasonal to interannual products before they were made publicly available. In the meantime, Congress invited CBS to develop further, in collaboration with centres concerned, a mechanism allowing NMHSs and regional and subregional centres to have first access to seasonal to interannual products.

3.1.0.29 Congress, noting that several centres were now running ensemble forecasting systems for medium-range and long-range forecasts, invited the centres to make the products available to NMHSs. It noted that other activities to be undertaken included the ensemble intercomparison/verification taking place within CLIVAR and encouraged dissemination of those results.

3.1.0.30 The ever-increasing consequences of severe weather events and their associated impact around the globe had emphasized the need for Meteorological Services to enhance capacity and skills to monitor and predict severe weather. Congress noted that CBS was studying the extension of NWP output to provide more explicit guidance on the occurrence of severe weather. It invited regional associations to review their requirements and available capacity with a view to implementing relevant regional procedures on the basis of CBS-developed approaches for model output products as forecast guidance on the occurrence of severe weather.

3.1.0.31 Congress noted that the potential areas where the GDPS could contribute in the provision and use of environmental quality monitoring and prediction products needed further review by regional associations in the light of their stated requirements. Those might include support to areas related to air quality modelling, air pollution monitoring, prediction of stratospheric ozone and ultraviolet-B index products among others.

3.1.0.32 As regarded RSMCs with activity specialization, Congress noted with satisfaction that the designated RSMCs for tropical cyclones had enhanced their capacities to meet more effectively their accepted responsibilities, as well as the designation since 1995 of another three GDPS centres (Beijing, Tokyo and Obninsk) as RSMCs with activity specialization on transport model products for environmental emergency response.

3.1.0.33 Congress noted with appreciation that over 50 NMCs now ran operationally limited area NWP models and that technical guidance, including the new *Guide on the Automation of Data-processing Centres* (WMO-No. 636), was provided to Members. Several training events on use of GDPS products and a seminar on development of data-processing facilities at NMCs enhanced Members' capacity

building in that area. Congress was satisfied with the support given to GDPS capacity building through the WWW System Support Activity programme, which was mainly directed to the ACMAD Demonstration Project, several developing NMCs, roving experts' visits, and technical studies on development in data processing. With the increasing power and falling cost of workstations, the implementation and operation of limited domain local NWP models was becoming a viable option for many developing NMCs. It was noted with appreciation that a number of countries had benefited from that development as some major centres (the National Centres for Environmental Prediction and the German Meteorological Services) had made available their workstation versions of such models for implementation at various NMSs, research institutes and universities. Furthermore, the ALADIN model, developed within an international project coordinated by *Météo-France*, was in operational use in the 14 participating countries. It was further noted that France had offered to assist regional centres and NMHSs in Africa in coordinating NWP research, development and operational implementation activities. Congress fully supported WWW activities to assist Members in their plans to acquire NWP capabilities and to organize relevant training measures. In order to assure sustainability of such efforts, NMCs concerned should establish a bilateral collaboration with a centre that already had the capacity to run such NWP models.

#### WWW DATA MANAGEMENT

3.1.0.34 Congress noted the progress that had been made in implementing WWW DM functions. The DDBs operated on a trial basis for approximately three years and CBS-Ext.(98) had agreed that the trial successfully demonstrated the concept and that further operation of a formal trial was no longer necessary. Most of the functions envisioned for the WMO DDBs had been implemented by many centres and Members using those services reported that the offered data and products, particularly long range outlooks and climate forecasts, had made important contributions to their operations. Congress supported further development and implementation of the DDBs.

3.1.0.35 Congress was pleased that CBS had taken steps to review the procedures for monitoring the operation of the WWW and for developing an integrated monitoring plan. Noting that automated monitoring of data quality by designated lead centres had provided valuable feedback to Members, Congress agreed that CBS should continue to improve procedures to monitor the operation of the basic systems. It noted that an increased emphasis on automation could lead to detection of missing data and products quickly enough so that requests for retransmission could be made in real-time.

3.1.0.36 Congress noted that the exchange of software between Members had been facilitated through the CBS Software Registry. Congress agreed that it was important for encoding/decoding software for BUFR, CREX and the new edition of GRIB to be developed, maintained, and made available to all interested users. It strongly urged Members to consider hosting or providing resources to a software support centre for that purpose.

3.1.0.37 CBS had placed increased emphasis on service to, and coordination with, other WMO and related international programmes, and Congress noted that three Inter-programme Data Management Coordination Meetings were held over the past four years. Those meetings provided forums to coordinate the data management activities of all WMO technical commissions and related international programmes.

3.1.0.38 Congress noted that there had been numerous modifications and additions to the WMO codes and code tables in response to new and evolving requirements. A new code form FM 14 SYNOP MOBIL was approved and a new table-driven character code FM 95 CREX had been recommended for operational use beginning in May 2000. In addition, work continued on the development of the next edition of GRIB, which would provide extended features for representation of all types of gridded data. A new Part C of the *Manual on Codes* (WMO-No. 306), called Common Features to Binary Codes and Table Driven Alphanumeric Codes, was also approved.

#### OPERATIONAL INFORMATION SERVICE

3.1.0.39 Congress recalled that the OIS had as its objective the collection from, and distribution to, Members and WWW centres of detailed and up-to-date information on facilities, services and products made available in the day-to-day operation of the WWW. Congress was pleased to note that the OIS had undergone a major reconstruction during the twelfth financial period which had resulted in improved data availability, timeliness of distribution and provision of additional information to Members. The capability now existed to maintain and update the data on a near-real-time basis and to provide much greater flexibility for dissemination of the publications produced under the OIS via the Internet, the expanded diskette service and printed editions.

3.1.0.40 Concluding its discussion on the WWW, Congress reaffirmed its importance as the basic programme of the Organization and agreed that its further development should continue to have the highest priority. It noted the pertinent proposal made by the fiftieth session of the Executive Council to consider a positive adjustment to the financial resources to be allocated to the WWW Programme and addressed that issue under agenda item 8. Congress adopted Resolution 2 (Cg-XIII).

#### RADIO FREQUENCIES FOR METEOROLOGICAL ACTIVITIES

3.1.0.41 Congress noted that the 1995 and 1997 World Radiocommunication Conferences had decided new regulatory provisions to meet frequency requirements for meteorological and Earth-exploration satellites (including space-borne remote sensing), and for wind profiler radars. Existing radio frequency allocations to meteorological aids and satellites had not been reduced and Congress expressed its appreciation for the active participation of WMO, including CBS, NMHSs and the WMO Secretariat, which ensured that meteorological frequency issues had been recognized and supported.

3.1.0.42 Congress was concerned, however, that the development of new radio-communication systems of the

mobile satellite service was exerting pressure for new frequency allocation below 3 GHz, and that the threat to the radio-frequency bands allocated to meteorological aids and satellites would continue at least until the next World Radiocommunication Conference (2000).

3.1.0.43 Congress stressed that any reduction of frequency bands 401–406 MHz and 1675–1690 MHz for the meteorological aids service would cause a significant increase in the operational costs of radiosonde networks. In view of the considerable difficulties already experienced by many Members, in particular developing countries, in meeting upper-air observation requirements, any cost increase would have a detrimental impact on the already weak upper-air observation network. Congress also stressed the crucial importance for current and future meteorological operations of the frequency bands 401–403 MHz and 1670–1710 MHz allocated to the meteorological satellite service.

3.1.0.44 Congress strongly urged Members to participate actively in the preparatory activities for World Radiocommunication Conference issues conducted by their national telecommunication administrations, by regional radio-frequency management organizations (the European Conference of Postal and Telecommunications Administrations (CEPT) for Europe, the Asia-Pacific Telecommunity (APT) for Asia-Pacific, the Inter-American Telecommunication Commission (CITEL) for the Americas, the Pan-African Telecommunications Union (PATU) and the Arab League for Africa and the Middle East), and by ITU. It urged Members to involve experts from their Meteorological Services in the work of the ITU Radiocommunication Sector (ITU-R), especially ITU-R Study Group 7 on Science Services and Conference Preparatory Meetings. It requested the Secretary-General to continue the active role of the Secretariat in coordinating and supporting radio-frequency activities. Congress re-affirmed the prime importance of radio-frequency matters for meteorological operations and research, and adopted Resolution 3 (Cg-XIII).

#### 3.1.1 INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME; THE REPORT OF THE PRESIDENT OF CIMO (agenda item 3.1.1)

3.1.1.1 Congress noted with appreciation the report of the president of CIMO on the work accomplished within IMOP. It was stressed that IMOP was of fundamental importance for ensuring the quality of meteorological data essential to the Organization's operational and research activities. Congress urged Members to continue to participate actively in the work of the Commission and to support the implementation of IMOP.

3.1.1.2 Congress was satisfied that much of the work planned within IMOP had been completed or had reached an advanced stage and that many of the results of the work were documented in several publications issued by WMO in the Instruments and Observing Methods Reports series. It appreciated that the sixth edition of the *Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8) was finished and distributed in the four languages to Members. It urged Members to support the future updating of the *Guide* through the provision of expertise.

3.1.1.3 Congress was pleased to note that the technical conference TECO-98 and the exhibition of meteorological equipment and systems, METEOREX-98, conjointly organized with the twelfth session of CIMO in Casablanca, Morocco, in 1998 was very successful. Congress underlined the importance of such technical conferences as a means of exchanging technical information and experience and of facilitating technology transfer and capacity building. In addition to that, it was emphasized that exhibitions provided a unique opportunity for direct contact of instrument specialists with designers and manufacturers of meteorological instruments. In that connection, Congress was pleased to note the offer of China to host TECO-2000 and METEOREX-2000. Congress urged Members and the Secretary-General to continue supporting the organization of, and the attendance at, such conferences within the available resources.

3.1.1.4 Congress noted with appreciation that the collaboration of WMO with manufacturers and suppliers of instruments and equipment had been enhanced, especially in fields where immediate actions were needed, such as the cessation of the Omega radionavigational system. Congress underlined that that collaboration could lead to better and more cost effective equipment and concluded that WMO, especially through CIMO, should continue efforts to enhance that collaboration such as in the field of education and training involving manufacturers prior to the installation of equipment. Congress invited the Secretary-General to develop measures in that regard.

3.1.1.5 The results of the comprehensive programme of intercomparisons of instruments and observation systems were also noted with satisfaction. As such intercomparisons were essential for ensuring the long-term quality and homogeneity of data, Congress agreed that those activities should continue. Congress also urged Members to calibrate regularly their instruments to achieve reliable datasets. Congress noted with concern those reports of Members with problems related to the use and reliability of GPS-based radiosondes.

3.1.1.6 All Regions had established RICs that were now available for calibration of national standard instruments and were supporting or holding training workshops. Congress emphasized the need to strengthen the capacity building role of RICs, which was seen as an important component for the sustained maintenance and operation of meteorological and environmental instrumentation in developing countries.

3.1.1.7 Congress underscored the importance of training instrument specialists and technicians as a prerequisite for high quality observational data and encouraged Members to arrange for such training through national and regional training programmes as required.

3.1.1.8 Congress noted with interest the activities of the Commission related to capacity building through the nomination of a rapporteur in that field. It also recognized that all Regional Association Rapporteurs on Regional Aspects of Instrument Development, Related Training and Capacity Building had been nominated to provide information on regional requirements related to IMOP and to support the development of endogenous capacities

within developing countries. Congress was pleased to note that according to a proposal of CIMO-XII, China was in the process of developing and issuing an Instrument Catalogue aimed at providing an overview of meteorological/environmental instruments and their performance.

3.1.1.9 Congress stressed the need for continued collaboration of CIMO with other technical commissions and bodies inside and outside WMO in the field of instrumentation and methods of observation, including ISO. Congress urged Members, through their national standards bodies, to participate actively in the development of standards for meteorological instruments, methods of measurements and calibration of instruments and to prevent the development of standards, especially by regional standardization bodies, which might not be consistent with WMO recommendations. It also underlined the continued close liaison with ITU in the field of radio-frequency allocations for direct and indirect sounding of the atmosphere.

3.1.1.10 Congress adopted Resolution 4 (Cg-XIII).

### 3.1.2 WMO SATELLITE ACTIVITIES (agenda item 3.1.2)

3.1.2.1 The report on the status of the WMO satellite activities was noted with appreciation. With regard to the 4LTP goals for WMO satellite activities, Congress agreed that they had been achieved.

3.1.2.2 Congress expressed its appreciation to those Members actively engaged in operational satellite programmes and noted with satisfaction the following events and activities since Twelfth Congress:

- (a) The systematic launching and operation of satellite systems within the space-based subsystem of the GOS based on WMO contingency requirements;
- (b) The further expansion of the ground segments for satellites; there were now more than 8 500 ground stations located in over 188 different countries including over 1 170 in NMHSs that received direct environmental broadcasts from satellites. Over 157 WMO Members had reached the WWW implementation goal of at least a polar-orbiting and a geostationary satellite receiver, an improvement of 33 per cent since Twelfth Congress;
- (c) The increased use of satellite data and products in research, climate and environmental monitoring, and all aspects of meteorology and operational hydrology, in particular analyses, nowcasting, very short-range, medium and long-range forecasting;
- (d) The pivotal role to be played by satellite data and products in meeting user requirements to design an improved GOS and in developing an IGOS;
- (e) The increased attention given to satellite technology in WMO training activities as evidenced by the WMO Strategy for Education and Training in Satellite Matters. The Strategy depended on the co-sponsorship of specialized centres of excellence in satellite matters by satellite operators. More than 300 participants had benefited from WMO and satellite operator sponsored training events in satellite meteorology and hydrology, a 50 per cent increase since Twelfth Congress.

3.1.2.3 Congress urged Members to utilize home pages and the Internet as one means of communication on satellite

system status, data dissemination, distribution of training materials and coordination of science activity.

3.1.2.4 Congress noted with pleasure the large impact already resulting from the implementation of the WMO Strategy for Education and Training in Satellite Matters. The Strategy had been especially successful in RA I through the efforts of EUMETSAT and their plans to hold two training events per year. Congress recognized the importance of training in the area of the use of satellite data and products and it suggested that at least one satellite training event should be conducted in each Region during the next financial period. Congress recalled that pivotal to the success of the WMO Strategy for Education and Training in Satellite Matters was the co-sponsorship of a specialized RMTc by a satellite operator. It noted that EUMETSAT was co-sponsoring the RMTcs in Nairobi and Niamey, while the United States was co-sponsoring the RMTcs in Barbados and Costa Rica. Congress was pleased to receive an offer by China as a satellite operator of the FY-1 and FY-2 series to co-sponsor the RMTc in Nanjing. It also recalled that the Japan Meteorological Agency, the Australian Bureau of Meteorology and WMO had co-sponsored the Asia-Pacific Satellite Applications Training Seminar in November 1996 in Melbourne Australia. The Japan Meteorological Agency indicated a willingness to continue to support similar training seminars and to participate actively in the seminars by sending lecturers as well as by providing training materials. Congress also suggested that WMO discuss with the satellite operators the need to develop an overarching approach for education and training. Such an approach should take into account future needs in response to new and emerging satellite systems, data and products. Congress also noted the need for specialized training in the use of Meteosat data, products and services for the benefit of NMHSs of central Asia and the Caspian and Aral Sea regions.

3.1.2.5 Congress noted the extensive increase in the applications of satellite technology including those documented in the biennial publication of the Application of Satellite Technology series. The publication provided an excellent means for WMO Members to share their experiences with a goal towards improving the utilization of satellite data. It also strongly supported the use of the WMO satellite activities home pages (<http://www.wmo.ch> then select satellite) as a means to make available and distribute publications and technical documents related to satellite matters.

3.1.2.6 Congress recognized the need to ensure the continuing operation of the environmental satellite systems. It recalled that a Statement of WMO Requirements for Continuity of the Space-based Subsystem of the GOS had been developed and agreed upon. Congress was pleased to note the role of the satellite operators within the CGMS which had accepted that Statement as forming the basis for their contingency planning. Since Twelfth Congress, EUMETSAT and NOAA/NESDIS had signed a long-term back-up agreement which entered into force and now provided a clear contingency plan for the western longitudes. Furthermore, Congress noted that at the twenty-sixth session of CGMS in 1998, Japan and China had agreed to study the possibilities for back-up of product generation and

India had agreed to study possibilities for supporting the CGMS principles on regional contingency.

3.1.2.7 Congress appealed to Members concerned to maintain their environmental satellite systems, thus ensuring the continuity of WMO Programmes. It urged Members concerned to develop, maintain, and operate the polar-orbiting satellite systems consisting of the METEOR-2/3 and 3M series (Russian Federation) satellites, the NOAA series (United States), the EPS METOP series and the FY-1 series from China. A similar appeal was made for the continuation by Members concerned for geostationary satellites operating at their present positions by EUMETSAT, China, Japan, the Russian Federation and the United States.

3.1.2.8 Congress noted with pleasure the launch by China of the polar-orbiting meteorological satellite FY-1C on 10 May 1999. FY-1C was the third polar-orbiting satellite in the FY-1 series and the fourth meteorological satellite to be launched by China. Data from the FY-1C was available to all WMO Members through its direct broadcast service. Ephemeris data were distributed using the TBUS code on the GTS.

3.1.2.9 Congress was informed of the plans for future satellite systems by EUMETSAT, China, India, Japan, the Republic of Korea, the Russian Federation and the United States. It expressed its deep appreciation to WMO Members who had made plans and financial commitments towards continuing and further expanding the capabilities of the space-based GOS. In particular, it noted EUMETSAT's firm plans for the Meteosat second generation satellites, the polar-orbiting satellites (EPS) with meteorological and climate-related payloads, the United States's plans for their next generation polar-orbiting satellites (NPOESS), India's plans to continue their INSAT-II series as well as their polar-orbiting satellite series, Japan's planned launch of their multi-purpose satellite (MTSAT-1) in the summer of 1999 jointly with the Civil Aviation Bureau of the Ministry of Transport which would provide new LRIT service starting in March 2000, and the Republic of Korea's plan to launch a multi-purpose satellite in 2002. MTSAT would introduce the LRIT system to disseminate digital image data to small-scale data utilization stations and high resolution imager data to medium-scale data utilization stations. Those systems would carry grid point values from NWP and meteorological observation data in addition to the image data. The present analogue facsimile service (WEFAX) would be continued until March 2003. That overlap period would enable users to convert smoothly from WEFAX to the new LRIT system. Congress was pleased to note that the future plans of the satellite operators were updated and made available on the WMO Satellite Activities Home Page on a regular basis.

3.1.2.10 With regard to adequate coverage over the data-sparse Indian Ocean, Congress noted the placement of METEOSAT-5 in support of the Indian Ocean Experiment by EUMETSAT. It recalled that CBS-Ext.(98) and the twelfth session of RA I had both strongly urged the permanent continuation of a satellite over the Indian Ocean by EUMETSAT. Congress noted that the location of METEOSAT-5 at approximately 63°E was also of great importance to NMHS of Newly Independent States of eastern Europe, Central Asia and the Caspian and Aral Seas regions, not only

for the reception of digital and MDD information but also for the retransmission of the DCP data collected from automatic stations. Accordingly, it strongly urged that EUMETSAT continue covering, on a permanent basis, the Indian Ocean at approximately 65°E.

3.1.2.11 Congress acknowledged with appreciation the activities undertaken by the Secretary-General in assisting WMO Members in their preparations for the APT/WEFAX to LRPT/LRIT conversion. Congress noted that during 1996–1999, WMO Members had been informed of activities undertaken to assist them before, during and after the conversion period. Congress expressed with appreciation the extensive use of the WMO Home Page on Internet to facilitate notification.

3.1.2.12 Congress emphasized the importance and urgency of WMO assisting Members to participate in the World Radio Conference in order to safeguard the frequency bands allocated to the meteorological satellite service for ensuring current and future meteorological operations (see agenda item 3.1.0 and Resolution 3 (Cg-XIII)).

3.1.2.13 Congress noted that the present low-resolution analogue services from polar-orbiting and geostationary meteorological satellites would change to digital services starting in 2000 when Japan's new MTSAT-1 achieved operational status and commenced simultaneous broadcast of both WEFAX and LRIT. LRPT would replace APT and LRIT would replace WEFAX.

3.1.2.14 Congress noted the WMO activities in the development of an IGOS as well as its cooperative efforts with those of CEOS in that area. It thanked the Secretary-General for his initiatives to date in the development of an IGOS and requested that he continue a strong WMO leadership role in the further development and implementation of an IGOS that would meet the requirements of all WMO Programmes and WMO-supported programmes.

3.1.2.15 Congress agreed that the development of the IGOS was one that merited the dedicated and full support of WMO. That would include:

- (a) The contributions of the WWW operational components such as the RBSNs and other sources of basic meteorological and hydrological data in support of all WMO Programmes;
- (b) The need to standardize data management and data bases;
- (c) The necessity to provide readily-available data and products to all NMHSs for the many varied applications.

3.1.2.16 Congress agreed that WMO, as an IGOS partner, should play a leading role in defining and operating the atmospheric component while, at the same time, stating requirements for oceanographic observations as they became increasingly important for numerical modelling including NWP (see agenda item 3.1.0).

3.1.2.17 Congress noted that CBS at its extraordinary session held in Karlsruhe, Germany in 1998 established an OPAG for Integrated Observing System to address a redesign of the GOS including technical issues related to environmental observation satellite systems. CBS, in recognizing that there would be a continued increase in environmental satellite systems and their applications

throughout WMO Programmes, noted that the OPAG for Integrated Observing System would address specific implementation and technical satellite-related issues. Furthermore, it was recognized that many environmental satellite missions (e.g. ERS, TOPEX-POSEIDON, TRMM, SPOT, etc.) did not exclusively or directly support the space-based subsystem of the WWW's GOS, but did provide significant support to many WMO Programmes. As a result, there was a potential need for WMO to hold discussions with operators of environmental satellites to address policy and important funding issues. In addition, Congress was informed that the satellite operator members of CGMS requested the President of WMO to consider, within the structure of WMO, a suitable mechanism to address policy-level issues regarding present and future environmental satellite programmes. Congress agreed that, because of the long-term nature of most issues and the expected large investments required, a dialogue would be mutually beneficial between WMO and the operators of environmental satellites. Therefore, Congress requested the Executive Council to consider arranging for a dialogue early in the next financial period by a grouping of appropriate agencies that operated environmental satellites.

### 3.1.3 TROPICAL CYCLONE PROGRAMME (agenda item 3.1.3)

3.1.3.1 Congress noted that the TCP activities defined under the 4LTP, had been implemented in compliance with the WMO Plan of Action for the IDNDR. Congress also noted with satisfaction the achievements and progress accomplished in both the supraregional and the regional components of the TCP since Twelfth Congress.

3.1.3.2 An important aspect of the TCP continued to be the training of tropical cyclone forecasters, which was essential for a sustained augmentation of the tropical cyclone warning services provided to the public by NMHSs. To that effect, Congress agreed to support training of such forecasters, mainly in the form of dedicated courses and workshops, and forecaster training attachments to tropical cyclone RSMCs. Specifically, forecasters of SIDS in the tropical cyclone basins were seen as a priority target group, in accordance with decisions of the United Nations Commission on Sustainable Development. Congress welcomed therefore the continuation of co-sponsorship by WMO for the Southern Hemisphere Training Courses on Tropical Cyclones organized by the Australian Bureau of Meteorology in cooperation with WMO. It also expressed its appreciation for other TCP-related training activities provided during the current financial period at all tropical cyclone RSMCs and by TCP Members, such as the Tropical Desks in the United States and Canada and training events in China and the Republic of Korea, and it invited continuation of such activities.

3.1.3.3 Congress noted with satisfaction the fruitful cooperation and collaboration that existed between the TCP and the PWS Programme, with a common aim to assist Members to improve their provision of support for safety of life and property. It requested the Secretary-General to plan regional workshops on modern techniques of tropical cyclone forecasting and warning and skills for interaction



with the media, with special focus on operational forecaster responsibilities during tropical cyclone events. Those workshops should be organized in conjunction with regular sessions of the tropical cyclone regional bodies or planned TCP training workshops for tropical cyclone forecasters, whenever possible.

3.1.3.4 Congress affirmed the decision of the fiftieth session of the Executive Council concerning WMO participation in the joint efforts of international organizations for the elaboration of an overall project proposal entitled "Project Proposal on Storm Surge Disaster Reduction for the Northern Part of the Indian Ocean". It appealed to potential funding institutions to support the project proposal to the fullest extent possible.

3.1.3.5 Noting the need for further and continued coordination, Congress agreed on the continuation of the series of technical coordination meetings among the five tropical cyclone RSMCs with regard to their role, function and responsibility, and to technical matters of common interest, including terminology. It requested that the meetings should be scheduled to maximize the flow of information to constituent bodies.

3.1.3.6 Congress recalled the success of the Typhoon Operational Experiment and the Special Equipment Concerning Typhoon Recurvature and Unusual Movement of the Typhoon Committee under the TCP. It recognized the importance of scientific research on various aspects of tropical cyclones, including genesis, intensity, structure and motion. Congress encouraged continued close collaboration between the TCP and CAS, including the Tropical Meteorology Research Programme, and requested the provision to Members of scientifically-based guidance material on subjects such as scientific assessment of climate change effects on tropical cyclones and the influence of ENSO on tropical cyclones. It expressed its appreciation to the NMHSs operating global centres which provided global model-based forecast guidance to tropical cyclone RSMCs and regional Tropical Cyclone Warning Centres on tropical cyclone movement and intensity.

3.1.3.7 Congress urged Members to upgrade their capabilities, where necessary, to provide better tropical cyclone forecasts and more effective warnings, and encouraged them to establish or strengthen national disaster prevention and preparedness measures. Congress commended the work of the five regional tropical cyclone bodies and five tropical cyclone RSMCs which was described in the respective Technical Plans and Operational Plans/Manual. It supported the cooperation between Members concerning exchange of information on bathymetric data to facilitate the development of numerical storm surge models. Also, it recognized the importance of meteorological observational data from areas outside of the areas of tropical cyclone disasters, but which were needed for detection, analysis and forecasting of tropical cyclones. Congress noted with great interest the significant partnership of the Samoa Meteorological Service, RSMC Nadi, the United States National Weather Service Pacific Region, SPREP and the European Union Cyclone Warning System Upgrade Project in the development of historic tropical cyclone advisory agreements for Samoa and

American Samoa. It suggested that those arrangements could be used as an example for others regarding regional cooperation and national capacity building. However, it noted that the tropical cyclone forecasting and warning services of some Members, even with recent modest improvements, were still inadequate. That was of particular concern, and Congress agreed that the regional bodies should give greater attention to capacity building aspects. Congress noted that there was a need for development of partnerships to provide the assistance required to implement items effectively in their Technical Plans which could not be funded nationally. It strongly appealed to financial institutions and donor Members to provide support as needed to implement such items fully within a reasonable time-frame.

3.1.3.8 In order to contribute substantially to the follow-up activities to the IDNDR (post-decade) and, in particular, to the sustainable development of developing States, including SIDS, Congress decided that the TCP should be accorded very high priority under Programme 1.8 of the 5LTP. Accordingly it adopted Resolution 5 (Cg-XIII).

#### 3.1.4 EMERGENCY RESPONSE ACTIVITIES (agenda item 3.1.4)

3.1.4.1 Congress was very pleased with the successful development of the programme and its achievements. It recognized the important role of the designated RSMCs with activity specialization in the provision of transport model output and expressed its appreciation to those Members who dedicated resources to maintaining a state of readiness in their RSMCs for the coordinated generation and distribution of the agreed products in case of a nuclear/radiological emergency. Congress also recognized the essential cooperation that existed between the IAEA and WMO with respect to the global coordination of the emergency response arrangements and procedures.

3.1.4.2 Congress noted with satisfaction that, resulting from a series of exercises organized by WMO or OECD and several WMO/IAEA expert meetings, the regional and global arrangements for the provision of transport model products for environmental emergency response and standards in the provision of international services by RSMCs had been further updated and refined. Congress fully supported the recommendations of CBS that NMS Operational Contacts should have a continuing dialogue with IAEA Contact Points on the use and impact of RSMC products in the event of an emergency, the establishment of local procedures for consultation and the exchange of relevant information, as well as the activation of enhanced observational requirements including those generated in the vicinity of nuclear plant sites. Congress also confirmed the value of periodic, internationally-coordinated exercises for keeping the emergency response procedures for nuclear accidents up-to-date and reliable. It further supported the CBS-Ext.(98) recommendation that taking into account RSMC's experience in responding to large-scale fires in 1997-1998 in South-East Asia, there was a potential to broaden the scope of the environmental emergency response procedures to include arrangements for meteorological support in case of non-nuclear environmental emergencies. In

implementing the expanded scope, emphasis should be given to:

- (a) CBS and CAS closely collaborating in developing appropriate models and associated verification methodologies;
- (b) Developing and implementing, in cooperation with the GAW programme, observational means and facilities such as remote sensing techniques for detection and location of non-nuclear incidents such as forest fires, locusts, etc.;
- (c) Focusing on building national capacities for the provision of transport model products on the basis of limited area models using workstation technology, and linkage to national authorities on emergency preparedness and response;
- (d) Provision of advice and training on the establishment of suitable national arrangements for emergency response.

3.1.4.3 Congress noted with appreciation that CBS had addressed issues of definition of requirements concerning chemical incidents focussing on data (meteorological and incident related), tools including models and related facilities, expertise required and role of NMSs, and interface between NMSs and other emergency response agencies at the national and regional level. It also noted that further work within CBS was planned to develop guidance to NMSs addressing specific chemical incident response issues. Congress noted the need for linkage with UNEP, especially its Awareness and Preparedness for Emergencies at Local Level (APELL) Programme which promoted a process for responding to technological accidents.

3.1.4.4 With regard to meteorological support and other collaboration activities with the CTBTO, Congress, noting the mutual benefit that could be drawn from their respective activities, supported the CBS recommendation on cooperation between WMO and CTBTO in areas related to meteorological measurements and transport modelling by keeping each other informed on their respective activities in those matters.

3.1.4.5 Congress noted with satisfaction that in order to facilitate capacity building at NMSs/RSMCs, technical support was provided to developing centres and guidance was developed, published and distributed to Members and two training events on emergency response activities were organized with participation covering all regions. In addition, to assure readiness of operational systems at RSMCs/NMSs three global exercises and several regional and national exercises were conducted. In those WMO Regions without the full complement of at least two designated RSMCs, it was noted that an important ongoing activity was the capacity building of NMSs with a view to the further potential enhancement of the network of designated RSMCs. Congress emphasized the urgent need for all regional centres, NMHSs and associated agencies contact points to focus their energies on assuring that their operational systems were Y2K compliant. Congress emphasized the need to maintain and, where appropriate, enhance those activities in the thirteenth financial period.

3.1.4.6 Congress noted that collaboration with other relevant organizations would be further explored and pursued. Those might include, among others, IAEA, ILO,

OECD, UNEP, UN/OCHA and WHO, as well as the United Nations Inter-agency Coordination Group for Chemical Accidents, led by OECD.

### 3.1.5 WMO ANTARCTIC ACTIVITIES (agenda item 3.1.5)

3.1.5.1 Congress noted with appreciation the work of the Executive Council through its Working Group on Antarctic Meteorology in coordinating the meteorological programmes in the Antarctic. It also noted that, despite the hostile conditions and the problem of logistics, the Antarctic Basic Synoptic Network had been well implemented and the number of reports received at the MTN centres was close to the global average. Congress was pleased to note that in Antarctica, all Omega-based upper-air systems had been replaced by the GPS-based systems and expressed its gratitude to the Members concerned for the active implementation of their meteorological programmes in the Antarctic.

3.1.5.2 Congress confirmed that cooperation between WMO and other international organizations related to the Antarctic, such as the Antarctic Treaty Consultative Meeting, SCAR, the Council of Managers of National Antarctic Programmes and IOC, had been very fruitful and should be continued. Congress supported the initiative of the Antarctic Treaty Consultative Meeting to prepare a "State of the Antarctic Environment Report" which would serve as a "current account" of the state of the Antarctic environment — acting as an alerting mechanism for emerging problems as well as providing a basis for environmental monitoring activities. Noting that SCAR had recently developed a possible framework for the report, Congress recommended to Members to provide their input to that report.

3.1.5.3 Congress noted the new SCAR initiative to establish a project "Reference Antarctic Data for Environmental Research (READER)" with the goal of producing climatological fields of key variables such as near-surface temperature, wind velocity, long-wave radiation, etc. for Antarctica. Recognizing the high value of such a project for climate research in the Antarctic as well as for meteorological services for marine and air navigation and logistic operations, Congress urged Members to support the new SCAR initiative and to assist in implementing the proposed project.

3.1.5.4 Congress noted with satisfaction that the International Symposium on Operational Weather Forecasting in Antarctica (Hobart, Australia, 31 August–3 September 1998), organized by the Bureau of Meteorology and co-sponsored by WMO had provided substantial results. The symposium proposed to develop an Antarctic weather forecasting handbook. Congress fully supported the preparation of such a handbook under the auspices of WMO and requested the Executive Council to take appropriate action in that regard through its Working Group on Antarctic Meteorology.

3.1.5.5 Congress stressed that the increasing importance of Antarctic data to the study of global climate and environmental issues emphasized the critical value of strong integrated observing in the Antarctic. It was pleased to note that all Antarctic upper-air stations and most of the manned surface stations were included in the GCOS upper-air or

surface networks, and they provided a substantial contribution to the GCOS datasets. Congress also noted with satisfaction that the first version of the *Catalogue of Antarctic Climate Data* based on contributions provided by eight Members was prepared in January 1996. That *Catalogue* would be a valuable resource in research on the interpretation of proxy climate records from the Antarctic ice sheet and from sedimentary records. The climate data would also constitute an important contribution to assessment of the Antarctic environment. Noting that the electronic version of the *Catalogue* was under preparation, Congress urged Members, particularly those who had long-term records of Antarctic meteorological data to provide their contribution to the *Catalogue*.

3.1.5.6 Congress also stressed the vital importance of maintaining and, where possible, of strengthening ozone monitoring because of its critical link to the global environment. Congress urged Members concerned to expand ozone observations where possible and to make ancillary observations of ozone-related chemical compounds, stratospheric clouds, aerosols and spectral radiation measurements. Congress encouraged Members to provide ozone data to WMO in near-real-time during the August-December period, and thereafter to deposit complete sets of observations on ozone and ultraviolet to the WMO WO<sub>3</sub>DC Toronto.

3.1.5.7 In view of the importance of WMO Antarctic activities for meteorological services in support of marine and air navigation as well as for climate research and prediction, Congress decided that Resolution 6 (Cg-XII) — WMO Antarctic activities, was to be kept in force.

## 3.2 WORLD CLIMATE PROGRAMME (agenda item 3.2)

### 3.2.0 WORLD CLIMATE PROGRAMME; THE REPORT OF THE PRESIDENT OF CCI (agenda item 3.2.0)

3.2.0.1 Congress noted with appreciation the report of the president of CCI on its activities since Twelfth Congress. It welcomed the contribution by CCI to identifying priority areas for the implementation of WCDMP, WCASP (including the CLIPS project), and other WMO climate-related activities, and urged Members to continue attaching high priority to climate-related work and services in Member countries, in various socio-economic sectors.

3.2.0.2 In assessing the overall priorities for WMO within WCP and under the framework of the Climate Agenda, Congress noted the increasing relevance and importance to Members of GCOS and CLIPS. Congress agreed that those two relatively new activities were critical to Members with respect to emerging obligations for them to respond to the environmentally-related conventions and to take advantage of recent progress in understanding and predicting climate variability on seasonal to interannual time-scales. Congress further agreed that it was necessary to examine carefully the number and scope of activities being proposed under each component of the Programme in order to identify where savings could be made to provide additional regular budget resources for those high priority areas. At the same time, Congress recognized the continuing need for resources beyond the regular budget to support the wide range of activities that it was appropriate for WMO to engage in with respect to climate and environmental

matters. Accordingly, Congress urged those Members with the capacity to do so, to continue to contribute to the trust funds that had been established by WMO for that purpose.

3.2.0.3 Congress particularly appreciated the Commission's contributions and activities within the CLIPS project, such as the organization of expert meetings, special fact-finding missions to Member countries, capacity building and training events, demonstration and pilot projects, and liaison with the climate research and user communities. Congress also expressed satisfaction with the expansion of CLIPS activities through the agricultural component known as Climate Prediction for Agriculture (CLIMAG). The CLIMAG model was seen as a proof-of-concept for inter-agency cooperation that should provide guidance for similar cooperative efforts in areas such as climate and human health, climate and water resources and climate and human habitation. Congress further noted the positive implications of the additional areas of focus (CLIPS for fisheries, and climate and building codes) proposed by the president of CCI.

3.2.0.4 In particular, Congress noted the contribution of Climate Outlook Forum for having achieved considerable gains for Members through the multidisciplinary work in producing, disseminating and applying climate information and forecasts through adaptive and mitigative actions in many regions during the intense 1997–1999 *El Niño/La Niña*.

3.2.0.5 Congress noted that IACCA had been established and had assumed the inter-agency advisory functions of the Advisory Committee on Climate Applications and Data. Congress agreed that the regular Meetings of the Presidents of Technical Commissions provided a satisfactory forum for the internal coordination functions that had been conducted through the Advisory Committee. Congress also agreed that the CCI Advisory Working Group should continue to provide the necessary scientific and technical guidance for the WCDMP and WCASP.

3.2.0.6 Congress noted the request of the forty-ninth session of the Executive Council that CCI “help clarify those aspects of Resolution 40 (Cg-XII) pertaining to climate data and products” (general summary paragraph 12.1.19 of the *Abridged Final Report with Resolutions of the Forty-ninth Session of the Executive Council* (WMO-No. 867)) taking into consideration the development of GCOS, the requirements for climate data and products for IPCC assessments, and negotiations on the implementation of the UN/FCCC. In that regard, Congress noted with appreciation the work of the CCI task team established in response to that request and considered that that work had contributed substantially to making decisions on the exchange of climate data and products.

3.2.0.7 Congress noted with appreciation the decision of CCI-XII to establish a Joint Working Group on Climate Change Detection between CCI and the CLIVAR, and considered that decision as an indication of the strengthening of the important link between CCI and CLIVAR.

3.2.0.8 Congress noted progress made in the preparation of the *Guide to Climatological Practices* (WMO-No. 100) and urged the Commission to complete that work in the near future.

3.2.0.9 Congress shared the CCI concern on the shrinking of the meteorological networks noting in particular the decreasing number of Climate Reference Stations. Congress endorsed the CCI efforts to promote greater attention of Members to the maintenance of networks and the necessity of keeping a homogenized series of data when shifting to automated systems of data measurement. In that regard, Congress urged Members to maintain a suitable period of parallel observations to ensure a homogeneous historical climate record at the site, particularly for reference climatological stations, including those in the GCOS surface and upper-air networks. Congress also emphasized the need for data of the highest quality and precision for research, monitoring, prediction and application of climate information. Congress therefore requested the Secretary-General to initiate preparation of a plan of action to address those needs.

3.2.0.10 Congress noted with appreciation the actions that had improved climate system monitoring. Congress commended CCI on the cost-saving steps it had initiated, and encouraged the Secretary-General to find ways to employ increasingly emerging technologies to provide greater opportunities for information exchange while limiting costs. Furthermore, it requested the Secretary-General to advise Members on accessing through the Internet, a wide variety of climate system monitoring information such as the North Atlantic Oscillation and Tropical Atlantic and Caribbean sea surface temperatures.

3.2.0.11 Regarding the CLICOM project, Congress noted with appreciation the cooperative work by certain Members to enhance the existing software and expressed satisfaction with steps being taken to examine existing climate database management systems that could be adapted to meet the needs of those countries wanting a more advanced system than the current versions of CLICOM. Congress noted the importance of reliable climate archives and the role that CLICOM played in that regard for many Members, and stressed that existing CLICOM archives should be protected and should be accessible by new hardware and software systems. It also expressed its strong interest in the steps being taken to assist Members in identifying and replacing existing CLICOM hardware and software that might not be Y2K compliant, and urged Members to complete the necessary testing.

3.2.0.12 Congress noted with appreciation the publication *Climatological Normals (CLINO) for the Period 1961-1990* (WMO-No. 847), particularly as it supported a basic goal of WMO in promoting standardization of meteorological and related observations and statistics.

3.2.0.13 Congress noted the CCI project to study impacts of heat, stress and other extreme conditions on mortality and to develop improved mitigation responses by city health officials. Congress further noted that realization of the objectives of that project would involve three diverse components:

- (a) The establishment of correlations between mortality rates and temperature/humidity;
- (b) The prediction and distribution of appropriate severe weather warnings; and
- (c) The response of city health services to such heat events.

Congress considered that the project would be an ideal one for cross-programme coordination since each of its components involved professional groups in WMO and other programmes which could bring complementary skills to bear on the project; for example, warnings of extreme weather events, typically on a time-scale of one to seven days, formed an essential component of the PWS Programme. Congress recognized that in addition to CCI contributions to studies on urban climatology, potential contributions could be made by the WWRP and the PWS Programme among several others. Congress therefore requested that the president of CCI consult with the presidents of CBS and CAS to ensure that the appropriate cross-programme linkages were put in place for that project.

3.2.0.14 Noting the gradual development of a regional approach in providing support to the implementation of the CLICOM and CLIPS projects, Congress welcomed the intention of CCI to consider how the regional organization of work in the climate area should be expanded. In that regard, Congress strongly urged CCI to work in consultation with Members to clearly define the requirements, objectives and responsibilities of regional and global centres envisioned in an operational framework to support national climate services. Congress further emphasized the need to make full use of existing regional structures and institutions and to involve the regional associations and the existing external partners in the development of that concept. Congress emphasized that warning services should continue to be the purview of NMSs and that the role of regional centres or entities other than NMSs should be clearly identified.

### 3.2.1 COORDINATION ACTIVITIES WITHIN THE CLIMATE AGENDA (agenda item 3.2.1)

3.2.1.1 Congress noted the formation of IACCA and the fact that it had formally met three times. Congress was gratified to see that IACCA, at its second session, had recommended that activities carried out under the Climate Agenda needed to be well focussed yet had appeal that spanned the interests of several organizations and programmes. In that regard, it was pleased to note that IACCA had recommended three specific activities requiring a high level of cooperation among a number of agencies and programmes. Those were, to support a review of climate observing systems to underpin UN/FCCC, to carry out a review of the 1997-1998 *El Niño* event and to improve agency cooperation in the development of appropriate response actions to climate change and variability.

3.2.1.2 Congress was pleased to note the significant progress that had already been made in all three areas. A review of global climate observing systems was coordinated by the GCOS Secretariat and was submitted to the ninth session of SBSTA of the UN/FCCC. On the recommendations of SBSTA, the fourth Conference of the Parties to the UN/FCCC, held in Buenos Aires in November 1998, called for urgent actions to address the issues of declining networks and the inadequate observing infrastructure in many areas of the world, especially in developing countries. Congress strongly supported Decision 2/CP.4 — Additional guidance to the operating entity of the financial mechanism, with regard to provision of funding to developing countries to

build capacity for participation in systematic observational networks in support of UN/FCCC objectives. Congress commended the Secretary-General for his prompt action in bringing the actions required by the UN/FCCC decision to the attention of WMO Members, and more specifically in bringing to the attention of NMHSs the opportunities that Decision 14/CP.4 — Research and systematic observation, provided for improving climate observing networks. It urged NMHSs to cooperate with their respective national agencies with UN/FCCC responsibilities to ensure that the relevant information and national plans for improving observing systems were communicated to future sessions of SBSTA.

3.2.1.3 Congress was also pleased to see that a retrospective analysis of the 1997–1998 *El Niño* event had been initiated under the framework of IDNDR and carried out under the guidance of the United Nations Inter-agency Task Force on *El Niño*. WMO, with the collaboration of IOC of UNESCO and UNEP, had spearheaded the scientific and technical component of the retrospective, which culminated in the Guayaquil Declaration issued following the International Seminar on the 1997–1998 *El Niño* Event: Evaluation and Projections (Guayaquil, Ecuador, November 1998). Congress requested the Secretary-General to continue WMO's collaboration with its Climate Agenda partners on further analysis of that event and other impacts associated with the ENSO phenomenon, including the so-called cold phase entitled *La Niña*. Congress noted that, while subsequent analyses of the *El Niño/La Niña* events of 1997–1999, within the context of the United Nations Task Force, would expand on issues more related to socio-economic impacts, it was important for WMO to continue to serve the overall review process of climate-related impacts and disasters with sound scientific and technical advice. Sustained and improved skill in operational seasonal to interannual climate prediction would be an invaluable contribution in that regard. Congress was pleased to note in that regard that the fiftieth session of the Executive Council had approved the convening of a Conference on the 1997–1998 *El Niño* event for NMHSs of Regions III and IV, and suggested that other regional associations might consider supporting similar conferences. It expressed the view that enhanced regional cooperation among NMHSs would be very beneficial in building capacity in the provision of climate information and prediction. Congress further requested the Secretary-General to ensure that WMO's contribution to the United Nations system-wide response to United Nations General Assembly Resolution 52/200 — International cooperation to reduce the impacts of the *El Niño* phenomenon, was adequately reflected in reports to the next United Nations General Assembly through the 1999 substantive session of the Economic and Social Council.

3.2.1.4 Congress noted that developing appropriate international, national and community responses to climate change and variability was exceedingly complex, as evidenced by the intense deliberations at meetings associated with the definition and implementation of UN/FCCC. Many contentious issues were continuing to arise also at the meetings of bodies connected with other

environmentally-oriented conventions that had emerged from UNCED. Congress expressed confidence in the framework of the Climate Agenda in helping to identify the range of options that were open to countries at different stages of development in coping with the impacts of climate change and variability. It was pleased to note that funding mechanisms such as GEF and UNFIP were offering new opportunities for agencies to cooperate in combating environmental problems. It expressed the wish to see increased flexibility by those funding mechanisms with respect to proposals for adaptation approaches to climate variability and change. Congress was especially gratified to note the collaboration that existed between WMO, UNEP, the United Nations University and the United States National Center for Atmospheric Research in the implementation of an *El Niño*-related proposal funded under UNFIP. It urged the Secretary-General to explore further opportunities of that nature, recommending that high priorities be given to the development of collaborative projects in climate and human health, climate, food and agriculture and climate and fresh water resources. Harmony within those relationships was crucial to human survival and well being. The CLIPS project could provide an excellent focal point within the WMO Secretariat for developing collaboration with other agencies and programmes in those areas. Congress urged the Secretary-General to ensure that appropriate modalities within the Secretariat were established for that purpose.

3.2.1.5 Congress noted that in its most recent session in March 1999, IACCA had explored further opportunities in that regard, with particular reference to the CLIMAG Project, and requested the Secretary-General to confer with the Executive Heads of the major sponsoring agencies of the Climate Agenda to explore how similar cooperative efforts in areas such as climate and human health, climate and water resources and climate and human habitation might be developed.

3.2.1.6 Congress also noted the views on the possibility of convening a Third World Climate Conference and the difficulty in its scheduling given the already heavy programme of what had become routine, annual sessions of the various environmentally-related United Nations activities associated with sustainable development, drought and desertification and climate change. It noted the divided views expressed by the third session of IACCA on the opportunity that would be provided for staging such a conference to coincide with, or following the release of, the Third Assessment of IPCC to be completed in the 2000–2001 time-frame. None the less, Congress considered that a major Conference could be useful, especially if structured to demonstrate what contributions climate information and predictions could make to water, health, energy and agriculture issues. Congress requested the Secretary-General to identify objectives for such a conference and make a recommendation to the fifty-second session of the Executive Council.

3.2.1.7 Congress noted the very real benefits that had accrued through the synergy of cooperative activities within the Climate Agenda, through the concerted actions of IACCA, which worked to unify fragmented programmes,

reduce overlap and amplify agency and national budgets and activities. It expressed concern at the missed opportunities for inter-agency coordination resulting from a minimal application of resources by the sponsoring agencies of the Climate Agenda. It requested the Secretary-General as a matter of urgency to confer with the Executive Heads of the major sponsoring agencies of the Climate Agenda with the purpose of re-evaluating the overall mechanism for coordinating the implementation of the Climate Agenda and the options for establishing and supporting a small dedicated Secretariat, or alternatively, considering a different form of coordinating mechanism that might prove to be more effective than the current arrangements.

**3.2.2 SUPPORT TO CLIMATE CHANGE-RELATED ACTIVITIES, INCLUDING IPCC AND THE CONVENTIONS ON CLIMATE CHANGE, ON BIODIVERSITY AND ON DESERTIFICATION (agenda item 3.2.2)**

**REPORT OF THE CHAIRPERSON OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

3.2.2.1 Congress thanked the chairperson of the IPCC for his report. It commended the Panel on the timely completion of the Second Assessment Report, the Technical Papers and two Special Reports, and on the Guidelines for National Greenhouse Gas Inventories. It expressed its deep appreciation to the past chairperson, Professor B. Bolin, for his leadership of IPCC from 1988 to 1997.

3.2.2.2 Congress noted that many parts of the world were witnessing major floods leading to significant loss of life and economic damage. While individual heat-waves, floods, droughts and other extreme events could not be directly linked to human-induced climate change, in a warmer world the frequency and magnitude of those types of events were expected to increase in many regions, with significant adverse social and economic consequences, and with developing countries being the most vulnerable. It expressed the view that, as such, an independent IPCC was essential for providing objective scientific-technical assessments of available factual information on issues related to climate change which the Parties to the UN/FCCC and its Kyoto Protocol, and other interested entities, could use as a common basis to formulate national and international policy and to take other action on climate change. It urged the Panel to pay particular attention to the regional aspects of climate change in its assessments and to continue to promote the participation of experts from both developing countries and countries with economies in transition in all its activities.

3.2.2.3 Congress also commended the productive joint sponsorship of the Panel by the Organization and UNEP. It noted the continuing work programme of the Panel and urged Governments and organizations to increase their support for the Panel's work.

3.2.2.4 In that connection, Congress adopted Resolution 6 (Cg-XIII).

3.2.2.5 Congress expressed its support for WMO's active involvement in climate change-related activities under the Conventions on Climate Change, on Biodiversity and on Desertification.

3.2.2.6 Congress requested the Secretary-General to ensure that WMO would continue to play a leading and proactive role in climate change issues, including impact assessment and adaptation through the provision of appropriate scientific and technical information. Congress recorded its views under agenda item 9.3.

3.2.2.7 Congress noted that a number of activities in the Convention on Biological Diversity were of interest to the work of CAgM and that there were major interactions between climate and biological diversity. Congress noted with appreciation the views of the Commission on the need to appoint Joint Rapporteurs on Interactions between Climate and Biological Diversity and expressed its support for continued activities in that area.

**3.2.3 GLOBAL CLIMATE OBSERVING SYSTEM (agenda item 3.2.3)**

3.2.3.1 Congress noted with appreciation the report on developments regarding GCOS and the activities of the GCOS-SC, presented by the newly-appointed chairperson of GCOS-SC, Mr K. Dawson. Congress expressed its gratitude to Professor J. Townshend, chairperson of the Committee from 1994 until 1998, for his efforts in ensuring progress with GCOS. It also expressed its thanks to Mr T. Spence, the recently retired director of GCOS who had been with the programme since its inauguration. Congress recognized the lead role played by GCOS in implementing the 'Dedicated Observations of the Climate System' component (Thrust 4) of the Climate Agenda.

3.2.3.2 Congress thanked the Secretary-General for his active support to the programme, as well as the other sponsoring agencies (ICSU, the IOC of UNESCO and UNEP) for their contributions. It also expressed appreciation to those Members who had made contributions to the GCOS programme, including secondments to the GCOS Secretariat, the support for the travel of experts, the engagement of consultants and the hosting of meetings. Congress nevertheless noted with concern that the reported progress had only been achieved through the expenditure of extrabudgetary resources and that much of that additional support had ended in the past year, to the extent that insufficient resources were now available for adequate planning, coordination and implementation of the programme.

3.2.3.3 Congress noted with great concern that GCOS was now at a critical point in its existence due to the serious lack of resources for its implementation. That critical situation had been exacerbated by the need for GCOS to respond to the many urgent requests emanating from the Fourth Session of COP to the UN/FCCC (see general summary paragraphs 3.2.3.14 and 3.2.3.15) and the large additional load that had been placed on the GCOS Secretariat. Congress agreed that the COP SBSTA should be informed that significant new funds were required both for the Secretariat to discharge that load and for Members to be able to implement the atmospheric and hydrological components of the GCOS plan, and that a similar situation existed within the oceanographic and terrestrial domains.

3.2.3.4 Congress welcomed the renewal of the partnership in support of GCOS through the signing of an updated Memorandum of Understanding (September 1998)

by the Executive Heads of WMO, ICSU, the IOC of UNESCO, and UNEP. It noted the encouragement for GCOS to change its focus from planning to implementation as well as the various changes in terminology (e.g. renaming JSTC as GCOS-SC and the Joint Planning Office as the GCOS Secretariat). It noted also the integrating role that GCOS had assumed in drawing together the climate components of the various global observing systems into an integrated global observing system for climate. Such an integrated system was required in support of such applications as monitoring and prediction of climate change and its effects, carrying out operational seasonal prediction, mitigating the effects of desertification and land degradation, and fulfilling the needs of the climate research community for systematic, long-term observations of climate, as well as meeting the needs of such Conventions as those on Climate Change and on Desertification.

3.2.3.5 Congress was pleased to note that the transition in emphasis for GCOS from planning to implementation had already begun under the direction of the JSTC. It welcomed the progress that had been made in implementing some of the networks identified by GCOS in its IOS, including GUAN and GSN as well as GAW, through the commitment of Members. It noted, however, that additional commitments were required to bring those networks up to the required station density and standards of operation in many regions. Congress also welcomed the excellent cooperation that existed between GCOS and the WWW, the WCDMP and AREP in implementing the IOS. In addition, Congress expressed its gratitude at the excellent cooperation that existed among GCOS, CCI and WCRP/CLIVAR with respect to the joint efforts on climate change detection and attribution.

3.2.3.6 Congress was also pleased to note the progress being made in the development of networks to meet GCOS objectives for providing observations in support of seasonal-to-interannual climate prediction. It acknowledged in particular the GCOS elements which had contributed to the successful forecasts of the recent *El Niño* event and stressed the need to strengthen support to GCOS for such networks, as concluded at the International Seminar on the 1997/98 *El Niño* Event: Evaluation and Projections (Guayaquil, Ecuador, November 1998).

3.2.3.7 Congress noted the special needs of developing country Members in implementing GCOS, especially in reversing the decline and filling the gaps in existing networks, and urged Members to provide additional assistance wherever possible. Congress, in particular, requested the Secretary-General to provide information to Members on affordable alternatives to costly GPS-based upper-air systems.

3.2.3.8 Congress noted with satisfaction the reconstitution of the GCOS Atmospheric Observation Panel as the GCOS/WCRP AOPC and the co-sponsorship of that Panel by WCRP. It noted that the AOPC had been very active and had made significant progress toward its objectives, particularly concerning implementation of GUAN and GSN. Congress noted with appreciation the contributions of the German Meteorological Service and the Japan Meteorological Agency in monitoring the performance of the GSN and of ECMWF in monitoring performance of GUAN, as well as the

NCDC (Asheville, United States) in archiving the data from those networks. It encouraged other Members to provide similar support to GCOS networks where appropriate. Congress also noted the emergence of a requirement for additional resources to enable the GCOS Secretariat to work with WWW and WCP to ensure that those and other networks were operating to GCOS specifications and to provide the necessary feedback to Members.

3.2.3.9 Congress commended the progress achieved by the GCOS/GOOS/WCRP OOPC and the close cooperation among GCOS and elements of the WMO/IOC IGOS and DBCP, as well as the WCRP/CLIVAR programme, which had led to significant progress in providing observations from data-sparse areas of the world's oceans. It expressed appreciation in particular at the rapid progress being made by OOPC in furthering its pilot project Global Ocean Data Assimilation Experiment (GODAE) and the associated Array for Real-time Geostrophic Oceanography (ARGO) initiative that would further help the implementation of IOS. Congress noted the plans of GOOS, GCOS and others to sponsor the first International Conference: The Ocean Observing Systems for Climate later in the year (St. Raphaël, France, 18–22 October 1999) as a means of further refining the ocean component of the IOS as well as attracting additional contributions toward its implementation.

3.2.3.10 Congress was pleased to note the completion of the comprehensive GCOS/GTOS Plan for Terrestrial Climate-Related Observations by the Terrestrial Observation Panel for Climate (TOPC), which was jointly sponsored by GCOS and GTOS. It was encouraged that progress had been made toward establishing some terrestrial observation components of the IOS, particularly the global terrestrial networks for glaciers and for permafrost.

3.2.3.11 Congress noted with appreciation the active role taken by GCOS in addressing the crucial need for space-based observations of the climate system and their integration with *in situ* observations, carried out in part through the work of the jointly-sponsored (GCOS, GOOS, GTOS) GOSSP. It welcomed the role being played by GOSSP, in liaison with CEOS, in coordinating the needs of the global observing systems for climate for observations from space, and appreciated in particular the work being undertaken by GOSSP to refine the needs as currently stated in the WMO/CEOS database and to compare them with existing and planned space systems to identify and minimize gaps and overlaps in future systems. Congress also noted with satisfaction the involvement of GCOS as a founding partner in the IGOS partnership, which it viewed as an important concept for meeting the needs of an integrated approach to both surface and space-based observations.

3.2.3.12 Congress noted with satisfaction that the sponsors of the three global observing systems had now established a Joint Data and Information Management Panel and that the Panel was in the process of finalizing a joint G3OS Data and Information Management Plan. It welcomed the close cooperation that existed between the Panel and members of CCI and CBS and noted the progress in developing mechanisms, such as the Global Observing Systems Information Centre, for identifying and exchanging global climate data and information.

3.2.3.13 Congress recalled that the third session (Kyoto, December 1997) of COP to the UN/FCCC had requested the preparation of a report on the adequacy of global observation systems for climate for consideration at their fourth session (Buenos Aires, November 1998). Congress was pleased to note that the GCOS Secretariat in WMO, on behalf of the agencies participating in the Climate Agenda and the other global observing systems (GOOS, GTOS), had prepared a comprehensive report on that subject and had submitted it to COP-4 through SBSTA.

3.2.3.14 Congress was also pleased to note that COP-4, having reviewed the report on the adequacy of observational systems for climate, had called in its Decision 14/CP.4 — Research and systematic observation, for action by the Parties to undertake programmes of systematic observation of the climate system, to support and strengthen existing national and international observing systems for climate including national meteorological, atmospheric and hydrological observing systems, and to reverse their decline, especially in developing countries. The COP had also requested that they be kept informed of developments regarding observational networks and funding difficulties encountered by developing countries, and had invited the agencies participating in the Climate Agenda, through the GCOS Secretariat, to initiate an intergovernmental process for addressing the priorities for action and options for financial support for such actions.

3.2.3.15 Congress noted that the eighth session (February 1999) of the GCOS-SC had developed a set of responses to the decisions of COP-4 on behalf of the global observing systems for climate. Specifically, the Committee had requested the GCOS Secretariat to develop guidelines to assist countries in submitting information on their participation in global observing systems for climate as part of their national communications under the UN/FCCC and to undertake steps to encourage and assist countries to develop and implement national plans and programmes for GCOS. The GCOS-SC had also requested the GCOS Secretariat to seek advice from IACCA, and others, in exploring various intergovernmental mechanisms for addressing the priority issues, including the concept of establishing an intergovernmental board for GCOS, perhaps in concert with other components of the WCP. It had further requested that the Secretariat, in consultation with GOOS and GTOS, carry out a detailed investigation into the problems of funding global observing systems for climate, with emphasis on identifying the barriers to the use of bilateral and multilateral funds such as GEF and possible steps to address those barriers. The GCOS-SC had also requested the GCOS Secretariat to prepare a progress report on actions taken to address the adequacy of global observing systems for climate for presentation to the next session of COP in October 1999.

3.2.3.16 Congress noted also that the proposals for responding to the UN/FCCC COP prepared by GCOS-SC had been presented to the agencies participating in the Climate Agenda at their third session (IACCA-III, March 1999) and IACCA had expressed its strong support for them and had emphatically recommended that the sponsoring agencies increase the resources available to the GCOS Secretariat to enable it to carry out the suggested work programme.

3.2.3.17 Congress strongly supported the proposals of GCOS-SC, while acknowledging that the current resources available to the GCOS Secretariat were totally inadequate for it to address those tasks. It noted with appreciation that some Members had made extrabudgetary contributions to the Climate Observing System Fund for those purposes and urged other Members to provide additional support. Congress requested the Secretary-General, the cosponsoring agencies of GCOS and interested nations to address those resource constraints as a matter of urgency.

3.2.3.18 Congress noted with satisfaction that a preliminary draft set of guidelines to assist Parties to the UN/FCCC in reporting on their participation in global observing systems for climate had been presented to the SBSTA Workshop on Guidelines (Bonn, March 1999) as a first step in responding to the decisions of COP-4, and that high priority was being given to the further development of those guidelines for the tenth session of the SBSTA and the fifth session of the COP (October 1999). It noted the suggestion that regional workshops be held to assist Members in responding to such guidelines and in developing national plans and programmes for GCOS.

3.2.3.19 Congress agreed that WMO should promptly and constructively respond to the recommendations of COP-4 and that the Members and the Secretariat should support GCOS in carrying out the responses proposed by GCOS-SC. Congress therefore adopted Resolution 7 (Cg-XIII).

#### 3.2.4 WORLD CLIMATE DATA AND MONITORING PROGRAMME (agenda item 3.2.4)

##### CLIMATE CHANGE DETECTION

3.2.4.1 Congress noted with satisfaction the increased interaction between CCI and CLIVAR experts on climate change detection activities and welcomed the establishment of a CCI/CLIVAR Joint Working Group on Climate Change Detection. Congress urged a full meeting of the working group as soon as possible in order to establish itself as an authoritative group in support of the IPCC process.

3.2.4.2 Congress noted that since June 1997, there had been four related expert meetings on the topic of the development of climate indices for monitoring climate, especially climate extremes. Congress particularly welcomed the formation of a joint CCI/CLIVAR Task Group on Priority Climate Indices, which was focussed on the research and development of selected key indices for consideration by Working Group I in preparation for the Third Assessment Report of IPCC. Congress urged WMO Members to support the work of that task group and other research on climate indices by providing access to historical climate data, especially daily data needed to develop the indices.

3.2.4.3 Congress expressed its satisfaction with the results of two seminars on the homogenization of surface climate datasets, hosted by the Hungarian NMHS (1996 and 1998). Noting that the long-term datasets and metadata available in many Member countries were a valuable resource for the study of climate variability and detection of climate change, Congress urged continued efforts to develop standardized methods for homogenization, quality control and detection of trends and/or periodicities in data



time-series. In that regard, it suggested convening a scientific workshop on the statistical methodologies for the analysis of trends and periodicities with a view to producing a WMO publication on the methodologies. Congress reminded Members of the importance of preserving original historical climate data and metadata, and of providing a suitable overlap of observations when switching from manual to automatic observing procedures. Furthermore, it urged Members to undertake measures, using recently developed techniques, to test the homogeneity of all long climatological time-series they possessed, to homogenize them as far as possible and to make such high quality time-series available.

3.2.4.4 Congress noted with satisfaction the joint CCI/CBS/GCOS initiatives that had led to the establishment of a GSN for the purpose of monitoring global climate variability and detecting climate change. It welcomed the offers of Germany and Japan in establishing GSN monitoring centres. It urged continued vigilance and encouragement to ensure that WMO Members maintained observation programmes at designated sites and routinely distributed data over the GTS using the appropriate CLIMAT message codes. Furthermore, Congress urged WMO Members to regard the GSN stations as a standard for developing and improving the denser national reference climatological networks that were needed for climate change studies at the regional to national scale and to facilitate the implementation of the WMO CLIPS project. Congress also urged Members to cooperate in making available historical climate data and related metadata, including daily data for GSN stations.

3.2.4.5 Congress noted both the continued publication of annual WMO statements on the status of the global climate and the recent success in improving the timeliness of the distribution of that information. It recognized the important role played by those members of the joint CCI/CLIVAR Working Group on Climate Change Detection who provided input of material and review comments.

#### CLIMATE SYSTEM MONITORING (CSM) PROJECT

3.2.4.6 Noting with concern that CLIMAT messages from a significant number of Member countries were not being routinely received by major regional and international climate centres and that some countries were still reporting in the old (pre-1995) version of the CLIMAT code, Congress urged Members to cooperate fully in distributing monthly CLIMAT reports. That information was critical for the timely and accurate monitoring of the global climate system. It furthermore urged the Secretariat to take action to improve that situation.

3.2.4.7 Congress welcomed the streamlining efforts that had been made to ensure the continuation of the *Climate System Monitoring Monthly Bulletin*, including the decision in 1998 to cease routine printing of the publication and the establishment of an electronic version on the Web. It encouraged all Members to use the World Wide Web through the Internet as a principal source of timely CSM information.

3.2.4.8 Congress noted with satisfaction the progress that had been made in the WMO initiative to produce a publication on the climate of the twentieth century and

welcomed the interest shown by the private sector through offers to co-publish the book and produce video by-products. Noting the current schedule to publish the book in late 2000 or early 2001, prior to the release of the Third Assessment Report of IPCC, Congress welcomed plans to produce a promotional booklet and video based on material in the book that would be available by World Meteorological Day in 2000 to help celebrate the fiftieth anniversary of WMO.

3.2.4.9 Congress expressed its appreciation to the Climate Prediction Center in Washington for its continuing support of the CSM project, particularly its routine input to the *CSM Monthly Bulletin*, and its significant contribution to the sixth *Global Climate System Review*, which was published in June 1998. The Climate Prediction Center had also taken a leading role in preparing the WMO statements on the status of the global climate. Congress also noted the contributions from a number of national, regional and international climate centres to CSM publications such as the *Global Climate System Review*. It particularly noted that almost all of the Member countries in RA VI had been contributing regularly to the annual bulletin on the climate in WMO Region VI and encouraged other Regions to consider publishing a regional climate bulletin.

#### CLIMATE COMPUTING (CLICOM) PROJECT

3.2.4.10 Congress noted with satisfaction that the total number of countries that had installed the CLICOM project software was now approaching 140 and regional CLICOM ASCs had been established to serve: RA I in Niger; RA III in Chile; RA IV in Barbados; RA V in Malaysia; and the countries with economies in transition of RA VI in the Russian Federation. Congress stressed the important role that the CLICOM project could play in the protection, quality control and exchange of climate data and that properly managed historical data were essential for climate research and climate applications developments such as those within the CLIPS project. Noting the decentralization of the maintenance and development of the CLICOM project core software to regional ASCs, Congress welcomed the recent practice of including training on CLIPS, and in some cases DARE activities, in regional CLICOM training seminars. It considered that it could be a logical evolution for locations hosting CLICOM ASCs to develop into regional climate centres offering expertise in various aspects of climate data management and climate applications.

3.2.4.11 Congress noted the effort that had been undertaken since Twelfth Congress to add specific enhancements to the CLICOM core software, which resulted in the development of an updated version 3.1 of the CLICOM project software. It welcomed plans to make the enhanced software widely available to Members later in 1999 and expressed appreciation to Algeria, Chile, France, Malaysia and the Russian Federation for contributing expertise to its development. Congress welcomed the initiation on 3 May 1999 of a 10-week Training Seminar on Climate Management focusing on CLICOM/CLIPS Development and Evaluation at ACMAD in Niamey, Niger, which was intended to lay the groundwork for implementation of a joint France/United Kingdom/WMO drought preparedness project and to build significantly the

capacity of African CLICOM expertise. The latest version of the CLICOM project software (CLICOM 3.1) would be operationally tested and it was expected that several of the participants would become CLICOM 3.1 installation trainers. Congress noted with satisfaction that the ACMAD workshop also intended to develop and evaluate simplified data-entry software based on a widely used commercial software package. Congress urged that any future evolutionary development of the CLICOM project software should continue to consider the needs of those developing countries that had not yet fully implemented the existing CLICOM system. Congress agreed with the recommendation of several expert meetings that there would be no more development of the existing DOS-based CLICOM project software, but that it should be supported and maintained until a suitable replacement became available.

3.2.4.12 Congress welcomed the WMO-coordinated initiative that was launched at the Expert Meeting to Review and Assess a Prototype Future Climate Data Management Systems (Toulouse, France, May 1997) followed by the Meeting on CCI Task Group on a Future Climate Data Management System (Ostrava, Czech Republic, November 1998) to satisfy those WMO Members wanting a more advanced CDMS than the existing CLICOM project software. It noted that requirements for a future WMO CDMS had been defined and a procedure for identifying and assessing potential prototypes had been developed. Congress endorsed the strategy to evaluate existing CDMSs and noted that national CDMSs in the Czech Republic and France had already been identified as possible prototypes. In further noting that initiatives currently under way, including the evaluations at ACMAD, were aimed at giving WMO Members several choices of CDMSs, Congress urged that those new developments in the CLICOM project should be given a high priority in order to meet the future and varied needs of many WMO Members.

3.2.4.13 Noting with appreciation the significant contributions of France and the United Kingdom over the past two years to upgrade CLICOM computer hardware in Africa, Congress urged other donor countries to respond to the pressing need in many countries to update CLICOM project hardware. That would not only allow CLICOM users to take advantage of the latest software developments but would also alleviate Y2K problems.

#### **WORLD CLIMATE DATA INFORMATION REFERRAL SERVICE (INFOCLIMA) PROJECT**

3.2.4.14 Congress noted the progress made since 1997 to make information contained in the INFOCLIMA database catalogue of climate system datasets available through the Web on the Internet. It considered that that initiative and future developments within the INFOCLIMA project should be carried out in close collaboration with related initiatives to implement the WMO DDB concept and the Joint GCOS/GOOS/GTOS Data and Information Management Plan.

#### **DEVELOPMENT OF CLIMATE DATABASES PROJECT**

3.2.4.15 Congress noted with satisfaction the progress made in that project since Twelfth Congress, most of which was attributable to the work done by the NCDC of the

United States: preparing the standard WMO *Climatological Normals for the Period 1961-1990* (WMO-No. 847); publishing the remaining volumes of the World Weather Records 1971-1980 and Volumes 1, 2 and 3 of the 1981-1990 series; and releasing updated global baseline datasets of surface land, ocean and radiosonde data. In late 1998, NCDC released a digital version of Global Climatological Normals (1961-1990) on a CD-ROM, which included additional data and information provided by WMO Members that could not be included in the publication (WMO-No. 847).

#### **DATA RESCUE (DARE) PROJECT**

3.2.4.16 Congress noted that a total of 41 countries in Africa (including nine Sahel countries in the earlier Data Bank Project) had benefited from Belgian support to the DARE project, which finally terminated at the end of June 1997. Noting the subsequent establishment of an ongoing DARE support function at ACMAD, Congress urged Members in RA I and donor countries to support that regional activity. Since very little of the data contained in the nearly five million documents that had been rescued on microfilm and microfiche had been digitized, Congress urged a collaborative effort between Members of RA I and donor countries to digitize the data in order to improve significantly its utility for climate research and for the development of climate applications and services through the CLIPS project. It furthermore recognized the important role of the CLICOM project in the digitizing of that rescued data.

3.2.4.17 Noting that DARE IV expert meetings were hosted by the Caribbean Meteorological Institute in July in both 1995 and 1997, Congress welcomed the steps that had been taken since then to implement DARE IV pilot projects in Barbados, Belize, Costa Rica and Honduras. Congress recommended that the results of those pilot projects and a recently distributed questionnaire should be made widely available, especially those concerning the use of computer scanning technology, in the hope of encouraging other WMO Members to initiate procedures to rescue and preserve valuable national climate data.

#### **ARCHIVAL CLIMATIC HISTORY SURVEY (ARCHISS) PROJECT**

3.2.4.18 Congress noted the recent progress made in implementing the ARCHISS project, especially during 1996 and 1997, when valuable instrumental climate data were located in the national archives of Mexico and retrieved in digital form. Congress noted the initiation of a project in mid-1998 to search for data in the archives of Chile, Ecuador and Peru that might provide historical information related to *El Niño* events during the period from 1880 to 1940. It suggested that the project be coordinated with other *El Niño* climate projects in the region.

3.2.4.19 While recognizing the achievements made by the DARE and ARCHISS projects, Congress noted that in many countries, substantial amounts of irreplaceable historical climate data and climate databases remained in forms that were inaccessible to users and that were vulnerable to loss and damage. Those data were critical to climate change detection, hazard management and sustainable

development. Furthermore, Congress noted that UN/FCCC and subsequent decisions of COP did not adequately identify the important role of historical climate data and databases. Congress emphasized that urgent and sustained international action was needed to secure those historical data. It strongly urged Members and the Secretariat to promote and support such action through national and international programmes and bodies, including the UN/FCCC's SBSTA and COP, as appropriate.

### 3.2.5 WORLD CLIMATE APPLICATIONS AND SERVICES PROGRAMME (agenda item 3.2.5)

3.2.5.1 Congress was pleased with the progress made under the WCASP and emphasized the importance of further developing that Programme, particularly with respect to the CLIPS project. Congress noted the establishment of the post of Chief of the CLIPS Project Office, but expressed its concern over the constraints under which the CLIPS project was being implemented. Congress requested the Secretary-General to consider appropriate and urgent actions to assure further progress. It expressed appreciation to Canada and the United States for secondment of experts to the CLIPS Project Office and other assistance, to Australia for support of lecturers and roving seminars and to France for support to CLIPS-related activities at ACMAD. Congress noted that CLIPS could be funded under either the WMO regular budget or through extrabudgetary funding but that adequate funding was essential to the success of the project. Nevertheless, recognizing the pressure on the regular budget, Congress urged Members to continue providing extrabudgetary funds.

3.2.5.2 Congress agreed to the following four objectives for the continuing implementation of the CLIPS project:

- (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.

3.2.5.3 Congress noted that, in continuing to strengthen its capacity building activities, the CLIPS project would need to work towards assisting Members through the establishment of a framework that would enable them to exploit the growing level of skill in seasonal time-scale predictions. Such a framework must address observational and archival needs, the role of the advanced analysis and prediction centres, the formats of prediction products and procedures for validating them, the definition of responsibilities of regional climate centres, their establishment and the assurance that information and products would be made available to the benefit of all Members. The introduction of new operational methodologies for seasonal prediction based on products from global models was recognized as being a new

requirement for capacity building and infrastructure development over the coming years.

3.2.5.4 Congress noted and endorsed the steps being taken by CCI to define clearly the concept of regional climate centres, recognizing the important role of regional cooperation for capacity building and infrastructure development, particularly as they underpinned predictions on seasonal time-scales. Congress noted that the CLIPS activities related to infrastructure requirements for seasonal prediction including regional centres would require close cooperation and coordination between several WMO Programmes, and therefore requested the Secretary-General to take appropriate steps to ensure progress and to eliminate duplication in that area as a matter of some urgency.

3.2.5.5 Congress reiterated the necessity for all Members to have high quality access to the Internet and the World Wide Web, since the latter had now become the preferred medium for making climate monitoring and guidance information widely available. Congress urged the Secretary-General to address steps needed to promote high quality access to the Internet.

3.2.5.6 Congress stressed the importance of an effective training component in the CLIPS project and stressed that that component, which could include pilot and demonstration projects, liaison with research programmes, and networking, should receive increased attention. Congress noted that coordination of training in CLICOM and CLIPS was an effective and beneficial approach to providing an integrated framework for climate services. It also requested the Secretary-General to ensure close cooperation between CLIPS and ETRP. Such cooperation could take advantage of the concentration of expertise and would enhance the integration of the full spectrum of modern climate services into those NMHSs having such responsibilities in the climate area.

3.2.5.7 Congress recalled that Twelfth Congress had emphasized the need for joint CLIPS activities with climate-related research programmes, especially WCRP, and noted with satisfaction that the research community was becoming increasingly involved in both the development and the implementation of the CLIPS project. In particular, it was noted that the collaboration by research scientists and operational climatologists in the Climate Outlook Forums such as those held in several regions of Africa, was an effective mechanism for building capacity among the NMHSs. Congress emphasized the positive role of the training programmes, such as those at ACMAD and the DMCs, in that process. Furthermore, the involvement of policy makers and end users together with scientists in the forums provided significant benefits. Congress noted also that the climate forums process and the ACMAD and DMC achievements confirmed the use of climate information as a resource for sustainable development in Africa. Congress noted the role those forums had played in monitoring the 1997-1998 *El Niño* event and in consolidating regional and national climate forecasts. Congress recommended that, due to their overall effectiveness and the continued national interest, the format of those forums should be refined further and consideration should be given to conducting them more extensively in the future under suitable and stable funding arrangements.

3.2.5.8 While supporting the current or planned activities of CLIPS, Congress drew attention to the need for caution and judgement with the information available in the field of climate forecasting. Congress emphasized that forecast generalizations on the basis of *El Niño*-related phenomena had been shown to be highly credible in certain areas and periods. In most cases, however, considerable research was still required in order to improve the usefulness of seasonal predictions, and those efforts were precisely what CLIPS encouraged. Congress drew attention, in particular, to the need for close cooperation between the users and NMHSs in order to prevent any false interpretation of climatic forecasts. Congress noted, nevertheless, the substantial potential socio-economic value of seasonal forecasts and the increasing demand for those forecasts, but also that impacts of incorrect forecasts or inappropriate decisions might take time to correct. Users often required information on spatial or temporal scales normally not available using current techniques. Congress considered that increased attention should be given to developing downscaling methods and to examining end-user decision processes consistent with available skill. Congress further noted that the issuing of seasonal forecasts might have an impact on the stock commodity markets and that that could open the possibility for forecasters to use their advance knowledge for personal gain. Congress recognized a need to establish ethical rules to mitigate the occurrence of such situations.

3.2.5.9 Congress noted the activities of the WMO Secretariat in coordinating the provision of up-to-date summary information on the 1997–1998 *El Niño/La Niña* event, including the preparation of a series of *El Niño* updates over a period of months, and briefings given to the press, to other United Nations agencies and to Diplomatic missions in the Geneva area. Congress agreed that the respective roles of different climate centres within its Member countries in responding to climatically-induced crises were major points for discussion. It therefore requested that the presidents of CCI and CBS ensure that that issue was addressed in conjunction with the respective roles of major analysis and prediction centres, specialized regional meteorological centres, emerging regional climate centres and those national centres with climate responsibilities.

3.2.5.10 Congress was pleased to note the leadership role provided by WMO in addressing the effects of the 1997–1998 *El Niño* event and in assessing their implications for the development of effective mechanisms for alerting decision makers in the future. In particular, Congress endorsed and commended the actions taken by the Secretary-General to provide the necessary scientific and technical leadership within the Inter-Agency Task Force on *El Niño* established to respond to United Nations General Assembly Resolution 52/200 — International cooperation to reduce the impacts of the *El Niño* phenomenon. Congress supported the preparation of a scientific and technical retrospective of the 1997–1998 *El Niño* based on the presentations to the International Seminar on the 1997/98 *El Niño* Event: Evaluation and Projections (Guayaquil, Ecuador, November 1998). Congress noted that the

retrospective would also take into account outcomes of other national and regional studies, and requested the Secretary-General to ensure its publication and wide distribution. Congress noted further that WCP had prepared, as one outcome of the Guayaquil meeting, a feasibility study for the establishment in Ecuador of an international centre for research into the *El Niño* phenomenon.

3.2.5.11 Congress noted with satisfaction that, as an implementing mechanism for WCASP, the CLIPS Project was giving priority to the issues related to closer interaction with the potential users of climate services; that was considered an essential component in developing climate services. Members were urged, therefore, to give particular attention to strengthening their interactions with users. Congress also encouraged Members to undertake new studies of the socio-economic and environmental benefits from climate services, taking care to involve users in the planning and the performance of the studies.

3.2.5.12 Congress stressed that, in developing climate applications within the context of CLIPS, special attention should be given to the food production, water resources and human health sectors. That would require the building of partnerships and cooperative ventures between WCASP and other WMO Programmes, such as the Agricultural Meteorology Programme and HWRP. Congress was pleased to note the progress that had already been made in that regard. It would also require similar interactions between WCASP and the programmes of other agencies and institutions. The Climate Agenda was considered by Congress as providing the ideal framework for organizing the latter.

3.2.5.13 Congress noted the attention that was given to weather, climate and human health as the theme of World Meteorological Day 1999 and in various publications. It was especially pleased with the improved level of cooperation that it had fostered between WMO and WHO. Congress further noted that aspects of bioclimatology relating to human health needed to be further emphasized in the development of climate information and prediction services. A special focus should be on conditions in the tropics, especially on the rapidly growing conurbations in which large sectors of the populations were already directly affected by climate, its variation and change. Congress requested the Secretary-General to ensure progress in organizing showcase projects as a matter of urgency, including those related to heat waves and other events of concern to human health. The need for coordination within WMO Programmes and for continued close inter-agency coordination within the framework of the Climate Agenda in that and related areas, especially with organizations such as UNEP and WHO, was again emphasized.

3.2.5.14 Congress noted that several developments in the area of urban and building climatology had been in focus in the last few years. The Plan of Action for TRUCE, as endorsed by CCI-XII, was considered a firm basis for action in that sector and it was suggested that TRUCE should be considered in the further development of CLIPS-related projects. In particular, Congress was satisfied with the progress made in planning for the International Conference

on Urban Climate to be held jointly with the International Congress on Biometeorology in Sydney, Australia, in November 1999.

3.2.5.15 Congress noted that climate impacts, both negative and positive, that influenced human health, were the ones that affected society most. Economic impacts often also resulted in degradation of health. Noting that those problems were intensified for people living in the "informal" sections of cities, especially in the tropics, Congress endorsed the cross-cutting activities undertaken or planned in those topics, such as TRUCE and the International Conference on Urban Climates and the International Congress on Biometeorology in Sydney, Australia, in November 1999, and the Rome showcase project. Congress urged the Secretary-General to give increased attention to the human health and urban issues for SIDS and for developing countries in the tropics, in particular with greater activity in the southern hemisphere. In that connection, Congress adopted Resolution 8 (Cg-XIII).

### 3.2.6 WORLD CLIMATE IMPACT ASSESSMENT AND RESPONSE STRATEGIES PROGRAMME (agenda item 3.2.6)

3.2.6.1 Congress noted with interest the report of the representative of UNEP on the WCIRP and on its participation in the Climate Agenda. It was noted that although serious financial difficulties were experienced by the programme as part of the overall UNEP funding problems, there was a new commitment and highest priority now assigned to climate impacts and adaptation assessment. Congress welcomed that new commitment and affirmed WMO's preparedness to work closely with UNEP. In that regard, Congress further urged the Secretary-General to communicate its wish that UNEP apply adequate resources to implement fully Thrust 3 of the Climate Agenda. Congress noted that a number of important actions were undertaken, including the continuing support to the IPCC and some other activities related to climate change.

3.2.6.2 Congress further noted that UNEP maintained cooperation with the Secretariat for the UN/FCCC and it took particular note of UNEP's activities in the following areas:

- (a) Methodology development such as those related to the following:
  - (i) Sources and sinks of greenhouse gases;
  - (ii) Impacts and adaptation assessments;
  - (iii) Mitigation and adaptation cost assessments;
- (b) Consensus building on activities implemented jointly (AIJ), joint implementation (JI), and the clean development mechanism (CDM);
- (c) Capacity building and public awareness.

3.2.6.3 Congress reiterated the WMO intention to continue partnership with UNEP and the other concerned organizations in order to implement WCIRP as part of the WCP and the Climate Agenda. Congress underscored a linkage between WCASP and WCIRP and invited planners of the activities within both programmes to pursue joint or mutually beneficial actions. In that respect, Congress was pleased to note the ongoing cooperation that existed between UNEP and WMO in the scientific and technical

assessment of the recent *El Niño*-related anomalies and their widespread social and economic impacts and the ongoing collaboration in the implementation of the project funded by UNFIP on the impacts of the 1997-1998 *El Niño* event. Congress further noted the value of the information contained in the various country studies carried out by UNEP on impacts and adaptation assessment, and urged UNEP to consider placing those studies on the Internet.

3.2.6.4 Congress also reiterated its request to Governments to consider strengthening or establishing, as appropriate, national climate programmes covering climate applications, services and impact assessments and to provide modest additional resources for coordinating the implementation of related parts of the Climate Agenda. In that respect, Congress recognized the need for the raising of awareness for policy makers at the national level on the issues of climate change and variability and stressed the need for capacity building on impacts assessment, especially in relation to integrated assessment models.

### 3.2.7 WORLD CLIMATE RESEARCH PROGRAMME (agenda item 3.2.7)

3.2.7.1 Congress received with interest the information on progress in the WCRP and expressed its appreciation of the continuing successful conduct of the WCRP under the Terms of the Agreement between WMO, ICSU and IOC. The work of the WMO/ICSU/IOC JSC for the WCRP in formulating the overall scientific strategy for the programme was particularly acknowledged.

3.2.7.2 The representative of ICSU spoke of his satisfaction at the arrangements between WMO, ICSU and IOC on the conduct of the WCRP. From the perspective of ICSU, WCRP was a near-ideal model for the type of programme that ICSU should carry out, namely international interdisciplinary research for the benefit of humankind in cooperation with United Nations agencies. In that context, WCRP would be a particular subject of discussion at the World Science Conference being jointly hosted by UNESCO and ICSU in Budapest, Hungary from 26 June to 1 July 1999. The representative of ICSU was also pleased to note the organization of the major Conference on WCRP: Achievements, Benefits and Challenges in Geneva in August 1997 to ensure continued consensus on scientific priorities in the programme. That had stemmed from the proposal made by ICSU at Twelfth Congress. The increasing cooperation between WCRP and ICSU's IGBP was also gratifying. That cooperation was being extended to include IHDP, which ICSU now sponsored jointly with the International Social Science Council. That would help bring the aspect of relationship between human behaviour and environmental processes into global change research more effectively. In conclusion, the representative of ICSU reaffirmed continuing support to WCRP, in token of which the ICSU contribution to the WMO/ICSU/IOC Joint Climate Research Fund had been increased by 50 per cent during the twelfth financial period following the request made by Twelfth Congress.

3.2.7.3 The representative of IOC viewed WCRP as one of the Commission's most important programmes. IOC had worked closely with WMO through the WCRP to ensure the

success of both TOGA and WOCE, and was now striving through WCRP to ensure the success of CLIVAR. To that end, IOC had hosted the major International CLIVAR Conference in Paris in December 1998 and was sponsoring with WCRP the International Conference: The Ocean Observing System for Climate in St. Raphaël, France in October 1999. The association between IOC and WMO in support of WCRP was becoming even more vital as the fundamental role of the ocean in the climate system was increasingly recognized, for example, in predicting ENSO events and in determining the magnitude of anthropogenic climate change. In the future, operational programmes like GOOS would go a long way to meeting the requirements of the research community for oceanographic data. On the other hand, the design of GOOS and supporting projects such as GODAE depended on the advice and guidance of the research community. For those reasons, IOC affirmed and looked forward to continuing its close involvement in WCRP. As well as its contribution to the Joint Climate Research Fund, many other relevant activities (such as meetings of the Implementation Panel of the Tropical Atmosphere-ocean Buoy Array in the Tropical Pacific) would be directly supported and, through IOC governing bodies, all efforts to encourage IOC Member States to participate in the marine-related activities of WCRP would continue.

3.2.7.4 Congress voiced its satisfaction at the organization of the major Conference on WCRP: Achievements, Benefits and Challenges held in Geneva in August 1997, the wide participation and interest that had been attracted, and the guidance given in setting out research priorities for the WCRP for the next 10 to 15 years. The Conference had provided a good opportunity for research scientists, policy makers and technical experts to review jointly the accomplishments of WCRP and to advise on the course to meet the challenges lying ahead. Congress agreed with the overall WCRP research priorities for the next decade recommended by the Conference:

- (a) Assessing the nature and predictability of seasonal to interdecadal variations of the climate system at the global and regional scales and providing the scientific basis for operational predictions of those variations for use in climate services in support of sustainable development;
- (b) Detecting climate change and attributing causes, and projecting the magnitude and rate of human-induced climate change, regional variations, and related sea level rise (as needed for input to the IPCC, UN/FCCC and other Conventions).

3.2.7.5 A comprehensive statement was prepared by the Conference identifying numerous significant contributions to climate science that had been made by WCRP and pointing to specific research challenges lying ahead. The conclusions of the Conference had been carefully reviewed by the JSC and, in consultation with the general climate research community, the planning of several of the main core research projects was being adjusted to meet the challenges. Congress particularly stressed the importance of improving the scientific basis of seasonal predictions and extending their scope. In that respect, forecasts of seasonal

precipitation were of primary concern and would be of major benefit to all Members, especially in regions where there was heavy reliance on rain-fed agriculture. That should be complemented by the development of models including representation of appropriate eco- and biochemical systems and crop-yield models of various types capable of indicating the response of ecosystems and crops to anomalies in seasonal temperature and rainfall. Generally, the development of regional and smaller-scale models for more realistic simulations of the regional climate and local applications was a high priority. In tropical countries especially, there was an acute need for such models which, although a major research challenge, could offer the basis for enormous socio-economic advances. Improving the understanding of conditions leading to severe drought, desertification, and flooding, as well as of prediction of extreme events, were also regarded of paramount importance. In regard to overall organizational aspects, Congress requested the JSC to ensure that plans for various WCRP field programmes were coordinated to integrate efforts to address common scientific problems. Furthermore, progress and the overall results of research in WCRP needed to be presented regularly in concise form to NMHSs.

3.2.7.6 Congress strongly endorsed the view of the Conference that, if nations were to be better able to meet their fundamental obligations to ensure the safety of their citizens, they must better understand, monitor, predict and manage the natural extremes of flood and drought and the threat of human-induced climate change in the decades ahead. It was thus critically important that commitments to cooperative international research through the WCRP and associated global environmental observing, research and service programmes, be reinforced. Furthermore, scientific capacity in climate research in developing countries must be fostered and encouragement given to developing countries to indicate their own priorities within the WCRP framework.

3.2.7.7 Congress was pleased to hear that the Conference statement had been forwarded to the COP of the UN/FCCC and the United Nations Convention to Combat Desertification under cover of a message (drafted by the Conference on the WCRP) highlighting the widely voiced concerns on the status of observational systems and stressing the importance of ensuring funds and support for essential climate observation networks. As a consequence of that action, the third COP to the UN/FCCC requested a report on the adequacy of the relevant global observing systems. That, in turn, led to a decision on research and systematic observation at COP-4 that should be a strong basis for improving the global observing systems needed for climate studies (see also agenda items 3.2.3 and 9.3).

3.2.7.8 In reviewing the status of implementation of the main WCRP projects, Congress was impressed by the continuing accomplishments of GEWEX. One of the main thrusts of GEWEX was the implementation of a series of atmospheric/hydrological regional process studies. The GEWEX Continental-scale International Project embracing the whole Mississippi river basin was well under way and important quantitative results were beginning to emerge. In the GEWEX Asian Monsoon Experiment, an intensive observing period was conducted during 1998 in

coordination with the Korean Monsoon Experiment, the Tibetan Plateau Hydrometeorological Experiment, the Huai-he River Basin Experiment in central China and the South China Sea Monsoon Experiment, all with strong international participation. Unique high resolution data on energy processes and water cycles during the Asian monsoon were collected. In another study undertaken by 14 countries centred around the Baltic Sea (BALTEX), an enhanced observational period would take place from 1999 to 2001. The observational activity would be complemented by multi-model high resolution data assimilation, thereby providing outstanding data for scientific research into meteorological, hydrological and oceanographic phenomena in the area. The Mackenzie River GEWEX Study, being organized by Canada, would provide a much improved understanding of high-latitude cold region hydrological and meteorological processes. Congress expressed its appreciation to China for hosting the Third International Scientific Conference on GEWEX in Beijing in June 1999 which would review, *inter alia*, progress in the GEWEX atmospheric/hydrological regional process studies, and the role of land surfaces in the variability and predictability of monsoons and associated flood and drought predictions.

3.2.7.9 Congress welcomed the continuing production, under the auspices of GEWEX, of several important global climatological datasets based on merging satellite data with *in situ* measurements, providing fields of parameters such as monthly mean cloud amount and cloud optical properties, precipitation, water vapour, and surface radiative fluxes. With regard to the global precipitation estimates, significant improvements had resulted from incorporating new data from the successful Tropical Rainfall Measuring Mission which was yielding unprecedented coverage of the horizontal and vertical structure of tropical rain systems. Congress stressed that steps should be taken to advertise those datasets more widely and to make them readily accessible by all Members.

3.2.7.10 Congress took particular note of the development of activities in the WCRP SPARC project which had the objectives of investigating the influence of the stratosphere on climate and the coupled chemical, dynamical and radiative processes that controlled the changes in the stratospheric circulation and composition. A stratospheric reference climatology had been constructed and the understanding of trends in temperature, ozone and water vapour in the stratosphere had been greatly broadened. In conjunction with GAW and the International Ozone Commission, an intensive study of trends in the vertical distribution of ozone had been undertaken and formed the basis of relevant parts of the 1998 WMO/UNEP ozone assessment. Gravity wave processes, their role in stratospheric dynamics and how those might be parameterized in models, was another topic that had been taken up by SPARC. A two-month intensive field experiment was being planned for late 2000 or 2001 in the region of Darwin, Australia, to explore how the characteristics of gravity waves entering the lower stratosphere depended on the intensity, occurrence and mesoscale organization of convection. The status of implementation of SPARC and

details of future plans, taking into account the emphasis given at the Conference on WCRP on understanding the impact of stratospheric change on climate, were described in the SPARC Implementation Plan published during 1998. Congress encouraged all Members to support the proposed initiatives to the limit of their capabilities.

3.2.7.11 Congress recalled that WOCE was a fundamental element of the WCRP scientific strategy to understand and predict changes in the world ocean circulation, volume and heat storage that would result from changes in atmospheric climate and net radiation, by means of a combination of *in situ* oceanographic measurements, observations from space and global ocean modelling. WOCE had been, by a large margin, the most ambitious oceanographic project ever organized and Congress commended all concerned that the observational phase had been completed as anticipated in 1997. Over 90 per cent of the global hydrographic survey planned had been carried out. As a result, the state of knowledge of the deep ocean structure and ocean circulation and its role in the climate system had been greatly expanded. WOCE had also stimulated major technological advances, e.g. satellite sensors for precise ocean topography enabling improved tidal predictions, automatic profilers and drifters. WOCE was now in the final phase of synthesizing the observations gathered into a complete, dynamically-consistent view of the global ocean circulation in the 1990s, a challenge involving substantial development of ocean models, together with significant advances in the capability of merging datasets of very diverse characteristics. Congress observed that the past decade had seen far-reaching progress on three fronts in oceanography: the availability of remotely-sensed oceanographic observations; the major extension of *in situ* oceanographic observations; and oceanographic modelling both globally and regionally. In the last respect, an exciting example was the French Mercator project, in which a high resolution (10 km) primitive equation eddy-resolving ocean general circulation model was being developed for assimilating both *in situ* and remotely-sensed data for studying seasonal predictability and as a basis for an advanced seasonal prediction model.

3.2.7.12 Congress recognized the importance and far-reaching nature of the CLIVAR study being developed in WCRP. Building on the successful TOGA programme that concluded in 1994 and the global perspective and its role in climate provided by WOCE, CLIVAR was focussed on the coupled behaviour and modes of variability of the rapidly changing atmosphere and slowly varying land-surface, ocean and ice masses as they responded to natural processes, human influences and changes in the Earth's chemistry and biota, thereby establishing a foundation for extending effective predictions of climate variations such as ENSO and refining estimates of anthropogenic climate change. Congress reiterated the importance it attached to the work of extending seasonal forecasting in CLIVAR and to improving predictions of such manifestations as the recent intense droughts in the Maghreb region. Understanding and predicting the variability of the world's monsoonal circulations was another key target of CLIVAR as well as further improving knowledge of the oceans and ocean variability on all time-scales. With respect to monsoons,

plans were being drawn up to investigate the Asian-Australian monsoon, the American monsoon, and a range of aspects of climate variability over Africa. An observational experiment being planned by India in the Bay of Bengal would be an important element in studying the Asian summer monsoon. Congress pointed out that the relationship between ENSO events and monsoons, already being explored by several Members, merited careful consideration. A detailed implementation plan for CLIVAR was published in 1998 and reviewed at the major International CLIVAR Conference in Paris in December 1998. The importance of CLIVAR and the wide interest the ideas had attracted were strikingly demonstrated by the large attendance and by the numerous presentations of national CLIVAR-related plans. The Conference was thus able to assess how fully the overall resource requirements for CLIVAR could be met, how CLIVAR could move forward in a global context, and the priorities to be followed. In that last respect, Congress emphasized the importance of the ENSO (or TOGA) observing and analysis systems fostered by the WCRP. The essential role of those systems had again been highlighted by the intense ENSO event that developed in 1997. Crucial data enabling model predictions of ENSO and monitoring its evolution had been provided. Congress particularly expressed its appreciation for the contribution made by several Members including Japan and the United States and other Pacific-rim countries in maintaining the tropical atmosphere-ocean array in the tropical Pacific.

3.2.7.13 Congress noted that the field programme of the WCRP Arctic Climate System Study was advancing as planned with a range of Arctic Ocean hydrographic and shelf surveys having been undertaken. Arctic Ocean dynamics were turning out to be considerably more complex than anticipated and marked shifts in the Beaufort Sea gyre had been detected on seasonal and longer time-scales. An extensive historical Arctic Ocean climate database had also been compiled including previously classified Russian and United States Arctic Ocean observations for the period 1948 to 1993 (obtained as a result of the efforts of the Environmental Working Group of the joint United States-Russian Gore-Chernomyrdin Commission). In addition, responding to recommendations from the Conference on WCRP in 1997, the JSC had established a Climate and Cryosphere Task Group to lay out plans for a broader research programme on the cryosphere and climate with an overall focus on cryospheric components of the climate system and their interactions with atmosphere, oceans and land surface. Discussions had been organized including representatives of virtually all bodies having an interest in climate-related polar research aiming to bring together in a synergetic manner existing cryosphere-related activities and to set up the required collaboration and coordination. Congress gave strong encouragement to that effort which would be a clear step in the rationalization of activities in that area. Congress also particularly appreciated the value of the data being collected in the WCRP International Programme on Antarctic Buoys, not only to support research in the region, but also to provide valuable operational meteorological data in real-time and establish a basis for monitoring atmospheric and oceanic changes in the

Antarctic sea-ice zone. Congress urged NMSs having interests in the Southern Ocean and Antarctic to participate actively in the International Programme on Antarctic Buoys by providing ice-resistant drifting buoys or by other appropriate means.

3.2.7.14 Congress observed that the essential unifying theme running through the WCRP was the development of comprehensive global models of the full climate system, building on scientific and technical advances in the other main WCRP projects. Such models were the fundamental tools for understanding and predicting natural climate variations and for providing reliable estimates of anthropogenic climate change. Internationally-coordinated model intercomparisons continued to be fostered including the Atmospheric Model Intercomparison Project, being conducted by the United States Department of Energy Programme for Climate Model Diagnosis and Intercomparison. In that Project, climate simulations from the same period under specified conditions by virtually all the world's atmospheric general circulation models had been collected and compared. There had consequently been a marked improvement and acceleration in the process of identifying common errors in NWP and climate models. Results were now also beginning to emerge from a similar coupled model intercomparison project. Several coordinated experimentation exercises to assess climate predictability on the one hand and the consistency of projections of climate change on the other had been organized. Congress pointed out that those efforts were a major resource for IPCC. In the area of atmospheric model parameterizations, attention had been given to the representation of cloud processes in large-scale models, focussing on the capability of current cloud parameterizations and reviewing uncertainties in cloud forcing and feedback in climate models. Also, with WCRP encouragement, several multi-year reanalyses of the atmospheric circulation with fixed state-of-the-art assimilation/analysis schemes, essential for a range of investigation of many aspects of climate, had been produced. The WCRP International Conference on Reanalyses (Washington, D.C., October 1997) had highlighted the importance and value of reanalyses in many areas of research and a further conference on that subject was being planned for August 1999.

3.2.7.15 Congress underlined the importance of START of interconnected regional research networks, co-sponsored by WCRP, ICSU's IGBP and IHDP. Through START, activities were being fostered to encourage local climate research interest and capability and exploitation of research results, including the organization of regional workshops where appropriate (e.g. understanding regional climate variability, such as that of monsoons, on different time-scales and assessing the prospects for improved predictability). Additionally, WCRP was separately promoting the use of climate research results and climate predictions for agriculture and food production and that had led to regional projects (such as CLIMAG in Asia which was being set up).

3.2.7.16 In concluding its review of WCRP, Congress agreed that the programme had continued to be effective in fostering coordination and in building up coherent projects among the wide range of agencies and institutions and the



numerous groups in the scientific community whose combined efforts were needed to advance climate research. WCRP, concerned with the physical climate system, and IGBP with investigating key chemical and biological processes, were complementary in addressing in a comprehensive manner the overall issue of global environmental change. Congress underlined that the collaboration that existed between WCRP and IGBP must be further reinforced as it was becoming increasingly clear that biological and chemical processes played an important role in the climate system that could not be separated from the role of physical processes. Congress approved the continuation of the Agreement between WMO, ICSU and IOC on the conduct of the WCRP and adopted Resolution 9 (Cg-XIII) to that effect. Congress also agreed on the priorities set for WCRP in the programme and budget for the thirteenth financial period.

### 3.3 ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME (agenda item 3.3)

#### 3.3.0 ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME; THE REPORT OF THE PRESIDENT OF CAS (agenda item 3.3.0)

3.3.0.1 Congress expressed its appreciation for the information provided concerning AREP. It thanked both the president of CAS and the Secretary-General for their efforts. The information confirmed that the activities within the Programme followed the direction provided by the 4LTP and by the relevant resolutions of Congress and the Executive Council.

#### WMO RESEARCH AWARDS FOR YOUNG SCIENTISTS

3.3.0.2 Congress noted that the field of hydrology, as requested by Twelfth Congress, had been introduced into the award scheme and furthermore encouraged its Members to continue to support the awards in particular by encouraging submission of papers in atmospheric science and hydrology.

#### REPORT OF THE PRESIDENT OF CAS

3.3.0.3 Congress reiterated the satisfaction expressed by the Executive Council at the manner in which CAS was conducting its activities and was of the opinion that the present terms of reference of CAS were appropriate and consistent with its perceived role in support of WMO Programmes. Congress also noted that the Commission had reduced its total number of working groups to three in addition to the two working groups that also served as Executive Council Panels of Experts. Furthermore, Congress noted that, in light of the ongoing reviews of the overall WMO organizational structure, CAS had emphasized the critical role played by WMO's technical commissions, and CAS in particular, in the design and implementation of major programme activities. Congress supported that as well as the CAS view that, while every effort must be made to ensure that the Commission's activities continued to be carried out in the most cost-effective way, it was also important to ensure that the practical impact of the technical commissions was not diminished in future WMO organizational arrangements.

3.3.0.4 Congress also considered the two new initiatives of CAS, which were the introduction of the Urban Environment Meteorological Research Programme into the GAW programme and the creation of the WWRP. A detailed explanation of those initiatives was provided by the president of CAS, Mr A. Eliassen.

3.3.0.5 Congress agreed that a focused activity on meteorological and hydrological aspects of the urban environment presented a new opportunity for NMHSs and GAW. Because of the linkage between urban environment and sustainable development, better management of urban environment was becoming a major concern by countries and international institutions. An increased activity by GAW could lead to enhanced recognition of its central role in environmental issues and increase WMO's opportunities to enter into joint ventures and attract external resources. Congress therefore concurred with the actions taken by the Executive Council and CAS to establish a Urban Environment Meteorological Research Programme under the auspices of GAW.

3.3.0.6 It was noted that the main focus of the new programme would be, firstly, to help NMHSs deal with urban environmental issues and, secondly, to define better the relationship and linkage between urban environments and sustainable development and between local, regional and global environment problems (e.g. the links between urban pollution and climate change).

3.3.0.7 Congress expressed its satisfaction with the prompt actions of the GAW programme in responding to the forest fire episodes that caused widespread air pollution and environmental problems in South-East Asia. The expert missions arranged to the region and the workshop organized were excellent examples of fulfilling the mandate given to GAW by Twelfth Congress.

3.3.0.8 Congress expressed its satisfaction with the new orientation given by CAS to its weather prediction research activities. It agreed with CAS that, in view of the ongoing advances in the understanding of atmospheric processes, improved techniques in data assimilation, increased capacity to observe remotely and adaptively the weather, increased computing capacity and the availability of advanced communication, it was both timely and necessary to establish a formal international programme such as WWRP integrating the current WMO Programmes on Very Short- and Short-range Weather Prediction Research and the Programme on Medium- and Long-range Weather Prediction Research. Congress furthermore endorsed the overall concept of WWRP proposed by CAS and its mission: "to develop improved and cost-effective forecasting techniques with emphasis on high impact weather and to promote their application among Members". Congress, recognizing also the multidisciplinary character of WWRP and emphasized its importance to ensure close cooperation with other technical WMO Programmes, in particular the PWS Programme and ETRP for the necessary training component, the Aeronautical Meteorology Programme especially in relation to aviation hazards as well as other relevant international organizations.

3.3.0.9 Congress noted those activities concerning developments in the WMO Tropical Meteorology Research

Programme and expressed satisfaction with the manner in which the programme was being conducted. In particular, research activities relating to tropical cyclones in collaboration with ICSU had made a substantial contribution to IDNDR under the demonstration project "Tropical Cyclone Disasters".

3.3.0.10 Concerning the recent and envisaged future developments in tropical meteorology, Congress supported the actions of CAS in redefining the projects in its programme. It also noted the collaboration perceived with the WWRP.

3.3.0.11 Congress noted with some concern that while the scientific understanding of precipitation formation process had improved, further research into the basic physics, chemistry and scientific evaluation of weather modification needed to be given increased attention. More research was needed to clarify the practical potential of new promising methods. It was important that Members were given realistic expectations on the possibilities of alleviating severe water shortages by weather modification techniques.

3.3.0.12 Considering the significance and the importance of AREP as a major Programme of WMO, Congress adopted Resolution 10 (Cg-XIII).

### 3.3.1 SUPPORT TO OZONE AND OTHER ENVIRONMENT-ORIENTED CONVENTIONS (agenda item 3.3.1)

Congress noted that WMO was a major contributor to the Vienna Convention for the Protection of the Ozone Layer and its subsequent protocols. WMO, through its GAW ozone network, provided Dobson, Brewer and M-124 observations that were essential for long-term ozone analysis. It was the longest continuous series of ground-based measurements available. Congress requested continuation of that activity and the active participation of WMO in the periodic assessments of the state of the ozone layer such as the recently published *Scientific Assessment of Ozone Depletion: 1998* (Global Ozone Research and Monitoring Project Report No. 44) and related monitoring and research activities. Congress also recognized the important support provided by WMO to the Convention on Long-range Transboundary Air Pollution.

### 3.3.2 GLOBAL ATMOSPHERE WATCH (agenda item 3.3.2)

3.3.2.1 Congress was pleased with the further development of GAW, which was created in 1989 to encompass the existing WMO monitoring activities that focused on global issues of changing atmospheric composition. It noted that GAW continued to mature both internally and externally: with the addition of new measurement parameters and world calibration facilities, with the operational readiness of three Quality Assurance/Science Activity Centres and under the guidance of a Strategic Plan that was endorsed by Twelfth Congress. Now, through GAW, WMO was positioned to contribute extensively to the implementation of the relevant parts of the Rio Declaration and Agenda 21, especially Chapter 9 — Protection of the atmosphere, and Congress requested the Secretary-General to pursue those activities with high priorities.

3.3.2.2 Congress expressed satisfaction in the recognition that GAW had a prominent role to play in

international endeavours such as the UN/FCCC and was contributing to the Climate Agenda activities.

3.3.2.3 Congress also noted that the scientific input to the debate on environmental issues must be derived from an adequate knowledge basis. That could only be achieved through high-quality, strategically-oriented observations and research related to the particular issues. That necessitated the establishment of proper environmental observing systems like GAW. For WMO Members it was the only effective way to ensure the systematic gathering of data worldwide according to comparable and clearly defined measuring criteria, to enable coordinated data processing and quality assurance and to facilitate the distribution and provision of available information to a widely varied group of users. That complex international task, Congress acknowledged, was being tackled in collaboration with international organizations and the scientific community.

3.3.2.4 Congress stressed that GAW was a major contributor of ground-based observations providing both long-term, quality-assured measurements on the composition of the atmosphere and campaign style measurements in support for ground-truthing satellite sensors. Furthermore, Congress strongly endorsed the overall policy as recommended in the IGOS that satellite sensors should be continuously validated over their entire lifetime. In order to ensure the availability of high quality ground-based measurements over a long period of time, Congress urged the research satellite community to consider sharing responsibility and resources with WMO/GAW and related programmes in maintaining high quality network operation in support of research satellite ground truthing over the lifetime of the sensors.

3.3.2.5 Satisfaction was expressed by Congress with regard to the close cooperation of GAW with the atmospheric sciences and environment protection communities both within and beyond NMHSs including many international, regional and national organizations and programmes such as the International Global Atmospheric Chemistry Programme, the Cooperative Programme for the Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe, the International Association of Meteorology and Atmospheric Sciences and the Group of Experts on the Scientific Aspects of Marine Pollution. The need for close cooperation and coordination of international activities was stressed in particular for such emerging environmental issues as smoke and haze pollution resulting from biomass burning and long-range transport and environmental fate of persistent organic pollutants as well as other toxic substances. Congress noted the importance of the use of other platforms such as aircraft, ships and satellites in complement to the land-based network in order to develop a vertical chemical picture of the atmosphere.

3.3.2.6 It was noted that in follow-up action from Twelfth Congress, meetings had been held to review NMHSs activities related to environmental problems. They concluded that NMHSs had a critical role to play in the study and management of urban environments. While many NMSs were already contributing in valuable ways to that area, they could be expected to play a larger role in the future. The

expanded role would take different paths in different countries, but would include the traditional activities related to meteorological monitoring, forecasting, and modelling as well as their application to air quality problems.

3.3.2.7 Considering the foregoing, Congress noted with appreciation the response of CAS and the endorsement by the Executive Council to establish and develop the Urban Environment Meteorological Research Programme within GAW. Further information was contained in the report of the president of CAS (see agenda item 3.3.0).

3.3.2.8 The WMO GAW Urban Environment Meteorological Research Programme would include several elements of urban initiatives. They included the need to improve mesoscale models to improve/support air quality forecasting; the need to expand measurements under the GAW programme; and a strong desire to showcase the programme through pilot studies. All that was being developed initially through a project called GAW Urban Research Meteorological Environment Project (GURME). Caution was however expressed that there should be no duplication of the CCI TRUCE Project.

### 3.3.3 WORLD WEATHER RESEARCH PROGRAMME (agenda item 3.3.3)

3.3.3.1 Congress agreed that, in view of the significant and constant improvement in weather forecasting techniques, it was now important to develop a programme with a new concept such as WWRP in order to address, in a combined way, scientific research developments as well as the socio-economic impact of their application. Congress approved the objectives and the strategy proposed for the WWRP to develop Research and Development Projects as well as Forecast Demonstration Projects with the aim of promoting and encouraging the utilization of advanced techniques in weather forecasting at all time-scales with emphasis on cost effectiveness, high impact weather and socio-economic impact.

3.3.3.2 Congress endorsed the overall orientation of the WWRP, in particular its mission, its objectives and its strategy as defined by CAS.

3.3.3.3 Congress took note that the Mesoscale Alpine Programme had been selected as the first Research and Development Project of the WWRP and that the Sydney 2000 Forecast Demonstration Project for the next Olympic Games had been chosen as the first Forecast Demonstration Project of the WWRP. Congress also noted the activities initiated by the Spanish Meteorological Institute in cooperation with the Tel Aviv University and the Israel Meteorological Service to set up a Mediterranean Experiment project. That project was currently in a preparatory phase and would be discussed by the Science Steering Committee for the WWRP at its second session in October 1999.

3.3.3.4 Congress emphasized the importance for the WWRP to ensure an appropriate coordination with other WMO activities and programmes as well as with other existing international research and applied programmes.

3.3.3.5 It was further noted that a number of key technical capacities were required to support projects

proceeding under the auspices of the WWRP. Those included: numerical modelling, data assimilation, observational strategies, verification techniques, measurement instruments and their platforms, and integrated forecast systems. They would be continuously reviewed and monitored, in particular in close cooperation with the CAS/JSC Working Group on Numerical Experimentation.

3.3.3.6 Congress furthermore stressed the importance of collaboration between the WWRP and WCRP (see agenda item 3.2.7), especially because of the expected synergies between WWRP and process studies in GEWEX and, eventually, to take advantage of the advance in prediction capability at seasonal time-scales and beyond, as a result of the CLIVAR study. The joint CAS/JSC Working Group on Numerical Experimentation would be instrumental in ensuring that WWRP was able to draw on the outcome of WCRP research. The Working Group would also contribute directly to WWRP projects in the area of numerical modelling, data assimilation and observational strategies.

3.3.3.7 Congress expressed satisfaction with the manner in which activities under the previous Weather Prediction Research Programmes had been conducted. It realized that weather forecasting remained a central activity for NMSs and, therefore, welcomed the establishment of the WWRP. Real advances in forecasting capability could be expected by combining elements of improved scientific understanding, advancement of forecast technique, demonstration of new forecast capabilities, and transfer of technology along with related training.

### 3.3.4 TROPICAL METEOROLOGY RESEARCH PROGRAMME (agenda item 3.3.4)

3.3.4.1 Congress commended the work accomplished in the Tropical Meteorology Research Programme. In particular it noted the redefining of the projects within the Programme.

3.3.4.2 The substantial contribution to IDNDR in collaboration with ICSU concerning the demonstration project "Tropical Cyclone Disasters" was noted. Also noted was the continuation of the International Workshops on Tropical Cyclones, which served as quadrennial gatherings to provide forums for researchers and forecasters of tropical cyclones. Congress welcomed the prospects of fruitful research in tropical cyclone land-falling in collaboration with the WWRP.

3.3.4.3 Concerning the monsoon component of the Tropical Meteorology Research Programme, Congress expressed its satisfaction with the excellent role of the Monsoon Activity Centres in support of the project Long-term Asian/African Monsoon Studies. The recommendation that the role of the Centres should be broadened beyond the collection of delayed mode data and the issuance of annual reports was supported.

3.3.4.4 Congress supported the continuation of the series of regional workshops on Asian/African Monsoons that emphasized training aspects. Quadrennial international workshops on monsoon studies were also supported. With

regard to limited area models, satisfaction was expressed with the continuing progress being made in the transfer of expertise to developing countries mainly through the limited area models workshop series. Congress also supported the proposal to prepare a project for demonstration of the operational use of advanced limited area models in tropical regions with special attention to training for model applications and model maintenance.

### 3.3.5 PROGRAMME ON PHYSICS AND CHEMISTRY OF CLOUDS AND WEATHER MODIFICATION RESEARCH (agenda item 3.3.5)

3.3.5.1 In the field of physics and chemistry of clouds and weather modification research Congress noted the outcomes of various meetings, workshops, and conferences. Satisfaction was expressed that those WMO initiated activities were considered essential in the international calendar of events and their continuation was strongly endorsed.

3.3.5.2 Congress recognized that many more tools and techniques were now available, such as advanced instruments to observe the fine structure of clouds or sophisticated cloud models and high resolution mesoscale models, and therefore that the present context was favourable to progress in weather modification. Such advance would nevertheless only be possible if more research programmes and/or experiments to evaluate or to improve the cloud seeding technology were promoted. Hail suppression and fog dispersal were also aspects of weather modification having increasing economic impacts, which deserved greater attention by Members, also in view of new technologies available.

3.3.5.3 Congress was informed of the undertaking by Italy, in cooperation with Israel, of a large rain enhancement project involving very interesting radar analyses. In addition, the cold fog dispersal project conducted in Italy in cooperation with the Russian Federation had shown the effectiveness of the liquid nitrogen technology. Congress noted that the experience gained with those experiments was of great support to the Programme on Physics and Chemistry of Clouds and Weather Modification Research and should be shared with other interested Members.

3.3.5.4 Congress also noted the emerging new aspects of weather modification activities, that of their possible application to water resources management. Impending water stresses for two thirds of the world's population was cited by the year 2025. It was noted that weather modification techniques needed to be more fully understood and developed to establish if they could contribute to the management of the world's water resources. The meteorological community must be prepared to offer advice on the efficacy of cloud seeding. In that connection, Congress noted the encouraging results obtained for individual clouds by several countries in the world using hygroscopic seeding techniques. Congress furthermore recommended that more effort be made to improve the scientific understanding of the processes involved in order to extend their application to cloud systems. In addition, Congress noted the intensive research activity in Israel using numerical models to test seeding

methods and techniques including the efficiency of hygroscopic flares and the planned organization by WMO of a specific workshop on the subject by the end of 1999.

### 3.4 APPLICATIONS OF METEOROLOGY PROGRAMME (agenda item 3.4)

#### 3.4.1 PUBLIC WEATHER SERVICES PROGRAMME (agenda item 3.4.1)

3.4.1.1 Congress noted with satisfaction the progress made during the twelfth financial period in the development of the PWS Programme and its implementation which had continued successfully according to the decisions of Twelfth Congress and as defined in the 4LTP, and pledged its full support to the PWS Programme.

3.4.1.2 Congress agreed that the visibility and credibility of an NMS were derived from its ability to provide demonstrably useful and reliable public weather services, tailored to the needs of its national community. In that respect, it noted the capability of the PWS Programme to contribute to some of the key issues facing WMO and its Members especially in respect of capacity building, status and visibility, natural disaster reduction and forming alliances with important partners such as the media. It further agreed that it was the role of the PWS Programme to assist NMSs to improve those services so that, with the help of related educational activities, the national communities saw the benefits obtained from reliable weather warnings and forecasts resulting from the investment in meteorological-related infrastructure. Congress therefore expressed the view that a major thrust of the PWS Programme during the next financial period should be to assist NMSs to improve their capacity to deliver high quality meteorological services to the public, which in turn would lead to higher visibility and better recognition of the NMS and help ensure its continued effectiveness and support. To achieve that goal, Congress underscored the necessity of active collaboration between the PWS and other programmes of WMO including ETRP, CLIPS and IPA and recognized the steps already taken in that direction such as with TCP and WWRP.

3.4.1.3 In accordance with the decision of Twelfth Congress, the Working Group on PWS had been established by CBS-XI and all regional associations had identified regional rapporteurs as core members. Two meetings of regional rapporteurs held in the Bahamas and Uruguay in 1997 and 1998, respectively, had reviewed the development and implementation of the Programme, had established strategic goals, had examined regional priorities, and had developed implementation proposals. Congress noted that as a result of the restructuring of CBS, the OPAG on PWS had replaced the former working group and that the work of the Programme was now carried out through three expert teams and an implementation and coordination team. The Programme now had moved to a more strategic and action-oriented phase and substantial progress had been made in addressing some of the major issues of concern. Congress welcomed the steps taken to promote greater awareness of the PWS Programme itself through measures such as the production of a brochure published in 1998 providing an overview of the wide scope of public weather services, articles in the *WMO Bulletin*, and development of a site on the WMO Web page.

**GUIDE TO PUBLIC WEATHER SERVICES PRACTICES  
(WMO-No. 834)**

3.4.1.4 Congress commended the Secretary-General on the publication of the preliminary *Guide to Public Weather Services Practices* in 1996 in the WMO official languages. It noted that an expanded version of the *Guide* would be published in 1999 and would be accompanied by complementary material in electronic format. The expanded *Guide* would emphasize the concept of providing service in a more user-focused manner. It expressed satisfaction at the development and distribution of a questionnaire to Members, in 1997 to assess the current state of public weather services. It noted with appreciation that the results of the survey had been published in a report in 1999 and that the valuable information contained therein was used in the development of the *Guide* and for further addressing the strategic goals of the Programme.

**PWS IN SUPPORT OF NATURAL DISASTER REDUCTION**

3.4.1.5 Congress stressed that a particular challenge faced by WMO was how to continue further the benefits that had been achieved through IDNDR. Congress agreed that a high priority for the Programme was to assist NMSs in carrying out their role, as a key element in the national warning infrastructure for hydrometeorological disaster-causing events. Congress noted with satisfaction that strong links existed with the TCP and other WMO Programme elements relevant to disaster reduction, and that they were also being established with the newly structured WWRP which was focusing on research related to high impact weather phenomena.

3.4.1.6 As regarded the provision of meteorological and hydrological information in support of United Nations humanitarian missions, Congress was informed that WMO had, through the PWS Programme, continued to cooperate with UN/OCHA (formerly DHA). The usefulness and success of that cooperation had been demonstrated during the critical stages of several major floods and droughts particularly in Africa, Asia and Central America. Cooperative arrangements were established for UN/OCHA to access meteorological information from various centres concerning the forest fires and smoke haze in South-East Asia in 1997-1998.

**SUPPORT FOR CAPACITY BUILDING AND TRAINING**

3.4.1.7 In view of the major role that effective, high quality public weather services could play in demonstrating the value of government investment in NMSs, Congress highlighted the importance of giving a high priority to improved public weather services in capacity building projects and activities. The necessity and importance of emphasizing the service delivery aspects of relevant new infrastructure projects and a strong focus on public weather services in technical and management training were specifically emphasized. Congress commended the Secretary-General on the high priority that had been given to conducting training events such as seminars and workshops within the PWS Programme. It noted with appreciation that, in order to ensure optimum use of the resources available, most of the training events had been held in collaboration

with other scientific and technical programmes of WMO. It welcomed that innovative approach which provided for a total of 14 training events since Twelfth Congress. In addition, it noted that a close cooperation had developed with the European Union South Pacific Tropical Cyclone Warning Service Upgrade Project, which included a Training Workshop on Public Weather and Warning Services for the South Pacific Island States in September 1997. Congress welcomed that cooperation and noted that it was valuable in making contributions to the development of public weather services in SIDS. Congress also noted with appreciation that the expanded utilization of the Emergency Managers Weather Information Network system had further increased the availability of warning products in the Region. Congress expressed its appreciation to those Members who had assisted with training events and had provided guidance and assistance to other Members. In emphasizing the need for better television weather presentations, Congress also expressed appreciation to the United Kingdom for the provision of television weather presentation systems and training for such presentations to some Members. Congress requested that continued high priority should be given to education and training and urged that more PWS training events should be organized.

3.4.1.8 Congress acknowledged that all users including government agencies, the general public and the private sector would be in a position to make better decisions that led to reducing risk and improving sustainable development through the use of weather and climate information. It also noted that in most countries, forecasts issued through the mass media were often the main source of information for other application areas including marine and agriculture, thus emphasizing the value of improving public weather services through support to those sectors. The increased availability of, and interest in, seasonal to interannual forecasts meant that the public now often expected that information to be included with the daily weather forecasts. In that context, Congress emphasized that that situation provided a valuable opportunity for NMSs to gain recognition as the authoritative source of advice on weather and climate on time-scales ranging from severe local weather warnings through seasonal and interannual forecasts. Congress requested that CBS, in collaboration with CCI, should take full account of the concepts and development of the CLIPS project when considering implementation of those aspects of the PWS Programme relating to seasonal and interannual forecasts and climate information.

**VERIFICATION, USER SURVEYS AND SOCIO-ECONOMIC IMPACTS**

3.4.1.9 Congress emphasized the importance of strengthening the focus on the areas of public weather forecast verification, user surveys, customer interaction activities and improved methods of assessing social and economic impacts of forecasts and warning services. It was becoming more important for Members to have quantitative measures of forecast performance that were easily understood by the public and well proven methodologies of conducting user need and satisfaction surveys in order to assess the usefulness of services.

**INTERNATIONAL BROADCASTERS**

3.4.1.10 Congress noted the increasing diversity of media, through which the public could access weather forecasts, including broadcasts by international media organizations and information on the Internet. In that connection, Congress recalled the concern expressed by Members, especially those from the developing countries, regarding the impact of those activities on the recognition of the services that NMSs provided to the public. Congress urged that the PWS Programme continue efforts to strengthen links further with the international media and also with international providers of information on the Internet, with a particular focus on ensuring that such information and particularly weather warning were issued by a single authoritative voice and that there was proper acknowledgement of the role of NMSs and WMO in providing the core infrastructure of data and products on which forecasts were based and that opportunities were exploited to enhance the visibility of NMSs. Congress noted that it was important to ensure that mechanisms were available to make warnings and forecasts available to the international media for use in their presentations. Congress also encouraged Members to establish their own Internet Web Sites and to exploit such sites to disseminate a full range of weather and climate information to the public.

**YEAR 2000 SYDNEY OLYMPICS**

3.4.1.11 Congress noted that public weather service activities had been planned as part of the preparations for the Sydney Olympics in the year 2000. Provision of meteorological information and forecasts by the participating South-West Pacific countries during the torch relay was viewed as an important contribution by WMO Members to the Olympics. Congress further noted that the Australian Bureau of Meteorology would assist in making weather information during the games accessible on the PWS web site through a link to the Bureau's special Olympics web site.

3.4.1.12 Congress noted that, in addition, a Forecast Demonstration Project would be carried out in coordination with the Bureau of Meteorology and under the auspices of the WWRP. That would test new systems and techniques for their potential to contribute to improved operational public weather forecasting services. Congress also noted that the experience gained in the dissemination and communication of forecasts to the public would be made available to participants at a special workshop on public weather services to be organized by WMO and the Bureau in the year 2000. Congress further noted that the Olympic Games of 2004 would be held in Greece and expressed the hope that activities in support of that important event would be planned by WMO.

**FUTURE DIRECTIONS**

3.4.1.13 Congress agreed that in addition to the key role of support of safety of life and protection of property as a core function of an NMS, other emerging factors underscored the need of each Member to support strong public weather services. One major factor was related to the global economic situation, as a result of which, national public funding for NMSs was coming under increasing

scrutiny and stronger justifications were needed to demonstrate to policy makers the benefits derived from the services provided. In order for NMSs to play an effective role in the prevailing economic and political conditions, it was becoming increasingly important to ensure that the core function of providing public weather services was useful and relevant as well as more visible through better dissemination and presentation techniques.

3.4.1.14 Congress noted that a further factor was that as a result of population growth, economic development and increasing pressure on scarce resources and the environment, communities were becoming more weather sensitive. That required better information concerning future meteorological conditions that might have profound impact on local and national businesses and economies and on the health and lifestyle of the people in reaction to daily variations in the weather. Growing demands for meteorological information and increasing sophistication of users would require more detailed, accurate and relevant information and forecasts to satisfy users' needs and enhanced abilities to quantify the uncertainty in those forecasts. Thus, Congress stressed that it was essential for the PWS Programme to provide every assistance to NMSs to focus on the above and become more requirements oriented.

3.4.1.15 In setting the mandate of the PWS Programme for the next financial period, Congress considered the above factors and requested the Secretary-General to give high priority to:

- (a) Assisting Members to strengthen and improve their national public weather services, by placing particular emphasis on capacity building activities and transfer of knowledge and technology;
- (b) Providing guidance on the preparation and delivery of effective warnings and forecasts that met users' needs and how to conduct an ongoing verification programme and service evaluation;
- (c) Preparing training material and conducting courses in techniques for the presentation and dissemination of public weather products particularly as a part of the activities of the RMTCs;
- (d) Developing a methodology for the international exchange of NMS forecasts and official warnings for the public as part of efforts to enhance visibility of NMSs and to develop a way to compile and communicate those internationally-exchanged forecasts and official warnings to the media, both national and international;
- (e) Developing guidelines and examples of best practices in order to achieve positive and cooperative partnership with the national and international media.

In that connection, Congress adopted Resolution 11 (Cg-XIII).

**3.4.2 AGRICULTURAL METEOROLOGY PROGRAMME;  
THE REPORT OF THE PRESIDENT OF CAgM  
(agenda item 3.4.2)**

3.4.2.1 Congress expressed its appreciation to Mr C. J. Stigter, immediate past president of the Commission, both for agreeing to attend the session as a special advisor to the

acting president of the Commission to present the report and for the services he rendered to the Commission over the past eight years.

3.4.2.2 Congress complimented the president and vice-president of the Commission and the Secretary-General on the excellent progress made in the field of agricultural meteorology including the organization of a large number of training events and the publication of several Technical Notes and reports. It agreed that those publications would be a valuable source of information for researchers and other end-users.

3.4.2.3 Congress noted with appreciation the report of the twelfth session of the Commission which was held in Accra, Ghana, from 18 to 26 February 1999 at the kind invitation of the Government of Ghana. Congress further noted the theme the Commission had adopted as the focus for its activities during the next inter-sessional period, namely to promote agrometeorology and agrometeorological applications for efficient, sustainable agriculture, silviculture and aquaculture for an increasing world population in rapidly changing environments (general summary paragraph 3.2 of the *Abridged Final Report with Resolutions and Recommendations of the Twelfth Session of the Commission for Agricultural Meteorology* (WMO-No. 900), currently still provisional).

3.4.2.4 Congress expressed its appreciation to the Secretary-General and the co-sponsors of the International Workshop on Agrometeorology in the Twenty-first Century: Needs and Perspectives, that was held prior to CAgM-XII. Those co-sponsors included the Technical Centre for Agricultural and Rural Cooperation (CTA), the Food and Agriculture Organization of the United Nations (FAO), the Foundation for Applied Meteorology (FAM) and the Laboratory for Meteorology and Climatology, the International Center for Agricultural Research in the Dry Areas (ICARDA), the International Institute for Tropical Agriculture (IITA), the Joint Research Centre (JRC), the Royal Netherlands Meteorological Institute (KNMI), the University of Georgia — West African Regional Programme of the Sustainable Agriculture and Natural Resource Management (SANREM), the Collaborative Research Support Programme (CRSP), and the United States Department of Agriculture (USDA). Congress requested the Secretary-General to continue to seek co-sponsorship for the organization of such events in conjunction with future sessions of the Commission.

3.4.2.5 Congress reviewed the document “CAgM — Towards 2000 and Beyond” which was endorsed by CAgM-XII and noted that the document offered the opportunity for refocusing priority areas and issues of WMO’s Agricultural Meteorology Programme. The document highlighted that priority focal areas and region-specific agrometeorological priority issues formed matrices within which issues were different in kind or in emphasis for developed and developing countries. Congress was pleased to note that that vision document was guided by the twin principles of utility and efficiency in the provision of service to Members and it endorsed the document.

3.4.2.6 Congress endorsed the decision of the Commission regarding the nomination of one regional

representative from among the participants from each Region attending the session, through the presidents of regional associations, to its AWG. Those representatives would bring to the AWG a regional perspective, because they carried the mandate of the Region.

3.4.2.7 Congress approved the recommendation of the Commission to have Regional Agrometeorological Advisors to the presidents of regional associations. Those Advisors could guide the presidents of regional associations on all matters related to agricultural meteorology, including the active participation of members from the Region in the work of CAgM, and could, at the same time, form a liaison between the president of the Commission and the presidents of regional associations.

3.4.2.8 Congress supported the activities proposed by the Commission for implementation during the next intersessional period. Congress noted that six working groups were established and that 11 joint rapporteurs were appointed by the Commission to carry out its activities. Congress noted further the emphasis that would be placed on the assessment of the impacts of desertification, drought and other extreme meteorological events, and on the provision of advice and assistance on matters relating to the implementation of UNCCD. Congress urged members of the Commission to ensure that adequate attention was given to the implementation of the Convention. Congress also supported the proposal to review and summarize the impacts of current advances in agrometeorological applications for the sustainable management of farming systems, forestry and livestock with specific examples from both developed and developing countries. In that context, applications of response farming and geographical information systems held much promise.

3.4.2.9 Congress further noted the main topics discussed at CAgM-XII, among which were the applications of seasonal to interannual climate forecasts and the products and services that were becoming available based on those forecasts. Congress supported the decision of the Commission to promote survey and summarize, using case studies, the current applications of climate forecasts in agriculture, forestry and livestock management and recommend ways and means to use more optimally climate forecasts in operational agriculture with emphasis on user needs, in regions where climate forecasts had proven skills. Progress in that regard would be accelerated with a close alignment of those initiatives with CLIPS. Congress agreed that reliable and accurate data, efficient data processing and rapid exchange of data and products was crucial to the development of short- and long-range forecasts. It encouraged Members to improve their observational networks, including areas where carefully calibrated and maintained automatic weather stations might be found useful.

3.4.2.10 Congress noted the need to take into account the current advances being made in information technology, e.g., audio-video media, Internet etc., for the communication of agrometeorological information to users. Hence Congress supported the decision of the Commission to suggest, through appropriate case studies, ways and means by which the agrometeorological information and products

could be communicated more efficiently and rapidly to the users. Congress suggested that that effort could be made effectively by collaborating with the PWS Programme.

3.4.2.11 In the light of the information on the science of climate change from the latest IPCC assessment, Congress noted the importance of identifying the regions most vulnerable to increased climate variability and projected climate change where significant changes in the next few decades were likely to disrupt agriculture, forestry, fisheries and livestock production. Hence Congress endorsed the decision of the Commission to survey the impacts of applied and improved adaptation strategies required for reducing the vulnerability of agriculture, fisheries and livestock to increased climate variability and projected changes in climate in different regions.

3.4.2.12 Congress noted that drought and desertification continued to have adverse effects on agricultural and livestock production in many developing countries. Congress, therefore, complimented the Secretary-General for his efforts to ensure active participation of WMO in the negotiating process for the UNCCD and its implementation in order to assist Members in combating desertification and in alleviating the effects of drought. Congress expressed its strong support for the implementation of activities in support of the Convention. Congress suggested that the expertise available in regional centres such as ACSAD in Syria and ACMAD in Niger could be useful in the implementation of activities.

3.4.2.13 Congress noted, with appreciation, the large number of training events conducted within the Agricultural Meteorology Programme, including seven training seminars/workshops and 13 roving seminars, on a wide range of topics related to agricultural meteorology. Congress recorded its appreciation for the participation and collaboration of several international, regional and national organizations in WMO activities related to training in agricultural meteorology, in particular USDA, the Institute of Agrometeorology and Environmental Analysis for Agriculture (Italy), the India Meteorological Department, the Israel Meteorological Service where its RMTTC trained annually some 200 agrometeorologists, and FAO. Congress requested the Secretary-General to continue to seek co-sponsorship for the organization of such events. Congress, in particular, was pleased with the initiative taken in the development of the contents for four new roving seminar series in the inter-sessional period, the preparation of training manuals for each of them and the organization of those roving seminars in different Regions.

3.4.2.14 Congress also expressed its strong support to continuing the roving seminars, workshops and other training events and missions to support the application of meteorological knowledge and information to agriculture. In that context, Congress reiterated its view that education and training in agricultural meteorology, including technology transfer, training of trainers and users should continue to receive high priority consideration. In view of the importance attached to those activities, Congress urged that extrabudgetary resources be provided for the high priority unfunded activities in Section 342.4 of the programme and budget for the thirteenth financial period.

3.4.2.15 Congress fully supported the steps taken by the Secretariat to enhance collaboration with IGBP START, IHDP and WCRP. It noted with appreciation WMO's participation in the newly established CLIMAG of START and the collaboration between START and WMO in organizing an International Workshop on Climate Prediction and Agricultural Production in Geneva in September 1999. Noting that the primary goals of START were to promote regional global change science and to enhance the capacity of individuals, institutions and developing regions to undertake such research, Congress encouraged WMO's continued participation in the activities of the START Committees.

3.4.2.16 Congress noted that the Commission endorsed the proposal for a complete revision of the *Guide to Agricultural Meteorological Practices* (WMO-No. 134) and that a special steering committee was established to guide that rewriting exercise.

3.4.2.17 Congress noted with concern the insufficient number of good submissions for the NORBERT GERBIER-MUMM International Award and requested Members to give wide coverage to the announcement regarding the submissions for the award to increase the number and quality of submissions.

3.4.2.18 In that connection, Congress adopted Resolution 12 (Cg-XIII).

### 3.4.3 AERONAUTICAL METEOROLOGY PROGRAMME; THE REPORT OF THE PRESIDENT OF CAeM (agenda item 3.4.3)

3.4.3.1 Congress noted with appreciation the report of the president of CAeM on the work accomplished within the Aeronautical Meteorology Programme since its last session in 1995. Congress expressed its gratitude to all CAeM members for their valuable work undertaken since its last session and expressed its pleasure with the close and effective collaboration with ICAO. Congress in particular wished to thank Mr C. Sprinkle, the outgoing president of the Commission, for his many years of service to the Aeronautical Meteorological Programme. Congress recognized and congratulated the newly elected president of the Commission, Mr N. Gordon (New Zealand) and the vice-president, Mr J. Goas (France). Congress re-emphasized the importance it attached to an expanded and vigorous Aeronautical Meteorology Programme to meet the needs of the worldwide aviation community as one of the primary recipients of meteorological services.

3.4.3.2 In recalling that the highest priority of the Commission had been training, Congress noted with appreciation that, since Twelfth Congress, 19 training events had been held with either total WMO support, jointly funded by a Member, or with WMO providing major technical support to another organizations' training events. It noted with approval the broad range of topics of those training events, ranging from WAFS satellite broadcast implementation to application of WAFS products, aeronautical meteorological codes, volcanic ash and cost-recovery of meteorological services to aviation. Congress noted that at its eleventh session in Geneva in March 1999, the Commission had expressed concern that training was



high on the agenda for aeronautical meteorology but low on funding. Congress felt in relation to future training needs and methods that the excellent cooperation that existed with WMO Members, ICAO and ASECNA, which had resulted in the implementation of very successful training events, should be vigorously continued and enhanced. Congress noted with appreciation that successful aeronautical meteorological training, fully or partially funded by Members and parent organizations, resulted in the largest number of such events implemented under the Aeronautical Meteorology Programme during the past decade. Congress expressed its gratitude to the United Kingdom, the United States, ASECNA and ICAO, in particular, and welcomed their assurances for continuing those training activities in cooperation with WMO in the future. Congress urged other Members to consider funding future aeronautical meteorology training events in cooperation with WMO to contribute to enhanced capacity building and improved meteorological service to aviation. Furthermore, Congress was informed about existing specialized training desks within the United States National Weather Service and about plans for the establishment of a dedicated aviation desk that would accommodate trainees from other countries. The view was expressed that distance learning methods such as CAL using CD-ROM, COMET and the Internet could effectively contribute to training aeronautical meteorology personnel.

3.4.3.3 Congress noted with satisfaction that three Regional Training Seminars on Cost Recovery of Aeronautical Meteorological Service would be conducted in November 1999 for participants in Region I in Dakar (Senegal) and in Gaborone (Botswana) in December 1999 in coordination with ICAO and in Region V in Bali (Indonesia) in November 1999. A Training Seminar in Aeronautical Meteorology with Emphasis on the Processing, Manipulation and Display of WAFS Data and Products would be held in Kuala Lumpur (Malaysia) in November 1999 for participants from Regions II and V. Congress noted the need to hold additional seminars on cost recovery for aeronautical meteorological services for other Regions, in particular Region IV, during the next financial period.

3.4.3.4 Congress expressed great satisfaction with progress on the implementation of WAFS, particularly with the achievement of global coverage of WAFS satellite broadcasts in 1996, and the installation to date of 165 WAFS satellite reception systems in 120 countries with further installations planned. Congress expressed its appreciation to Members, in particular the United Kingdom and the United States, for having provided other Members with very small aperture terminal equipment and STAR 4 workstations to access and use the WAFS satellite broadcast data and products. Congress welcomed the progress made towards the final phase of WAFS including the hand-over of responsibilities of a large number of Regional Area Forecast Centres to the two World Area Forecast Centres, London and Washington, and the establishment of transition plans for most of the remaining Regional Area Forecast Centres. Congress agreed that one of the remarkable benefits of the WAFS satellite broadcast had been its successful integration of the WMO RMTN and the ICAO Aeronautical Fixed

Service in RA IV providing an increasing range of aeronautical and other meteorological information. Congress recognized that progress on WAFS resulted from excellent cooperation among WMO Members and ICAO.

3.4.3.5 Congress recognized the significant progress that had been made in recent years on the establishment of the ICAO International Airways Volcano Watch. It noted that with similar methodologies in modelling techniques, there were opportunities for joint training in forecasting of volcanic ash and other hazardous weather elements.

3.4.3.6 In relation to aeronautical meteorological codes, Congress was pleased to note the decreasing number of national deviations from the globally-standardized aeronautical meteorological codes, which had been implemented in 1996, and urged that those deviations be reduced even further in order to capture fully the benefits of common meteorological codes. It also welcomed the decisions reached at CAeM-XI on the definition of visibility for aeronautical purposes and on guidance for the definitions of precipitation intensity and well-developed dust/sand whirls (dust devils) and funnel clouds.

3.4.3.7 Congress recognized the positive role played by the CAeM Working Group on PROMET, which had worked closely with ICAO in developing various amendments to WMO Technical Regulation [C.3.1]. Congress noted with satisfaction that PROMET had developed amendments to Technical Regulations [C.3.2] and [C.3.3], which had been approved by the Executive Council at its forty-seventh and fiftieth sessions in June 1995 and 1998. Congress was pleased that PROMET had also been involved in updates and revisions of several WMO publications related to aeronautical meteorology.

3.4.3.8 Congress agreed that automated meteorological observing systems would play a larger role in the future, but noted that the operational use of such systems to the best advantage in aviation would need careful study by appropriate experts. Congress was pleased to learn that PROMET would collaborate with CBS and CIMO in that regard, and that ICAO was considering the establishment of a study group to examine operational requirements for aeronautical meteorological automated observing systems, in which WMO would be invited to take part. Congress welcomed the information provided by the president of CBS regarding areas of collaboration that existed between CBS and CAeM which, in addition to automated observing systems, included the development of aeronautical meteorological codes and the implementation of the AMDAR Programme aimed at enhancing GOS.

3.4.3.9 Congress noted with satisfaction the establishment of the AMDAR Panel in March 1998, following a preparatory meeting held in November 1997. Congress further noted with approval that the fiftieth session of the Executive Council in 1998 had endorsed the report of the inaugural meeting of the AMDAR Panel including its terms of reference, the AMDAR Operational Trust Fund and the AMDAR work programme. Congress noted that an AMDAR Technical Coordinator, appointed in December 1998, had started work in April 1999. The Technical Coordinator was hosted by the United Kingdom

Meteorological Office. Congress recognized the importance of the implementation of the AMDAR Programme that had resulted in the availability of an effective upper-air observing system with high data quality and timeliness. Some Members pointed out however that AMDAR data were as yet not available at their NMCs and suggested that that issue might be addressed by the AMDAR Panel and its Technical Coordinator. Congress was informed that two regional AMDAR pilot projects for Southern Africa and for the Middle-East were part of the AMDAR Panel high priority items aimed at improving data coverage and hence forecast accuracy in those two areas.

3.4.3.10 Congress congratulated the Working Group on ATEAM for the updated publication *Methods of Interpreting Numerical Weather Prediction Output for Aeronautical Meteorology* (WMO-No. 770), Technical Note No. 195. Congress agreed with the conclusions of the eleventh session of CAeM that, given the rapid advances in numerical modelling and its application, that publication should continue to be regularly updated. Congress noted with approval the initiative of ATEAM in meeting four times informally, at their own expense or in conjunction with other meetings, in addition to the one formal meeting held since the last session of Congress. That had enabled the production of four ATEAM newsletters, which had contributed in no small measure to the success of the programme and in particular to the training efforts of the Commission. Congress welcomed the increased emphasis on performance evaluation for aviation weather forecasts. Congress endorsed the Commission proposal to establish an expert team under its new Working Group on TREND to investigate and recommend an international TAF verification method that would be easily understood by users and could be applied by all Members to assess the performance of forecasts at different locations.

3.4.3.11 Congress noted with interest the increasing awareness of the impact of aviation on the environment. Congress felt that it was important that concerns in that area were being adequately addressed by the aeronautical meteorological community. It noted with approval that the Commission's Rapporteur on Aviation and the Environment, Mr T. Matsuo (Japan), had participated in four meetings held by ICAO, and welcomed the ongoing focus in that area, which would henceforth come under the new CAeM Working Group on TREND.

3.4.3.12 Congress expressed gratitude to the former president of CAeM, Mr C. Sprinkle, for his vigorous leadership on the issue of cost recovery for aeronautical meteorological services, which had led to a united approach by WMO in ICAO ANSEP. That united approach effectively promoted by the WMO representative on the ANSEP Panel had resulted in the satisfactory revision and update of the ICAO *Manual on Air Navigation Services Economics* (Doc. 9161-AT/724). Congress welcomed the preparation of the draft *Guide on Aeronautical Meteorological Services Cost Recovery: Principles and Guidance* (WMO-No. 904) which had been reviewed by CAeM-XI. Congress endorsed the view of CAeM that that draft *Guide* should be finalized and published as soon as possible.

3.4.3.13 Congress adopted Resolution 13 (Cg-XIII).

#### 3.4.4 MARINE METEOROLOGY AND ASSOCIATED OCEANOGRAPHIC ACTIVITIES PROGRAMME; THE REPORT OF THE PRESIDENT OF CMM (agenda item 3.4.4)

3.4.4.1 Congress noted that, following a recommendation on the subject by CMM-XII (Havana, March 1997), the Executive Council had decided at its forty-ninth session that a comprehensive study should be undertaken on closer cooperation between CMM and the IOC, including the possibility of cosponsorship of CMM by IOC, with the results to be presented to its fiftieth session. A parallel decision had been taken by the IOC Assembly in July 1997. The fiftieth session of the Executive Council had considered the results of that study and had strongly supported its recommendations. The Council recommended to Congress that a new body for Oceanography and Marine Meteorology should be established, jointly with IOC, to replace the existing CMM and the Joint Committee for IGOSS. A similar recommendation had subsequently been made by the IOC Executive Council in November 1998 to the IOC Assembly session scheduled for June/July 1999.

3.4.4.2 Congress recalled that many areas of close cooperation already existed between WMO and IOC, including joint sponsorship of IGOSS, DBCP, GOOS, GCOS and the WCRP, as well as collaboration in much of the existing activities of CMM. At the same time, it recognized:

- (a) The pressing need for a fully coordinated, joint mechanism for implementing the stated requirements for ocean and surface marine meteorological data to support the GOOS/GCOS ocean climate module, as well as other requirements of GOOS;
- (b) The expanding requirements of many other marine users for a comprehensive range of both meteorological and oceanographic data and products;
- (c) The need to coordinate and manage better the existing range of marine-related activities of WMO and IOC, to reduce duplication and overlap, enhance efficiencies and reduce costs to both Organizations;
- (d) The potential benefits to be gained from making better use of the diverse and extensive range of expertise and facilities available to both Organizations at the inter-governmental level;
- (e) The benefits expected to flow to NMSs from enhanced international interdisciplinary cooperation;
- (f) The expected cost savings to Members and the Secretariat from a rationalization of existing marine related bodies and activities and from joint support of marine and ocean programme activities by WMO and IOC.

3.4.4.3 Congress noted with appreciation the support expressed by the chairperson of IOC, Mr G. Holland, reflecting the recommendations of IOC EC-XXXI on the subject, for continued enhancement in cooperation between IOC and WMO, and in particular for both the objectives of the proposal and also its details as discussed and recommended by the fiftieth session of the Executive Council. It was recognized that there was a need for each Organization to preserve its own interests and mandate within the context of a formal agreement on the new body,

with special emphasis being placed on the importance of that initiative as a significant step forward in the implementation of the GOS, in particular GOOS and GCOS, for which IOC and WMO were the respective lead agencies. Congress recognized with appreciation the pioneering role played by the Joint IOC/WMO Committee for IGOSS in the development of operational oceanography, which had laid much of the groundwork for the present proposal and which should lead eventually to a comprehensive environmental programme, of significance to all countries. Congress expressed strong support for the objectives and concept of the proposal to merge CMM and IGOSS into a new joint WMO/IOC body, which must maintain and strengthen further the existing status and role of CMM within WMO. At the same time it was noted that that body could itself stimulate and assist in coordination at the national level among meteorologists, oceanographers and others engaged in the range of activities within the terms of reference of the new body, and it therefore urged Members to make every effort to encourage and enhance such coordination, to the benefit of all concerned. Congress noted a view expressed that further study of the proposal might be undertaken before final implementation, in particular in the light of the need for enhanced inter-agency cooperation in oceans expressed at the seventh session of CSD and elsewhere, as well as the diverse needs of developing and developed countries. Congress, however, considered that the proposal had already undergone extensive study and review, that it was fully in accord with the desires of the CSD, and that it was very much in the interests of all countries, developed and developing, including SIDSS.

3.4.4.4 In view of the above, and subject to a similar decision being taken by the IOC Assembly in June/July 1999, Congress therefore agreed that a joint WMO/IOC body for oceanography and marine meteorology should be established, with status and responsibilities of a WMO technical commission. That body would replace the existing CMM and the Joint Committee for IGOSS and act as a reporting and coordinating mechanism for the full range of existing and future WMO operational marine programme activities. The new body would have responsibilities to include those of the existing CMM and IGOSS, as well as for coordinating and managing the implementation of an operational ocean observing system in support of GOOS and GCOS.

3.4.4.5 With regard to the exact title of the new body, Congress noted with appreciation the agreement of the IOC Executive Council that it should be called JCOMM. Congress further agreed that, subject to agreement by IOC, meetings of the new joint technical commission, including pre-session documentation and post session report, would be funded by WMO and IOC in turn. Meetings of half of any working groups established would be funded by WMO and the other half by IOC in such a way that costs borne by each body were approximately equal, and Secretariat support would be provided jointly by WMO and IOC, along the lines of the current arrangements for IGOSS. Bearing in mind the multidisciplinary and joint organizational nature of the new technical commission, Congress agreed that the officers of

JCOMM should comprise two co-presidents, who should be drawn one each from the oceanographic and meteorological sciences, with the primary responsibility for guiding the technical commission alternating from one inter-sessional period to the next. Congress further agreed that any savings to WMO resulting from that process would remain within the budget of the Marine Meteorology and Associated Oceanographic Activities Programme, to support the expanding requirements for marine-related activities in WMO.

3.4.4.6 Congress noted that the establishment of a jointly-sponsored technical commission was permitted within the context of Articles 19 and 26 of the Convention, but that some change to the General Regulations would be required. That change would include the specific terms of reference and related information for the new JCOMM. The change introduced a new General Regulation 180, to follow the existing General Regulation 179. Congress adopted Resolution 14 (Cg-XIII) to implement that change, which was detailed in Annex I to the resolution. The specific terms of reference for JCOMM are given in Annex II to the resolution, together with other necessary minor amendments to Annex III to the General Regulations relating to the general terms of reference of technical commissions.

3.4.4.7 Congress noted with appreciation the report of the president of CMM, Mr J. Guddal, on the work accomplished by CMM during the past inter-sessional period, and congratulated both him and the Commission for the substantial progress made and the new initiatives taken in many areas of major importance to Members. Congress recognized that a number of bodies in addition to CMM, in particular the Joint IOC/WMO Committee for IGOSS, I-GOOS and DBCP had been responsible for specific aspects of the WMO marine meteorology programme. In the light of the decision taken on JCOMM above, those bodies would, however, in future, be integrated into, or coordinated by, the new joint technical commission. Congress therefore approved the programme as an integrated whole, within the context of JCOMM, and adopted Resolution 15 (Cg-XIII).

#### MARINE METEOROLOGICAL AND OCEANOGRAPHIC SERVICES

3.4.4.8 Congress agreed that the provision of marine meteorological and oceanographic services to meet the requirements of marine users continued to be of the highest priority, since they contributed substantially to national economies, as well as being essential for the safety of life at sea, as recognized in SOLAS. Congress therefore agreed that continuing priority should be given to assisting Members in the further implementation of both basic services, as specified in the *Manual on Marine Meteorological Services* (WMO-No. 558), and the more specialized services in support of national interests and specific users.

3.4.4.9 Congress noted with satisfaction that the new WMO marine broadcast system under GMDSS (forming part of SOLAS) had been fully implemented on or before the final implementation date for GMDSS of 1 February 1999. It warmly congratulated CMM and all Members concerned for the success of that long-term and complex undertaking, which was making a substantial contribution in support of

maritime safety. Congress assured IMO, as well as organizations representing marine users, of the continuing concern of WMO for the safety of life at sea to provide the best possible services for the marine community.

3.4.4.10 Congress noted that trials for MPERSS were continuing and that a major International Seminar/Workshop on the MPERSS, in Townsville, Australia, in July 1998, had helped to stimulate understanding, interest and implementation. Congress recognized the potential value to all coastal States of an internationally-coordinated approach to the provision of meteorological and oceanographic data and services to support marine pollution emergency response operations. It therefore urged JCOMM to continue the MPERSS trials and assessment, with a view to preparing proposals for a future permanent system.

3.4.4.11 Congress noted with appreciation that the revised MCSS, the Global Digital Sea-Ice Data Bank and the Global Temperature Salinity Profile Programme were all fully operational and provided enhanced, high-quality and timely sets of different types of marine and oceanographic data to a large range of operational and research users. It expressed its appreciation to all the countries, agencies and institutions involved in the operation of those major marine data management programmes, including the two new Global Collecting Centres for the MCSS, operated by Germany and the United Kingdom. Congress further noted with appreciation the work by Japan to digitize the Kobe Collection of historical marine climatological observations before 1933, especially during World War I and to make those data available to users on CD-ROM.

#### SYSTEMS FOR MARINE OBSERVATIONS AND DATA COLLECTION

3.4.4.12 Congress noted with appreciation the substantial progress which had been made during the inter-sessional period in its development and design of the IOC/WMO/UNEP/ICSU GOOS, as well as the steps now being taken in its implementation, particularly of the common GOOS/GCOS ocean climate module.

3.4.4.13 Congress reiterated its view that the development and implementation of GOOS was of considerable importance to WMO and to NMSs, in view of the need for enhanced ocean data to support meteorological and oceanographic services and global climate studies. It further recognized the role to be played by NMSs in the GOOS implementation, in view of their existing experience and facilities in coordinating and operating marine observing systems and in the collection, exchange and management of environmental data.

3.4.4.14 Congress noted that the VOS, SOO, ocean data buoys and oceanographic satellites formed key components of both existing and future ocean observing systems. It therefore agreed on the importance of continued support for those activities, to be directed and coordinated through JCOMM.

3.4.4.15 Congress welcomed the successful efforts to improve the quality of ships' meteorological and oceanographic reports and stressed the value of such data to operational meteorology, maritime safety, global climate studies and oceanographic research and operations. It expressed its appreciation to the voluntary shipboard

observers and to ship owners and operators for their support for the VOS and SOO programmes, and urged Members to make every effort to recruit more ships to the programmes, to improve data quality and timeliness, to strengthen their Port Meteorological Officer networks, and to submit data (including the required metadata) from their VOS as quickly as possible to the Global Collecting Centres, according to the agreed procedures and formats.

3.4.4.16 Congress noted with satisfaction the continuing substantial increases over the past four years in the quality and quantity of ocean buoy data distributed on the GTS, and expressed its appreciation to the DBCP and its technical coordinator. It urged Members to continue and expand their support for the Panel, including through voluntary contributions to support its technical coordinator position, which also now supported the operational SOO Programme, to ensure its continuing viability.

3.4.4.17 Congress agreed that ocean remote sensing, including both satellites and ground-based systems, would be an essential component of the future GOOS and would contribute data of vital importance to meteorological and oceanographic services, to global climate studies and to oceanographic research. It urged satellite operators to facilitate and expand access to, and the use of, such data by all maritime Members.

3.4.4.18 Congress noted that the INMARSAT satellite system, in addition to being a key element in the GMDSS and in the WMO marine broadcast system, was also now the primary means for transmitting meteorological and oceanographic reports from the VOS and SOO from ship-to-shore. It therefore decided to keep in force Resolution 19 (Cg-XI) — The collection and dissemination of marine meteorological and oceanographic information using INMARSAT, on the subject.

#### PROGRAMME SUPPORT ACTIVITIES

3.4.4.19 Congress agreed that specialized seminars, workshops and similar events were of value to Members involved in the provision of marine services and should be continued.

3.4.4.20 Congress noted with appreciation the advanced stage of planning within the WMO/IOC projects to establish cooperative marine observation networks and specialized marine analysis centres in the ASEAN and western Indian Ocean regions (the South-East Asian Centre for Atmospheric and Marine Prediction (SEACAMP) and the Western Indian Ocean Marine Applications Project (WIOMAP), respectively). Congress strongly supported those projects which, as well as expanding the capabilities of Members to provide marine meteorological and oceanographic services, also assisted to fulfil commitments under UNCED Agenda 21, Chapter 17 — Protection of the oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources, and represented contributions to the implementation of GOOS.

3.4.4.21 Congress noted with appreciation that a fully revised version of the *Guide to Wave Analysis and Forecasting* (WMO-No. 702) had recently been published, and that a large number of other technical reports and handbooks had

been published during the inter-sessional period. It agreed that such publications constituted an essential component of the marine programme and that they should continue to be supported.

#### COOPERATIVE PROGRAMMES/PROJECTS WITH THE IOC AND OTHER INTERNATIONAL COOPERATION WITHIN AND OUTSIDE THE UNITED NATIONS SYSTEM

3.4.4.22 Congress noted with satisfaction that WMO's participation in cooperative programmes and projects with the IOC had continued to increase during the past inter-sessional period. Numerous examples of that cooperation were recorded under the relevant agenda items.

3.4.4.23 Congress further noted with satisfaction that WMO continued to collaborate closely with other international organizations concerned with international marine activities, in particular the organizations members of ICSPRO (the United Nations, UNESCO, IOC, FAO, IMO, IAEA and UNEP) as well as the International Hydrographic Organization and the Permanent Commission for the South Pacific. The ICSPRO agencies used the IOC as a common mechanism for ocean-related activities and supported it in a variety of ways, including through staffing. WMO had seconded an officer to the IOC Secretariat, and Congress noted that that officer had worked in particular on major joint WMO/IOC activities such as IGOSS, the DBCP and GOOS. Congress decided to continue the secondment of an officer to the IOC Secretariat and to contribute half the cost of employing a secretary for that officer, recognizing the importance of that secondment to both WMO and IOC in the future with the advent of JCOMM.

3.4.4.24 Congress noted with appreciation that WMO participated actively in the work of the ACC Subcommittee on Oceans and Coastal Areas and in other aspects of interagency-cooperation in the implementation of UNCED and Agenda 21. Congress agreed on the value of WMO's involvement in that work, and therefore that it should continue to be supported.

3.4.4.25 Congress recognized the essential value of inter-agency and inter-disciplinary cooperation in meeting the major challenges in relation to the ocean environment, global climate, marine-related disasters and marine services generally. It expressed its particular appreciation to the IOC in that regard. Congress noted that such cooperation should extend also to the regional and national level and it urged Members to make every effort to consult with the relevant national oceanographic agencies and institutions in the implementation of marine-related programmes and activities.

#### THE ARGO PROJECT

3.4.4.26 Congress noted with interest the information provided on the Argo Project. The project aimed to implement a global array of ocean profiling floats, the primary goal of which was to provide subsurface temperature and salinity data which, when integrated with data from other elements of the climate observing system, would greatly enhance studies of climate variability on interannual time-scales and deliver information for the initialization of climate predictions. In that context,

Congress endorsed Argo as an important component of the operational ocean observing system of GOOS and GCOS, and also as a major contributor to CLIVAR. It requested JCOMM to address the issue of coordinating Argo with other components of the system, such as the SOO Programme and the Tropical Atmosphere Ocean array, and urged Members to participate in, and contribute to, the implementation of Argo wherever possible, in view of its importance to global climate studies.

#### 3.5 HYDROLOGY AND WATER RESOURCES PROGRAMME (agenda item 3.5)

##### 3.5.0 HYDROLOGY AND WATER RESOURCES PROGRAMME; THE REPORT OF THE PRESIDENT OF CHy (agenda item 3.5.0)

3.5.0.1 Congress reviewed the HWRP on the basis of the report presented jointly by the president of CHy and the Secretary-General, which recorded, among other things, the action taken by CHy and the Secretariat in response to Resolutions 18 — Hydrology and Water Resources Programme, 19 — Strategy and action plan for monitoring and assessing water resources in Africa, 20 — World Hydrological Cycle Observing System (WHYCOS), and 21 (Cg-XII) — Global Runoff Data Centre (GRDC). It did so in recognition of the increasing pressure being put on the world's limited resources of freshwater as a result of increases in both population and water demand per capita and problems caused by water pollution and flooding and the impact on human health. Those pressures could lead to disputes over access to water resources in shared river basins and aquifers. The needs of socio-economic development also resulted in increases in the vulnerability of societies to the impacts of water-related hazards. Those developments were set to continue for the foreseeable future and Congress therefore considered that WMO had a major long-term role to play in alleviating their negative consequences through the HWRP and associated activities.

3.5.0.2 Congress recognized that the HWRP was designed to respond to the overall priorities and recommendations established by UNCED (1992) and other high-level meetings and by the expressed needs of WMO Members. Much of the strength of the Programme was seen as lying in its links with other WMO Programmes and with water-related programmes of other intergovernmental agencies and of non-governmental organizations.

3.5.0.3 Congress considered progress with the HWRP in general over the previous inter-sessional period and expressed its satisfaction with what had been achieved, particularly in the light of the limited resources available to the Programme.

#### ACTIVITIES OF THE COMMISSION FOR HYDROLOGY

3.5.0.4 Congress noted with appreciation the report of the president of CHy on the activities of the Commission since Twelfth Congress and the role he had played in elevating the profile of hydrology within WMO. While the main focus of CHy had been on the completion of tasks set by CHy-IX (1993) and the implementation of the programme established by CHy-X (1996), Congress welcomed the extent to which the Commission had seen its

role also as advising Congress and the Executive Council on all matters relating to hydrology and water resources.

3.5.0.5 The president of CHy reported on the tenth session of CHy that had been hosted by Germany in Koblenz, in December 1996. The session had in general been well attended, but Congress shared the concern of the president at the comparatively small number of developing countries represented.

3.5.0.6 Congress noted that CHy-X had adopted a resolution on hydrological networks which recommended that Members cooperate in facilitating the collection and exchange of hydrological data, and a further resolution which called for increased participation of women in the work both of NHSs and of the Commission. Both recommendations had been approved by the forty-ninth session of the Executive Council.

3.5.0.7 Congress was also informed about the new approach that CHy-X had taken in planning its future activities by establishing an Advisory Working Group and only two subject-oriented working groups: one on basic systems, and the other on applications. Each member of those groups had been assigned a specific area of responsibility, the definition of their work plans being established subsequently in consultation with the Advisory Working Group.

3.5.0.8 The president of CHy advised Congress of progress on the work of the Commission, including the fact that all three of its working groups had met towards the end of 1997. Congress noted that the two subject-oriented working groups had met during the same period in joint and parallel sessions which had allowed for an exchange of views and the identification of areas of collaboration. It was further noted that, in the spirit of seeking the most useful outcome rather than holding to tradition, those two groups might not meet again in formal session but rather use their resources for other related activities. Congress encouraged the Commission to maintain that very pragmatic approach to its work and to seek to complete its work programme by its eleventh session, scheduled for the latter part of 2000. The Secretary-General was requested to assist the Commission in meeting that goal with the resources at his disposal.

3.5.0.9 Congress welcomed the continued efforts of the Commission to involve as many of its members as possible in its work. At CHy-X, that had involved establishing nine working parties for in-depth review and recommendations on specific aspects of the HWRP. Subsequent to the session, some 90 "associate experts" had been nominated who, as members of CHy, had volunteered to assist the formally-designated CHy experts in their work. Unfortunately, it was necessary to record that many of those experts faced growing difficulty in fulfilling their responsibilities to the Commission, due to the ever increasing pressure of national duties and a consequent reduction in resources available at the national level for international activities.

3.5.0.10 Congress welcomed the close attention given by CHy-X to the question of the exchange of hydrological data which had resulted in the adoption of Resolution 25 (Cg-XIII).

3.5.0.11 Congress recalled that it had decided to review the terms of reference of CHy at its current session and

noted that, in order to assist that process, CHy-X had endorsed a draft of revised terms of reference which was considered under agenda item 11.3.

3.5.0.12 Congress recalled that, at its previous session, considerable attention had focused on proposals by the president of CHy for an enhanced role for WMO in the resolution of global water issues. At the request of Congress, both the Executive Council and CHy had followed-up on that matter and a report was submitted to Thirteenth Congress summarizing the outcome.

3.5.0.13 Congress recalled the concern expressed by the president of CHy to Twelfth Congress with regard to the representation of the hydrological community in the various constituent and subsidiary bodies of WMO. It noted at the same time the appreciation of the president of CHy that Regional Hydrological Advisers were now invited to participate in the whole period of all sessions of the Executive Council, except the session following Congress. While appreciating the benefits to be gained from the participation in sessions of the Executive Council of experts of various disciplines covered by the Organization, Congress did not feel that it would be appropriate to include the Regional Hydrological Advisers as full members of the Council. With a view to stimulating and assisting discussion on issues relating to hydrology, Congress requested the Executive Council to consider the inclusion of relevant aspects of hydrology on the agendas of its subsidiary bodies and, as proposed by Twelfth Congress, to consider appropriate hydrological representation in those bodies.

3.5.0.14 While noting the increased involvement of WMO in the resolution of global water issues, which had earned it a higher profile in recent years, it was felt that there was still a need to enhance further the role and visibility of the Organization in hydrology and water resources. In that connection, Congress considered the question as to whether it would be appropriate that the name of the Organization be amended to reflect better its responsibility in the field of hydrology. While the majority view was not in favour of a change of name, many of the delegations saw merit in reflecting hydrology in a subtitle. Congress therefore requested the Executive Council to further study that matter and to report back to Fourteenth Congress.

3.5.0.15 Congress noted that the two new component programmes under the HWRP had been developed in response to the request of the forty-eighth session of the Executive Council that the Secretary-General prepare costed proposals for extended activities based on the recommendations of CHy-X. Those contained activities which were identified as additional priority needs of Members. Recognizing that it was not possible to provide full funding for those activities from the regular budget, it requested the Secretary-General to seek extrabudgetary resources for that purpose.

#### **INSTITUTIONAL COOPERATION BETWEEN NATIONAL HYDROLOGICAL SERVICES AND BETWEEN HYDROLOGICAL AND METEOROLOGICAL SERVICES**

3.5.0.16 As in its previous session, Congress reviewed the arrangements made for the participation of NHSs in the work of WMO. Membership to CHy was one important

element, as was the opportunity for Permanent Representatives to appoint Hydrological Advisers. Congress recalled that, by its Resolution 38 (Cg-XII) — Revision of the General Regulations, it had included a reference to the appointment of such advisers in the General Regulations, and that they be representatives of NHSs or equivalent national agencies.

3.5.0.17 In the same spirit, Congress encouraged Permanent Representatives to designate HOMS National Reference Centres and to nominate experts to serve on regional associations WGH, recognizing that only in that way could WMO keep in touch with the hydrological community and thus have the capacity to learn of the needs of Members in that sector and respond to those needs.

3.5.0.18 Recognizing that for many Members, hydrological competence and authority was delegated to services and authorities on a subnational level, for example provincial or state level, Congress encouraged Members to ensure coordination and collaboration between those bodies at the national level and thus foster the active involvement of the whole hydrological community, so that a two-way flow of information and expertise and active collaboration were enhanced. In that context, Congress also noted the important role of the Regional Hydrological Advisers, who provided an important link, not only with the NHSs in the Regions but, together with the president of CHy, represented the global hydrological community at sessions of the Executive Council.

#### REGIONAL ACTIVITIES IN RELATION TO THE HWRP

3.5.0.19 Congress was informed of the extensive technical and administrative support that had been provided by the Secretariat to the six WGH of the regional associations in the implementation of their activities and in the organization of their sessions. It noted that, for some associations, hydrology and water resources was one of the major areas of interest and concern. It also noted that CHy had given special emphasis to cooperation with regional associations, and that one member of the CHy Advisory Working Group, namely the vice-president of the Commission, had again been entrusted with the task of ensuring liaison with the regional associations.

3.5.0.20 Congress was pleased to note that all regional associations had re-established their WGHs during the inter-sessional period. It appreciated that the meeting Consultation on WMO Regional Hydrology Programme had been held (Geneva, April 1999) to enable the chairpersons of the regional associations WGH to develop and/or adapt their work plans and to agree on areas of cooperation among themselves and with CHy. It had developed a strategy for that purpose. Congress further welcomed the support being provided by CHy experts in conducting regional training workshops on water resources assessment and in supporting technical assistance projects in hydrology and water resources.

3.5.0.21 Congress noted that, when referring to water as a resource, it was necessary to take account of the current and potential uses to which the water was put. The work of CHy on water use and demand was seen as very relevant in that regard and the Commission was encouraged to follow-up on that matter by considering a further development of

its guidance on water resources assessment to take account of the increasingly complex interactions between water availability and use and the need, when under stress, to seek alternative sources of supply and new approaches to water conservation.

3.5.0.22 Congress took note of the difficulties met in the implementation of the HWRP in developing countries, despite the efforts of the Organization. It referred to the fact that technology and methodologies developed in one region, even if endorsed at the international level by WMO, often needed to be adapted for use elsewhere. That was particularly true in Africa. Accordingly, Congress invited the regional associations to address that issue when developing plans for their future activities and requested the Secretariat to develop a strategy for that purpose in collaboration with other bodies such as the World Bank and the African Development Bank.

#### WATER RESOURCES ASSESSMENT

3.5.0.23 Congress noted with appreciation that the WMO/UNESCO *Water Resources Assessment: Handbook for Review of National Capabilities* had been published in English and French and that the Spanish, Russian and Arabic translations would soon be available. Congress was also informed of plans to organize a series of subregional training workshops to promote the application of the methodology described in the *Handbook*. The first such workshop had been held in Lilongwe, Malawi in July 1998 for the countries of Southern Africa and others were planned to be organized in 1999 in the South-West Pacific and Central American regions. The Secretariat was requested to continue promoting the application of the methodology and to evaluate its impact on those NHSs where it was applied.

#### PUBLICATIONS

3.5.0.24 Congress noted that during the period under consideration six publications had been prepared in the Operational Hydrology Report series and that 15 had been published as Technical Reports in Hydrology and Water Resources. Congress also noted that the fifth edition of the *Guide to Hydrological Practices* (WMO-No. 168) had been issued in French in 1996 and in Russian and Spanish in 1997 and 1998, respectively. It was also noted that the revised *Manual of Hydrological Information Referral Service — (INFOHYDRO)* (WMO-No. 683, Operational Hydrology Report No. 28) had been published in 1995 and that the database had recently been updated on the basis of a survey carried out in 1998.

#### TECHNICAL COOPERATION AND THE VCP

3.5.0.25 Congress was informed of requests made for technical assistance to Members under VCP in hydrology and water resources which had been circulated to national agencies responsible for technical assistance. It expressed concern that very little support had been received so far. The decisions of Congress on technical cooperation activities in general, including possibilities for obtaining external funding, such as through GEF, were recorded under agenda item 3.7. It was recognized that support to developing countries in their efforts to improve the capacity and work

of their NHSs was an important responsibility of the WMO Secretariat. In that connection, the initiative to seek VCP support to launch a pilot study on hydrological data rescue involving several countries of RA I, and the activities undertaken in support of the NHSs of countries hit by hurricane *Mitch* (October 1998), were seen as positive steps. It was considered equally essential to initiate similar data rescue projects in other regions. Congress noted that HWRP staff devoted a considerable amount of their time, both in Geneva and on mission, to such work.

#### REGIONAL CONFERENCES

3.5.0.26 Congress was informed that WMO, jointly with the IDB, had organized the Conference on Water Resources Assessment and Management for Latin America and the Caribbean. It had been held in San José, Costa Rica in May 1996 and had attracted the participation of experts from 33 countries of the region. The Action Plan drawn up at the Conference provided valuable guidelines for national and subregional bodies in the preparation of their water development plans.

3.5.0.27 Congress recalled that, at its last session, it had adopted Resolution 19 (Cg-XII) — Strategy and action plan for monitoring and assessing water resources of Africa. It noted with concern that, despite great efforts by the Members concerned and by WMO itself, the situation had not greatly improved. Congress therefore decided to keep in force its previous resolution.

#### 5LTP

3.5.0.28 Congress noted that CHy-X had devoted considerable attention to reviewing the future plans for the HWRP, in particular in the light of the proposal made by the forty-eighth session of the Executive Council that CHy recommend enhanced activities in that area. Accordingly, the Commission had identified two subject areas where increased work was needed. On the recommendation of its Advisory Working Group, CHy had incorporated those two areas into a revised structure for the HWRP, which had been endorsed by the fiftieth session of the Executive Council. That saw the Programme as having five components within the 5LTP in place of the three in the 4LTP, namely:

- (a) Programme on Basic Systems in Hydrology;
- (b) Programme on Forecasting and Applications in Hydrology;
- (c) Programme on Sustainable Development of Water Resources;
- (d) Programme on Capacity Building in Hydrology and Water Resources;
- (e) Programme on Water-related Issues.

3.5.0.29 Further views of Congress on those topics were recorded under the respective agenda items. The decisions of Congress on the 5LTP in general were recorded under agenda item 6.2 and as, regarded HWRP in particular, Congress adopted Resolution 16 (Cg-XIII).

#### RESOURCE AND VISIBILITY STRATEGIES

3.5.0.30 Congress recognized that the demands on HWRP had increased considerably in recent years, largely as a result of growing interest in water affairs at the

international level, including concern for both the limited availability of freshwater and the impact of destructive floods in many countries. In that rapidly changing and difficult environment, Congress expressed its appreciation to France, Japan and Sweden for seconding experts to assist the Secretariat in its work and to those other countries which, by co-sponsoring meetings, make available the services of national experts and in many other ways, so generously supported the HWRP. Congress regretted, however, that few contributions had been made to the Hydrology and Water Resources Trust Fund set up at the request of the forty-eighth session of the Executive Council.

3.5.0.31 It was noted that much effort had been devoted in recent years to issuing various brochures and other material for use in publicizing water related issues, in particular the activities of WMO in the water sector and of NHSs in general.

3.5.0.32 Congress noted the comment by the fiftieth session of the Executive Council that the availability of hydrological expertise to the WMO Regional Offices would assist in assessing and addressing the Members' needs in the field of hydrology and water resources.

#### 3.5.1 PROGRAMME ON BASIC SYSTEMS IN HYDROLOGY (agenda item 3.5.1)

3.5.1.1 Congress was informed of the actions taken by the Secretary-General on the implementation of Resolution 18 (Cg-XII) — Hydrology and Water Resources Programme. It noted that assistance had continued to be provided to the presidents of CHy and to the regional associations in the implementation of the programmes of their respective bodies. Emphasis during the current inter-sessional period had been placed on the preparation of up-to-date guidance on the application of modern technology for the collection and treatment of hydrological data and on promoting the use of such material. Congress recommended that CHy consider in its future work the views and recommendations on standardization of methods for data collection and processing, as expressed at the Fifth UNESCO/WMO International Conference on Hydrology (Geneva, February 1999) and at the International Conference on Quality, Management and Availability of Data for Hydrology and Water Management (Koblentz, March 1999).

3.5.1.2 Continuing concern about the global freshwater situation had led to the organization of a number of regional meetings to address that issue in which WMO was required either to take the lead role or to make significant contributions. In that regard, Congress was pleased to note the progress in the development and implementation of WHYCOS and in the promotion of water resources assessment activities.

3.5.1.3 The support to the basic activities of Hydrological Services also included the transfer of operational technologies through HOMS and support to manpower development in operational hydrology. Growing concern for the environment and the concept of sustainable development had been reflected in the activities of the working groups of CHy. In that context, Congress appreciated the workshops that had been organized to address issues related to the monitoring and assessment of water resources.



**GUIDANCE AND REGULATORY MATERIAL**

3.5.1.4 Congress was informed that, following its publication in four WMO languages (see general summary paragraph 3.5.0.24), the *Guide to Hydrological Practices* (WMO-No. 168) was also being translated into national languages by some Members, notably Germany, Hungary and Italy.

3.5.1.5 Congress was also informed of the view of CHy-X that a sixth edition of the *Guide* would be needed at some time in the future, although the form of that edition was yet to be decided. CHy recommended that it should contain a direct correspondence with the WMO *Technical Regulations* (WMO-No. 49), Volume III — Hydrology, and links to detailed techniques such as HOMS components and sequences. In the Commission's view, the basic principle was that the Technical Regulations set out what NHTs should do, and the *Guide* should explain how it was to be done. Congress endorsed the Commission's recommendation that advantage should be taken of available electronic means, including Internet, to facilitate the updating, availability and use of the *Guide*, commencing with a test as to the feasibility of that approach.

3.5.1.6 In its Recommendation 3 (CHy-X) — Amendments to the *Technical Regulations*, Volume III — Hydrology, the Commission had proposed amendments to the Technical Regulations. They were mainly minor changes to a number of definitions. Those were endorsed by the Executive Council in its Resolution 9 (EC-XLIX) — Report of the tenth session of the Commission for Hydrology, and considered by Congress under agenda item 2.4. In endorsing the recommendation of CHy-X, Congress also agreed that all the annexes to the Technical Regulations on hydrology should be reviewed to assess their suitability for inclusion in the *Guide to Hydrological Practices*.

3.5.1.7 Congress noted that, acting on a proposal of the fiftieth session of the Executive Council and CHy-X, the Secretariat had provided advice to the hydrological community with regard to the Y2K problem.

**MAJOR INTERCOMPARISON PROJECTS**

3.5.1.8 Congress was informed of the status of the major intercomparison projects in hydrology:

- (a) The intercomparison of operational hydrological network design techniques (HYPNET) had been completed. The report had been published in 1998 and had already been of use in providing guidance to a number of countries;
- (b) The third phase of the intercomparison of hydrological instruments had been completed. It covered telemetry and data transmission systems and the new continuous discharge measuring techniques using acoustic Doppler current profilers and ultrasonic velocity meters. The reports on telemetry and data transmission systems and on ultrasonic velocity meters had been published in 1998 and the report on acoustic Doppler current profilers was expected to be issued in 1999.

3.5.1.9 In noting the value of the results of those projects, Congress noted the proposal of CHy-X that future intercomparisons might focus on "snowmelt runoff models

for assessing the hydrological effects of climate change" and on "DCPs used for radio, telephone and satellite telemetry systems". Congress recommended that CHy also include glacier-melt runoff models in future intercomparisons.

**HYDROLOGICAL INFORMATION REFERRAL SERVICE (INFOHYDRO)**

3.5.1.10 Congress recalled that the second edition of the *INFOHYDRO Manual* (WMO-No. 683) had been published in 1995 as Operational Hydrology Report No. 28 and that Members were requested periodically to verify and update the information contained in that database which was held in the WMO Secretariat. Noting that the data available in the data bank represented a very valuable source of information for the entire hydrological community, Congress urged Members to cooperate with the Secretariat in its efforts to keep the data bank complete and up-to-date.

**HYDROLOGICAL OPERATIONAL MULTIPURPOSE SYSTEM (HOMS)**

3.5.1.11 Congress recognized that HOMS had proved to be a valuable vehicle for the transfer of hydrological technology and that it had achieved substantial development since its creation in 1981. Some 121 Members had established HOMS Reference Centres. It was noted that vacancies in the HWR Department of the WMO Secretariat had delayed action on HOMS for a period. However, that was now being remedied and Congress endorsed the work currently under way to update the system and encouraged the preparation of the *HOMS Reference Manual* in electronic form in additional languages.

3.5.1.12 Congress was informed of the recommendations for the future development of HOMS made by the CHy Advisory Working Group, in its capacity as the Steering Committee for HOMS, as well as of those formulated by the Fifth UNESCO/WMO International Conference on Hydrology (Geneva, February 1999). Both called for various measures to revitalise and adapt HOMS to take advantage of technological advances in recent years. Congress was pleased to note that the Secretariat had taken the first steps to implement such measures, particularly by organizing an International Workshop on HOMS in the Twenty-first Century, to be held in September 1999 in Geneva.

**WORLD HYDROLOGICAL CYCLE OBSERVING SYSTEM (WHYCOS)**

3.5.1.13 Congress was pleased to note that, in line with Resolution 20 (Cg-XII) — World Hydrological Cycle Observing System (WHYCOS), WMO had continued its efforts for the development and implementation of that global programme with the aim of fostering international cooperation in monitoring and assessing water resources based on a system designed to supply reliable water-related data and information to a wide range of decision makers.

3.5.1.14 Congress was informed that WHYCOS had generated considerable interest in hydrological communities around the world. MED-HYCOS and SADC-HYCOS were currently being implemented for the Mediterranean and Southern African regions, respectively. A project, AOC-HYCOS, had already been developed for west and central

Africa and was awaiting funding for its implementation. A number of other projects were still in the developmental stage, such as Congo-HYCOS and IGAD-HYCOS for the Congo River Basin and eastern Africa, respectively. Congress therefore noted that the African continent was covered by HYCOS projects, which were in various stages. HYCOS projects were also being developed in other regions such as the Baltic Sea Basin and the Caribbean and Central American regions. Other areas, including South America and the South-West Pacific, were under consideration and a proposal had been made for an Arctic-HYCOS. A study of those new initiatives would be carried out prior to Fourteenth Congress.

3.5.1.15 Congress noted with appreciation the excellent progress in the implementation and development of HYCOS projects had only been possible because of the willingness of the Members concerned to participate and of the financial support provided by the World Bank, the European Commission and the Government of France. Valuable assistance had also been received from Germany, Poland, Sweden and the United States. Efforts and contacts were being made to secure further support for HYCOS projects that were considered for development.

3.5.1.16 In view of the number of ongoing WHYCOS projects, the Secretary-General, acting on the recommendation of CHy-X, had established a WHYCOS coordination mechanism. That ensured coordination of the activities of the various Secretariat Departments concerned. WIAG, chaired by the president of CHy, guided the development of the overall programme. Congress was pleased to note that at its next meeting (June 1999), the WIAG would review the WHYCOS concept, funding mechanisms and sustainability of the various components, as required under its terms of reference. It proposed that WIAG, with the advice of other international experts, develop further the global concept of WHYCOS so as to ensure that the development of the regional components was geared towards the national needs of Members and achieved the global objectives, including links with global databases.

3.5.1.17 Congress noted that WHYCOS was being modelled after the WWW and utilized the facilities of the GTS for its near real-time data transmission and that that called for enhanced collaboration between the participating meteorological and hydrological communities. Congress also recognized the value of WHYCOS as a component of IGOS. Congress also recognized the tangible benefits of the near real-time data made available through WHYCOS, especially for operational hydrology purposes. In order not to slow down the achievement of a global coverage under the programme, it recommended the incorporation of already existing stations, even if not connected to telemetry systems, in setting up the observing network for the various HYCOS components.

3.5.1.18 Congress noted that, among the various issues considered by the first meeting of WIAG was a proposal by the World Bank representative for broadening the WHYCOS concept into a Global Hydrological Information System aimed at making WHYCOS a more appealing initiative for a broader set of users. WIAG had recognized

the value of presenting WHYCOS as an information and knowledge system as well as a hydrological information system.

3.5.1.19 Congress expressed its appreciation for the work of the Secretariat in developing the various HYCOS components and recommended that efforts be intensified so as to ensure the implementation of the projects. It urged Members to cooperate and to support the implementation of that programme. Accordingly, it decided to keep in force Resolution 20 (Cg-XII) — World Hydrological Cycle Observing System.

### 3.5.2 PROGRAMME ON FORECASTING AND APPLICATIONS IN HYDROLOGY (agenda item 3.5.2)

3.5.2.1 Congress was advised of the continuing close links that existed between the activities of the HWRP and those of the WCP, especially as regarded the very special role played by water as an element within the climate system and the fact that any variability and change in climate had a major impact on the hydrological cycle. Congress encouraged the further development of cooperation between the HWRP and other WMO Programmes. Congress welcomed the move by CHy-X to maintain support for such collaboration by appointing appropriate experts as members of its Working Group on Applications.

#### CLIMATE AND WATER

3.5.2.2 Congress expressed its appreciation to Finland for the excellent support provided for the Second International Conference on Climate and Water which had been held in Espoo, Finland in August 1998.

3.5.2.3 Congress noted that WCP-Water brought together water-related activities under the WCP with the aim of ensuring an effective input from operational hydrology to water-related studies of climate and also the effective use of climate information for hydrological studies and water resource projects.

3.5.2.4 Congress was pleased to note the progress with a WCP-Water project on analysis of long time-series of hydrological data and indices with respect to climate variability and change, executed by WMO. A recent development was a workshop on detecting trends in hydrological data that played an important role in developing the methodology of trend detection in hydrological data and in streamlining WCP-Water. Congress also noted that a report on grid estimation of runoff data had been published recently in the WCASP Report series. Congress noted that a number of sessions devoted to climate and water were held at the twenty-first Assembly of the European Geophysical Society, with the active involvement of WMO, and that relevant discussions were also expected to be held at the Twenty-Second General Assembly of IUGG in Birmingham in July 1999.

3.5.2.5 Congress recognized that WCP-Water activities were supported only in part by the regular budget and relied heavily on contributions from the other participating agencies and sources such as the Special Trust Fund on Climate and Atmospheric Environment Activities.

3.5.2.6 Congress noted that a series of seven planning meetings on WCP-Water have been held since 1981; the

most recent was hosted by the Federal Institute of Hydrology in Koblenz, Germany in May 1997. That meeting had recommended the establishment of a review panel for WCP-Water.

3.5.2.7 Congress was pleased to note that the Review Panel for WCP-Water had recommended concentration of activities of WCP-Water into two areas, namely hydrological studies in the context of climate variability and change, and application of climate and enhanced hydrological information in planning, design and operation of water resource systems. It also endorsed the recommendation that a Steering Committee be established to oversee the activities of WCP-Water, which would include representatives of CHY and IHP of UNESCO.

3.5.2.8 Congress was pleased to note the importance that had been given to water-related aspects during the International Seminar on the 1997/98 *El Niño* Event: Evaluation and Projections (Guayaquil, Ecuador, November 1998), organized by WMO in cooperation with the IDNDR Secretariat. That had been the first meeting convened in accordance with United Nations General Assembly Resolution 52/200 — International cooperation to reduce the impact of the *El Niño* phenomenon.

3.5.2.9 Congress noted with appreciation that WMO's GRDC had been increasingly recognized worldwide as an important source of data on river flow. The need for data and information on the availability and use of freshwater was identified by the United Nations General Assembly at its special session in June 1997 and discussions on the role of GRDC saw that as an important pointer to the future. Accordingly, Congress decided to keep in force Resolution 21 (Cg-XII) — Global Runoff Data Centre. Congress welcomed the offer of the Russian Federation to establish a global data centre, operating under the auspices of WMO, to support studies on the hydrological regimes of lakes and reservoirs and requested the Secretary-General to follow-up on that offer.

3.5.2.10 Congress endorsed the recommendation of the Fifth UNESCO/WMO International Conference on Hydrology for strengthening databases on historical floods in order to study the effect of global change.

#### FLOOD AND DROUGHT HAZARDS

3.5.2.11 Congress was informed that CHY had established a Working Group on Applications, within which several topics related to flood hazards were being addressed. Congress warmly supported the efforts of CHY in that important endeavour in advancing the science of hydrological forecasting for use by operational forecast centres. They were also informed that CHY had encouraged the members of that working group to use methods other than the publication of reports to strengthen activities in their area and to disseminate knowledge to the community. In that regard, Congress noted with interest the hydrological forecasting workshop that was planned for the fourth quarter of 1999. Congress noted the importance of considering water quality in relation to flash floods and droughts.

3.5.2.12 Congress was informed of the proposal for the development of an "associate programme" on flooding within the GWP (see agenda item 3.5.5), with the aim of

raising the profile of flood hazards within the integrated resource management activities of the Partnership. Congress was also informed of the formation by RA VI of a Coordination Subgroup for Flood Forecasting and Warning, as well as related activities of the RA IV Hurricane Committee. Congress also noted the existence of related activities within TCP. Those activities highlighted the importance of increasing efforts to link more closely meteorological and hydrological modelling activities, allowing for more technically-advanced approaches to be developed and adopted for operational use. It was felt that such efforts would significantly increase the role of NMHS in the mitigations of such disasters. Increased interdisciplinary activities were also required regarding the occurrence of tropical and extratropical storms and their effect on rainfall-induced flooding and tidal-surge flooding. Congress noted that, with continued catastrophic flooding throughout the world and the increasing level of damages resulting from such disasters, greater emphasis should be placed on building integrated meteorological and hydrological forecast systems resulting in a strengthening of flood-forecasting capabilities by Members. That was relevant, not only to short-term forecasts of floods, but also to longer-term predictions associated with such phenomena as *El Niño*.

3.5.2.13 Congress noted that a number of countries were seriously affected by droughts and that in some cases losses due to drought far exceeded those caused by floods. Congress therefore requested CHY to include hydrological aspects of drought in its future work.

#### 3.5.3 PROGRAMME ON SUSTAINABLE DEVELOPMENT OF WATER RESOURCES (agenda item 3.5.3)

3.5.3.1 Congress was pleased to note that CHY-X had made a specific proposal for the inclusion of that new programme in the HWRP and that that had been endorsed by the fiftieth session of the Executive Council. It was noted that that programme was aimed at encouraging the full participation of Hydrological Services in the national planning and implementation of actions recommended by UNCED and by the Special Session of the United Nations General Assembly held in 1997. While welcoming that new initiative, Congress considered it important that WMO work within its area of expertise and responsibility to support sustainable development through the provision of relevant hydrological data, products and information as a contribution to policy and decision-making in water resources management. In that area, WMO would need to work closely with UNESCO and other relevant international bodies working in that field.

3.5.3.2 Congress was informed that CHY had identified several topics of importance to advancing the capabilities of NHMSs in sustainable development of water resources. Congress agreed with the emphasis placed by CHY-X on those areas and fully supported such initiatives.

3.5.3.3 Congress was informed of an agreement between the Mexican Government and WMO regarding the implementation of the national Water Resources Management Project in Mexico. That project was viewed as an

excellent example of WMO working with a national institution to strengthen their capacity to achieve sustainable development of their water resources.

#### 3.5.4 PROGRAMME ON CAPACITY BUILDING IN HYDROLOGY AND WATER RESOURCES (agenda item 3.5.4)

3.5.4.1 Congress was pleased to note the proposal of CHy-X also for the inclusion of a new programme on capacity building in the HWRP, seeing that subject as one of the most important in relation to the aims of the Organization. It was agreed that the activities of that programme should focus on developing human resources in hydrology and the management of water resources and urged Members who were in a position to do so to provide support for such activities.

3.5.4.2 Congress noted the courses and workshops in hydrology and water resources that WMO had organized or co-sponsored during the past inter-sessional period. Those courses included those on Tracer Hydrology (Cuenca, Ecuador, July 1995), on Techniques of Measurement of Discharge in Large Rivers (Manaus, Brazil, August 1996), on Hydrology (Kranjska Gora, Slovenia, September 1997), on Sedimentology in Fluvial Streams (Montevideo, Uruguay, November 1997) and two on Hydrometry and on Telemetry (Itajuba, Brazil, November/December 1998).

3.5.4.3 Congress was informed that collaboration had continued with the National Weather Service of the United States in the organization of the NOAA/WMO Course on Hydrological Forecasting (Davis, California, August 1997). Congress also noted the support that had been given by WMO to the Regional Postgraduate Course on Operational Hydrology in Caracas, Venezuela (September 1997) and the International Postgraduate Course on Applied Hydrology and Information Systems for Water Management in Nairobi, Kenya (January–September 1998). Congress agreed that WMO should continue supporting the above-mentioned courses to the extent possible either from funds available from the regular budget or through the Hydrology and Water Resources Trust Fund. While noting that the Course on Hydrology Forecasting would not be held in 1999, Congress learnt that a workshop on the National Weather Service river forecast system would be held in Washington D.C. in the third quarter of 1999.

3.5.4.4 Congress welcomed the offer of UNESCO to work together with WMO on the development of up-to-date model curricula and the study of new developments in education and training in water science and technology.

#### 3.5.5 PROGRAMME ON WATER-RELATED ISSUES (agenda item 3.5.5)

3.5.5.1 Congress was informed of the extensive cooperation that existed between WMO and other international organizations and programmes in the fields of hydrology and water resources. It recalled the discussion held at Twelfth Congress on new developments as an outcome of UNCED and the major role subsequently assigned to the CSD in following up on those matters.

3.5.5.2 Congress noted the major effort that WMO had devoted to the preparation and publication of the report entitled *Comprehensive Assessment of the Freshwater Resources*

*of the World* that had been submitted to the fifth session of CSD in April 1997 by the Secretary-General of the United Nations. Congress recognized the considerable momentum generated in that field by a series of major international conferences that followed that session and the importance of WMO's active participation in those events. Congress welcomed the various recommendations of those meetings in support of the collection and management of hydrological data and related information and in other aspects of the work of NHSs and expressed the hope that Governments would take account of those when reviewing the national resources made available to those Services.

3.5.5.3 Note was taken of the important role played by the United Nations ACC Subcommittee on Water Resources in inter-agency cooperation, especially in support of the CSD and other United Nations' bodies. Congress was pleased to learn that Germany wished to host a meeting in 2002 at which Member States would review progress in the implementation of the recommendations of the International Conference on Water and the Environment (Dublin, January 1992) and that there was an interest in WMO convening the 2002 meeting in conjunction with other United Nations agencies as it had done in 1992. Congress requested the Secretary-General to consult with Germany and with the other United Nations agencies concerned with a view to convening such a meeting by WMO.

3.5.5.4 Congress recognized the importance now being accorded at the international and national levels to the celebration of the World Day for Water on 22 March each year. The theme in 1996 had been "Water for thirsty cities". WMO had been joined by UNESCO in taking the lead in planning the celebrations in 1997 on the theme "Water resource assessment". The themes for 1998 and 1999 were "Groundwater, the invisible resources" and "Everyone lives downstream", respectively. Congress requested the Secretary-General to continue the practice of providing Members with statements and factual material for their use in planning that annual event.

3.5.5.5 Congress was advised of the continuing close collaboration of WMO with other agencies of the United Nations system on specific topics: with WHO on water quality, with FAO on land management and water use, with IAEA on isotope hydrology, and with the United Nations Economic Commissions within their respective regions. Contributions to the IDNDR had involved the continued implementation of the STEND and CRASH projects as reported under agenda item 9.4. The support being given to WHYCOS projects by the World Bank and the European Commission, and the participation of the IDB in the Conference on Water Resources Assessment and Management for Latin America and the Caribbean (see general summary paragraph 3.5.0.26) were seen as further evidence of the advantage of working together with other organizations in achieving common aims.

3.5.5.6 Particular mention was made by Congress of the long-standing close links with UNESCO. In recent years those had concentrated on joint activities in water resource assessment, on WCP-Water projects and on the preparation of a third edition of the *International Glossary of Hydrology*. Congress recognized that much of the success of that

cooperation was due to the close inter-Secretariat links that had been established over the years, supported every five or six years by a UNESCO/WMO International Conference on Hydrology. The fifth such conference had been held in Geneva from 8 to 12 February 1999 and its report had been submitted to Congress for its consideration.

3.5.5.7 Congress welcomed the comments and recommendation of the Conference and took account of them when considering the future plans of the HWRP and the resolution on the exchange of hydrological data submitted under agenda item 7.1. It also recommended that in their future activities, CHy and the WMO regional associations use the output and consider the recommendations of the Conference. Congress noted the comments of the Conference on the desirability of holding similar intergovernmental conferences in the future.

3.5.5.8 That Conference had endorsed in principle a proposal for a "world hydrology initiative for policy and development", the provisional title of which had since been amended to "Hydrology for Environment, Life and Policy (HELP)". Congress agreed that WMO, together with the other agencies concerned and led by UNESCO, should investigate the aims and feasibility of such a project. The very broad aims, as currently stated, invited the suggestion that it should be seen as serving the needs of society and addressing the environmental issues associated with freshwater flows to the sea. The extent and nature of WMO's involvement in the project should fall within WMO's field of interest and serve the objectives of the Organization.

3.5.5.9 Congress recalled the proposal made at its last session that CHy-X and the twelfth session of the UNESCO Intergovernmental Council for the IHP be co-located in place and time, but was advised that that had not been possible because of the rules governing sessions of the UNESCO Council. It was pleased to learn, however, that the CHy Advisory Working Group and IHP Bureau had met together in Paris in March 1996 and were planning to meet together in September 1999 in Geneva.

#### COOPERATION WITH OTHER ORGANIZATIONS

3.5.5.10 Congress noted that HWRP continued to maintain contact, not only with other agencies of the United Nations system, but also with international organizations and groups outside the system which shared WMO's interests and with which cooperation proved to be of mutual benefit. Congress noted that, among the various new bodies that had been set up as a result of the recent heightened interest in water matters, two were of potential importance for WMO and its Members, namely GWP and the World Water Council. Congress was somewhat concerned at the recent increase in the number of international bodies and programmes in the water sector, all competing for scarce funds, but was pleased to endorse the view of CHy and the Executive Council that WMO should associate itself with those two specific initiatives, in particular if that could be of help to the work of NHSs and of Members in general. Congress requested the Secretary-General to bring that concern and Resolution 16 (Cg-XIII) to the attention of the United Nations and other appropriate organizations, with special emphasis on DECIDES (5).

3.5.5.11 Congress was pleased to note that, despite those new developments and challenges, WMO had maintained its long-standing links with such bodies as the International Association of Hydrological Sciences and ISO. Being able to contribute to the work of those organizations had also allowed WMO to call on their expertise and to promote the interests of NHSs throughout a far broader community, thus avoiding duplication of effort and establishing truly cost-effective collaboration on a number of fronts. Reference in that regard included the International Commission for the Hydrology of the Rhine Basin, the Permanent Joint Technical Commission for Nile Waters, the Niger Basin Authority, the Mekong River Commission, ACSAD, ICSU, the International Association for Hydraulic Research, and the European Network of Fresh Water Research Organizations.

#### 3.6 EDUCATION AND TRAINING PROGRAMME (agenda item 3.6)

3.6.1 Congress reviewed the activities of the Organization in the field of education and training during the twelfth financial period, and appreciated the progress achieved and the assistance provided to Members in developing their human resources to meet Members' responsibilities for providing meteorological and hydrological information and services. It agreed that the ETRP should continue to be given high priority by the Organization and that, during the thirteenth financial period, the Organization should continue to assist NMHSs in ensuring that they had the required well-trained personnel.

3.6.2 Congress also reviewed the contributions of the ETRP to various other WMO Programmes which had important training components as well as assistance provided to regional associations and national training institutions for the implementation of regional and national aspects of the ETRP. It was recognized that those other programmes contributed, in turn, to the ETRP. Congress also considered and commended the collaboration with education-related programmes of other international organizations, in particular those of UNDP, UNESCO, ILO, UNEP and FAO, and the high level of cooperation that existed with EUMETSAT, COMET, ACMAD, ASECNA, the International Centre for Theoretical Physics, and the Islamic Educational, Scientific and Cultural Organization. Congress recommended that such cooperation and collaboration with other organizations and agencies should be continued and expanded, within the available resources.

3.6.3 In appreciating the assistance given to the programme in general, and to Members in particular, under UNDP, VCP, Trust Funds and other multilateral and bilateral schemes, Congress expressed the hope that such assistance would not only continue to be provided to the Organization's education and training activities but that its level would be increased.

3.6.4 Congress appreciated the work carried out by the Executive Council Panel of Experts on Education and Training, which served as an advisory body on various aspects of technical and scientific education and training in meteorology and operational hydrology. It noted that an additional

meeting of the Panel was considered necessary in 1999 to consider the substantive revision of the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258) as a result of the new WMO Classification of personnel in meteorology and operational hydrology to be effective from 1 January 2001. Congress considered the continuation of the Panel during the thirteenth financial period, with an appropriate core membership and terms of reference, to be of great importance.

3.6.5 Congress noted with satisfaction the activities of SCHOTI and its working groups dealing with up-to-date scientific and technical issues in the education and training process. It recognized its involvement in WMO's education and training activities and appreciated its role in the effective use of distance learning technologies with emphasis on CAL techniques, particularly in WMO RMTCs and developing countries. Congress requested the Secretary-General to continue to promote and assist, to the extent possible, SCHOTI initiatives and recommended that Members should seek ways of enhancing cooperation between their training institutions for the benefit of all concerned.

3.6.6 Noting that the quality of students attracted to meteorology and hydrology including the intake to training courses depended in large measure on university programmes, Congress expressed concern that many universities were severely cutting staff and programmes in science, consequently weakening that traditional path. Congress therefore suggested that where that occurred it might be essential for NMHSs to develop or strengthen links with universities to complement their own training programmes.

3.6.7 Congress adopted Resolution 17 (Cg-XIII).

### 3.6.1 HUMAN RESOURCES DEVELOPMENT (agenda item 3.6.1)

3.6.1.1 Congress reaffirmed the fundamental importance of the human resources development subprogramme in assisting NMHSs in having the required well-trained personnel as a result of many factors, especially the impact of technological development of their various functions and operations. Congress also agreed that the human resources development subprogramme enabled the overall ETRP to respond effectively to the needs of Members and to guide the other component programmes in the planning of their activities.

3.6.1.2 Congress noted the outcome of the worldwide survey of Members' training requirements undertaken by the Secretariat in 1998. Congress felt that the results of the survey would constitute a useful source of information for a number of users and would be a basis for modifications and improvements in the ETRP. It accordingly requested the Secretary-General to provide the results of the survey to relevant WMO bodies and, on request, to interested WMO Member countries. Congress agreed that it would be necessary to attract financial, human, and other resources to enable the various identified training requirements to be met.

3.6.1.3 Although the need for careful interpretation of the survey results was recognized because not all Members

had responded, Congress noted the planned increase of trained personnel of various categories by many Members during the thirteenth financial period, as well as an indication of regional training requirements and capabilities in various fields of meteorology and operational hydrology. In that connection, Congress felt that there was a need for the cooperation and coordination of education and training activities in various Regions to be intensified to meet better the expressed requirements and to use available capabilities effectively.

3.6.1.4 Congress noted that the value of information resulting from such a survey depended on its general coverage as well as on its intercomparison with previous surveys. Congress therefore requested the Secretary-General to consider how the surveys could attract a higher rate of replies in order to increase their information value. Congress agreed that another survey should be conducted during the thirteenth financial period and strongly urged Members to respond fully to the questionnaire.

### NEW CLASSIFICATION OF PERSONNEL IN METEOROLOGY AND OPERATIONAL HYDROLOGY

3.6.1.5 Congress noted that in accordance with the recommendation of Twelfth Congress, the new WMO Classification of personnel in meteorology and operational hydrology, comprising the two broad categories common to meteorological and operational hydrological personnel, had been approved by the fiftieth session of the Executive Council to be effective from 1 January 2001. Congress endorsed the new Classification and agreed that its actual implementation should be gradual, recognizing that some Members might require a longer transition period, but that it should not exceed four years.

3.6.1.6 Congress also noted that education and training curricula given in the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258) were in the process of being elaborated by an Editorial Task Force to reflect the new Classification and the actual needs of Members in view of the rapid changes in subject areas and technologies and that the publication would be issued by mid-2000.

### 3.6.2 TRAINING ACTIVITIES (agenda item 3.6.2)

3.6.2.1 Congress appreciated the work and contribution of Members, regional associations and technical commissions on various aspects under the training activities subprogramme as well as that of the Secretariat for the provision of human, financial and material resources to the education and training process, instructor and management training and in the interface between NMHSs and user committees.

### WMO REGIONAL METEOROLOGICAL TRAINING CENTRES (RMTCs)

3.6.2.2 Congress noted that a large majority of the 22 Centres in the RMTC network continued to carry out satisfactorily their routine training programmes and to organize specialized courses in response to the needs of Members in the Regions. Congress expressed appreciation to Member countries hosting WMO RMTCs for their generous

contribution to the training of meteorological personnel in particular in their respective regions. It also noted the assistance provided by the Secretariat to the Centres and expressed the hope that developed countries would continue to offer expert and hardware assistance to the Centres to help them cope with technological advances in the training process.

3.6.2.3 Congress confirmed its earlier view that the network of WMO RMTCs was an important component of the ETRP and tended to be cost-effective to the Organization and urged that every effort should be made to ensure that recognized RMTCs were functioning at the required level of efficiency and effectiveness in preference to the establishment of new centres. Congress endorsed the mechanism for the continuous monitoring of RMTCs' activities agreed upon by the forty-eighth session of the Executive Council, whereby the RMTCs should be subject to a rolling programme of external review to encourage the further development of the range and quality of the training provided by RMTCs.

3.6.2.4 Congress noted that, in some regions, RMTCs were still the only basic training institutions in the field of meteorology and operational hydrology and requested the Secretary-General to continue his actions to assist the Centres and to find ways and means of strengthening them. Congress also expressed the view that developed countries should expand their assistance to RMTCs by providing scientists and researchers to enable Centres to cope with up-to-date technological advances to ensure that a high standard of performance was maintained and that the training needs of the respective Regions were met.

#### PREPARATION OF TRAINING PUBLICATIONS

3.6.2.5 Congress noted the number of training publications prepared and translated by the Organization, as well as those currently under preparation, and agreed on the value and suitability to WMO Members and RMTCs of the "Blue Series" of training textbooks and confirmed the importance of the availability of training materials to students, particularly in developing countries. Congress further agreed that the preparation, translation, publication and distribution of training materials should be continued during the thirteenth financial period. At the same time, taking into account the high costs of preparing and translating good quality training materials, Congress expressed the hope that the assistance of Members in those activities would continue to complement substantially the budgetary allocations for the purpose. Congress supported the request of the Executive Council Panel of Experts on Education and Training that a policy be established for the preparation of future training publications and requested the Secretary-General to take action in that regard.

3.6.2.6 Congress noted that a completely revised, multilingual version of the *Compendium of Training Facilities for Meteorology and Operational Hydrology* (WMO-No. 240) had been released and distributed to Members in 1996 and that the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258) were in the process of being revised. The information contained in the *Compendium* had been computerized and

the database was available on diskettes and a subset was also available through Internet. In view of the increasing usefulness of those publications, particular importance was placed on the need for their periodic updating. Congress urged Members and presidents of technical commissions to participate actively in those activities.

#### WMO TRAINING LIBRARY

3.6.2.7 Congress noted with satisfaction that the WMO Training Library continued to act as an exchange forum, giving advice to Members on the availability of training materials, audiovisual aids and CAL modules and on providing those materials to Members and RMTCs. Furthermore, it noted that a Virtual Training Library, providing information on training resources available through the Internet, became operational in 1998. Congress also noted the volume of training aids, including video cassettes, slides and CAL modules distributed to WMO Members, RMTCs and other users during the twelfth financial period and agreed to the continued strengthening of the Library through the expansion of its holdings and the up-dating of its equipment to enable its continued involvement in new training approaches.

3.6.2.8 Congress noted with appreciation the support given by Members to the Training Library by making available training materials such as slide sets, video cassettes and CAL modules and urged Members to continue their support for the benefit of other Members and the training efforts of RMTCs. Congress recognized the importance of distance-learning as a cost-effective training method and urged the promotion and use of audiovisual aids and CAL modules in different areas of meteorological and hydrological training.

#### TRAINING IN SPECIAL SUBJECT AREAS

3.6.2.9 Congress found that there was a continued need for training in some special subject areas, which were not included in the training component of any of the scientific and technical programmes of WMO. Congress consequently agreed that such training should be continued during the coming financial period. Particular attention should be given to the training of instructors, basic and advanced training of instrument specialists, the management of training institutions and specialized training for personnel dealing with users of meteorological and hydrological data and products, including resource mobilization options. Congress also agreed that another symposium on education and training should be organized during the next financial period.

#### 3.6.3 EDUCATION AND TRAINING FELLOWSHIPS (agenda item 3.6.3)

3.6.3.1 Congress noted that during the first three years of the twelfth inter-sessional period from January 1996 to December 1998, 58 fellowships were awarded under UNDP, 407 fellowships under the VCP, 51 fellowships under Trust Fund projects and 319 fellowships under the WMO regular budget; a total of 835 fellowships under all programmes (see *WMO Annual Reports 1996, 1997, 1998*). Congress also noted that there was a continuing need for fellowships and that the above traditional financial resources were

insufficient to meet all the needs of developing countries and requested the Secretary-General and Members to continue to explore new sources of financial support. Congress recalled that fellowships should continue to be awarded only at the request of the candidate's Government and that the fellowship candidatures should be endorsed by the Permanent Representative of the candidate's country with WMO. Therefore, Congress agreed that applications from individuals should not be accepted.

3.6.3.2 Congress noted with appreciation the generous contributions of several VCP donor Members who continued to provide VCP fellowships to the satisfaction of all concerned. Congress appealed to:

- (a) Traditional VCP donor Members to increase their VCP contributions to the fellowship programme and solicited other Member countries who had not contributed to the VCP fellowship programme, to do so;
- (b) Members requesting long-term fellowships to arrange for such fellowships to be completed in a significantly shorter time by encouraging candidates to obtain their basic degrees in their home countries before taking concentrated courses in meteorology and hydrology such as the Diploma courses in meteorology offered in several host countries;
- (c) Members to take full advantage of the fellowship programme by selecting well-qualified candidates for training, bearing in mind the requirements for academic qualifications, relevant experience, language proficiency, age limits and other specific requirements;
- (d) Members to prepare long-term plans for the integration and utilization of their trained personnel, upon completion of their fellowships, within their respective NMHSs in order to strengthen the scientific infrastructure of those services;
- (e) Members requesting fellowships to consider the most appropriate way of providing the training and, in particular, whether the desired training was available at an RMTC or other training facility in the candidate's own Region.

3.6.3.3 Congress considered that courses given at an RMTC addressed the particular needs and requirements of countries sharing similar meteorological and socio-economic conditions of respective regions. However, for short- and, in particular, for long-term courses in specialized and new fields, it might be necessary to consider more technologically advanced countries for the placement of fellows and the award of fellowships.

3.6.3.4 In view of the above advantages, Congress urged Member countries to make, as far as possible, more use of the training opportunities offered by the RMTCs and requested the Secretary-General to give a higher priority to the respective RMTCs in the placement of fellows and the award of fellowships. It also urged VCP donor Members to provide more VCP fellowships for training in the RMTCs or at other training institutions in the candidate's own region, if so requested.

3.6.3.5 Congress noted the emerging new needs for education and training in the fields of satellite meteorology, information technology, new telecommunication systems, computer technology and modern data-processing systems,

climate change and the atmospheric environment as well as in other fields, in particular for personnel from developing countries. It urged donor Members to arrange for relevant training at all levels to enable such personnel to utilize more effectively the new technologies in those specialized fields and to participate more actively and contribute more to the collective international human endeavours in those disciplines.

3.6.3.6 Congress noted with appreciation the cost-sharing tripartite arrangements for optimizing the use of limited VCP and regular budget fellowship resources where the country hosting an RMTC would waive tuition fees, the beneficiary country would meet the cost of international travel of its candidates and WMO and VCP donors would meet the stipend or living expenses of the fellows concerned. Congress considered those arrangements cost effective and requested the Secretary-General to continue to promote further the implementation of those arrangements for the benefit of all concerned.

3.6.3.7 Congress noted with satisfaction that the Secretary-General had approached several new potential donors and international development funding agencies and banks soliciting voluntary contributions for the fellowships programme and requested the Secretary-General to continue his efforts to increase the traditional fellowships financial resources by tapping additional extrabudgetary resources and new potential sources of funding for the fellowships programme.

3.6.3.8 Congress considered that the fellowships awarded under the various technical cooperation programmes, i.e. UNDP, the VCP, Trust Funds, TCDC arrangements and the WMO regular budget, proved very useful in the development and strengthening of trained human resources in NMHSs and assisted Members in the fields of capacity building in meteorology and operational hydrology. However, Congress noted with concern:

- (a) The reduction in the number of fellowships awarded under UNDP, Trust Funds and the VCP;
- (b) The rising costs of fellowships due to the market economy measures implemented in most of the countries hosting training institutions;
- (c) The increasing requirements for fellowships, in particular the new demands from countries with economies in transition;
- (d) The increasing gap between fellowship requests and the decreasing traditional funding opportunities within all technical cooperation programmes.

3.6.3.9 Congress accordingly agreed to an increase, within the overall budgetary limit, in the WMO regular budget allocations for fellowships for the thirteenth financial period, to alleviate the problems experienced in the fellowship programme. Congress also agreed to include a separate allocation from the regular budget for fellowships for bona fide refugees. Congress also supported the request of the Executive Council Panel of Experts on Education and Training that criteria be established for use by the Secretariat in the fellowship award decisions which they made, and urged the Secretariat to consider the views of Congress, as expressed in general summary paragraphs 3.6.3.2 to 3.6.3.4 in preparing those criteria.



3.6.3.10 Congress noted the various means through which monitoring and evaluation of fellowship activities were carried out during the twelfth financial period and decided that those be continued in the thirteenth financial period through such means as, for example, the Executive Council Panel of Experts on Education and Training and through coordination with United Nations agencies on fellowship matters.

3.6.3.11 Congress noted that the report of the JIU "Fellowships in the United Nations System", published in 1998, contained several recommendations that were already being implemented by WMO, e.g. its recommendation that all United Nations agencies should establish data banks of training institutions which had been implemented by WMO via its *Compendium of Training Facilities for Meteorology and Operational Hydrology* (WMO-No. 240), now available on electronic database.

### 3.6.4 SUPPORT TO THE TRAINING EVENTS UNDER OTHER WMO MAJOR PROGRAMMES (agenda item 3.6.4)

3.6.4.1 Congress noted that during the twelfth financial period more than 70 training events had been organized in all Regions covering many specific subject areas under the operational programmes of WMO. It considered those training events essential for the transfer of knowledge and proven technologies among Member countries. The continued implementation of training events in specialized subjects selected on the basis of surveys of Members' training requirements would be crucial for bridging the gap in scientific and technological know-how between developing and developed countries.

3.6.4.2 Congress noted with appreciation the organization and support of training events by Members and considered that to be of extreme value to the meteorological community. Congress urged Members to continue to develop further their national training activities and their support to WMO organized events, in particular through the hosting of events and the meeting of appropriate expenses for lecturers and participants.

### 3.7 TECHNICAL COOPERATION PROGRAMME (agenda item 3.7)

#### 3.7.1 GENERAL REVIEW OF THE TECHNICAL COOPERATION PROGRAMME (agenda item 3.7.1)

3.7.1.1 Congress reviewed the progress made in the implementation of the TCO Programme during the twelfth financial period, as well as the actions taken by the Secretary-General as follow-up to its decisions and those of the Executive Council related to the Programme.

3.7.1.2 Congress reiterated that the TCO Programme was an integral part of the mandate of the Organization and was of great importance for the full implementation of the scientific and technical programmes of the Organization. In that respect, Congress recalled the recommendations of regional associations to maintain and enhance the TCO Programme and to ensure that adequate resources were made available to provide support to the Programme. In that connection, Congress noted that several Members had benefited from the activities carried out under that Programme for, among other things, the assessment and

evaluation of the NMHSs, the identification of requirements, the preparation of national meteorological development plans and the formulation of project and programme proposals, as well as the mobilization of the resources. Support was also provided in close cooperation with the Regional and Subregional Offices to intergovernmental organizations in developing and implementing regional meteorological and/or hydrological programmes.

3.7.1.3 With regard to the implementation of the technical cooperation activities, Congress noted that those continued to be carried out within the framework of various funding sources, i.e. WMO VCP, UNDP, GEF, Trust Funds, the World Bank, the regular budget and others. Congress, in that respect, requested the Secretary-General to ensure that, in all approved new projects for the provision of equipment, those projects should include training on its maintenance and operation.

3.7.1.4 Congress expressed its gratitude to all donor Members and institutions and requested them to continue providing support to the TCO Programme. It urged Members to participate in, and contribute further to, the Programme. Congress noted with satisfaction that special efforts had been made to explore new sources of funding and to establish new linkages with various agencies, organizations and the private sector, and encouraged Members to mobilize resources in different ways and means, including national financial resources to support the Programme. In that respect, Congress requested the Secretary-General to assist Members through the provision of necessary guidance and materials.

#### WMO VOLUNTARY COOPERATION PROGRAMME

3.7.1.5 Congress noted with satisfaction the progress achieved through the WMO VCP and was pleased to note that in each of the past four years, contributions to the fund, VCP(F), and contributions received in equipment and services including fellowships, (VCP(ES)), averaged, per year, US\$ 360 000 and US\$ 6.5 million, respectively. Congress also noted with appreciation the contributions received from those Members with relatively limited resources as well as the support from organizations, such as EUMETSAT, and the private sector (Vaisala Oy, Finland and TOTEX Corporation, Japan).

3.7.1.6 Congress noted that a total of 420 requests from 110 Members were approved for circulation, 230 projects for 100 Members were supported by donors and 203 projects were completed during the period 1995–1998. As at 31 December 1998, 300 projects were still without any support. In addition, 491 projects for fellowships (84 for long-term fellowships and 407 for short-term fellowships) were completed during the period 1995–1998 under the VCP Fellowship Programme. Some 640 fellowship requests remained unsupported.

3.7.1.7 Congress expressed its appreciation for the VCP activities which had been carried out during the twelfth financial period and noted that VCP had played a major role in the TCO Programme for the implementation of the WWW Programme as well as in other scientific and technical programmes of WMO and in the training of personnel through the provision of fellowships. Congress

was pleased to note that the Internet VCP Home Page was made available for the speedy distribution of VCP-related information, including VCP News and the list of approved projects for circulation. Various measures were taken to streamline the process and operation of the VCP(ES) programme, in accordance with the amended Rules of the WMO VCP. Resources of the private sector were mobilized to support some VCP projects.

3.7.1.8 Congress noted with satisfaction that from the evaluations of the projects carried out in 1996 and 1998, successful results of the VCP Programme had been achieved with a clear improvement in the availability of services. It invited Members to continue to participate in that valuable activity in order to improve the effectiveness of the VCP Programme. In that context, Congress requested the Secretary-General to provide regular progress reports on the status of VCP projects to Members concerned.

3.7.1.9 Congress expressed its appreciation for the contributions made to the VCP(F). The VCP(F) was used for spare parts, expert services, fellowships and high priority programmes, in accordance with the guidelines approved by the forty-eighth session of the Executive Council.

3.7.1.10 Congress also noted that the WWW Implementation Support Revolving Fund of the VCP had permitted the provision of urgent assistance to Members of WMO for the operation and the maintenance of WWW facilities through loans for the purchase of spare parts and consumables for a total amount not exceeding US\$ 10 000 per loan, and encouraged Members to make use of the Fund. Noting with concern that eight Members had not yet reimbursed their loans at the end of the 24-month repayment period despite several reminders from the Secretariat, Congress urged Members concerned to take the necessary measures to ensure timely reimbursement and requested the Secretary-General to utilize the most appropriate channels, in particular diplomatic channels, for that purpose.

3.7.1.11 Congress decided that the programme of assistance under the VCP should be continued during the thirteenth financial period along similar lines as in previous years and noted that the detailed rules and procedures for the operation of the VCP Programme established during the twelfth financial period were still relevant and valid. Congress noted that the VCP contributed to the promotion and support of TCDC and encouraged Members to strengthen and participate in that activity. Congress adopted Resolution 18 (Cg-XIII).

#### WMO EMERGENCY ASSISTANCE FUND FOR DISASTERS

3.7.1.12 Congress noted that since the establishment of a WMO Natural Disaster Assistance Fund for Meteorological and Hydrological Services within the framework of the TCO Programme in 1991, several Member countries had received assistance within the framework of that Fund with support by some donor Members and private companies. During the period 1995–1998, assistance was provided to Azerbaijan, the Democratic People's Republic of Korea, and Viet Nam for rehabilitating the networks of stations and associated facilities destroyed by natural disasters. Congress expressed its appreciation to donors and funding agencies who were

contributing for the most urgent requirements of NMHSs in those countries and in countries in Central America and the Caribbean affected by hurricanes *Georges* and *Mitch* in October–November 1998. Congress noted that in case of natural disasters many donors were willing to provide emergency assistance to those NMHSs affected. In order to avoid duplication of efforts and resources and to ensure that the urgently needed assistance was provided, Congress agreed that a coordinated action was necessary among donor Members and funding agencies and Governments of affected countries. In that respect, Congress requested the Secretary-General to participate fully in, and promote, the coordination efforts.

3.7.1.13 Taking into account the necessity of donor's assistance for countries affected by disasters related to other causes, Congress decided to expand the scope of that Fund and requested the Executive Council to review and modify accordingly the rules and procedures of the Fund (Resolution 4 (EC-XLIII) — Establishment of rules and procedures for the operation of the Emergency Assistance Fund) to cover disasters related to other causes, such as wars.

3.7.1.14 Congress noted that, in view of the increased needs and of the nature of that emergency assistance scheme, the Fund did not have adequate resources to respond rapidly in such circumstances. Congress requested the Executive Council to look further into the matter and consider appropriate and effective measures to assist Members affected by natural disasters, including the possible allocation of a modest amount from the VCP(F) and any other extrabudgetary resources for that purpose. Congress urged Members to participate actively in that scheme and to increase their voluntary contributions to the Fund.

#### UNITED NATIONS DEVELOPMENT PROGRAMME

3.7.1.15 Congress noted that several national projects and regional programmes were being implemented with UNDP funding during the period, despite the reduced level of contribution. Those projects had contributed through the provision of expert/consultant services, equipment and manpower development, rehabilitation and enhancement of NMHSs. A number of the completed and ongoing projects had been implemented under the UNDP/Government cost-sharing scheme. During the period, the volume of funding from UNDP remained stable at about US\$ 1.6 million per year.

3.7.1.16 Congress was informed that as a follow-up to the decisions of the UNDP Executive Board, new programming arrangements had entered into effect as of January 1997. In view of the implications of those arrangements on the priority areas to be funded by UNDP, as well as on the modalities of programming and execution, the Secretary-General had informed all Permanent Representatives of Members with WMO accordingly. Congress emphasized the importance of the role of the Permanent Representatives of countries in mobilizing resources from UNDP and requested the Secretary-General to continue collaborating with the UNDP to enhance its funding for meteorological and hydrological services.

3.7.1.17 Congress noted further that several Member countries had benefited from the availability of UNDP

sectoral support funds during 1995 and 1996 in implementing missions to assist the national Meteorological and Hydrometeorological Services in assessing the status of their facilities and in formulating relevant project proposals for submission to government authorities and funding agencies. Congress noted in that respect that as from January 1997, sectoral support funds were now available to countries through the UNDP offices and regional bureaux and the Permanent Representatives of the Member countries were informed accordingly. Congress encouraged Members to make full use of the new mechanisms available within the UNDP scheme.

3.7.1.18 Congress also noted that a new initiative for a new partnership between UNDP and the specialized agencies was being developed. That joint initiative was in keeping both with changes taking place in the international framework of development cooperation and the United Nations Secretary-General's reforms of the United Nations system. It was aimed at strengthening cooperation for the definition and implementation of joint strategies for sustainable development. Congress requested the Secretary-General to ensure that WMO participated in that initiative.

#### GLOBAL ENVIRONMENT FACILITY

3.7.1.19 Congress noted the satisfactory implementation by WMO of GEF-financed projects, including the GAW global project within the framework of which six GAW stations were established in Algeria, Argentina, Brazil, China, Indonesia and Kenya. Congress requested the Secretary-General to assist in seeking the necessary funds required to ensure proper operation of those stations. The implementation of the project: "Regional cooperative activities in support of climate change in the IAI countries" continued with activities which included: support for installation of workstation equipment and GIS SPRING software, organization of international and national training seminars, and data processing and formal training through fellowships. Congress encouraged Members to continue their efforts in seeking support from the GEF and requested the Secretary-General to assist Members, as required, in the preparation and submission of relevant national and regional project proposals and to pursue active collaboration with UNDP for that purpose.

#### UNITED NATIONS FUND FOR INTERNATIONAL PARTNERSHIP

3.7.1.20 Congress noted the establishment of the UNFIP and the fact that the Secretary-General had provided information to Members on the Fund and on the criteria for submitting projects to it. Congress noted that a number of project proposals were submitted to the Fund for consideration and requested the Secretary-General to continue liaising with the UNFIP Secretariat in collaboration with other United Nations agencies, to secure resources under that Fund.

#### TRUST FUNDS, INCLUDING CAPACITY BUILDING PROJECTS

3.7.1.21 Congress noted that during the period, several Trust Fund projects covering a wide-range of activities were implemented and several others were under implementation with a total delivery of approximately US\$ 22.5 million for

the period. Congress noted in particular that several Members continued to entrust WMO with the development and implementation of projects using funds available to the NMHSs, especially for procurement of equipment and services and for training. Congress also noted that several funding agencies and Governments continued to use the services of the Organization for the implementation of trust fund projects in third party countries. Congress encouraged Members to make use of the scheme, which had proved to be cost-effective for the NMHSs.

3.7.1.22 Congress noted with satisfaction the steps taken by the Secretary-General in implementing the trust fund project "Capacity building in area of management of national Meteorological and Hydrometeorological Services" funded by the Government of the Netherlands. Congress also noted that the Guidelines on Management of NMSs had been distributed to all Member countries. Congress expressed its appreciation to the Netherlands and requested the Secretary-General to continue supporting Members in order to enhance the effectiveness of the management of NMHSs.

3.7.1.23 Congress also noted with satisfaction the role of ACMAD in the capacity building of African NMHSs through manpower development. Congress expressed its appreciation to Members who supported and continued to provide support to ACMAD and requested the Secretary-General to continue his efforts in that regard.

#### WORLD BANK, INTER-AMERICAN DEVELOPMENT BANK AND OTHER FUNDING AGENCIES

3.7.1.24 Congress noted that during the period, the World Bank, regional development banks and other funding agencies such as the European Union had recognized further the importance of meteorological and hydrological information and products for major socio-economic development programmes as well as for national disaster preparedness and mitigation activities. Congress noted with satisfaction that the World Bank continued to support the implementation of the MED-HYCOS project, the purpose of which was to improve cooperation among Mediterranean Sea Basin countries in the field of water resources assessment and management, using modern technology. Congress also noted that the World Bank had approved an International Development Fund grant for SADC countries for the development of a regional strategy to enhance meteorological applications in southern Africa. Congress also noted that, in order to enhance the cooperation that existed between WMO and the World Bank, a high level mission led by the Secretary-General visited the Bank and initiated negotiations on the conclusion of a cooperation agreement between the two institutions.

3.7.1.25 Congress also noted with satisfaction that WMO had successfully completed the Iberoamerican Climate Project Feasibility Study funded by the IDB, Canada, Spain and the United States covering 13 countries in Latin America. The cost of the feasibility study amounted to US\$ 2 900 000 of which Spain made a contribution of US\$ 965 000. Considering the importance of that project for the modernization of NMHSs in most Latin American countries, Congress requested the Secretariat and the participating countries to make efforts in promoting, with

the corresponding national authorities, the implementation of those projects.

3.7.1.26 Congress further noted that WMO was assisting concerned countries in negotiating loans with the IDB for the funding of the prepared projects/programmes in support of NMHSs. In addition, the IDB had entrusted WMO with the development and implementation of a feasibility study on the prediction and amelioration of socio-economic impacts of *El Niño* in Latin America and the Caribbean. Congress also noted that negotiations had been initiated with the African Development Bank and the Asia Development Bank to foster stronger cooperation and implementation of projects/programmes of common interest to WMO and to the Banks. Congress requested the Secretary-General to continue his efforts to strengthen cooperation with those institutions.

3.7.1.27 Congress further noted that WMO had been working closely with the European Commission on the development of projects, especially those related to water resources. The Commission had funded the development of several HYCOS components, specifically for SADC, the west and central Africa, the Congo Basin, and the IGAD countries. Congress noted with satisfaction that the PHARE and TACIS cooperation programmes of the European Union increasingly supported projects in the field of environment monitoring and protection for the benefit of countries of the Baltic, central and eastern Europe, the Caspian Region, central Asia and Mongolia. In that connection, Congress encouraged concerned Members to take advantage of those sources. Congress also requested the Secretary-General to continue working with the European Commission and to strengthen its support to NMHSs.

#### TCDC AND BILATERAL ASSISTANCE

3.7.1.28 Congress noted the cost-effectiveness of TCDC as a mean of promoting and strengthening collective self-reliance and international cooperation. Congress expressed its gratitude to the Members who participated in TCDC activities and urged others to take an active part in it. It requested the Secretary-General to provide support for the development of those activities to the extent possible. Congress recognized the role of the regional and subregional offices in promoting TCDC activities in their respective regions especially with regard to identification of available expertise. Congress noted the important role of bilateral and multilateral assistance in strengthening and developing the NMHSs. Congress also noted that a number of training activities in various fields of meteorological and operational hydrology were being implemented through the secondment of experts and the attachment to specialized centres and training desks. Congress requested Members to provide the Secretary-General with information on the bilateral assistance provided and encouraged exchange of information among Members on that scheme.

#### PROCUREMENT ACTIVITIES

3.7.1.29 Congress noted that during the period 1995–1998, equipment and services were procured for field projects including VCP and Regional and Subregional Offices for a total amount of approximately US\$ 16 848 000.

#### PROGRAMME DEVELOPMENT AND RESOURCE MOBILIZATION

3.7.1.30 Congress noted with satisfaction that particular efforts were made by the Secretary-General during the period to enhance resources for technical cooperation activities and develop appropriate strategies to reach new sources of funding. Congress expressed its appreciation to the Secretary-General for having spared no effort to carry out high-level visits to relevant United Nations agencies such as UNDP, the United Nations Office for Project Services, the United Nations Foundation, the World Bank, IDB, the African Development Bank, and the bilateral and multilateral funding agencies such as the European Commission, the Ministry for Foreign Affairs for Finland, and the French Ministry of Cooperation, among others. The Secretary-General and other senior officials of the Organization also carried out several missions in Member countries to enhance the image of NMHSs and ensure that adequate resources were made available to allow them to play their role in socio-economic development activities.

3.7.1.31 Congress expressed its appreciation for the efforts made to establish stronger linkages between WMO and funding agencies including the private sectors as well as to establish partnerships with other United Nations programmes and specialized agencies such as UNEP, UNESCO and FAO leading to the development and implementation of projects and programmes of common interest.

3.7.1.32 Congress noted that WMO had continued to collaborate actively with regional economic groupings such as the Economic Community of West African States, SADC, IGAD, the League of Arab States, ASEAN, SPREP, the Indian, Ocean Commission, etc. That collaboration had allowed the formulation and development of programmes and projects in support of NMHSs and related institutions. Congress requested the Secretary-General to continue his efforts in that regard and to provide assistance to Members not belonging to any of those regional groupings to support the requirements of NMHSs concerned.

3.7.1.33 Congress also noted that assistance was and continued to be provided to the Newly Independent States and other new WMO Members in the form of missions, expert services, and the provision of spares and consumables to ensure the continuation of the basic services. Congress expressed its appreciation for the effort made by the Organization in organizing technical conferences to help enhance the NMHSs to restore a minimum desirable level of meteorological and hydrological infrastructure, and products and services in support of sustainable development in those countries. Congress requested the Secretary-General to continue his efforts in providing assistance to the Newly Independent States and new WMO Members.

3.7.1.34 Congress recognized that Members continued to rely on the WMO Secretariat for assistance and advice in the formulation and development of project and programme proposals, as well as in mobilizing resources for their activities. Congress recognized the importance of participation of Members in those activities and noted that with the limited resources it had become more and more difficult to meet all the requests of Members. Congress, therefore, endorsed the recommendation of the fiftieth

session of the Executive Council and authorized the Secretary-General to establish a Trust Fund for Technical Cooperation Programme Development Activities according to the terms of reference and rules given in Annex II to this report. Congress requested the Secretary-General to work closely with the Executive Council which should define the priorities for the activities to be carried out under that Fund and define clearly the status and role of the participating non-Member contributors such as development banks, NGOs, and the private sector, in view of the intergovernmental nature of the Organization.

3.7.1.35 Congress noted with satisfaction the initiatives undertaken by the Secretariat for the promotion of new forms of funding through the New Sun Foundation and the private sector. In particular, Congress noted that the Foundation had supported 24 projects benefiting about 50 countries with a total value of SFR 2 800 000 in the fields of meteorology and hydrology, among which were the project funded by the Swiss Government to provide low cost satellite receiving systems to 30 WMO Members as well as the establishment of an Air, Water and Related Environment (AWARE) Centre.

### 3.7.2 ORGANIZATION AND FUNDING OF THE TECHNICAL COOPERATION PROGRAMME (agenda item 3.7.2)

3.7.2.1 Congress recalled that important decisions were taken during its twelfth session with regard to the enhancement of the TCO Programme, which was considered an integral element of the WMO mission. In particular, Congress recalled its decision concerning the harmonization of the functions of the TCO Department with those of the Regional Offices and the adaptation of the expenditures related to Secretariat support to technical cooperation activities to the revenues generated. The establishment of Subregional Offices on a trial basis was also approved by Twelfth Congress. Congress was pleased to note that the Secretary-General had taken the necessary actions to implement, within the allocated resources, its decisions and those of subsequent Executive Council sessions, especially with the view to ensuring the effective implementation of the TCO Programme.

3.7.2.2 In particular, Congress noted that the functions of TCO and the Regional Offices had been harmonized and that the Subregional Offices had been established on a trial basis in Lagos, Nigeria for western Africa, in San José for North and Central America and the Caribbean, in Nairobi, Kenya for eastern and southern Africa and in Apia, Samoa for the South-West Pacific Region. The decision of Congress on the Subregional Offices was recorded under agenda item 3.8.1.

3.7.2.3 In addition, Congress noted that the core activities of the TCO Department, which included programme planning and coordination, collaboration with other relevant agencies and institutions, and resource mobilization had been and continued to be implemented. Congress also noted that the TCO Department was re-organized to ensure most cost-effective use of available staff in collaboration with regional and subregional staff. New job objectives were defined for the staff and specific areas and programmes were assigned. Appropriate training was

also provided to staff from the Department and from the Regional and Subregional Offices in programme development and management. Adequate coordination between the relevant staff was also ensured.

3.7.2.4 Concerning the budget for Secretariat support to the TCO Programme, Congress recalled that a one-time supplement to the TCO Fund revenue of SFR 4.5 million was made from the regular budget to be financed from the regular budget to cover the transitional requirements during the process of restructuring the TCO Programme during the twelfth financial period. Congress noted that adequate measures had been taken to achieve that objective. In that regard, Congress also noted that the approved budget for the twelfth financial period would be balanced between revenue and expenditures.

3.7.2.5 With regard to the thirteenth financial period, Congress agreed that funding from the regular budget should continue to be provided to cover the costs of the posts covering the core activities, as during the twelfth financial period. In addition, Congress agreed that allocations should be made to meet the operating and travel costs for the core activities of the TCO Programme as similar arrangements existed for other WMO Programmes. Congress requested the Secretary-General to continue his efforts to find ways and means for enhancing resources for technical cooperation activities and encouraged Members to cooperate with the Secretariat in that endeavour.

### MECHANISMS FOR REVIEWING THE WMO TECHNICAL COOPERATION ACTIVITIES

3.7.2.6 Congress noted with satisfaction that, as requested, the Executive Council had established an Advisory Group of Experts on Technical Cooperation and that the Group had been useful in providing guidance and advice to the Council on relevant aspects of the TCO Programme. Congress expressed its appreciation to the members of the Group and invited experts and especially to its chairperson, Mr C. E. Berridge, First Vice President of WMO. Congress requested the Council to re-establish such a Group for the next financial period and agreed that funding should be made available to cover the costs of its meetings, which could take place in association with the Executive Council sessions.

### 3.8 REGIONAL PROGRAMME (agenda item 3.8)

#### 3.8.0 REPORTS OF THE PRESIDENTS OF REGIONAL ASSOCIATIONS (agenda item 3.8.0)

3.8.0.1 Congress noted with appreciation the reports of the presidents of regional associations and expressed its satisfaction that the activities of the associations were being undertaken in an effective manner, in spite of the financial constraints experienced by many Members of the associations. The reports provided an overall view and assessment of the major activities of the regional associations since Twelfth Congress.

3.8.0.2 Congress commended the presidents of regional associations for their continued dedication to the work in their respective Regions in response to the growing needs for meteorological and hydrological support in the socio-economic development of the Member countries. In that

context, special reference was made to the important role played by the presidents during their missions to visit the Member countries of their respective Regions, particularly by highlighting to the planners and decision makers in the countries visited the importance of considering meteorology and operational hydrology as an integral part of their national development plans.

3.8.0.3 Congress recognized the important role played by regional associations and their presidents in the implementation of the various scientific and technical programmes of WMO. It emphasized the importance of strengthening the roles and functions of regional associations to create closer collaboration among Member countries. In that regard, the agenda items for regional association sessions should be more focused on the activities of the Regions in order to ensure active participation by Members.

3.8.0.4 Congress gave its full support to the priorities and the future work programme of the regional associations during the thirteenth financial period, as highlighted in the reports of regional associations, in particular those related to the creation of unified and strengthened national Services and the implementation of the regional component of WMO scientific and technical programmes focusing on new priority areas, particularly climate change, related environmental issues and sustainable development. It also agreed that the regional associations should give special attention to the improvement of the capacities of NMHSs in interannual and seasonal climate prediction through the CLIPS project as well as to the enhancement of technical cooperation activities between WMO and regional organizations in various Regions.

3.8.0.5 Congress noted with satisfaction the improvements in the level of implementation of the scientific and technical programmes of WMO in Member countries. However, it noted with concern the inadequacies that existed in the networks of observations, in particular, upper-air networks, telecommunications, data-processing facilities, and information technology in some other Member countries. It recognized the usefulness of introducing new technology such as the Emergency Managers Weather Information Network in the South-West Pacific Region and Internet to help solve the problems of the collection and transmission of meteorological data and products. In that connection, Congress requested the Secretary-General to continue to provide the necessary support, as appropriate, to the Members concerned. It also requested the Secretary-General to continue to assist Members in addressing their Y2K problem.

3.8.0.6 Congress recognized the continuous deterioration of upper-air data, in particular in Regions I and II, due, among other things, to suspension of the Omega navigational system and financial constraints in many Member countries. It further noted the problem of poor data availability in the central part of Africa as a result of lack of appropriate data exchange facilities due to the high cost involved in maintaining GTS links. Congress requested CBS to study and propose appropriate solutions to address the serious problems of poor availability of data in some regions such as the central part of Africa, taking into account

available new technology for data and products exchange, including the Internet. It also requested the Secretary-General to assist some of the seriously affected countries to address their immediate problems especially to enable them to have appropriate facilities, such as the Internet, for the exchange of data and products. It encouraged VCP and other donors to give favourable consideration to assist Members in upgrading their upper-air systems and other facilities.

3.8.0.7 Congress acknowledged the importance of seminars, workshops, study tours and technical conferences on management. They demonstrated their usefulness in improving the capacities of NMHSs. Congress, therefore, agreed that such events should be supported and organized during the thirteenth financial period. Congress agreed that events related to new technologies should be given due emphasis.

3.8.0.8 Congress noted that the attendance of representatives of Members from developing countries in sessions of regional associations and technical commissions were very low. Some Members expressed the need for support to attend constituent bodies sessions in certain specific circumstances. Congress requested the Executive Council to find ways and means of promoting and facilitating the participation of representatives of Members in the work of the regional associations and technical commissions and to make recommendations to Fourteenth Congress. Congress further noted the need to support rapporteurs in RA I (and other regional associations, as required) to participate in WMO activities related to their work. It recorded its decision on those matters under agenda item 8.

3.8.0.9 Congress recognized the importance which should be given to professional and specialized education and training in the Regions and requested the Secretary-General to make every effort to provide strong support, especially to alleviate problems generated by the retirement of senior officers from the Services of some Member countries.

3.8.0.10 Congress recognized the importance of the work of the RA IV Hurricane Committee, the WMO/ESCAP Typhoon Committee and the WMO/ESCAP Panel on Tropical Cyclones. It noted the need to convene annual meetings of those Committees and Panel and recorded its decision under agenda item 8.

3.8.0.11 Congress also recognized the work of the RA I Tropical Cyclone Committee for the South-West Indian Ocean and the RA V Tropical Cyclone Committee for the South Pacific and South-East Indian Ocean and supported enhancement of their activities during the thirteenth financial period.

3.8.0.12 Congress recognized the situation that some NMSs were facing with respect to other weather service providers. It requested the Secretary-General to continue to assist Members in upgrading their Services in order to improve their capabilities *vis-à-vis* other weather service providers.

3.8.0.13 Congress welcomed the Members which had joined WMO since Twelfth Congress. It accorded great attention to the pressing needs, in particular, of SIDSs to meet new challenges in the maintenance and

modernization of their infrastructure. Congress appreciated the financial and technological support provided to those countries by donor countries.

3.8.0.14 Congress was informed of the upcoming finalization of the Iberoamerican Climate Project Feasibility Study which comprised 13 countries in Latin America, and noted with satisfaction that in several countries it was being implemented. Congress recognized the importance of that project for the development of NMHSs of the countries concerned and expressed the hope that the respective countries could provide the corresponding support. Congress requested the Executive Council and the Secretary-General to provide the necessary support so that the project was fully implemented in all concerned countries. Congress was also informed of a feasibility study on the amelioration of the socio-economic impact of the *El Niño* phenomenon in Latin America and the Caribbean, in which a considerable number of countries would participate and would soon commence implementation by WMO through its Subregional Office in Costa Rica. Congress noted the advances made through the Modernization of the Telecommunications Network Project in RA III. Congress requested the Secretary-General to continue assigning a special priority to that project which was considered important for Members of RA III.

3.8.0.15 Congress noted that the Regional Meteorological Data Communication Network project of RA VI had entered its planning and implementation phase. An ad hoc group was established within the framework of the Working Group on Planning and Implementation of the WWW in RA VI to address the problems relating to basic WWW facilities in some countries of the Region. Congress was also informed of the RA VI Coordination Subgroup for Flood Forecasting and Warning established to assess the current situation regarding flood forecasting and warning and to develop proposals to strengthen the systems. Congress requested the Secretary-General to continue to provide, within available resources, the assistance necessary to those activities.

3.8.0.16 Congress noted with appreciation the kind offer of Portugal to host the thirteenth session of RA I in Madeira in the year 2002. It further noted the offer of the Republic of Korea to host the twelfth session of RA II in the year 2000. It also noted the kind offer made by the Government of Costa Rica during the last twelfth session of RA IV to host the next session if it was not held jointly with RA III. It further noted the offer made by Ecuador to host the next session of RA III. The delegations from Ecuador and Venezuela offered to host a joint session of the thirteenth sessions of RAs III and IV in Quito and Caracas, respectively. That issue was further discussed under agenda item 4.1. Congress noted with appreciation the kind offer of Samoa to host the thirteenth session of RA V in Apia in the year 2002. It also noted the kind offer of Hungary to host the next session of RA VI in the year 2002.

### 3.8.1 REGIONAL ACTIVITIES (agenda item 3.8.1)

#### REGIONAL OFFICES

3.8.1.1 Congress expressed its satisfaction at the increasing role of the Regional Offices in assisting the

Members of their respective regional associations in implementing WMO technical and scientific programmes and other activities that had a regional focus. It emphasized, in particular, the efforts of the Offices to contribute to the high priority areas including their increasing role as information centres for activities in their respective Regions. Congress emphasized that the activities which contributed to the development of the NMHSs should be further reinforced and improved.

3.8.1.2 Congress noted with satisfaction the commendable efforts of the Regional Offices in establishing close working relationships with other regional and subregional groupings and organizations in the fields of meteorology and operational hydrology as well as in the related environment fields.

3.8.1.3 Congress examined the question of the location of the Regional Offices during the thirteenth financial period and noted that the international staff of the Regional Office for Africa were performing their functions temporarily from the WMO Headquarters. Congress noted the wish expressed by RA I at its twelfth session (Arusha, Tanzania, October 1998) to keep the Regional Office close to its Members. Congress requested the Secretary-General to consider at an opportune time to transfer, on a temporary basis, the Regional Director and his staff to the Subregional Office for Eastern and Southern Africa in Nairobi, Kenya.

3.8.1.4 Congress considered the study carried out by the Secretary-General on the various implications of relocating the Regional Office for Asia and the South-West Pacific to one of the Member countries of RA II or RA V and decided that the Regional Office for Asia and the South-West Pacific should continue to be located at the WMO Headquarters in Geneva during the thirteenth financial period.

3.8.1.5 With respect to the Regional Office for the Americas, Congress noted the wish expressed by the Government of Paraguay to continue hosting the Office in Asunción, Paraguay. Congress therefore decided that the Regional Office for the Americas should continue to be located in Asunción, Paraguay. Congress also noted the kind offer made by the Government of Brazil to host that Office. It requested the Secretary-General to study the financial implications that a possible transfer of the Regional Office might have for WMO and to evaluate the functioning of the Regional Office in order to strengthen it. It also requested the Secretary-General to provide the Members of RAs III and IV with the results of such analysis for appropriate measures to be considered by the sessions of respective regional associations.

3.8.1.6 Congress expressed its deep appreciation to the Governments of Burundi and Paraguay for hosting the Regional Offices for Africa and the Americas, respectively.

#### HARMONIZATION

3.8.1.7 Congress reviewed the measures taken to harmonize the activities of the Regional/Subregional Offices and those of the TCO Department and expressed its appreciation to the Secretary-General for the prompt action taken in that regard. Congress further welcomed the coordination mechanism put in place to ensure the success of the harmonization and took note that the Secretary-General had issued Guidelines on the Operation of the

Regional and Subregional Offices. It requested the Secretary-General to continue his efforts in achieving a high level of coordination among those Offices for their cost-effective operation.

3.8.1.8 Congress noted with satisfaction the effective response from the Subregional Offices in assisting NMHSs in their development which had been affected by natural disasters of hydrometeorological origin and others. It requested the Secretary-General to develop further appropriate procedures so that the Secretariat, and in particular Regional and Subregional Offices, could respond promptly and effectively to Members' needs during such disasters.

#### SUBREGIONAL OFFICES

3.8.1.9 Congress noted with appreciation the actions taken by the Secretary-General to establish Subregional Offices in San José (Costa Rica), Nairobi (Kenya), Lagos (Nigeria) and more recently in Apia (Samoa).

3.8.1.10 Congress expressed its deep appreciation to the Governments of Costa Rica, Kenya and Nigeria for hosting, respectively, the Subregional Offices for Northern America, Central America and the Caribbean, for Eastern and Southern Africa, and for Western Africa; and to the Government of Samoa and SPREP for hosting the Subregional Office for the South-West Pacific.

3.8.1.11 Congress noted that two of the Subregional Offices, namely those for Western Africa and for Northern America, Central America and the Caribbean had been in operation since February 1997, the Subregional Office for Eastern and Southern Africa since June 1998 and the Subregional Office for South-West Pacific became operational as of April 1999. Congress noted that although the first two Subregional Offices had been in operation for just over two years, they had played a proactive role in support of Members. In particular, the Subregional Offices had established contacts and developed working relationships with national and regional representatives of bilateral and multilateral donors and organizations in order to sensitize them to support national and regional meteorological and hydrological projects. They undertook a number of missions to NMHSs with a view to developing project proposals and to assist in resource mobilization. Congress noted that the recent sessions of the respective regional associations had expressed satisfaction with the activities of the Subregional Offices.

3.8.1.12 Congress considered the importance of establishing a subregional office for Asia to serve Members of Region II and some Members in South-East Asia in RA V and requested the Secretary-General to make the necessary arrangements to establish such an office for Asia with adequate professional staff and financial resources. The office would be located in one of the Member countries in RA II, taking into consideration the geographical balance and the vast area of Asia and South-East Asia. Congress noted with interest the offer from Pakistan to host the office. Another Member expressed the need to locate an office in the western part of Asia. Congress requested the Secretary-General to invite all Members in RA II to consider the possibility of hosting a subregional office for Asia. In

that connection, Congress requested the Secretary-General, in consultation with the presidents of RA II and RA V to decide on the location of the subregional office and recorded its views under agenda item 8.

3.8.1.13 Congress considered the possibility of establishing a subregional office for the central, eastern and southern parts of Region VI. Some Members felt that the office could be established as soon as possible. Others felt that the matter should be further examined by RA VI. The Government of Bulgaria offered to host a subregional office for the Region. Congress requested the Secretary-General, in consultation with the president of RA VI, to finalize the study according to the recommendations of the twelfth session of RA VI (Tel Aviv, May 1998) and to decide on the establishment of a subregional office. Congress also requested that a report on the action taken be reported to the fifty-second session of the Executive Council. It further requested the Secretary-General to enhance the support to the Members of the Region through appropriate means.

3.8.1.14 Congress expressed its satisfaction with the functioning of the Subregional Offices for Western Africa and for Northern America, Central America and the Caribbean, and recommended that the Offices be continued during the thirteenth financial period. Congress requested that the Executive Council should be informed of their activities and that it should assess the functioning, the assistance provided to NMHSs, and the cost effectiveness of the subregional offices. Congress further requested the Executive Council to review the assessment study before any additional subregional offices were established.

3.8.1.15 Congress expressed its full satisfaction with the inclusion in the 5LTP, of a separate chapter on the Regional Programme, which addressed issues relating to the functioning of the NMHSs, of common concern to a Region or group of Regions taking into account particular local and regional conditions.

#### 4. PROGRAMME SUPPORT SERVICES AND PUBLICATIONS (agenda item 4)

##### 4.1 CONFERENCES (agenda item 4.1)

4.1.1 Congress examined the information submitted by the Secretary-General on the invitations extended for hosting sessions of constituent bodies during the thirteenth financial period (2000–2003). Additional information provided by delegations at Thirteenth Congress permitted the establishment of a provisional programme of sessions of those bodies (see Annex III to this report). The Secretary-General was requested to continue further negotiations to find host countries for those regional associations/technical commissions that had no invitation at the time, in order to ensure that as many sessions as possible would be held outside Geneva. That decision was in line with the policy laid down by previous Congresses. Congress noted that, in accordance with General Regulation 17, if no invitation was received 300 days before the scheduled opening of the session concerned, it would be held at WMO Headquarters.

4.1.2 Congress requested the Executive Council to ensure that, as far as possible, sessions of constituent bodies were arranged so that the workload of Members and the



Secretariat could be distributed evenly during the thirteenth financial period.

4.1.3 Congress also confirmed the policy established by previous Congresses with regard to the assistance provided by the Organization to host sessions of constituent bodies away from Geneva.

4.1.4 The budgetary implications with regard to the programme of sessions of constituent bodies during the thirteenth financial period were discussed under agenda item 8.

#### 4.2 LANGUAGES (agenda item 4.2)

4.2.1 Congress thanked the Secretary-General for having met the requirements for language services within the budget allocations, including the additional services in Arabic and Chinese requested at its twelfth session for all the required constituent bodies at no additional cost to the Organization. It noted that, to do so, the Secretary-General had taken a set of drastic measures to reduce the volume and production cost of all documentation with a view to providing those services within the reduced regular budget allocation for language services. As a result, the volume of pre-session documentation for constituent body meetings had been reduced by an average 32.2 per cent while the length of individual meetings had been reduced by one or two days leading to an 8.3 per cent reduction of the number of constituent body meeting days in comparison with the eleventh financial period. However, some Members noted that there was further scope for improvement regarding the quality of translation and timeliness of distribution of documentation.

4.2.2 While thanking the Secretary-General for the high quality of Arabic translation services, Arabic-speaking Members, who were widely supported, requested the extension of services in Arabic to the provision of correspondence and of the Technical Regulations during the thirteenth financial period. They also requested further posts for the Arabic service and the inclusion in the budget to be presented to Fourteenth Congress of the allocations required to provide full Arabic services starting from the fourteenth financial period. The Chinese delegation, supported by many other Members, requested the extension of Chinese services to the provision of documentation for the sessions of the technical commissions during the thirteenth financial period.

4.2.3 While recognizing that the requested extended services would be a further step towards a more equitable treatment of all WMO official and working languages, but also that major economy measures had already been implemented during the twelfth financial period, including the maintenance of permanent staffing below the minimum core level, Congress expressed concern about the cost of those extensions of language services and highlighted the need to find new ways of financing them if the services in all languages were not to be degraded. It requested the Secretary-General to conduct a study of the WMO language services system with a view to reaching the highest level of efficiency. The study should include financial aspects and give examples of solutions adopted by other organizations. The results should be submitted in a report to the Executive

Council which would then, in turn, make a recommendation to Fourteenth Congress.

4.2.4 Congress decided to extend Arabic language services to include correspondence and that documentation for the sessions of technical commissions should also be provided in Chinese, to be funded, as appropriate by transfer of resources from the relevant programme budgets. It adopted Resolution 19 (Cg-XIII).

4.2.5 Congress considered the request from Angola, Brazil, Cape Verde, Guinea Bissau, Mozambique, Portugal and Sao Tome and Principe concerning the use of Portuguese as an official and working language of the Organization and adopted Resolution 20 (Cg-XIII). It authorized the Secretary-General to provide Portuguese interpretation at sessions of RAs I and III for the thirteenth financial period using available resources. It also noted that the existing arrangements for a separate trust fund account to provide extrabudgetary resources for Portuguese interpretation established at Twelfth Congress (Resolution 26 (Cg-XII) — Use of Portuguese) could continue to be used for that purpose at sessions of Congress.

4.2.6 Congress noted with satisfaction that, in anticipation of future requirements for WMO terminology in order to run any CAT system successfully, a multilingual terminology data bank (METEOTERM) had been created. It already held over 40 000 entries, many of them in several WMO official languages and provided translators with invaluable terminological support. Congress requested the Secretary-General to develop METEOTERM further within the available resources. Congress also noted that CAT systems still required further development to become effective and that voice recognition could lead to a reduction in the cost of text-processing in the near future.

4.2.7 Congress noted with satisfaction that, pursuant to Resolution 26 (Cg-XII), Portuguese had been used for interpretation at the twelfth sessions of RAs I and III as well as at Thirteenth Congress. It expressed gratitude to Brazil for having provided Portuguese interpretation services at the twelfth session of RA III and to Australia, Macao, Portugal and the United States, for their contribution to the trust fund account established by the Secretary-General to provide the extrabudgetary resources required to finance those services.

4.2.8 Looking to the future, Congress requested the Secretary-General to pursue his efforts to reduce documentation production costs whenever possible, including through the use of voice recognition and CAT technology as soon as that became feasible.

#### 4.3 PUBLICATIONS (agenda item 4.3)

4.3.1 Congress thanked the Secretary-General for the work carried out under the Publications Programme during the twelfth financial period. It welcomed the important new editions of mandatory publications, and asked the Secretary-General to continue efforts to treat all languages equitably and to publish all official records in all languages before the end of the corresponding financial period. Congress commended the Executive Council for the continuing measures taken to promote the Programme and for the continued use made by the Secretariat of new technology

and working methods to reduce the bulk and cost of publications, while consistently improving their appearance and utility, and thereby enhancing WMO's image. The extended range and quality of information material produced in a most cost-effective way during the last four years was also much appreciated. Congress extended thanks to Members which had actively contributed to the programme by translating and preparing publications.

4.3.2 Reiterating the importance of the WMO Publications Programme, Congress requested the Executive Council to continue to review regularly the progress of the Programme and to provide detailed guidance during the thirteenth financial period on the overall programme of publications. That should include: planning, production and distribution, taking into account Members' requirements and the facilities available to them, and the funds available within the Publications Programme budget, including the publications fund.

4.3.3 Congress 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. It considered that that function was more important than any measures aimed at increasing the receipts from the sale of publications. In that regard, the cost of printing publications, in particular mandatory publications, should be covered to an appropriate extent by income from the sales, but consideration of potential sales income should not interfere with distribution of the information contained in publications to NMHSs by the most economic means. Congress affirmed that reproduction within NMHSs of information distributed by WMO was not subject to any restrictions except acknowledgement of the source. It approved the Council's recommendation that publications, such as the abridged reports of constituent bodies, which had little sales potential, should be distributed by the most economical means available.

4.3.4 Congress requested the Secretary-General to continue efforts to expand electronic publishing wherever it could further the objectives of the Organization and its Members. It requested continued trials to allow the phased introduction within budgetary resources of distributing publications by electronic means during the thirteenth financial period. While acknowledging that paper publications would be required by some users in parallel with electronic versions and also that the cost of printing smaller quantities than hitherto would result in higher unit costs, Congress considered that it would be important to reduce requirements for printed publications to a minimum when satisfactory electronic alternatives became available. Noting that the medium of distributing information should not affect its generation, Congress considered that the existing working relationships and the allocation of responsibilities between the Publications Programme and the scientific and technical departments should continue as before.

4.3.5 Congress noted that, while the quantity of material included in mandatory publications and the number of languages required was continually increasing, the resources available to the Programme had been subject to the same budgetary pressures as had other programmes.

Recognizing that resources were needed to develop electronic publishing and other new techniques, it requested that after provision for such development, the remaining resources be allocated on an equitable basis to the approved list of mandatory publications and that, under internal trading or otherwise, programmes would be responsible for the costs of publications exceeding such allocation. Congress expressed concern at delays in the publication of mandatory publications in several languages and encouraged the Secretary-General to find the resources, where possible, to improve the situation and to seek ways to translate more programme-supporting publications. It requested the Secretary-General to take any administrative steps he might identify to maximize the use of existing resources to accommodate new requirements within those resources, while preserving the standards of excellence of publications.

4.3.6 Congress decided to extend the Arabic and Chinese language services to include the production of the *Technical Regulations* (WMO-No. 49) and the *Guide to Climatological Practices* (WMO-No. 100). It also asked the Secretary-General to seek ways and means, in consultation with the China Meteorological Administration, that might make possible issuing some of the *Guides* in Chinese.

4.3.7 Congress adopted Resolution 21 (Cg-XIII) defining the broad policies in connection with the WMO Publications Programme during the thirteenth financial period. The annex to that resolution contained the list of WMO mandatory publications and languages in which they should be issued during the thirteenth financial period. Congress noted that the list included the addition of 12 new language versions of mandatory publications and decided that they should be funded by transfer of resources from the relevant programme budgets. It asked the Secretary-General to discuss the preparation of other language editions, especially Arabic and Chinese, with interested Members, with a view to minimizing the cost of such editions without prejudicing their content and quality.

#### 4.4 OFFICE AUTOMATION AND INFORMATION TECHNOLOGY SUPPORT (agenda item 4.4)

4.4.1 Congress noted with appreciation the progress and improvements made in the office automation and information technology in the Secretariat since Twelfth Congress. It noted that the PC-user environment was migrated from MS-DOS-based through Windows 3.1 to Windows 95 and that those improvements had enabled the Secretariat to make good use of modern office tools for better exploitation of new information technology.

4.4.2 Congress also noted that 64 Members' Websites were linked to the WMO Website. It also noted that Members could send and download files to and from the WMO Web and FTP servers, using either FTP, Netscape or MS Internet Explorer. Congress considered that that facility would increasingly become more important for communications between the Secretariat and Members as more Members acquired the appropriate information technology. Congress was informed of the security measures that had been taken to protect WMO information systems against viruses and other attacks. Congress requested the

Secretary-General to have the structure of the WMO Website presented in a way that was more user-friendly. Congress further requested the Secretary-General to continue providing the necessary assistance to Members to establish their Websites and in their planning and implementation stages of office automation in order to be compatible with the Secretariat's current and future information systems. One particular use of the WMO Website that Congress strongly supported was the establishment on the site of direct links to official forecasts and warnings issued by NMHSs and contained in their Websites, within the context of Resolution 40 (Cg-XII) — WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationship in commercial meteorological activities.

4.4.3 Congress further noted that the e-mail facility had been enhanced, providing faster, easier and reliable messaging and information exchange. In that connection, it noted that the WMO addressbook containing an updated staff e-mailing list had been made available on the WMO Homepage. Congress was informed that certain Members experienced some difficulties in exchanging e-mail messages with the Secretariat. Congress requested the Secretary-General to continue to advise Members when such difficulties occurred with a view to alleviate them and to apply all appropriate technical solutions in order to ameliorate the situation. Congress requested the Secretary-General to make available on the WMO Homepage, to the extent possible, the mailing lists of discussion groups and experts of working groups of regional associations and technical commissions. Congress was further informed that e-mail messages to and from the Secretariat were presently considered as equivalent to telephone calls. Congress however considered that a document issued on a letterhead of a Member, signed by the appropriate authority and attached to an e-mail transmitted to the Secretariat should be treated as a telefax communication.

4.4.4 Congress noted that an Information Systems Strategy was being developed for the first time in the Secretariat. State-of-the-art hardware equipment, together with an appropriate network, was being implemented in the new WMO Headquarters building. Such network infrastructure would enable WMO to use the latest technologies for video conferencing, e-mail, voice-mail and other multimedia services. New information technology/information system projects were in the stage of planning and/or development to cope with the Organization's needs during the next four years, such as Enterprise document management system, Intranet, and Extranet and the client/server database management system. Congress requested the Secretary-General to send to Members the information systems strategy document when completed.

4.4.5 Congress noted that the scope of the plans for the thirteenth financial period exceeded the available financial resources and that the thirteenth financial period budget proposals identified requirements for the addition of highly qualified human resources, in the form of consultant services, in support of information systems activities. Congress addressed those aspects under agenda item 8.

## 5. INFORMATION AND PUBLIC AFFAIRS PROGRAMME (agenda item 5)

5.1 Congress reviewed the actions taken during the twelfth financial period to enhance the IPA Programme and its increasing promotional and constituency-building activities in support of the scientific and technical programmes for the benefit of NMHSs. Congress requested the Secretary-General to continue to address the need for an increased visibility and public support for the activities of WMO through a more focussed outreach policy, greater coordination with the United Nations system, continued projection of a unified and consolidated image of WMO and NMHSs, and development of approaches and methodologies and search for appropriate means for the implementation of an improved communication strategy.

5.2 Congress agreed that the new WMO communication strategy should focus on promoting the role and visibility of WMO and the NMHSs in support of the well-being of all individuals, communities and nations. In particular, Congress considered that the basic elements of the strategy should comprise the need for the NMHSs of all Members to identify themselves as an integral part of the WMO system; constituency-building both at the national and regional levels; development of effective key messages giving a local voice to a global undertaking and vision; fostering strategic alliances with the media, particularly the broadcast community; and promoting a communication culture throughout WMO. Congress agreed that such a strategy would represent a sound basis to enable the IPA Programme to foster greater public awareness of the valuable contributions of meteorology, operational hydrology and related environmental disciplines to sustainable development and to rally support for WMO and the NMHSs.

5.3 Congress requested the Secretary-General to develop further and implement the communication strategy. Congress further urged the Secretary-General to continue to enhance IPA's capability to take advantage of available technology through modernization and skilful management of IPA's photo library, video archives and editing facilities and development of databases of media and other IPA contacts for greater dissemination of press releases and other public information materials. Congress noted that advances in information technology were contributing to a rapid socio-economic transformation throughout the world and therefore invited the Secretary-General to ensure that the IPA Programme took advantage of those advances and their various applications in the promotion of WMO and the NMHSs especially through wider use of Internet and the development of WMO's Website. Congress also requested Members to enhance their own information and public affairs activities taking into account the communication strategy and provide support to the IPA Programme.

5.4 Congress called for a greater involvement of NMHSs in developing strategic alliances with the national media for the purpose of disseminating key messages and providing greater visibility for all activities of the NMHSs. It also called for closer collaboration in developing joint public awareness initiatives, particularly on the occasion of the World Meteorological Day and the World Day for Water which were largely celebrated under a different theme each

year. A series of posters, brochures, thematic video films, radio programmes and information kits were specifically produced and widely distributed on each occasion.

5.5 Congress reiterated its support for the capacity building of the NMHSs, particularly in improving their presentation and communication skills and in enhancing their visibility through training workshops and closer collaboration with the print and broadcast media. In particular, it expressed appreciation for the successful training workshops held in Costa Rica, London and Cairo, and for the preparations for another workshop for French-speaking countries. Those workshops enhanced the participant's skills in communication and effective presentation of weather information on television and radio networks. Congress requested the Secretary-General to continue to organize media training workshops for presenters of weather forecasts on television, radio, the press and website networks with a view to improving their presentation and dissemination skills in support of WMO Programmes, and in particular the PWS, for greater visibility and recognition of the role of NMHSs and WMO. Congress further emphasized the need for the greater involvement of regional and subregional offices in the promotion of the awareness of the role, achievements and successes of WMO and NMHSs. In that regard, Congress requested the Secretary-General to provide the necessary support to the Regional and Subregional Offices.

5.6 Congress expressed appreciation for the successful WMO participation in a number of international events such as Expo 98 in Lisbon in coordination with other United Nations agencies and for the development of joint communication tools such as the inter-agency *Atlas on the Oceans*. Congress urged the Secretary-General to continue to take advantage of international fairs and exhibitions to promote the image of WMO and NMHSs and to enhance cooperation with other United Nations agencies within the framework of the Joint United Nations Information Committee.

5.7 Congress took note of the successful results achieved through a series of international press conferences and media campaigns organized on several major themes or in conjunction with regional and international events. Those included, *inter alia*, the launching of the WMO/UNEP Scientific Assessment of the Ozone Depletion and Successive Deterioration, the first Intergovernmental Experts Evaluation of the Impact of *El Niño*, the Conferences of the United Nations Convention on Climate Change in Kyoto and Buenos Aires, the United Nations Convention to Combat Desertification in Rome and Dakar; Habitat in Istanbul and the World Food Summit in Rome. Congress urged the Secretary-General to continue the emphasis on media relations and campaigns taking advantage of scientific developments and international events.

5.8 Congress called upon the Secretary-General to incorporate, as a key element of the IPA Programme and within the framework of WMO's constituency-building efforts, the development of appropriate mechanisms, interaction and linkages with advocacy NGOs, the academic community and the civil society that would ensure a greater understanding by decision makers of the role and

contribution of meteorology and operational hydrology and the relevance of the NMHSs to socio-economic development. Within that context, Congress requested that the IPA Programme should support the efforts of NMHSs to ensure a greater meteorological content in ecological, environmental and other educational publications including educational material targeted to children.

5.9 Congress adopted Resolution 22 (Cg-XIII).

## 6. LONG-TERM PLANNING (agenda item 6)

### 6.1 REPORT ON THE MONITORING OF THE IMPLEMENTATION OF THE FOURTH WMO LONG-TERM PLAN (agenda item 6.1)

6.1.1 Congress noted with appreciation the report of the President, submitted on behalf of the Executive Council, on the assessment of progress made towards the achievement of the established targets and main long-term objectives of WMO Programmes over the period 1994-1997 as set down in the relevant parts of the Third and 4LTP. It was noted that the report was based on the programme monitoring and evaluation scheme developed by the Executive Council at the request of Congress.

6.1.2 Congress noted that the Executive Council, with the help of its Working Group on Long-term Planning had prepared a consolidated overall assessment of WMO Programmes and progress in the implementation of individual scientific and technical programmes. That was based on independent submissions made by the presidents of regional associations and technical commissions as well as by the Secretary-General.

6.1.3 Congress agreed with the Executive Council's view that progress had been achieved, in particular in the following areas:

- (a) Improvement of forecasts over the whole globe;
- (b) Improvements of warnings of environmental and severe weather and hydrological events;
- (c) Increasing reliability of seasonal forecasts in the tropics;
- (d) More extensive and better validated scientific basis for providing advice to the world community on climate variability and change; and,
- (e) Enhanced support to national sustainable development efforts.

Activities were undertaken in a broader range including those in support of international provisions relating to the UN/FCCC and UNCCD. Significant progress was also made in addressing major issues of concern to the Organization such as international data exchange, the role and operation of NMHSs, the role of WMO and its relationship with the United Nations system.

6.1.4 At the same time, Congress also recognized that challenges remained which the Organization and its Members, particularly their NMHSs, needed to continue to address. Severe budgetary constraints and financial difficulties were encountered; there was only a rather limited margin for manoeuvre to meet numerous high priority demands. The financial aspects of the Long-term Plan should be better addressed in the future. That should include, among other things, planning to ensure financial viability, appropriate resource mobilization initiatives, and

matching the planned activities of the Organization and the available resources. The Executive Council was requested to bear that aspect in mind when preparing the next Long-term Plan.

6.1.5 Congress noted that the assessment report examined by the Executive Council identified achievements, issues and challenges associated with the various programmes. Congress agreed that those should continue to be identified in future monitoring and evaluation of WMO Programmes. Congress further agreed that the future monitoring and assessment should clearly identify difficulties and areas of improvement so as to facilitate further analysis of the relevant concerns, as appropriate, and/or the undertaking of the pertinent measures to overcome deficiencies in the implementation of the WMO Programmes. It should also lead to recommendations, based on lessons learnt, in improving the long-term planning process.

6.1.6 In light of the monitoring and evaluation undertaken, Congress felt that there was a continuing need to address further the gap in the relevant services provided between developed and developing countries. Congress also agreed on the need for an enhanced strategic approach to assist Members to participate more fully in, and benefit from, the WMO Programmes.

6.1.7 Congress further noted that the results of the monitoring proved to be useful and agreed that a similar review should be made with regard to the 5LTP.

6.1.8 Congress concurred with the Executive Council that a review of the monitoring process in the future should be made with a view to improving and simplifying the monitoring procedures. Congress requested the Executive Council to undertake that review and also requested the Secretary-General to assist the work of the Council in that respect.

## 6.2 FIFTH WMO LONG-TERM PLAN (2000–2009) (agenda item 6.2)

6.2.1 Congress considered the 5LTP covering the period 2000–2009 which was prepared in accordance with the decision of Twelfth Congress. Congress noted with satisfaction that, following the recommendations resulting from the review by the Executive Council of the WMO planning process, including among other things, the format, structure and contents of Long-term Plans, the 5LTP was prepared in a new format as a single volume which merged similar information contained in Parts I and II of the previous Plans. Despite the reduced volume of the new *Plan*, it provided the necessary broad outlook of WMO's policies, strategies and priorities, as well as spelt out WMO Programmes and activities in a manner enabling the evaluation of their implementation. Congress noted that those programmes and activities had been closely reflected in the Secretary-General's programme and budget proposals for the thirteenth financial period.

6.2.2 It was noted that input to the 5LTP received at various stages from various constituent bodies, their working groups, Executive Council's panels and other bodies, had been taken into account when preparing the Plan. Comments on the Plan had also been received from many WMO Members. Congress thanked all those involved in the

preparation of the Plan, including the Secretary-General, for their efforts in preparing a comprehensive Plan document which would serve in the coming decade as a broad guidance to Member countries for the formulation of their own development plans in meteorology (including climatology), operational hydrology and related environmental fields.

6.2.3 Congress expressed its satisfaction with the iterative and interactive process in the preparation of the 5LTP, and urged continuing enhanced and active participation of Members in the process. It underscored the importance of the WMO planning process in enabling the Organization to reflect on its goals and aspirations, as well as to anticipate and/or respond to changes and variations.

6.2.4 Congress agreed that during the first decade of the twenty-first century, the Organization and its Members' NMHSs would likely be affected by a broad range of external and internal factors, including political and socio-economic developments as well as developments in science and technology. Climate change, natural disasters and water resources would also continue to be a challenge. WMO should continue responding actively to those challenges and ensure that meteorology, hydrology and related sciences contributed substantially towards environmentally- and economically-sound sustainable development. The emphasis should be placed on matters relating to climate and sustainable development, as well on water resource management. The number and variety of users of meteorological and hydrological information would grow as more and more sectors of national economies, the general public, and international organizations placed increasing value on such information in the planning and implementation of various activities. Technological developments, particularly those in information technology, data processing, and remote sensing, would provide to WMO and Members' NMHSs the opportunities which should be used to improve further the range and quality of services provided to society. Cooperative arrangements between Members at the national, regional and international levels would be essential in bridging the gap between the services provided in developing and developed countries. Congress felt, in particular, that concrete measures should be taken in connection with providing operational services, as that was a key to achieving the goals set up in the 5LTP for the coming decade. Congress therefore encouraged Members' cooperation at various levels to assist NMHSs in their capacity building.

6.2.5 Congress noted that two major goals of WMO in the coming decade would be strengthening the core activities of national Services and contributing towards sustainable development. The 5LTP also identified major objectives in the main areas of WMO activities for 2000–2009. Congress was aware that the implementation of the Plan would depend on the ability of all NMHSs to participate in, and benefit from, WMO Programmes.

6.2.6 Congress recognized that WMO and its Members, especially their NMHSs, would increasingly face the challenge of the management of change. That challenge included matters related to the globalization of economy which tended toward market-led economies, the evolution of the role and operations of NMHSs, alternative service

delivery, international data exchange and enhancement of the coordination in the geosciences, particularly in the United Nations system.

6.2.7 Congress recognized the importance of a WMO vision statement, such as that found in the introductory part of the 5LTP. Such a statement helped position WMO and the NMHSs in the minds of decision makers and the general public.

6.2.8 Congress noted with satisfaction that all those above aspects were reflected in the 5LTP. Congress stressed that the main responsibility of WMO was to assist the NMHSs and related services to provide related products and services to meet the national, regional and global needs and obligations of Members. To that end, major efforts should also be deployed towards enhancing the capabilities of NMHSs, towards intensifying the use of meteorological and hydrological information and services, and towards undertaking public awareness activities for improving the visibility of those Services. At the same time, it agreed with the continued emphasis in the Plan on environmental matters, including contribution to capacity building and sustainable development within the framework of Agenda 21 and related international Conventions and Agreements, such as those on the Protection of the Ozone Layer, on Climate Change, on Desertification, and on the Sustainable Development of Small Island Developing States.

6.2.9 Congress examined in detail the draft 5LTP and agreed upon a number of specific revisions and amendments to be included in the *Plan* prior to its publication. With those modifications, Congress adopted the 5LTP.

6.2.10 Congress also considered the need to match the Plan and the resources. In that connection, it stressed that during the implementation of the Plan, focus should be on ensuring the realization of important priority programmes and achieving concrete results from which all NMHSs, and especially those in developing countries, could benefit fully. In that connection, enhanced resource mobilization must be an important task for WMO and its Members. The 5LTP should provide a framework that would facilitate the necessary actions at the international, regional and national levels.

6.2.11 Congress stressed that the Plan should be implemented flexibly to accommodate any new developments and priorities that might occur in the course of the decade.

6.2.12 Congress requested the Secretary-General to arrange for the publication and distribution of the 5LTP and a separate "Summary for Decision Makers" to all Members and constituent bodies of WMO and to other international forums and organizations, including funding institutions, as appropriate. Congress felt that the Summary would help Governments to understand better the way in which WMO and Members' NMHSs worked and would enable them to obtain enhanced financial and other support.

6.2.13 Congress requested the Executive Council to use the 5LTP as a benchmark for monitoring progress in the implementation of WMO Programmes and activities during the thirteenth financial period and to submit its report to Fourteenth Congress.

6.2.14 In that connection, Congress adopted Resolution 23 (Cg-XIII).

### 6.3 PREPARATION OF THE SIXTH WMO LONG-TERM PLAN (2004–2013) (agenda item 6.3)

6.3.1 Congress reaffirmed the view that long-term planning in WMO should contribute to the smooth and effective operation of the programmes and activities of the Organization by providing an effective mechanism through which Members might work together to identify their common objectives and develop coordinated plans for achieving them. The Plan should be forward-looking and strategically-oriented and should set targets reflecting the goals, aspirations, objectives and priorities of the Organization, especially those to be achieved within each major Programme. Those targets should generally be realistic at least for the financial period covered by the first four years of the Plan. At the same time, the planning process should be simple and flexible to ensure that a response would be possible to any new challenges and needs that might arise in the rapidly changing world. Congress agreed that the 6LTP should be prepared and requested the Executive Council to establish the necessary mechanism for coordinating its preparation.

6.3.2 In that context, Congress considered the various views, including those of the Executive Council, on the usefulness of a new format adopted for the preparation of the 5LTP, and agreed that consideration should be given to the use of that format in the preparation of the 6LTP to ensure improved readability and appropriate length. A summary for decision makers should also be considered to facilitate Governments' understanding of the work of WMO. It was felt, however, that further improvements to the format and contents of the Plan were desirable in the light of the experience gained during the preparation of the 5LTP. Congress therefore requested the Executive Council to undertake a relevant study, including that on the period of coverage of the future Plan, with a view to providing guidance on the drafting of the 6LTP.

6.3.3 Congress endorsed the view of the Executive Council that the 6LTP should:

- (a) Emphasize the strategic aspects, including the role of meteorology, hydrology and related disciplines as well as their respective communities;
- (b) Provide a better understanding of the various relevant systems and programmes as well as their linkages, integration, coherence and rationale, and emphasizing the overarching connectivity of the various components;
- (c) Clearly position WMO so that its existence and strategies were better understood and appreciated;
- (d) Take into account various technological trends, globalization and changes in the United Nations system;
- (e) Clearly indicate the changes in direction and emphasis, including new programmes, as compared with previous Long-term Plans;
- (f) Identify priorities and take into consideration the likely resources that might be made available both from the regular budget and from external sources;

- (g) Strive for an equitable balance in the research and development objectives with respect to the scientific and technical concerns of the various geographical regions;
- (h) Accentuate the increasing role of the NMHSs and RSMCs and provide ways to strengthen them;
- (i) Provide options and alternatives, cost/benefit analyses and quantifiable milestones with respect to the goals to be achieved, as appropriate.

6.3.4 Congress agreed that a vision of WMO in the future should guide the overall review of the WMO Programmes and the WMO structure, embracing change as appropriate. The planning process and the Plan itself, including its thrusts and structure, should then be guided by, related to, but not limited to, those considerations. The Executive Council was requested to take those into account in the consideration of the preparation of the 6LTP and the structure of WMO.

6.3.5 Congress felt that financial aspects of the Long-term Plan should be better addressed in the future. Congress felt, in particular, that the available resources had an impact on the implementation of WMO Programmes defined in the Plan. It, therefore, agreed that the planning process should have enhanced consideration of the financial aspects and cost-effectiveness, particularly in relation to the realization of the objectives of the Long-term Plan. There should also be further improvement in the relationship between the Long-term Plan and the programme and budget to ensure the match between the planned activities and the available resources. The Secretary-General was requested to study the feasibility of involving a specialist in that area to facilitate the concretization of the aspirations in the vision statement and in the 6LTP, and in the development of the relevant four-year programme and budget, and biennial budgets.

6.3.6 Endorsing the process which proved to be useful during the preparation of the previous Plans, Congress requested the Executive Council to review WMO policies, strategies, and priorities for the period of the 6LTP and to finalize its proposals regarding the programme structure and layout for the Plan by its fifty-third session in 2001, i.e. two years before Fourteenth Congress. That would be linked with a preliminary discussion of the programme and budget for the fourteenth financial period, a usual agenda item of the session of the Executive Council two years before Congress.

6.3.7 Congress recognized the importance of taking into account the evaluation of the cost-effectiveness and assessment of the results achieved during the implementation of the previous Long-term Plans; that would ensure that the experience gained and the lessons learnt were used in improving the preparation of the 6LTP.

6.3.8 Congress stressed that during the preparation of the 6LTP there should be maximum opportunity for input from Members to ensure that WMO Programmes and activities were developed in response to the wishes and aspirations of Members. The regional associations should be strongly involved in the process of elaborating the 6LTP and should be instrumental in providing an integrated view of their respective activities and priorities in the context of the 6LTP and in providing regional analyses and assessments in

addition to regional priorities. The active participation of the technical commissions, particularly in connection with the scientific and technical programmes, should be ensured.

6.3.9 Congress requested the Executive Council to give consideration to the participation of other experts in addition to Executive Council members in the work of any group or special team it may establish for the preparation of the 6LTP. That would allow for a broader range of views and experiences to be made available.

6.3.10 In that connection, Congress adopted Resolution 24 (Cg-XIII).

#### 6.4 WMO STRUCTURE (agenda item 6.4)

6.4.1 Congress noted with appreciation the work done by the Task Team on Reviewing the WMO Structure established by the Executive Council at its forty-seventh session and by the Executive Council Working Group on Long-term Planning on developing proposals and recommendations concerning the WMO overall organizational structure. Congress further noted that the Executive Council regularly considered the reports of the Task Team and the Executive Council Working Group and provided guidance for their work.

6.4.2 Congress welcomed the decisions made by the Executive Council on additional measures to increase the efficiency and reduce the cost of constituent body sessions, including:

- (a) Abolishing (with some exceptions) the preparation of minutes of plenary meetings at sessions of the Executive Council, regional associations and technical commissions;
- (b) Reducing, as far as possible, the number of working documents by proceeding, as appropriate, directly to the PINK document stage;
- (c) Reducing the length and sharpening the focus of documents;
- (d) Focussing discussion during sessions on decisions and recommendations required to be formally approved by the session in plenary.

6.4.3 Congress further noted that the Council, at its fiftieth session, had also supported measures to encourage and promote overall participation in, and cooperation among, the technical commissions and regional associations, including:

- (a) The provision of financial support for designated representatives of regional associations/technical commissions to attend sessions of technical commissions/regional associations (or designation of regional/technical commission representatives from among participants at technical commission/regional association sessions);
- (b) The inclusion of regional representatives in the composition of the Advisory Working Groups of technical commissions and of technical commission representatives in the Advisory Working Groups (if established) of regional associations;
- (c) The inclusion of more experts from developing countries in the working groups established by technical commissions and regional associations, or as rapporteurs.

Congress endorsed those measures and requested the Secretary-General and the presidents of technical commissions and regional associations to implement them, as appropriate, within available resources.

6.4.4 Congress noted the recommendation made by the Executive Council Working Group on Long-term Planning on the merger of CBS and CIMO and the model for such a merger prepared as requested by the fiftieth session of the Executive Council. Congress agreed that the proposed CBS-CIMO merger should not be singled out as the one measure to be implemented out of the whole range of potential restructuring actions.

6.4.5 Noting the results of the Executive Council Working Group on Long-term Planning, Congress recognized that there would be benefits to increasing the collaboration among and between technical commissions. Congress requested the presidents of the technical commissions to develop specific collaborative projects that would increase the efficiency and effectiveness of the work of the technical commissions. Furthermore, Congress requested the presidents of technical commissions and regional associations to maintain major roles in the continuing assessment of existing WMO Programmes, especially through identifying areas of common activity and overlapping interests, developing arrangements on the working level, and advising on areas where changes were needed.

6.4.6 Congress recognized that, given the rapidly changing world with rapidly changing requirements and institutions, it was essential that the overall review of the WMO structure and operating mode should continue. Congress therefore decided that recommendations on the WMO structure and operating mode should be developed through a new review conducted by the Executive Council and having the following specific objective: "To enable the Organization to respond more effectively to the evolving needs of Members and of society as a whole." Options for organizational structure and arrangements for the implementation of programmes to achieve the purposes of the Organization should be proposed, with due account of the need for regulatory mechanisms.

6.4.7 Congress considered that the continuing process of reviewing the WMO structure and operating mode should be closely linked with the long-term planning process to ensure compatibility of the two, and that any future structure and operating mode supported the means of achieving the objectives of the Long-term Plan.

6.4.8 Congress requested the Executive Council to supervise, as appropriate, through existing or newly established subsidiary bodies, the continued review of the WMO structure and operating mode with a view to identifying feasible and effective actions to be taken by the Council itself and/or to be proposed to the next Congress.

6.4.9 Congress further requested the Executive Council to consider, as part of the overall continuing review of the WMO structure and operating mode, relations of WMO with intergovernmental organizations, including those of the United Nations family, and various non-State parties, including non-governmental organizations, academia and media. Congress further requested the Executive Council to

take account of the implications of developments in the private sector.

6.4.10 Congress requested the Secretary-General, within available resources, to provide, as a matter of priority, support to the process of reviewing the WMO structure and operating mode.

6.4.11 In the light of the changes in the number of Members in WMO Regions, Congress requested the Executive Council to review the process of electing the 36 members of the Executive Council to ensure an equitable representation among and inside Regions. If changes were proposed, Congress requested the Executive Council to present a proposal for consideration by Fourteenth Congress for possible adoption prior to electing members for the Executive Council for the fourteenth financial period.

## 7. MAJOR ISSUES FACING WMO (agenda item 7)

### 7.1 INTERNATIONAL EXCHANGE OF DATA AND PRODUCTS (agenda item 7.1)

7.1.1 Congress reviewed the relevant developments on the international exchange of data and products which had taken place since Twelfth Congress, particularly in relation to 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 its implementation. In that connection, Congress expressed appreciation for the actions taken by the Executive Council as well as by the Secretary-General. The relevant contributions by regional associations and technical commissions were also appreciated.

7.1.2 Congress noted that Members were regularly apprised of pertinent developments to help ensure the observance of the letter and spirit of Resolution 40 (Cg-XII). Congress acknowledged the brochure *Exchanging Meteorological Data: Guidelines on Relationships in Commercial Meteorological Activities — WMO Policy and Practice* (WMO-No. 837) and numerous communications to Heads of international organizations, Ministers of Foreign Affairs and Permanent Representatives of Members of WMO which were dispatched soon after Twelfth Congress and thereafter helped provide the necessary information and appreciation to those concerned about Resolution 40 (Cg-XII), including its significance and implications. Congress requested the Secretary-General to continue to provide guidance and advice to Members on that matter. Congress requested Members to keep the Secretary-General informed of relevant developments, as appropriate, as that would help in providing support and assistance to the Organization, as a whole, particularly for Members to be apprised of relevant developments and facilitate better mutual understanding.

7.1.3 Congress expressed its thanks also to the president of CBS for the various activities undertaken in response to the various requests by Twelfth Congress and the Executive Council with respect to the implementation of Resolution 40 (Cg-XII).

7.1.4 Congress was also pleased to recognize that the experience with Resolution 40 (Cg-XII) had been largely



positive and that there was generally a strong commitment to make it work. Congress felt that better mutual understanding of the various associated views was to be encouraged. Congress noted that the Executive Council had strongly advised that it would be inappropriate to propose renegotiations of Resolution 40 (Cg-XII) at the present Congress.

#### IMPLEMENTATION OF RESOLUTION 40 (Cg-XII)

7.1.5 Congress was informed that 38 Members as well as ECMWF and EUMETSAT had notified the Secretary-General regarding their plans or actions related to the implementation of Resolution 40 (Cg-XII). The notifications could be categorized as followed:

- (a) Members declared that they did not intend to place conditions on any data and products in case of their re-export for commercial purposes;
- (b) Members identified their "additional" data or products on which they placed conditions for the re-export for commercial purposes and stipulated generic conditions attached thereto;
- (c) Members identified their "additional" data or products on which they placed conditions for the re-export for commercial purposes;
- (d) Members included new data or products under the category "additional" with a view to expanding their range of data and products to be exchanged over the GTS.

7.1.6 Congress noted that Members continued to be informed formally concerning the implementation of Resolution 40 (Cg-XII). It requested the Secretary-General to provide further relevant information through two circular letters per year that contained the notifications of Members as received. In addition, the lists of "additional" data and products had been posted on the WMO Web server and published in the *WWW Operational Newsletter*.

7.1.7 Congress requested Members to continue to observe the letter and spirit of Resolution 40 (Cg-XII) and to help increase the volume of data and products being exchanged, consistent to the WMO principle of free and unrestricted international exchange of meteorological and related data and products.

7.1.8 Congress requested the Executive Council to continue monitoring the implementation and implications of Resolution 40 (Cg-XII) with the assistance of CBS and other technical commissions, as appropriate, to address any relevant issues that might arise and to report on the results to Fourteenth Congress. Congress also requested the Executive Council to consider how the notification to Members of the status of implementation of Resolution 40 (Cg-XII) could be further improved.

#### DATA ACCESS POLICY FOR METEOROLOGICAL RESEARCH

7.1.9 Congress agreed with the Executive Council to stress the importance of ensuring the consistency of the data policy for WMO-sponsored research experiments with Resolution 40 (Cg-XII).

7.1.10 It further agreed with the Council that with respect to meteorological research experiments, "all data and products" in ADOPTS (3) of Resolution 40 (Cg-XII) should encompass:

- (a) Those meteorological data and/or products which were "essential" and/or "additional" under Resolution 40 (Cg-XII);
- (b) All meteorological and related data resulting from a special observing period within the experiment.

#### DATA ACCESS POLICY FOR WORLD DATA CENTRES

7.1.11 It was recalled that WMO Resolution 40 (Cg-XII) urged Members to "strengthen their commitments to the WMO and ICSU WDCs in their collection and supply of meteorological and related data and products on a free and unrestricted basis."

7.1.12 Congress noted that the Executive Council had agreed on a set of principles governing access to data held in WMO WDCs.

7.1.13 Congress recalled that Resolution 40 (Cg-XII) stressed the need for the exchange of meteorological and related data and products, essential and additional, in the fulfilment of WMO Programmes. Therefore Congress urged all Members to make available to the WDCs, the meteorological and related data and products required to fulfil WMO Programmes, in line with the policy, practice and guidelines given in Resolution 40 (Cg-XII). In seeking to fill that requirement, additional data and products placed in the WDCs might have conditions attached to their use as provided for in Resolution 40 (Cg-XII).

#### DATABASE PROTECTION MECHANISM AND THE WORLD INTELLECTUAL PROPERTY ORGANIZATION

7.1.14 Congress noted the developments relating to a proposed international legal instrument for the protection of databases being considered under the aegis of WIPO.

7.1.15 Congress expressed appreciation for the various activities taken by the Secretary-General to draw the attention of WIPO and its Members to the views of WMO on the issue, particularly in relation to Resolution 40 (Cg-XII). Appreciation was also expressed for the continued active participation of WMO in the various WIPO forums which led to a wider recognition of the specific interest in a free and open exchange of meteorological data in those forums. The regular flow of information and advice to Permanent Representatives of Members of WMO and the latter's action were highly useful.

7.1.16 Congress agreed that any international legal instrument on the protection of databases should be complementary to Resolution 40 (Cg-XII) in so far as meteorological and related data were concerned. Congress felt that continuing close consultation and coordination with WIPO on that and other related issues would be highly desirable.

7.1.17 Congress requested the Secretary-General to continue to inform and advise Members on relevant developments, particularly to assist in further clarifying the issues involved, to improve awareness of those issues and to enable the NMHSs and the rest of the meteorological community to take appropriate and timely action.

#### REPORT OF THE EXECUTIVE COUNCIL ADVISORY GROUP ON THE EXCHANGE OF METEOROLOGICAL AND RELATED DATA AND PRODUCTS

7.1.18 Congress expressed appreciation to the Executive Council for its report on the implementation of Resolution

40 (Cg-XII) and especially for the work done by EC/AGE during the inter-sessional period and for the report presented to Congress by the chairperson of EC/AGE, on behalf of the Executive Council.

#### PLACING OF ADDITIONAL DATA AND PRODUCTS ON THE INTERNET

7.1.19 Congress noted the views and concerns expressed in connection with placing meteorological data and products on the Internet and similar means. Congress agreed with EC/AGE that it was important that the conditions attached to additional data and products placed on the Internet be made known and that the approach to making those conditions known be consistent for all Members.

7.1.20 Congress further agreed with EC/AGE that:

- (a) There was a need to distinguish between the distribution of additional data and products on the Internet between the research/education community (for their non-commercial use) and the commercial sectors, and that such distribution via the Internet was not intended for use by the latter sector outside the receiving country;
- (b) There was generally an interest, at least in the short-term, in protecting additional data and products from inappropriate commercial use. (For the long term, it was noted that ensuring the viability of their generation, supply and exchange might be of greater interest for WMO and its Members, especially their NMSs).

7.1.21 Congress endorsed the recommendation of EC/AGE that with regard to Members placing other Members' additional data and products on the Internet to the research and education community (for their non-commercial use), the following approach should be adhered to by Members in the context of the "best efforts" provision of Resolution 40 (Cg-XII):

- (a) The conditions attached to their use should be stated;
- (b) The user should acknowledge those conditions and should only have access after such an acknowledgement;
- (c) There should be a system in place which would provide for the identification of the user who would fall under that category established by the Permanent Representative with WMO of the receiving country;
- (d) The monitoring of users who accessed the data should be undertaken, with the monitoring being available to the providers of the additional data and products.

#### QUESTIONS ON CERTAIN CONDITIONS IN CONNECTION WITH THE PROVISION OF ADDITIONAL DATA EXPRESSED BY SOME COUNTRIES

7.1.22 Congress confirmed that other Members might object to, or raise questions on, conditions placed by a Member if it was felt that such conditions were not consistent with Resolution 40 (Cg-XII).

7.1.23 Congress also confirmed that as stated in ADOPTS (2) of Resolution 40 (Cg-XII), conditions placed on additional data and products should only be "conditions on their re-export for commercial purposes". Moreover, Congress further confirmed that the reference to "national

laws" in ADOPTS (2) of Resolution 40 (Cg-XII) only related to justifying the placing of conditions on additional data and products on their re-export for commercial purposes; a more thorough analysis might be required in the future.

#### METHODOLOGY FOR ASSESSING ANY INCREASE IN DATA AVAILABILITY RELATED TO THE ADOPTION OF RESOLUTION 40 (Cg-XII)

7.1.24 Congress recalled that CBS was requested by the Executive Council to address with urgency the subject of a methodology for assessing the increase in data availability, which was the primary objective of Resolution 40 (Cg-XII). Congress noted that EC/AGE had received the report of the president of CBS on that topic with appreciation and congratulated him for the excellent work done in the short time available.

7.1.25 Congress agreed that it was preferable to carry out a survey among all Members, instead of carrying out a monitoring evaluation of historical data. Such a survey should collect information from each Member on what changes, if any, it had implemented in the volume of meteorological and related data and products made available on the GTS from the years around the adoption of Resolution 40 (Cg-XII). In addition, the survey could also collect information on whether Members believed that they had been receiving, or had access to, more data and products as a result of the implementation of Resolution 40 (Cg-XII). It requested the president of CBS to arrange for that survey to be undertaken as soon as possible.

#### MECHANISM TO HANDLE CONCERNS BETWEEN COUNTRIES

7.1.26 Congress agreed with the following consideration concerning the mechanism to handle concerns between countries:

- (a) There was a need for an appropriate mechanism to preempt and/or resolve difficulties and differences. The mechanism should be able to address without too much delay any difference or difficulty that might arise so that confidence in Resolution 40 (Cg-XII) was not eroded;
- (b) The Secretary-General should continue to raise with Members matters that might be considered as inconsistent with the letter and spirit of Resolution 40 (Cg-XII). With respect to questions arising from conditions attached to additional data and products, only after a particular question was resolved should the conditions provided be circulated to other Members;
- (c) As necessary, EC/AGE or an equivalent group to be established by the Executive Council after Thirteenth Congress should be informed by the Secretary-General of relevant matters which could possibly cause concerns, particularly after having drawn the concerned Member's attention. The group could then undertake a consultation by correspondence, including by e-mail, to address the matter. Following such consultation, a meeting of the group might be convened should the need arise.

**HYDROLOGICAL DATA AND PRODUCTS**

7.1.27 Congress recalled that, in adopting Resolution 40 (Cg-XII), it had invited the president of CHy to continue his work on the international exchange of hydrological data and products. It noted that CHy-X had considered that the preferred course of action was to present Executive Council and Congress with a draft resolution on the subject and that, accordingly, the Commission had prepared such a draft which had subsequently been reviewed by the forty-ninth and the fiftieth sessions of the Executive Council. The president of CHy submitted to Congress the draft resolution, based on that developed by CHy-X and revised in response to proposals made by the Executive Council and to take account of recommendations from recent high-level intergovernmental meetings.

7.1.28 Congress considered the draft resolution on the exchange of hydrological data and products and thanked the president of CHy and the CHy Advisory Working Group for the excellent work they had done in response to the request of Twelfth Congress. After careful review of the text, Congress adopted Resolution 25 (Cg-XIII) and requested the president of CHy and the Secretary-General to ensure that it was brought to the attention of the wider community, particularly the international hydrological community. It invited all agencies and programmes within the United Nations system and all NGOs active in the field of hydrology and water resources to take account of the resolution in their deliberations and activities. To assist in that process, the Secretary-General was requested to make the necessary arrangements, including the publication of a brochure explaining the background and intent of Resolution 25 (Cg-XIII), similar to that issued for Resolution 40 (Cg-XII).

7.1.29 When adopting Resolution 25 (Cg-XIII), Congress decided not to include any specific definition of the types of data to be exchanged. It therefore invited CHy to investigate that question further and to report to the Executive Council on the definition of the types of data that were essential to exchange without conditions and those that might be exchanged under certain conditions, taking into account current practice and bearing in mind the paramount importance of the use to which the data would be put by the recipient. That matter would then be forwarded to Fourteenth Congress for its consideration. In that connection, it requested the Commission to take into account the views on that subject expressed by the Fifth UNESCO/WMO International Conference on Hydrology (Geneva, February 1999). Congress requested Members to ensure that, in the implementation of Resolution 25 (Cg-XIII), there was consistency in any conditions attached to the exchange of relevant data and products, in consonance with Resolution 40 (Cg-XII).

**EXCHANGE OF CLIMATE DATA AND PRODUCTS**

7.1.30 Concerning the exchange of climate data and products, Congress noted that the Executive Council had requested CCI to "give special attention to that matter to help clarify those aspects of Resolution 40 (Cg-XII) pertaining to climate data and products" (general summary paragraph 12.1.19 of the *Abridged Final Report with*

*Resolutions of the Forty-ninth Session of the Executive Council* (WMO-No. 867)). Congress also noted that CCI had set up a special task team on that subject, which reported its conclusions to EC/AGE. Congress expressed thanks to the president of CCI for the work done in that connection. Congress agreed that although Resolution 40 (Cg-XII) did not explicitly cover all aspects pertaining to climate data and products, there was no need for a separate resolution on the exchange of climatological data and products.

7.1.31 Congress requested the president of CCI to further progress work on the application of Resolution 40 (Cg-XII) to climate data and products. The president of CCI was also requested to make available information on further work undertaken by the Commission to any future group established by the fifty-first session of the Executive Council to deal with data exchange issues.

7.1.32 Congress stressed the important role of the regional associations in evolving the recommended network of stations necessary to provide a good representation of climate on the regional scale, in addition to global scale. In that connection, special consideration needed to be given to the requirements for both land and marine data. Congress requested the regional associations to exercise their responsibility to help ensure the exchange of climate data as prescribed in paragraph (5) of Annex 1 to Resolution 40 (Cg-XII).

**INTERNATIONAL EXCHANGE OF METEOROLOGICAL INFORMATION FOR AVIATION**

7.1.33 Congress examined the issue of the dissemination of aeronautical meteorological data and products (OPMET), in particular on the Internet, and its possible impact on non-aeronautical meteorological activities. Congress recalled that that kind of data and products were excluded from the scope of Resolution 40 (Cg-XII), as specified in Note 3 in the definition of "Meteorological and related data and products" given in Annex 4 to Resolution 40 (Cg-XII).

7.1.34 Congress noted with interest that there was broad support by Members for addressing the use of new technologies for the dissemination of meteorological data and products. Nevertheless, Congress recognized that, in some circumstances, dissemination of aeronautical meteorological data and products could interfere with other related activities, including commercial activities conducted in domains of meteorology other than aeronautical meteorology; for example, a wide variety of meteorological general purpose information and products were now freely available on the Internet, based upon and directly generated from aeronautical meteorological data and products. Such a situation could impede Members in properly applying Resolution 40 (Cg-XII) in the future and could reactivate potential adverse aspects which were addressed by its adoption.

7.1.35 Congress requested the Executive Council to examine further all aspects of the issue, particularly through the EC/AGE or an equivalent group that might be established by the Executive Council, to take appropriate actions, and to report to Fourteenth Congress. Congress requested the president of CAeM, in consultation with the

president of CBS, to assist in the work of the Executive Council in that respect, on any specific technical task that might arise.

7.1.36 Congress drew the attention of ICAO upon the potential impact of ICAO aeronautical meteorological data distribution policy on all WMO activities and invited ICAO to consider the issue. Congress requested the Secretary-General to inform ICAO regularly of progress made by WMO in assessing the problem, to invite ICAO to participate in all efforts undertaken by WMO regarding the issue, and to make his best efforts to identify possible options and/or solutions with ICAO, based on the work of WMO bodies.

#### FUTURE WORK

7.1.37 Congress felt that EC/AGE had been instrumental in facilitating not only the exchange of meteorological data and products but also the exchange of views and the building of mutual trust which paved the way for a better appreciation of the various pertinent issues, their implications and ways of resolving such issues. An example was the agreement reached on the matter of placing additional data and products on the Internet.

7.1.38 Congress requested the Executive Council to continue to address the international exchange of meteorological and related data and products. It requested the Executive Council to consider re-establishing the EC/AGE or an equivalent group. In that connection, it was felt that while the terms of reference for the present group, adopted by the forty-seventh session of the Executive Council, served as a good basis, consideration should be given to other tasks that might be assigned to the group that might be established by the fifty-first session of the Executive Council. Those included the following:

- (a) Study further the possibility of putting the principle of free and unrestricted exchange of meteorological and related data and products on a firmer legal basis such as by incorporating it in the WMO Convention;
- (b) Ensure that Members and the WMO constituent bodies were regularly advised on relevant developments and issues, as well as their implications;
- (c) Ensure the provision of consolidated advice and clarification related to the implementation of Resolution 40 (Cg-XII);
- (d) Serve as a mechanism to address concerns as well as differences of views and interpretations that might arise and provide advice;
- (e) Monitor the implementation of Resolution 40 (Cg-XII) and the associated data availability;
- (f) Cover new relevant areas that might arise such as the exchange of hydrological data and products.

7.1.39 Congress noted that the issue of international exchange of data and products related to NMHSs' cost recovery and other commercial activities. In that connection, Congress also recognized the merits of a strategy, guidelines and training on the marketing, pricing, selling of data and products, including the production of value-added products and services, and which were consistent with the letter and spirit of Resolution 40 (Cg-XII). Congress requested the Executive Council and the

Secretary-General to undertake the necessary actions in that connection. Congress encouraged NMSs to share with other NMSs relevant experience concerning the provision of meteorological data, products and services on a commercial basis.

#### 7.2 ROLE AND OPERATION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES (agenda item 7.2)

7.2.1 Congress recognized that Governments were seeking more effective and efficient ways of delivering essential services to their communities, and in the process, the provision of meteorological and related services and the role of NMHSs were also being re-examined. Congress also recognized that that was an important challenge as well as a significant opportunity for WMO and its Members, particularly their NMHSs.

7.2.2 Congress expressed appreciation for the work done by the Executive Council in clarifying the relevant issues and in providing appropriate guidelines on that matter. It also expressed its thanks to the Secretary-General for the support provided in that connection.

7.2.3 Congress noted that the relevant issues on the subject of the role and operation of NMHSs during the inter-sessional period focused on:

- (a) The NMS and alternative service delivery;
- (b) Legal instruments;
- (c) Status and visibility of NMHSs;
- (d) Capacity building.

#### THE NATIONAL METEOROLOGICAL SERVICE AND ALTERNATIVE SERVICE DELIVERY

7.2.4 Congress recognized that the Statement of the Executive Council on the Future Role and Operation of NMSs provided useful guidance for the consideration of alternative service delivery. Congress noted that the Statement was developed through an extensive iterative consultation process. It requested Members to take into consideration seriously the guidance given, as appropriate in the light of their particular situation.

7.2.5 In the light of the guidance provided by the Executive Council on the role and operation of NMSs, Congress adopted Resolution 26 (Cg-XIII).

7.2.6 Congress noted that a similar guidance material on the role and operation of NHSs would also be prepared.

#### LEGAL INSTRUMENTS

7.2.7 Congress expressed thanks for the initiative of the Secretary-General to arrange for a compilation of national legal instruments which related to the establishment and functioning of NMHSs and for the use made to provide some guidance to Members through the inclusion of a number of "model laws" in the WMO publication *National Meteorological and Hydrometeorological Services for Sustainable Development: Guidelines for Management* (WMO/TD-No. 947). It requested Members who had not yet provided their contribution to that compilation to do so, and to use that compilation and related analyses as reference materials when formulating or reviewing relevant national legal instruments. Congress requested the

Secretary-General to keep Members informed of relevant developments in that connection and to provide Members with suitable further guidelines on that matter, including model laws.

7.2.8 Congress affirmed that a pertinent national legal instrument which defined the mission and mandate of an NMHS was crucial in ensuring that the NMHS's contribution to society was appropriately recognized and its responsibilities well-defined to ensure an effective role for, and operation of, the NMHS.

#### STATUS AND VISIBILITY OF NMHSs

7.2.9 Congress agreed that the status and visibility of NMHSs was an important area of concern. It recognized the close link of those two aspects to the role and operation of NMHSs, including with respect to attracting financial and other support, nationally and internationally.

7.2.10 Congress also agreed that NMHSs should identify, demonstrate and promote their unique competence and comparative advantage, such as through the provision of appropriate information, products and services which were in the public interest; that was an effective way of raising the profile of the NMHSs.

7.2.11 Congress recognized that Members had been assisted in their quest for enhanced status and visibility through a number of WMO Programmes, particularly the PWS and the IPA Programmes. Congress felt that Members should strive to strengthen their public weather services, together with appropriate information and public affairs activities.

#### CAPACITY BUILDING

7.2.12 Congress reiterated the importance of capacity building in ensuring the realization of the purposes of WMO, particularly through bridging the gap between the services provided to their respective constituencies by developed and developing NMHSs. Congress recalled that capacity building of NMHSs had been a continuing emphasis for the Organization and that relevant activities had been undertaken in that area.

7.2.13 Congress agreed with the importance of capacity building such as in the areas of leadership and management, particularly in relation to the review of the role and operation of NMHSs now taking place in many parts of the world. It also expressed its appreciation for the progress made in connection with the implementation of the project on Capacity Building in the Area of Management of national Meteorological and Hydrometeorological Services. In particular, it expressed appreciation for the production of the *National Meteorological and Hydrometeorological Services for Sustainable Development: Guidelines for Management* (WMO/TD-No. 947) and the process leading to its publication and circulation.

#### FURTHER CONSIDERATIONS

7.2.14 Congress felt the need to draw the attention of States and Governments to:

- (a) The important role and contribution of NMSs to the protection of life and property, sustainable development and safeguarding the environment;

- (b) The international linkages and cooperation which related to the network of NMSs;
- (c) The importance of ensuring the appropriate implementation of Resolution 40 (Cg-XII);
- (d) The necessity of ensuring the continuation and enhancement of the integrated international system, as well as the role and operation of NMSs to meet relevant requirements and responsibilities;
- (e) The need for government support to operate and maintain the required relevant basic infrastructure, monitoring and services in the national and global public interest.

In that connection, the Geneva Declaration of the Thirteenth World Meteorological Congress was adopted (see Annex IV to this report). Congress requested the Secretary-General to arrange for the circulation of that Declaration to all Governments and to pertinent international and regional organizations.

#### NATIONAL DESIGNATED METEOROLOGICAL AUTHORITIES FOR THE PROVISION OF AERONAUTICAL METEOROLOGICAL SERVICES

7.2.15 Congress noted that the WMO Executive Council, at its fiftieth session in June 1998, had discussed concerns expressed relating to proposals for outsourcing or privatization of aeronautical meteorological services, in relation to the duties and responsibilities of the designated Meteorological Authority in each State in accordance with ICAO Annex 3. The Council had requested CAeM, through its president, and in close cooperation with ICAO, to prepare a report to be considered by the eleventh session of CAeM and then by Congress. Congress thanked the former president of CAeM, Mr C. Sprinkle, for his report.

7.2.16 Congress agreed that the perceived problem had to be considered in the context of the history of aeronautical meteorological services and the international legal framework to regulate such matters, which had been set up over the years. It noted that many NMSs had been set up in the early part of the twentieth century specifically to serve aviation. Nowadays, NMSs might have many more responsibilities, but one of their primary tasks was still to service aviation and in many developing countries, that was still their major recipient of services. Early on in the history of aviation, it was decided that in the interests of safety, regularity and efficiency, each State would provide agreed-upon services for international civil aviation such as air traffic services, search and rescue, aeronautical telecommunications, etc., and indeed meteorology which would be paid for by international civil aviation.

7.2.17 Congress further noted that the legal instrument governing all aspects of international civil aviation was the Convention on International Civil Aviation, agreed to in Chicago in 1944. That international treaty and the provisions contained in its Articles remained legally binding on the signatory Governments. Congress was informed that Annex 3 to the Convention, entitled Meteorological Service for International Air Navigation, contained International Standards and Recommended Practices and was identical, *mutatis mutandis*, to WMO Technical Regulation [C.3.1.].

7.2.18 Congress also recognized that WMO Technical Regulation [C.3.1.]/ICAO Annex 3 dealt solely with

meteorological service to international, as opposed to national, aviation. It agreed that meteorological service for national aviation was a national responsibility and although Congress felt it to be within its competence to advise Members/States on such service, it recognized that such services were solely the responsibility of the Member/State.

7.2.19 Congress noted the objective of meteorological services for international air navigation, which was to contribute towards the safety, regularity and efficiency of international air navigation. Congress noted further that how that objective was to be achieved and how the meteorological service which a country was to be provided to meet the needs of international air navigation, should be determined by international agreement.

7.2.20 Congress then noted the concept of Meteorological Authority, as defined in WMO Technical Regulation [C.3.1./ICAO Annex 3. That stated that each Member/Contracting State should designate the authority referred to as the Meteorological Authority, to provide or to arrange for the provision of meteorological service for international air navigation on its behalf.

7.2.21 Congress noted that, with that definition, the responsibility for designating a particular Meteorological Authority lay with the State itself, and that was often delegated to the national Civil Aviation Authority in the country concerned. Congress further noted that information on which entity had been designated as the Meteorological Authority in each State was detailed in the ICAO *Directory of National Civil Aviation Administrations* (Document 7604). Congress urged Members to ensure that the true situation in their country was indeed reflected in ICAO Document 7604.

7.2.22 Congress recognized that finance was one of the aspects of an NMS being designated as the Meteorological Authority or, if the Civil Aviation Authority were the designated Meteorological Authority, the Authority then arranging for the NMS to provide meteorological service for international air navigation. Congress noted that the services called for in WMO Technical Regulation [C.3.1./ICAO Annex 3 could be paid for by international civil aviation and recognized that that represented a major source of revenue for many NMSs without which some Services might find it difficult to continue to operate. In the case where the NMS was neither the designated Meteorological Authority nor had an arrangement to provide meteorological service to international air navigation, Congress felt it important to stress that some agreed portion of the basic infrastructure of meteorological networks in a country could be financed by aviation if the information provided by those networks was being used partly for the benefit of aviation. Furthermore, Congress felt it important to note that, because the meteorological service agreed to in WMO Technical Regulation [C.3.1./ICAO Annex 3 was provided to meet an international civil aviation requirement, both regionally and globally, civil aviation operators were obliged to pay agreed charges whether they availed themselves of the service or not.

7.2.23 Congress felt that, regardless of the national decision as to the Meteorological Authority, it was important that high standards be maintained in the interests of flight safety. In particular, the organization

designated as the Meteorological Authority must ensure that the service provider met the standards as laid down by WMO on the qualifications, experience and training of aeronautical meteorological staff and the quality control of observations, instruments, forecasts, flight documentation, etc. as contained in WMO regulatory documents.

#### **PARTNERSHIP AND COOPERATION**

7.2.24 Congress was informed of recent forums and a workshop that were held since Twelfth Congress, in an effort to provide a venue for the media, private sector, and academia, and NMHSs to exchange views on Resolution 40 (Cg-XII) and issues facing the meteorological and hydrological communities. Congress expressed thanks to the Members who were instrumental in organizing those events; it encouraged the holding of similar events in the future. Congress discussed the changing situation most NMHSs faced in relation to the future of NMHSs, including changes in technology and methods of operation. Congress expressed concern about dwindling public resources during times of increased demand for more services and the need for all members of the meteorological and hydrological community (public and private sectors) to address collectively priority issues. Congress noted the trend for many Governments to recover costs for weather services and noted that that trend would continue. Congress recognized that there was a wide variety of models for operating NMHSs and for working with the academic, media and private sectors, and ultimately, each Member was responsible for defining its own policy on the matter and the NMHS was responsible for developing its own method of operation dependent on its legislative and government mandates.

7.2.25 Congress noted that many of the matters and issues of concern to NMHSs also directly affected the media and the private meteorological and hydrological sectors, including the need to understand the entire spectrum of needs for meteorological/hydrological information and services, for proper attribution of data and product sources, to maintain the funding of the main weather service functions and for more research of the costs, benefits and value of all weather services. Congress requested the Secretary-General to take action to encourage further studies of costs/benefits of core and value-added weather services in order to inform and build advocacy for NMHSs by public and private decision makers.

7.2.26 Congress discussed the need to have decision makers and the public better informed of the necessity for continued support and enhancement of meteorological and hydrological data and information and their direct relationship to increasing the accuracy of forecasts. Congress agreed that there was a need to include some form of attribution to the NMHS by the media and private sector regarding the source of NMHS data and products in order for NMHSs to be able to maintain support for their collection, processing and telecommunications.

7.2.27 Congress considered the need for a possible mechanism for cooperation between NMHSs, the media, the private sector and academia on various issues of mutual interest. That mechanism should include methods for

collaboration and ways to address international issues involving the media, the private sector and NMHSs. Congress asked the Executive Council, with some urgency, to consider that topic of partnership and cooperation further so as to ensure complementarity with the role of NMHSs and to suggest mechanisms by which Members could more actively involve the media, the private sector and academia in the work of the WMO and the NMHSs. The Executive Council should also suggest ways of enhancing cooperation with international representatives of the various sectors, respecting the principles of the Organization, including Article 26 of the WMO Convention.

7.2.28 Congress agreed that some of the issues could be resolved more easily if there was a means to develop standard definitions for certain terms, to include privatization, commercialization, user, partnership, attribution, level playing field, single official voice, mitigation, "core" or basic functions, value-added or specialized services, and related data. It requested the Executive Council to address the problem of definitions of commonly used terms, as they related to a number of major issues being addressed by WMO.

#### GENERAL CONSIDERATIONS

7.2.29 Congress noted that there had been a significant increase in the membership of the Organization from SIDS, especially from WMO Region V, over the last financial period, with prospects for a few other SIDS to become Members in the coming years. Congress was informed that the SIDS had some peculiar problems and needs that required special consideration. It requested the Secretary-General to give particular attention to the needs of the SIDS over the thirteenth financial period, with a view to enhancing the role and functions, and the overall status and visibility, of their NMHSs.

7.2.30 Congress was also informed of certain national experiences in connection with the role and operation of NMSs. In that connection, all Members concerned were requested to provide the Secretary-General with relevant information so that information on the full range of national experiences could be shared among Members.

7.2.31 Congress recognized that that agenda item was intimately linked to many other topics of major interest to WMO. It recognized that such linkages should be considered well and should help WMO and its Members to strengthen complementarity and strategic alliances as well as to meet challenges and commitments.

7.2.32 Congress requested the Executive Council to keep those topics under review and requested the Secretary-General to take the necessary initiatives and provide the required support.

#### 7.3 COOPERATION WITH OTHER DISCIPLINES AND PROGRAMMES (agenda item 7.3)

7.3.1 Congress noted the earlier deliberations of the Executive Council on that matter. It was recalled that the geosciences played a crucial role in many of the WMO Programmes. In view of the increasing interdependence that existed among the many WMO and other international programmes in meteorology, hydrology, oceanography and other geophysical disciplines, Congress agreed that a closer

integration of related activities would be of utmost importance in ensuring further progress in those activities within the scope of WMO.

7.3.2 Congress noted with appreciation the various initiatives undertaken by the Secretary-General to enhance WMO collaboration with other relevant organizations and which generally contributed to the increased effectiveness and efficiency in the United Nations system.

7.3.3 Congress expressed appreciation to the Secretary-General for the organization of the Meeting of Eminent Persons on the Geosciences and the United Nations System (Geneva, 12 to 13 December 1996).

7.3.4 Congress noted that the Meeting had considered relevant worldwide concerns which should be addressed by the geosciences and their applications in an integrated fashion, including global climate, natural disasters, water resources and other environmental issues. It recalled the reference to WMO's long experience in international coordination, such as in relation to natural disasters and the IDNDR, which could be applied more widely in the geosciences.

7.3.5 Congress expressed its support for the Meeting's recommendation regarding the establishment of "a process involving major stakeholders (including interested Governments, relevant inter-governmental agencies and non-governmental organizations) to determine how best to ensure increased joint programme activities, consolidation of work in the geosciences and related services". Congress agreed that appropriate media and private sector entities should also be considered as stakeholders. Congress felt that WMO and collaborating organizations in the geosciences should build on existing coordination mechanisms in natural disasters mitigation, climate change, water resource management and other relevant environmental issues.

7.3.6 Congress agreed that closer collaboration between WMO and other pertinent organizations within the United Nations system could facilitate an enhanced service to humankind through improved international cooperation in the geosciences. In that connection, it recalled that concerns had been mounting among nations for the United Nations system to address more vigorously a number of complex global issues related to the geosciences and their applications, particularly in the fields of meteorology (including climate), oceanography, hydrology and the solid earth sciences. Congress recognized that, among other things, knowledge from the geosciences could be more effectively applied towards meeting the need for more precise projections of climate change due to human activities, reducing human and socio-economic losses from natural disasters, improving the management of vital freshwater resources, determining the extent and rates of environmental deterioration and ways of preventing or reducing such degradation, as well as improving longer range weather and climate forecasts, all in support of sustainable development.

7.3.7 Moreover, Congress concurred that various fields within the geosciences were germane to WMO and for further progress in a number of WMO's major undertakings; for that reason, an enhanced coordination of activities in the geosciences would be highly important.

7.3.8 Congress also expressed support for the establishment of a WMO liaison office as agreed to by the Executive Council, on the basis of funding through extrabudgetary resources, to facilitate the consultation and coordination for the enhanced integration and coordination of the geosciences and their applications.

7.3.9 Congress recognized that increased coordination across relevant programmes and disciplines at the international level had implications to the pertinent activities of Members, particularly their NMHSs. It requested Members to give that matter their particular consideration. Congress urged Members and their NMHSs to be active in initiating and/or participating in undertakings relevant to the further integration of activities in the geosciences at the national level.

7.3.10 Congress requested Members to keep the Secretary-General informed of related initiatives they had undertaken and pertinent developments that came to their attention. It also requested the Secretary-General to keep Members informed of relevant developments as they unfolded.

#### 7.4 YEAR 2000 ISSUE (agenda item 7.4)

7.4.1 Congress, noting Resolution 5 (EC-XLIX) — The year 2000 problem, was pleased to note the actions taken by the Secretary-General and Members to address that critical issue over the past four years. The Secretariat had sent out numerous information letters, posted information and advice on the WMO Internet server, and ensured that the issue was discussed at numerous meetings including three workshops and three special meeting sessions dedicated to that topic. Congress expressed its thanks to those Members, particularly the United Kingdom, which had assisted through donation of resources and/or expertise in carrying out several of those events.

7.4.2 Congress expressed its appreciation to CBS for the many activities that it had initiated in response to the year 2000 problem. It was pleased to note that CBS had held a special session on that topic at its 1998 extraordinary session (Karlsruhe, September/October 1998) and had used the opportunity to disseminate recommendations for action arising from several year 2000 workshops held in 1998. It was particularly pleased to note that CBS had created an Expert Team on the year 2000 problem to coordinate the development of both monitoring procedures and contingency plans.

7.4.3 Congress noted that the Secretariat had sent letters to manufacturers of meteorological equipment to gather information and that many manufacturers had been reluctant to share information on the compliance of their products. More than 260 manufacturers had been contacted but only 70 had responded with any significant information. Furthermore, noting that the year 2000 problem would have an impact on all Members and that all Members had been asked to provide information on their status on numerous occasions, Congress expressed its concern that no responses had been received from a significant number of Members. Congress agreed that although progress was being made, the situation, as of 30 April 1999, was still not satisfactory.

7.4.4 Congress was pleased to note that over the past six months the Secretariat had undertaken missions to 20 Member countries to ascertain their status and provide technical advice and assistance on dealing with the year 2000 problem and was pleased that further missions were planned to Member countries in need of assistance.

7.4.5 Congress strongly urged Members to undertake whatever actions were necessary to ensure that systems critical to their operations would continue to operate during and beyond 1 January 2000. It urged donor Members to make assistance available with that effort to less developed Members as a high priority. In that regard, Congress was pleased with the bilateral and multilateral assistance offered by Members. It expressed particular gratitude to the United States for its support to upgrade non-compliant STAR4 systems that had originally been funded by itself, Finland and the United Kingdom. It also thanked the United Kingdom for its support to upgrade several non-compliant MDD systems and France for developing a new version of the RETIM software and for distributing it to all users.

7.4.6 Congress requested the Secretary-General and the president of CBS to continue to monitor the situation and to address any critical issues that might arise. It further noted that most Members were making progress in securing their mission-critical operations against failures at the change to year 2000 but was concerned that there was still a considerable risk that outages could occur in those systems for a number of reasons which were only partly controlled by the NMHSs. In view of the short time remaining, Congress agreed that it was important to consider possible contingency options and define responsibilities for implementation of an international monitoring activity and consequent activation of any remedial actions. It requested that CBS, as a matter of urgency, develop a mechanism for monitoring the operation of the WWW over the change to year 2000 and for responding to problems that might be detected. In view of the importance of that problem and its possible serious impact on the operation of the WWW, Congress adopted Resolution 27 (Cg-XIII).

#### 8. CONSOLIDATED PROGRAMME AND BUDGET — 2000–2003 (agenda item 8)

8.1 Congress considered the programme and budget proposed by the Secretary-General for the thirteenth financial period (2000–2003). Under that agenda item, Congress considered and decided on the broad expenditure levels for various programmes and parts of the budget. The detailed discussions of various scientific and technical programmes and other activities, and the decisions of Congress thereon, were recorded under the appropriate agenda items.

8.2 The Secretary-General presented his programme and budget proposals giving an overview of the priorities in each programme area and stressing the need to provide sufficient resources to meet the many challenges facing the Organization as it entered a new millennium during the thirteenth financial period. The Secretary-General described the process by which the programme and budget was coordinated with the 5LTP and was prepared in full collaboration with Members through the inputs from the



Executive Council, regional associations, technical commissions and other organs of the scientific and technical programmes. Congress supported a closer relationship between long-term planning and the preparation of the programme and budget document.

8.3 The Secretary-General explained that the original zero real growth proposals presented to the fiftieth session of the Executive Council in June 1998 had totalled SFR 267.9 million, but that due to lower actual inflation from April 1995 through March of 1999 and lower projections of future inflation based on estimates of the Consultative Committee on Administrative Questions of 1.3 per cent per annum, the recosted zero real growth proposals totalled SFR 254.1 million. The Secretary-General indicated that he supported the programme priorities recommended by the fiftieth session of the Executive Council in his report to Congress.

8.4 Many Members congratulated the Secretary-General on his clear presentation of the proposals and on the quality and transparency of the budget documents. Several Members expressed support for the Secretary-General's zero real growth proposals while others supported the concept of zero nominal growth and still others expressed support for the recommended budget level of the fiftieth session of the Executive Council which indicated a preferred balance among programmes. Many Members indicated that the WWW Programme was the basic and highest priority. Other programmes also indicated as high priority were the ETRP, the Regional Programme, the TCO Programme, WCP, HWRP, IPA and PWS.

8.5 Congress confirmed that the highest priority should be accorded to the WWW Programme, including the TCP. Furthermore, it decided that special emphasis should be given in the thirteenth financial period to address key issues facing Members, including an enhanced level of general capacity building, through the ETRP, the Regional Programme, and the TCO Programme. Another main emphasis was specific capacity building in areas involving the status and visibility of NMHSs and their ability to deliver services to the public and specialized users that affected the safety of life and property and the overall economic and social benefit through the PWS Programme as well as the Aeronautical, Agriculture and Marine Application Programmes. A third main area of emphasis was to strengthen the programmes addressing global environmental concerns related to climate variability and climate change, hydrology and water resources, atmospheric environment and the oceans.

8.6 Several Members mentioned the difficult financial situation faced by developing countries and the critical reliance they placed on WMO's Programmes for technical assistance and training, to enable them to continue their work. Members expressed concern over the declining level of funding of the TCO Programme and support the need to explore new sources of extrabudgetary funding to supplement the WMO regular budget.

8.7 Congress expressed the need to increase efficiency in the WMO Secretariat but also realized that after 20 years of zero real growth while absorbing extensive new programme requirements, the Organization had already

made significant improvements and was already stretched thin in administrative and support areas which supported all the WMO Programmes.

8.8 Congress noted that the increased cost of financing, operation and maintenance of the new WMO Headquarters building would be offset to the extent possible by rental of excess space so that it did not become an economic burden to the Organization. Congress also noted that the estimated loan repayments for the new building in the thirteenth financial period totalled SFR 6 068 700. Based on the estimation of the rental income, Congress made a net provision of SFR 2 811 400 in Part 7 "Acquisition of Capital Assets — Headquarters Building" of the programme and budget for the thirteenth financial period. It recognized that the estimated loan repayments could be subject to change based on the final cost of the building and that the amount of rental income was not certain. Congress further noted that those amounts were well within the maximum annual cost to Members of SFR 1.5 million per year that was decided by Twelfth Congress.

8.9 Congress decided to approve an assessed programme and budget for the thirteenth financial period in the amount of SFR 248.8 million and authorized an additional programme expenditure for high priority items of SFR 3.5 million to be funded from savings resulting from the relocation of the WMO Headquarters. The total maximum expenditure thus approved was SFR 252.3 million. Congress recognized that not all of the high priority programme requirements that Members had requested could be met within the limits of the proposed budget ceiling. It requested the Secretary-General in consultation with the Executive Council to make detailed adjustments to the programme to address the high priority concerns of Congress during the thirteenth financial period in the most effective way within the limits of the approved programme funding levels. Congress considered that the programme activities to be funded with the SFR 3.5 million should be completed within the thirteenth financial period.

8.10 Congress examined the proposed structure of the Secretariat for the thirteenth financial period. It recognized that a high staff vacancy factor of 10 per cent had been maintained in the twelfth financial period and that the need to address new high priority requirements in the context of zero real growth led to a 13 per cent vacancy factor in the Secretary-General's proposals for the thirteenth financial period and that those proposals had been further reduced to a level below zero real growth requiring even further increase in the vacancy factor (approximately 15 per cent). However, it requested the Secretary-General to implement a balanced programme between staff and activities. Congress also requested the Secretary-General to adjust to the extent possible the list of established posts in the Secretariat in view of the persistent high vacancy factor. Congress authorized the Secretary-General to arrange that in the best way possible within the financial limitations imposed by the approved maximum expenditure and taking into account the decisions of Congress and the Executive Council on staff matters. In that regard, Congress decided to renew the flexibility provisions for staffing which had been adopted for the twelfth financial period.

- 8.11 Congress approved:
- (a) A total regular budget staff cost ceiling of SFR 170 million;
  - (b) A flexible approach to the number of personnel employed at any one time provided that the overall staff cost ceiling for the financial period was not exceeded and that the total number of staff on permanent contracts and fixed-term contracts of two years or more at no time exceeded the existing staff post ceiling (246). That number included three unclassified posts. The ceiling of 246 regular posts did not include the Secretariat staff for the joint activities covered by the WMO/ICSU/IOC agreement, IPCC, GCOS, CLIPS and UN/FCCC and also did not include those posts funded from extrabudgetary funds.

8.12 Congress adopted Resolution 28 (Cg-XII).

## 9. COOPERATION WITH THE UNITED NATIONS AND OTHER INTERNATIONAL ORGANIZATIONS (agenda item 9)

### 9.1 COOPERATION WITH THE UNITED NATIONS AND OTHER ORGANIZATIONS (agenda item 9.1)

9.1.1 Congress reviewed the existing relations with the United Nations and other international organizations and decided that close cooperation, consultation and coordination with those organizations should be maintained on the basis of the policy laid down in Resolution 6 (Cg-V) — Relations with the United Nations and other international organizations.

9.1.2 Congress noted with satisfaction the action taken by the Executive Council in concluding agreements and working arrangements with other international organizations as well as the granting of consultative status. It authorized the Executive Council to consider all aspects of the advisability of such cooperation with other international organizations with a view that it should be to the benefit of both Organizations. After a thorough review of a request, the Executive Council could enter into such working arrangements as might be necessary subject to the provisions of Article 26 of the WMO Convention.

9.1.3 Congress was pleased to learn of the close working relationship that existed between WMO and IUGG and in particular of the Alliance for Capacity Transfer, concluded by the Executive Council during its forty-ninth session. It noted the progress in that undertaking and the efforts of IUGG to obtain funding over a period of three years, for allocation to the WMO RMTCs and NMHSs to improve Internet capabilities. Congress commended IUGG and the Secretary-General of WMO on the initiative and the progress achieved so far.

9.1.4 Congress noted with interest the increasing and active involvement of WMO in the activities of the United Nations system as well as the active participation of WMO in the inter-agency coordination of programmes through the ACC. It agreed that the Organization should continue to participate in the work of the ACC and its subsidiary machinery.

9.1.5 Congress also noted that the Organization had participated in the preparation for, and proceedings of, a number of international conferences and meetings convened

by the United Nations or its specialized agencies. In that connection, it noted the arrangements for the follow-up actions to UNCED and the relevance of certain WMO activities in that area. Congress welcomed WMO's involvement in such activities and requested the Secretary-General to contribute, as far as possible, to the implementation of the plans of action, or the relevant resolutions or decisions adopted by such conferences and meetings.

### RECOMMENDATIONS ADDRESSED TO WMO BY THE UNITED NATIONS

9.1.6 Congress took note of the action being taken by WMO in response to the recommendations of the United Nations General Assembly and other bodies directly related to the WMO Programmes. The Secretary-General was requested to continue his cooperation in those areas with the United Nations and other bodies and agencies of the United Nations system. Congress also took note of those other recommendations of the General Assembly addressed to all bodies, organizations and agencies of the United Nations system, including WMO. It invited the Secretary-General to take those into account insofar as they were appropriate and relevant to the activities of the Organization.

### JOINT INSPECTION UNIT

9.1.7 Congress reconfirmed its acceptance of the Statute of the JIU on the understanding that the procedure whereby reports of the Unit were submitted to the Executive Council by the Secretary-General fulfilled its commitments under paragraph 2 of Article 1 of the Statute. It requested the Secretary-General to continue to give maximum assistance to the Unit, within the limits of resources available, priority attention being given to those activities of the JIU which were particularly relevant to WMO.

### EQUAL OPPORTUNITIES FOR PARTICIPATION OF WOMEN IN METEOROLOGY AND HYDROLOGY

9.1.8 Congress noted that in the light of United Nations Resolution 50/42 — Fourth World Conference on Women, adopted in 1995, and the Fourth United Nations Conference on Women, held in Beijing in 1995, the forty-ninth session of the Executive Council had requested Members to encourage the participation of women in meteorology and hydrology and had requested the Secretary-General to work with Members to assess the status of women in those fields.

9.1.9 Congress commended the Secretary-General for his support in promoting the role of women in programmes and activities of WMO and noted with appreciation the steps taken during the twelfth financial period to encourage the participation of women, in response to the request made by the Executive Council, and in line with increased efforts in that regard within the United Nations system. It further recognized WMO's contribution to the work of the United Nations Inter-agency Committee for the Advancement of Women and Gender Equality, which was instrumental in the process of the Fourth World Conference on Women.

9.1.10 Congress noted that a survey had been conducted by WMO in 1996 on the participation of women

in meteorology, operational hydrology and related geophysical sciences and that the report of the survey based on 94 responses, had been distributed in 1998. Information and data had been gathered for the survey, which had been the most comprehensive global study of women's involvement in atmospheric and geophysical sciences, for the period 1991–1995. Congress noted with concern that the overall result of the WMO survey had shown that in most Member countries, women were proportionally underrepresented in the professions of meteorology and hydrology. The survey had further shown that women were also proportionally underrepresented in activities of WMO and in professional organizations. For example, the number of women participants at sessions of technical commissions was 4 per cent in RA I, 21 per cent in RA II, 3 per cent in RA III, 6 per cent in RA IV, 2 per cent in RA V and 13 per cent in RA VI and the number of women delegates at Thirteenth Congress was 12 per cent. Only a few women meteorologists or hydrologists were designated as Permanent Representatives of their countries with WMO or as professional staff in the WMO Secretariat.

9.1.11 Congress noted with appreciation that as a major activity in that regard, the International Expert Meeting on the Participation of Women in Meteorology and Hydrology had been successfully held in Bangkok, in December 1997. The meeting had originally been planned in the context of the TCP with the objective of sensitizing national authorities on the role of women forecasters in disaster preparedness and prevention efforts. In view of the wider interest to promote the advancement of women, the scope of the meeting had been broadened to include meteorologists and hydrologists from all WMO Regions. Eighty-nine representatives from 67 Members of WMO had participated at the meeting. The main objectives of the meeting had been to encourage the creation of equal opportunities for men and women to attain senior positions in their chosen fields of atmospheric and geophysical sciences, and as a result, to increase the participation of suitably qualified women meteorologists and hydrologists in the activities of WMO. The report of the expert meeting had been distributed to all participants at the meeting and to the Permanent Representatives of WMO Members.

9.1.12 Congress recalled that the expert meeting had identified five major goals, including:

- (a) Achieving equity in obtaining education and training for men and women;
- (b) Developing and implementing career and promotion strategies which provided equal opportunities for both women and men;
- (c) Creating a work environment that was conducive to the productivity and morale of the staff;
- (d) Increasing the participation of women scientists in the work of WMO;
- (e) Increasing the number of women scientists and other professionals among staff of the WMO Secretariat.

Congress noted that the expert meeting had formulated recommendations in respect of each of the above issues and had addressed specific actions that could be taken by women, the NMHSs, and the WMO Secretariat to meet the goals formulated by the meeting. In urging Members to take

all possible steps to ensure that those recommendations were translated into policy and action, Congress was pleased that certain actions had already been taken to implement those recommendations addressed to the Secretariat. Congress further expressed satisfaction at the creation of a web site dedicated to women's issues on the WMO Home Page and urged Members to contribute information to the site and to use it as a medium for network building.

9.1.13 Noting the wide readership of the *WMO Bulletin*, Congress requested that series of articles on, or interviews with, women who had contributed to meteorology and hydrology in NMHSs be included in the *Bulletin* as a means of enhancing the profile of women in those professions. It further requested that the recommendations from the Bangkok meeting be incorporated as part of an agenda item on human resource management in the WMO technical conferences on management of NMHSs.

9.1.14 Congress noted with appreciation the initiatives taken by a number of regional associations and technical commissions that had passed resolutions to encourage the participation of women in their respective fields of activity. Those included the tenth session of CHy (Koblenz, 1996), the twelfth session of the CCI (Geneva, 1997), the twelfth session of RA IV (Nassau, 1997), the twelfth session of CAS (Skopje, 1998), the extraordinary session of CBS (Karlsruhe, 1998), the twelfth session of CAgM (Accra, 1999) and the eleventh session of CAeM (Geneva, 1999). Congress viewed that initiative as a mark of increasing recognition by the WMO constituent bodies, of the important contribution that trained professional women could make to the work of the regional associations and technical commissions. It encouraged other constituent bodies to provide similar active encouragement and support for equal opportunity for the participation of suitably qualified women in all fields related to meteorology and hydrology, including at decision-making levels.

9.1.15 Congress agreed that although there were marked differences in the practices and mode of operation of the different NMHSs, there were striking similarities in the issues related to various stages of women's career development. Those often began with equitable access to education and training at schools and universities, which was seen as essential for embarking on a career in science, and continued as women embarked on a career in the NMHSs, where other issues emerged related to managing family responsibilities and achieving a home/work balance which quite often made it difficult for women to compete on an equal footing with their male colleagues in achieving management positions. Taking into consideration those difficulties, Congress expressed its support for the initiative to increase the participation of women in WMO activities and cited the positive contribution of women to meteorology and hydrology. Several Members expressed concern at the lack of women at managerial levels in WMO. Noting that men's support was essential for women's access to equal opportunities for their advancement in science in general, and in meteorology and hydrology in particular, and that gains for women would benefit all society, Congress called on Governments and directors of NMHSs to take the necessary steps, as appropriate, so that women were

provided equal opportunities by their NMHSs management and were evaluated and rewarded based on work performance.

9.1.16 Noting the momentum and enthusiasm generated by the activities outlined above, Congress requested the Secretary-General to continue his efforts concerning that important issue and, in particular, assist in the implementation of the objectives and recommendations of the International Expert Meeting on the Participation of Women in Meteorology and Hydrology (Bangkok, December 1997). Furthermore, taking into consideration the success of that meeting which was the very first of its kind to be organized by WMO, Congress expressed satisfaction that resources had been allocated by the Secretary-General to arrange for the organization of a follow-up meeting during the next financial period to review progress and consider future steps on the participation of women in the professions of meteorology and hydrology.

9.1.17 Congress adopted Resolution 29 (Cg-XIII).

## 9.2 FOLLOW-UP TO THE UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT (agenda item 9.2)

9.2.1 Congress noted that in the implementation of all WMO scientific and technical programmes due attention continued to be paid to those activities that directly related to recommendations in Agenda 21. Congress considered that, taken together, those activities constituted a tangible WMO contribution to the overall process of supporting national sustainable development through the United Nations system. Congress commended the special arrangements that had been made to contribute to the United Nations reports on the status of implementation of the UNCED recommendations, particularly as regarded the protection of the atmosphere, oceans and seas, the quality and supply of freshwater resources, combating desertification and drought, and sustainable development of agriculture and human settlements.

9.2.2 Congress expressed its appreciation to the Executive Council, technical commissions and regional associations for their continuing attention to the UNCED follow-up activities, particularly as they related to the WMO participation in the work of CSD and, through the ACC, in its Inter-agency Committee on Sustainable Development, and in the preparation for, and deliberations of, the 1997 Special Session of the United Nations General Assembly, which reviewed and appraised progress in the implementation of Agenda 21. Congress also expressed its appreciation to the Secretary-General for actions taken towards the implementation of Agenda 21, particularly as regarded the tasks assigned to WMO by the United Nations.

9.2.3 As regarded CSD, Congress appreciated the satisfactory outcome of the WMO work, jointly with UNEP, as a Task Manager on the preparation of the status report of the implementation of Chapter 9 — Protection of the atmosphere — of Agenda 21, and the presentation of that report to the fourth session of CSD in 1996. Congress noted that, as a result of that presentation, the Commission had supported the initiative of a number of international organizations led by WMO to establish an integrating

framework of their climate-related programmes — the Climate Agenda.

9.2.4 Congress further noted a proactive approach by WMO towards the preparation, in cooperation with other organizations, including UNESCO, of the comprehensive assessment of freshwater resources, which served as an important background material for the deliberations at the fifth session of CSD in 1997 on the sectoral theme Strategic approaches to freshwater management.

9.2.5 Congress took note of the view of the Special Session of the United Nations General Assembly (1997) on the role of international organizations and institutions in facilitating the national implementation of Agenda 21. Congress agreed that, following a recommendation by the Special Session, WMO should strengthen, as necessary, jointly with other organizations, the support for national efforts to implement Agenda 21 and make its efforts and actions consistent with national plans, policies and priorities. Congress considered that that recommendation was especially relevant as regarded the support to national efforts to improve their NMHSs through the assistance by WMO Programmes, including those oriented at capacity building. At the same time, Congress urged Members to pursue their efforts in giving priority attention to the Programme for the Further Implementation of Agenda 21 as adopted by the Special Session.

9.2.6 Congress noted that with respect to sectoral themes at the sixth (1998) and seventh (1999) sessions of CSD, which dealt with freshwater, and oceans and seas, respectively, the WMO input was positively received by governmental delegations participating in the sessions. WMO contributions to reviews of the Programme of Actions for the Sustainable Development of SIDS were also well appreciated. Congress recognized that, in its decisions, CSD had highlighted many topics within WMO's responsibility, including information and data related to water for decision-making, observing networks and global observing systems, water resources assessments, and drought and flood preparedness. Congress was pleased to observe that the WMO participation in the CSD sessions contributed to the effective promotion of WMO activities and to the better recognition of the role of meteorology, oceanography, hydrology and global observing and information systems in national and global sustainable development.

9.2.7 Congress emphasized that the WMO actions on the further implementation of Agenda 21 should be closely coordinated with and, in fact, include actions on the implementation of UN/FCCC and UNCCD. In that connection, Congress considered that the development of research, including that within the framework of CCI, and systematic observations required by those Conventions would effectively serve national sustainable development purposes. Congress noted the effective WMO support to the WMO/UNEP IPCC and underscored the very important role of the IPCC findings as a scientific background for the implementation of UN/FCCC. Congress urged Members to analyse fully the potential of NMHSs in improving national observing networks and in developing research programmes concerning climate and climate change, and in combating drought and desertification. Congress further urged

Members to consider carefully the 5LTP and to identify actions that would help fulfil the role of WMO to harness the potential of meteorology and hydrology to contribute to endogenous capacity building and sustainable development within the framework of Agenda 21 and related international conventions and agreements.

9.2.8 Congress considered that in the further implementation of Agenda 21, WMO should continue its efforts to enhance collaboration with the civil society and that efforts to make society more fully aware of the WMO's role and mandate should be intensified.

9.2.9 Congress commended the efforts made by the Secretary-General to keep Members informed on related UNCED follow-up activities through circular letters, presentations and discussions at meetings and other means and requested him to continue that practice. Congress reiterated that Members should keep the Secretary-General, as well as each other, informed of UNCED follow-up activities in their respective countries.

9.2.10 Congress noted with appreciation that the WMO publications distributed to NMHSs provided Members with very useful information on WMO activities concerning the implementation of UNCED Agenda 21, as well as of UN/FCCC and UNCCD. Congress particularly noted that, following the request made by Twelfth Congress to update information provided in the Guidelines on the Role of NMHSs in the Implementation of Agenda 21 and the UN/FCCC, published in 1993, several guidance materials were prepared and disseminated, including guidelines on management of NMHSs which, *inter alia*, provided assistance to the NMHSs in mapping out their own response to UNCED follow-up at the national level. Congress considered that the WMO guidance materials related to the role of NMHSs in the implementation of Agenda 21 should be regularly reviewed and updated, as appropriate.

### 9.3 STATUS REPORTS ON THE CONVENTIONS ON CLIMATE CHANGE AND ON DESERTIFICATION (agenda item 9.3)

#### UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE

9.3.1 Congress 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 UN/FCCC. Congress also noted with satisfaction the scientific and technical contributions to the Convention process made by WMO and other organizations participating in the Climate Agenda.

9.3.2 Congress took note of the decisions adopted by the Third and Fourth Sessions of COP on the Development of Observational Networks of the Climate System and on Research and Systematic Observation, respectively. In that regard, Congress emphasized that the further development and implementation of the global climate observing systems were critical in the detection, monitoring and prediction of climate change and, as such, contributed to the successful verification of the effectiveness of measures undertaken under the Convention to limit the emissions of greenhouse gases. Congress therefore requested the Secretary-General to

collaborate with the organizations participating in the Climate Agenda and with the UN/FCCC Secretariat in initiating an intergovernmental process for addressing the priorities for action to improve the global climate observing systems in relation to the needs of the Convention for identifying immediate, medium-term and long-term options for financial support.

9.3.3 Congress noted the efforts made to mitigate climate change by the Parties to the UN/FCCC. It was felt, however, that mitigation efforts, though commendable, seemed to receive more attention at the international level than other aspects of climate change, such as impacts and adaptation strategies. Congress therefore invited partner organizations in the Climate Agenda to explore the options for developing climate impact and adaptation programmes needed by the IPCC and the UN/FCCC and to undertake appropriate joint initiatives, taking advantage of existing and emerging opportunities, for obtaining resources for climate change activities.

9.3.4 Congress noted with satisfaction that a number of NMHSs of Member countries actively participated in the work of the Convention bodies, namely the Conference of the Parties and the SBSTA, as national delegates and supporting delegates. That was important in making full use of the implementation of the Convention and in strengthening and promoting the role of NMHSs at the national and international levels. In that regard, Congress requested the Secretary-General to continue fostering participation of the NMHSs in the work of Convention bodies, in particular in the work of SBSTA, through the provision of relevant information.

9.3.5 Congress considered that the NMHSs should participate actively in the implementation of the Convention, including development of impact assessments and adaptation strategies. Furthermore, Congress urged Members, in particular developing countries, to make use of the opportunities offered by GEF in capacity building for participation in systematic observational networks to reduce scientific uncertainties relating to the causes, effects, magnitude and timing of climate change in accordance with the relevant articles of the Convention. In that regard, Congress emphasized the need for the organization of relevant training seminars in support of capacity building.

9.3.6 Congress requested the Secretary-General to continue to ensure the provision of appropriate scientific and technical support to the UN/FCCC Secretariat, including secondment of professional and other staff within available budgetary resources. Such support would facilitate close liaison between the WMO Secretariat and the UN/FCCC Secretariat and would provide a focus for the coordination of WMO's activities relevant to the Convention process.

#### UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION

9.3.7 Congress expressed its support for the continuing fruitful collaboration between WMO and the UNCCD Secretariats and requested the Secretary-General to continue to emphasize implementation activities in support of the Convention, including the provision of appropriate scientific and technical support.

9.3.8 Congress expressed its appreciation to the Secretary-General for his wide-ranging actions in support of UNCCD within the programmes and activities of WMO. In particular, Congress noted with satisfaction the actions taken by the Secretary-General to ensure the active participation of WMO in both the negotiating process leading to the Convention and at COP-1 and COP-2 to the Convention. Congress expressed its appreciation for the special brochures prepared by WMO for COP-1. Congress appreciated the initiative taken by the Secretary-General to inform the Members of the major decisions taken at COP-1 and COP-2.

9.3.9 Congress stressed the necessity to enhance climate monitoring networks in the fight against desertification and reiterated WMO's strong commitment to assist UNCCD. Congress requested the Secretary-General, in consultation with the Executive Secretary of UNCCD, to draw the attention of the donors to the inadequacy of the present networks for climate and desertification monitoring due to lack of appropriate financial support.

9.3.10 The fight against desertification and drought received high priority in WMO's Long-term Plans, and Congress emphasized the need to provide strong support to the relevant activities of WMO, in particular the Agricultural Meteorology Programme and HWRP, so that WMO could adequately respond to relevant articles of UNCCD.

9.3.11 Congress expressed its satisfaction with the different activities undertaken by WMO in support of the Convention. Congress emphasized the need for training in the fields of desertification and drought, taking advantage of the funding facilities which might be available under the Convention. Congress noted with appreciation the initiative taken by WMO to organize Roving Seminars on the Application of Climatic Data for Drought Preparedness and Drought Management, in collaboration with FAO, UNEP and the UNCCD Secretariats using extrabudgetary resources. Congress expressed its appreciation to donors for providing funds for that purpose and encouraged other donors to support such activities.

9.3.12 Congress noted that the twelfth session of CAGM had established a Working Group on the Impacts of Desertification and of Drought and other Extreme Meteorological Events to advise, among other things, on matters relating to the implementation of UNCCD. Further WMO actions regarding the implementation of the Convention would be undertaken under relevant WMO Programmes, in particular, the Agricultural Meteorology Programme, WCP, HWRP, AREP and ETRP.

9.3.13 Congress strongly urged Members to continue to strengthen and expand their activities relating to research, training and capacity building, observation data collection and exchange on matters relating to drought, early warning, preparedness and public awareness. In order to stress the training aspect of the implementation of the Convention, Congress requested the Secretary-General to encourage and support action to be undertaken by RMTCs to include in their programme subjects dealing with drought and desertification, monitoring and early warning, preparedness and mitigation strategies.

#### 9.4 INTERNATIONAL DECADE FOR NATURAL DISASTER REDUCTION (agenda item 9.4)

9.4.1 Congress noted with appreciation the report on activities to meet the goals of IDNDR, underscoring the close collaboration that continued to exist between the WMO and IDNDR Secretariats. The planned closing events and the proposals for activities on natural disaster reduction beyond the Decade were afforded special attention by Congress. Congress recalled the significant impact of natural disasters on the socio-economic development of countries. In that regard, a particular challenge placed on IDNDR had been to ensure access to, and affordability of, existing scientific knowledge and disaster reduction technology with an emphasis on national capacity building to enable their application in practice. Congress noted that a major achievement of IDNDR had been to increase awareness of the necessity and importance of natural disaster mitigation and reduction as opposed to disaster relief in terms of saving lives and property. Congress urged Members to maintain the spirit of IDNDR efforts in that direction by becoming more actively involved in formulating proposals for continued disaster reduction activities for implementation into the twenty-first century.

9.4.2 Congress reaffirmed that WMO played a leading role as regarded mitigation of, and preparedness for, natural disasters of meteorological and hydrological origin and had supported the IDNDR efforts through its major scientific and technical programmes, in particular TCP, PWS and HWRP. Those activities had been undertaken within the context of the revised WMO Plan of Action for the IDNDR that had been adopted by Twelfth Congress, and the 4LTP. Congress recalled that, in addition to its regular programme activities, WMO had implemented four special demonstration projects, the Tropical Cyclone Warning System for the South-West Indian Ocean region, CRASH, STEND, and the Tropical Cyclone Disasters (an ICSU/WMO project) as special contributions to the aims of the Decade.

9.4.3 Congress was informed that, as a follow up to United Nations General Assembly Resolution 50/117 B — International Decade for Natural Disaster Reduction, the IDNDR Secretariat had set up five working groups, each convened by a collaborating organization, to determine early warning criteria and the areas for which improved coordination and/or effectiveness was required. WMO had convened the Working Group on Early Warning for Hydrometeorological Hazards (including drought). The reports of the working groups were included in the final reports on all aspects of early warnings, which were submitted to the United Nations General Assembly in November 1997. The reports also formed the basis of the International IDNDR Conference on Early Warning Systems for the Reduction of Natural Disasters, held in Potsdam (September 1998) and co-sponsored by WMO. The Conference statement recognized that early warning required unrestricted access to data and that it was vital for warning dissemination and information to emanate from a single official source. Congress was pleased that the Conference statement clearly reflected support for the important role that NMHSs played in national and local natural disaster reduction.

9.4.4 As a result of the 1997–1998 *El Niño* episode, which had had an acute impact in several parts of the world leading to floods, food shortage and possible famine, the United Nations General Assembly had adopted Resolution 52/200 — International cooperation to reduce the impact of the *El Niño* phenomenon. That resolution called upon the organizations of the United Nations system, within the framework of IDNDR, to contribute further to a comprehensive approach and study of *El Niño* and to intensify their cooperation with the regions affected by the phenomenon, especially in developing countries. In November 1997, an Inter-Agency Task Force on *El Niño* had been established to act as a mechanism for information exchange and follow-up actions related to prevention, mitigation and preparedness of *El Niño*. As a member of the task force, WMO had taken the lead role to review the scientific and technological elements related to the forecasts of *El Niño* and their availability to Members. Congress noted that the first intergovernmental meeting of experts on the *El Niño* phenomenon had been organized in Guayaquil, Ecuador, in November 1998, with a second similar event to be organized in Peru in late 1999.

9.4.5 Congress noted the concern regarding the coordination of work in operational seismology, which was the responsibility of NMHSs in a large number of countries and was informed that the Secretary-General had brought that concern to the attention of the IDNDR Secretariat. The representative of the IDNDR Secretariat informed Congress of relevant activities in that regard including the Project on Risk Assessment Tools for Diagnosis of Urban Areas Against Seismic Disasters (RADIUS), which would require international coordination by all involved in operational seismology. Congress requested the Secretary-General to pursue the matter with the IDNDR Secretariat and to keep the Executive Council informed. Furthermore, Congress noted the efforts undertaken by the Secretary-General to improve coordination of the geosciences in the United Nations system.

9.4.6 Congress noted with interest that WMO had worked closely with the IDNDR Secretariat to prepare the Addendum on National and Environmental Disasters for the fourth session of the CSD (New York, April 1996). Based on the recommendations of the session, the United Nations General Assembly had adopted a resolution to ensure full integration and participation of SIDS in the mapping of a strategy for disaster reduction into the twenty-first century and to enhance the capability of those States with respect to disaster management as a part of sustainable development. A description of the WMO contributions to the SIDS was presented at a special seminar and in a brochure during the seventh session of the CSD on 22 April 1999.

9.4.7 Congress was informed that plans for the consolidated phase of the Decade had been discussed during the tenth and eleventh sessions of the IDNDR Scientific and Technical Committee held in 1998 and 1999, respectively. The Committee had agreed that the consolidation phase of the Decade would include a series of events leading to a programme forum in mid-1999. Congress agreed that the activities related to the final phase of the Decade provided a basis for Members and international organizations to make

commitments to disaster reduction into the twenty-first century. The public and international policy recognition given to the importance of natural disaster mitigation and reduction would represent a major accomplishment of the IDNDR. Congress expressed the view that the role of NMHSs in disaster reduction, particularly with respect to preparation of weather and flood warnings and forecasts including potential for landslides and locust invasions, became even more apparent with the use of seasonal forecasts during the recent *El Niño* episode. Congress therefore strongly endorsed a lead role for WMO, jointly with UNESCO, in convening a special forum from 6–8 July 1999 in Geneva, on the science, technology and services related to natural disasters. The outcome of the forum would contribute to the discussions on natural disaster reduction during session of the Economic and Social Council in July 1999.

9.4.8 Congress agreed that the long experience that WMO had in global and regional coordination of programmes of meteorological and hydrological services had clearly put the Organization in an excellent position to take a lead in efforts in the promotion of scientific and technical aspects of disaster reduction activities beyond the Decade. Congress therefore requested the Secretary-General to continue his efforts to ensure that WMO took a strong lead in activities to mitigate disasters of meteorological and hydrological origin with a potential for the Organization to become a coordinating focal point for such activities in the post-Decade era. Congress further agreed that hazard assessment, disaster awareness and preparedness, early warning, research and technology development, political commitment and national planning, and shared technology and knowledge were all vital to the success of future disaster mitigation activities. Such activities should involve NMHSs and would require a well-developed infrastructure and recognition of the need, not only to issue warnings, but also to ensure that in coordination with Civil Protection Agencies such warnings were understood by those communities that were vulnerable. In that regard, Congress urged the Secretary-General to continue its support of WMO training events that would contribute to capacity building needed for natural disaster reduction related to meteorological and hydrological hazards at the national and subnational levels. Consequently Congress encouraged Members to be involved in preparations for the closing events of the Decade and in formulating coherent strategies and proposals for continued disaster reduction activities into the twenty-first century. Congress agreed that improving the disaster warning capacity of Members and enhancing public awareness with an aim to saving lives and property of the public should continue as high priority activities within relevant WMO Programmes, especially the TCP, HWRP, and PWS.

## 10. ADMINISTRATIVE AND FINANCIAL QUESTIONS (agenda item 10)

### 10.1 FINANCIAL MATTERS (agenda item 10.1)

#### THE NEW HEADQUARTERS BUILDING

10.1.1 Congress noted with satisfaction the actions taken by the Secretary-General during the twelfth financial

period for the construction of the new WMO Headquarters building. Congress also expressed its appreciation for the work done by the Executive Council and its Committee on the WMO Headquarters Building under the chairpersonship of the Third Vice-President of WMO, Mr J.-P. Beysson. Congress considered that the attention and advice provided by the Committee, and by the Executive Council itself, were critically important for the successful carrying out of the construction project of the WMO Headquarters building. Congress was particularly pleased to learn that the present estimate of the cost of the new building was about SFR 98.3 million, compared to the limit set of SFR 101 862 918.

10.1.2 Congress noted that the new WMO Headquarters building became operational in March 1999. Congress wished to thank architects, managers and workers who made possible the transition of the WMO Secretariat into new premises. In that connection, Congress noted that the old building should be delivered to WIPO by 30 June 1999.

10.1.3 Congress thanked the Government of Switzerland and the Geneva Cantonal and Municipal authorities for the generous loan and other contributions accorded to WMO for the construction of the new WMO Headquarters building.

10.1.4 Congress also noted that two floors of office space had been rented to the Swiss authorities and considered the most recent estimates concerning the financial consequences of that arrangement for the operating costs of the new building. Congress recognized with satisfaction the resulting substantial reduction of the contribution by Members to the cost of the new building.

10.1.5 Congress wished to put on record the deep gratitude of WMO to Mrs R. Dreifuss, President of the Swiss Confederation, and other officials and guests who had honoured by their presence the inauguration ceremony of the new WMO Headquarters building on the first day of Congress on 4 May 1999.

10.1.6 Congress also wished to place on record its thanks to Messrs R. Brodbeck and J. Roulet, the architects of the project.

#### **BUILDING FUND**

10.1.7 Congress examined the proposal to establish a Building Fund to finance future requirements and/or to pay for the contingency expenditure for the new WMO Headquarters building in order to maintain its capital value.

10.1.8 Noting that no such provision was made in the programme and budget proposals for the thirteenth financial period, Congress agreed that a Building Fund should be established. The Fund should be credited by the remaining balance of the proceeds of the sale of the old building after the financing of the new WMO Headquarters building. That amount was estimated to be between SFR 1.0 to 1.5 million. Also, the "Building maintenance reserve" established by the decision of Tenth Congress and standing in the books at SFR 540 274 should be credited to that Building Fund. In addition the Fund would be credited with an amount of SFR 640 000 which represented amortization of furniture over a period of eight years payable with the rent by the tenants.

10.1.9 Congress further decided that income derived from investments of the Building Fund should be credited to it.

#### **FINANCIAL REPORT OF THE SECRETARY-GENERAL**

10.1.10 Congress noted that the audited accounts at 31 December 1997 covering the first biennium of the twelfth financial period showed a net cash surplus of SFR 1 996 565 after commencing the twelfth financial period with a net cash deficit of SFR 3 379 064 carried forward from the eleventh financial period. However, during the biennium, revenue from contributions and other sources fell short of the amount required to cover the total amount of the approved budget and the deficit carried forward from the eleventh financial period. The improvement in the financial situation during the first biennium was due to a budgetary surplus of SFR 9 110 758 resulting from postponement of activities and economy measures stringently applied in order to remain within available cash resources.

10.1.11 The budgetary surplus of SFR 9 110 758 from the first biennium had been re-appropriated to the second biennium (1998-1999) as decided by the forty-ninth session of the Executive Council in order to carry out the deferred programme activities to the extent that resources would allow. Congress noted that the current position of the Organization from a cash flow resource availability standpoint would allow for the implementation of the budget for the 1998-1999 biennium including re-appropriations. Congress also noted that some costs of premises were expected to increase during the last three quarters of 1999 due to the new larger WMO Headquarters building and that those would be met from the resources available within the approved budget.

10.1.12 Congress examined the overall financial situation of the Organization for the twelfth financial period. It was satisfied that the Secretary-General was taking all possible steps to administer the financial resources made available to the Organization in a manner consistent with the provisions of the Financial Regulations and the decisions of Twelfth Congress and the Executive Council.

10.1.13 Congress also noted that the financial situation was regularly reviewed on an annual basis by the Executive Council and the Financial Advisory Committee. The Executive Council had been advised of the serious situation which prevailed during the current financial period as well as of steps taken by the Secretary-General to redress the situation.

10.1.14 Congress noted with satisfaction the payment by some Members of their long-outstanding contributions. It nevertheless noted with much concern that, in some cases, Members were delaying the settlement of their assessed contributions for unduly long periods, which deprived the Organization of cash resources required to implement the programmes.

#### **REVISION OF THE FINANCIAL REGULATIONS**

10.1.15 Noting that it had always been the practice adopted regularly in the past to re-appropriate the unspent balance of appropriations remaining from the budget



of the first biennium to the corresponding parts of the budget for the second biennium and considering the recommendation of the Financial Advisory Committee and the Executive Council, Congress agreed that the text of Financial Regulation 7.3 should be amended in order to reflect that practice.

10.1.16 Congress noted that, in order to assist those Members who might have difficulty in making payments in Swiss francs, and to improve the rate of collection of contributions, the Secretary-General had been accepting freely convertible currencies from Members for payment of their contributions. On the recommendation of the Financial Advisory Committee and the Executive Council, Congress agreed that the text of Financial Regulation 8.6 should be amended to bring it into harmony with the basic interests of the Organization.

10.1.17 Noting that the United Nations General Assembly had approved a revised text of paragraph 5 of the additional terms of reference governing the audit of the United Nations which had been endorsed by the Panel of External Auditors of the United Nations, the Specialized Agencies and IAEA, recalling the practice to align whenever feasible WMO practices and the text of the WMO Financial Regulations to those of the United Nations and Specialized Agencies, and considering the recommendation of the Financial Advisory Committee and the Executive Council, Congress agreed that the text of paragraph 5 of the Additional Terms of Reference governing External Audit (Annex to Financial Regulation 15.3) should be amended to reflect the revised text as approved by the United Nations General Assembly.

10.1.18 Congress noted that Financial Regulation 9.9 specified that interest income derived from investment of trust funds, reserve and special accounts should be credited as provided in the provisions applicable to such funds or accounts and that in the absence of any such provision, interest income was credited to miscellaneous income for credit to the General Fund. Considering that that Regulation was written a long time ago and since then the situation had evolved considerably, Congress agreed that the text of the Regulation should be amended for interest income to be credited at any time to extrabudgetary resources at the request of the donors of those resources.

10.1.19 Following the establishment of the Internal Audit and Investigation Service by the Secretary-General and considering the recommendation of the Financial Advisory Committee and the Executive Council, Congress agreed that Financial Regulation 13.1(d) should be deleted and replaced by new Financial Regulations 13.7 to 13.10 to include the terms of reference of that Service.

10.1.20 Congress adopted Resolution 30 (Cg-XIII) after incorporating the revisions mentioned in paragraphs 10.1.15 to 10.1.20.

#### STAFF COMPENSATION PLAN RESERVE FUND

10.1.21 Noting that the level of the Staff Compensation Plan Reserve Fund did not require an increase, Congress decided to maintain unchanged the level of that Fund during the thirteenth financial period.

#### SHORT-TERM BORROWING AUTHORITY

10.1.22 Congress considered the recommendations of the Executive Council, to maintain in force the short-term borrowing authority during the thirteenth financial period. It noted that circumstances might warrant making available, under the same conditions as prevailed in the previous financial periods, additional cash resources to the Secretary-General in order to allow for a timely delivery of the approved programmes. Congress adopted Resolution 31 (Cg-XIII).

#### PUBLICATIONS FUND

10.1.23 Noting that paragraph 5 of the annex to Resolution 17 (EC-XLIV) — Publications Fund, stated that at the end of each financial period, subject to the approval of Congress, the unobligated cash balance available in the Publications Fund should be transferred to the credit of the Fund on 1 January of the subsequent biennium, Congress agreed that any balance remaining in the fund at 31 December 1999 would be carried forward to the thirteenth financial period.

#### JOINT CLIMATE RESEARCH FUND

10.1.24 Noting that the agreement between WMO, ICSU and IOC provided that amounts standing to the credit of the Fund at the end of any biennium should remain in the Fund, Congress agreed that any balance on the Fund at 31 December 1999 should be carried forward to the thirteenth financial period.

#### 10.2 PROPORTIONAL CONTRIBUTIONS OF MEMBERS (agenda item 10.2)

##### TWELFTH FINANCIAL PERIOD

10.2.1 Congress noted that the following countries who became Members during the twelfth financial period were assessed at 0.02 per cent as established by the Executive Council in accordance with Resolution 33 (Cg-XII) — Assessment of proportional contributions of Members for the twelfth financial period:

<i>Member</i>	<i>From</i>
Monaco	9 May 1995
Samoa	10 August 1995
Micronesia, Federated States of	20 October 1995
Cook Islands	17 November 1995
Macao	24 January 1996
Tonga	26 March 1996
Niue	30 June 1996

##### SCALE OF ASSESSMENT OF CONTRIBUTIONS

###### THIRTEENTH FINANCIAL PERIOD

10.2.2 Congress examined the document submitted by the Secretary-General following the recommendation of the Executive Council in respect of the establishment of the scale of proportional contributions for the thirteenth financial period. Congress examined various options available to determine the scale of assessment of contributions for the thirteenth financial period. It decided

to move towards the United Nations scale and to adopt for the year 2000 a scale of contributions as contained in Table I of Resolution 32 (Cg-XIII) and for the years 2001 to 2003, the United Nations scales to be approved by the fifty-fifth United Nations General Assembly (anticipated in December 2000) duly adjusted for difference in Memberships. Congress recognized that the assessment for the year 2001 would be available in January of that year and that that would allow an inadequate period of time for planning the budget by some Members.

10.2.3 Furthermore, Congress decided that the latest United Nations scales to be approved by the United Nations General Assembly should be adopted as the basis for the calculation of the WMO scale of assessments, duly adjusted for difference in Memberships.

10.2.4 On the recommendation of the Executive Council, the minimum rate of assessment of 0.02 per cent, as adopted for the twelfth financial period, was retained as the minimum for the thirteenth financial period.

10.2.5 Congress authorized the Executive Council to adjust the WMO scale of assessment for the years 2001 to 2003 so that the changes in the United Nations scale to be adopted by the fifty-fifth United Nations General Assembly (in the year 2000) could be taken into account. Corrections should be made to ensure that no Member's rate of assessment would increase to a level which would exceed 200 per cent of the WMO scale for 2000.

10.2.6 Congress adopted Resolution 32 (Cg-XIII) and requested the Secretary General to calculate the advances due to the Working Capital Fund from new Members joining the Organization after 1 January 2000 on the basis of the scale of contributions for the year 2000 as provided for in Financial Regulation 9.3.

10.2.7 Congress considered the recommendation of the Executive Council that the level of the Working Capital Fund should be 2 per cent of the approved maximum expenditures in accordance with the decision of Twelfth Congress. It agreed with the Executive Council that the Working Capital Fund had proved to be an important means of coping with temporary cash shortfalls of limited duration. It also agreed that the Working Capital Fund could not solve problems from sizeable cash shortfalls of a long-term nature for which alternative solutions had to be found. Congress, therefore, decided to increase the Working Capital Fund at the level of 2 per cent of SFR 248.8 million, the amount of assessments during the thirteenth financial period. The shortfall in the capital of the Fund should be covered by crediting interest earned on the investments of cash resources of the Fund to individual Members' accounts in the Working Capital Fund.

10.2.8 Congress decided on the re-apportionment of advances by Members in the year 2002 and adopted Resolution 33 (Cg-XIII).

#### CONSIDERATION OF PAST RESOLUTIONS ON MATTERS RELATED TO CONTRIBUTIONS

10.2.9 On the recommendation of the fiftieth session of the Executive Council, and in order to overcome persistent cash flow problems arising from non-payment and delayed payment of Members assessed

contributions, Congress decided to keep in force the following resolutions:

- (a) Resolution 31 (Cg-X) — Incentive scheme for early payment of contributions;
- (b) Resolution 37 (Cg-XI) — Suspension of Members for failure to meet financial obligations;
- (c) Resolution 35 (Cg-XII) — Settlement of long-outstanding contributions.

10.2.10 While reviewing to keep in force Resolution 35 (Cg-XII) — Settlement of long-outstanding contributions, Congress noted that in accordance with Financial Regulation 8.8, those special arrangements might be concluded with any Member being in arrears for more than four years on the date of entry into force of such arrangements.

#### 10.3 STAFF MATTERS (agenda item 10.3)

##### VIEWS OF STAFF ON THEIR CONDITIONS OF SERVICE

10.3.1 Congress noted the views of staff on their conditions of service. In particular, it noted that, due to the worldwide economic situation and the possibility that funding levels would continue to decline, job security and career development had become the areas of primary concern to staff. Congress also noted the staff view that the workload had substantially increased without the provision of additional funding. The lack of funds had, for the most part, been compensated by freezing posts and preventing the normal process of recruitment and promotion, thus resulting in restricted career opportunities for WMO staff.

10.3.2 Congress noted that staff were concerned that there was no longer a balance between programme requirements and staff resources; staff hoped that the decisions of Thirteenth Congress would lead to a more realistic balance and would encourage a long-term personnel/career strategy. Congress also noted that staff considered it to be of utmost importance to make the best use of the human and financial resources available.

10.3.3 Congress further noted that staff hoped that the intended Reform of Human Resources Management in the United Nations System would be followed in WMO and would help to create a more supportive work environment.

10.3.4 Congress endorsed the views of the fiftieth session of the Executive Council and considered the need to modernize and streamline WMO's administrative procedures accompanied by new ideas, concepts and attitudes. The recruitment of younger staff would be one way to achieve that. Congress also urged that the necessary training be given to existing staff to ensure that full advantage was taken of modern technology, in particular that expected in the new building.

10.3.5 Congress recognized that the period of transition ahead, following the move to the new Headquarters building, would call for a certain amount of adaptation and a willingness on the part of all concerned to be open to new ideas. It called on the cooperation of the staff in facing the challenges of the future and requested the Secretary-General to continue to work in close consultation with staff representatives and to invite them to play a more meaningful role in all matters affecting staff welfare.

10.3.6 Congress noted the views of the staff on the United Nations Common System.

**COMMENTS OF THE SECRETARY-GENERAL ON THE VIEWS OF STAFF ON THEIR CONDITIONS OF SERVICE**

10.3.7 Congress noted that the Organization had undertaken the following steps in line with the recommendations contained in the United Nations publication entitled *The Reform of Human Resources Management in the United Nations System* to which WMO had itself contributed through the inter-agency machinery. Namely, WMO had:

- (a) Further professionalized the human resources function;
- (b) Intensified efforts already under way to improve performance management;
- (c) Developed a human resource strategy for the future;
- (d) Made significant progress in improving the management of the "flexible workforce" demanded by today's budgetary reality.

10.3.8 With respect to the staff concerns towards job security, Congress noted the comments of the Secretary-General that despite the requirement to maintain at least a 10 per cent vacancy factor during the twelfth financial period, and cash shortages, the shortfall had been managed well enough so as to have no forced redundancies. Moreover, about 60 per cent of staff (on either permanent or fixed-term appointments) had actually been promoted at least once either as a result of vacancies in a competition for a higher grade post or through reclassification of their post.

**10.4 SECRETARY-GENERAL'S CONTRACT (agenda item 10.4)**

10.4.1 Congress decided that, with retroactive effect from 1 March 1999, the annual salary of the Secretary-General should be US\$ 118 142 taking into account the salaries of the Executive Heads of other comparable agencies. Congress also decided to authorize the Executive Council to carry out any readjustment of salary which might become necessary if, during the thirteenth financial period, changes in the salary of comparable United Nations staff should occur.

10.4.2 Congress further decided that during the thirteenth financial period the representation allowance for the Secretary-General should be established in Swiss francs at a level of SFR 24 000 per year.

10.4.3 Congress adopted, in that connection, Resolution 34 (Cg-XIII) to which the contract to be signed by the President of the Organization and the Secretary-General for the thirteenth financial period was attached.

**SALARIES AND ALLOWANCES OF OTHER UNGRADED OFFICIALS**

10.4.4 With retroactive effect from 1 March 1999, Congress set the salaries of the Deputy Secretary-General and the Assistant Secretary-General at US\$ 108 444 and US\$ 99 628 per annum, respectively. Those were the levels which applied to Deputy and Assistant Executive Heads of comparable specialized agencies of the United Nations. Congress further decided that during the thirteenth financial period, the representation allowances for the Deputy Secretary-General and the Assistant Secretary-General should be established at SFR 12 000 per annum. In

that connection, Congress decided to authorize the Executive Council to carry out any adjustment of salary which might become necessary if, during the thirteenth financial period, an increase in the salaries of comparable United Nations staff should occur.

**PENSIONABLE REMUNERATION OF UNGRADED OFFICIALS**

10.4.5 Congress noted that an increase in pensionable remuneration had been promulgated by the International Civil Service Commission and that comparable United Nations agencies (ITU and the Universal Postal Union) had consequently adjusted the pensionable remuneration of their ungraded officials. Congress therefore also decided to apply with retroactive effect from 1 November 1998 the following levels of annual pensionable remuneration:

Secretary-General	US\$ 204 741
Deputy Secretary-General	US\$ 189 221
Assistant Secretary-General	US\$ 175 112

**11. GENERAL AND LEGAL QUESTIONS (agenda item 11)**

**11.1 IMO AND WMO PRIZES (agenda item 11.1)**

Congress noted that the IMO Prize was the most prestigious prize offered by WMO. It further noted the procedures established for the selection of the winner and requested the Executive Council to maintain and explore methods of increasing transparency in the selection process.

**11.2 QUESTIONS CONCERNING THE CONVENTION (agenda item 11.2)**

**CREATION OF OFFICE(S) OF FOURTH (AND FIFTH) VICE-PRESIDENTS OF THE ORGANIZATION**

11.2.1 As requested by the Executive Council at its fiftieth session (June 1998), Congress considered the proposal, initiated by RA III (South America) at its twelfth session (Salvador de Bahia, Brazil, September 1997), to create an office of a Fourth Vice-President of the Organization.

11.2.2 In its deliberation, Congress took into consideration the various views expressed by the members of the Council namely that:

- (a) Some members supported the proposal on the grounds that the work of the present three Vice-Presidents had increased markedly with the rapid increase in the number of Members of WMO and also on the grounds that it would institutionalize the present existing practice of balanced representation at Bureau sessions;
- (b) Other members opposed the proposal on the grounds that the President and Vice-Presidents of the Organization acted on behalf of all Members and not on behalf of regional groupings which was the role of the presidents of regional associations;
- (c) Some members were of the view that the creation of a Fourth Vice-President would necessitate the creation of a Fifth Vice-President.

11.2.3 After carefully studying of the issue, Congress decided not to establish additional offices of the Vice-Presidents of the Organization.

### CHANGING THE TERM "ASSOCIATION" FOR WMO REGIONAL BODIES

11.2.4 Congress examined in detail the issue of changing the term "Regional Association" to better reflect the status of an intergovernmental body. It noted the concern of Members on the difficulties involved in the use of the term "Regional Association" which reflected neither the institutional level nor the statutory importance of a WMO regional body in relation to most Members' governmental authorities.

11.2.5 Having recognized the inconvenience linked to the use of the term "Regional Association", Congress had sought an appropriate term in order to replace the word "Association", acceptable in all languages. The various proposals considered included Regional Congress, Regional Committee, Regional Council, Regional Union, Regional Organization, Regional Assembly and WMO Region.

11.2.6 After a careful consideration of, and consultation on, the various proposals, Congress agreed on the principle of replacing the term "Regional Association" by another term.

11.2.7 Consequently, Congress requested the Secretary-General and the Executive Council to study the question taking into account the discussions that had taken place during Congress and to prepare a proposal for consideration by Fourteenth Congress, in accordance with Article 28 of the Convention. Accordingly, Congress adopted Resolution 35 (Cg-XIII).

### 11.3 REVISION OF THE GENERAL REGULATIONS (agenda item 11.3)

#### APPLICATION OF GENERAL REGULATIONS 177 AND 193

11.3.1 Congress considered the request of CAgM-XII (Accra, Ghana, 18–23 February 1999) for clarification as to whether the term "decisions" included "election" in General Regulation 193 concerning sessions of the technical commissions when the required quorum was not obtained. It recognized the fact that there was no quorum during the election of the president and vice-president at the twelfth session of CAgM in Accra.

11.3.2 Congress requested the Executive Council to study the interpretation of General Regulations 177 and 193 on that issue, with the assistance of the United Nations Legal Counsel, and to submit the findings to Fourteenth Congress.

11.3.3 Congress, in considering the circumstances of the election process at CAgM-XII, and desirous to have a fully functioning Commission as soon as possible, agreed that in that instance only, without prejudice to any future decision, the results of the election process at CAgM-XII should be transmitted for decision without delay to Permanent Representatives of Members of WMO which had designated experts to represent them permanently in the commissions. Any such decision should be considered a decision of the commission only when it had been approved by a majority of votes cast for and against, within three calendar months from the date of dispatch to the Members.

### LIMITATION OF THE NUMBER OF TERMS OF OFFICE OF THE SECRETARY-GENERAL

11.3.4 Congress examined the proposal of the Executive Council, embodied in its Resolution 12 (EC-L) — Limitation of the number of terms of office of the Secretary-General, to approve a new General Regulation fixing a maximum of three four-year terms for a Secretary-General to serve the Organization with a provision that that decision would take effect from Fourteenth Congress. That proposal was made by the Council after examining the report of the meeting on Consultation with the Permanent Representative on the Terms of Office of the Secretary-General of WMO (Paris, 20–21 November 1997), which had been organized by the Permanent Representative of France, as requested by Twelfth Congress (general summary paragraph 10.4.6 of the *Abridged Final Report with Resolutions of the Twelfth World Meteorological Congress* (WMO-No. 827)).

11.3.5 Congress decided to approve a new General Regulation 195*bis* as recommended by Resolution 12 (EC-L). It adopted Resolution 36 (Cg-XIII).

11.3.6 Congress expressed its appreciation to the Permanent Representative of France with WMO, Mr J.-P. Beysson, and to the participants in the meeting referred to above for reaching conclusions which enabled Congress to reach consensus on the issue.

### TERMS OF REFERENCE FOR THE TECHNICAL COMMISSIONS

11.3.7 Congress recalled that, at its twelfth session, it had adopted revised terms of reference for four of the technical commissions and agreed that those for CHy and CAgM should be reviewed by Thirteenth Congress. Those two technical commissions considered the matter, CAgM-XI deciding not to propose any amendment to its terms of reference and CHy-X making proposals for amendments. Subsequently, CCI also decided to submit such proposals to Congress. Recognizing the desire of CHy and CCI to respond to recent developments in their respective fields of responsibility, Congress adopted Resolution 37 (Cg-XIII) containing the revised texts.

### GRANTING OF OBSERVER STATUS ON THE WMO EXECUTIVE COUNCIL SESSIONS TO WMO MEMBERS WHOSE DIRECTORS OF NATIONAL METEOROLOGICAL AND HYDROMETEOROLOGICAL SERVICES DID NOT FORM PART OF THE EXECUTIVE COUNCIL

11.3.8 Congress recognized that the Permanent Representatives of Members with WMO who were not members of the Executive Council had an interest in the work of the Council, its committees and working groups.

11.3.9 Congress affirmed that any such Permanent Representative might request, that s(he) or an expert designated by the Permanent Representative be invited to a session of the Council as provided for in General Regulation 153 bearing in mind Article 6(b) of the WMO Convention. The costs of attendance would be met by the Permanent Representative making the request. The request might be made directly to an Executive Council member or through the president of the appropriate regional association, with a copy to the Secretary-General.

11.3.10 Congress indicated that the present practice for advisers to members of Executive Council should apply, whereby if a member wished to be accompanied by more than two advisers, appropriate arrangements should be made to register them as “part-time” participants.

11.3.11 Congress noted that as indicated in Rule 12 of the Rules of Procedure of the Executive Council, all participants were entitled to one copy of Executive Council documents. Congress agreed that the password for access to documents by e-mail should be provided to all Permanent Representatives with WMO well in advance of Executive Council sessions. Congress also agreed that interested Permanent Representatives of Member countries with WMO could also request the Secretary-General to send them a set of Executive Council documents by mail.

#### 11.4 REVIEW OF THE PREVIOUS RESOLUTIONS OF CONGRESS (agenda item 11.4)

Congress examined its previous resolutions in order that those which no longer had a purpose or which had been replaced by new decisions should not remain in force. Congress accordingly adopted Resolution 38 (Cg-XIII).

#### 11.5 REQUESTS FOR MEMBERSHIP OF THE ORGANIZATION (agenda item 11.5)

11.5.1 Congress took note of the declarations of the Government of the People’s Republic of China and the Government of the Portuguese Republic addressed to the Secretary-General of the Organization concerning the Joint Declaration of the two Governments signed in Beijing on 13 April 1987 on the question of Macao.

11.5.2 Under the terms of the joint declaration, the Government of the Portuguese Republic would remain until 19 December 1999 responsible for the external relations of Macao and the People’s Republic of China should resume the exercise of sovereignty over Macao on 20 December 1999. As an inalienable part of the territory of the People’s Republic of China, Macao should become a special Administrative Region of that Government as from that date when foreign affairs were taken over by the Government of the People’s Republic of China.

11.5.3 Congress also noted that at present, Macao was a Member Territory of WMO as from 24 January 1996 under Article 3(e) of the Convention, after the notification of the Government of the Portuguese Republic, which was responsible for the international relations of Macao to the State Department of the United States of America, in accordance with Article 34(b) of the Convention.

11.5.4 Congress noted further that the declaration of the Government of the People’s Republic of China referred to in general summary paragraph 11.5.1, stated that the ratification of the WMO Convention by that Government included “Macao, China” as from 20 December 1999. Accordingly, “Macao, China” would continue as a Member Territory of WMO.

11.5.5 Congress considered that the question of the continuation of membership of Macao under Article 3(e) of the Convention as from 20 December 1999 arose from

changing political situation of a Member and not from a request for membership.

11.5.6 Congress agreed that “Macao, China” would continue as a Member Territory of WMO as from 20 December 1999 and that it would maintain its rights and obligations under the Convention.

11.5.7 Congress also agreed that the Secretary-General should transmit, in conformity with provisions of Article 34(b) of the Convention, to the Government of the United States of America, the declaration of the Government of the People’s Republic of China referred to above, together with the present decision of Congress.

11.5.8 Congress requested the Secretary-General to include “Macao, China” in all WMO relevant documents, periodicals and other related publications as a Member Territory of the Organization with effect from 20 December 1999 with a footnote as followed: “With effect from 20 December 1999, Macao became a Special Administrative Region of the People’s Republic of China”.

#### 12. ELECTIONS AND APPOINTMENTS (agenda item 12)

##### 12.1 ELECTION OF THE PRESIDENT AND VICE-PRESIDENTS OF THE ORGANIZATION (agenda item 12.1)

12.1.1 Congress unanimously elected Mr J. W. Zillman, Director of the Bureau of Meteorology of Australia, as President of the Organization.

12.1.2 Congress unanimously elected Mr J.-P. Beysson, President and Director General of *Météo-France*, as the First Vice-President.

12.1.3 Congress elected Mr A. M. Noorian, Vice Minister of Roads and Transportation and General Administrator of the Islamic Republic of Iran Meteorological Organization, as the Second Vice-President.

12.1.4 Congress unanimously elected Mr A. R. Sonzini, Director General of the National Meteorological Service of Argentina, as the Third Vice-President.

##### 12.2 ELECTION OF MEMBERS OF THE EXECUTIVE COUNCIL (agenda item 12.2)

Congress elected the following as members of the Executive Council in accordance with the provisions of Article 13(c) of the Convention:

Z. Alpersen	Israel
A. I. Bedritsky	Russian Federation
F. Camargo Duque	Venezuela
E. Coca Vita	Spain
A. Diouri	Morocco
I. Dutra Maisonave (Ms)	Uruguay
P. D. Ewins	United Kingdom
U. Gärtner	Germany
F. J. B. Hounton	Benin
A. Jaime	Mexico
R. R. Kelkar	India
J. J. Kelly	United States
K. Konaré	Mali
G. A. McBean	Canada
E. A. Mukolwe	Kenya
F. Oyou	Congo

L. P. Prahm	Denmark
R. Prasad	Fiji
G. K. Ramothwa (Ms)	Botswana
A. Y. Salahu	Nigeria
G. C. Schulze	South Africa
T. Sutherland	British Caribbean Territories
Y. Takigawa	Japan
N. B. I. Tawfiq	Saudi Arabia
Wen Kegang	China
J. Zielinski	Poland

12.3 **APPOINTMENT OF THE SECRETARY-GENERAL**  
(agenda item 12.3)

Congress appointed Professor G. O. P. Obasi as the Secretary-General of the Organization for the thirteenth financial period.

13. **SCIENTIFIC LECTURES AND DISCUSSIONS**  
(agenda item 13)

**IMO LECTURE**

13.1 The ninth IMO Lecture was delivered at Thirteenth Congress by Mr G. A. McBean (Canada). The title of his lecture was "Weather forecasting in the twenty-first century". Congress expressed its appreciation for Mr McBean's visionary perspective on forecasting in the twenty-first century and for the wide ranging discussion which followed. It was noted that the study undertaken by Mr McBean would be published by WMO in the series of IMO Lectures.

13.2 Congress agreed that in continuation of the tradition, an IMO Lecture should be delivered at Fourteenth Congress and requested the Executive Council to make the

necessary arrangements, including the selection of the lecturer and the theme for the tenth IMO Lecture.

**SCIENTIFIC LECTURES**

13.3 A programme of scientific discussions had been arranged by the Executive Council in accordance with the decisions of Twelfth Congress. The following lectures were presented:

- (a) *El Niño/Southern Oscillation*: aftermath of the 1997/98 event and prediction of future events (N. Nicholls, Australia);
- (b) Representativeness of climate observations, data gaps and uncertainties in the observations (C. Folland, United Kingdom).

13.4 Congress noted that the texts of the lectures would be published by WMO in a suitable form and requested the Secretary-General to take appropriate action.

13.5 Congress also decided that a programme for scientific discussions should be arranged for Fourteenth Congress and requested the Executive Council to select themes for that purpose and to make the necessary arrangements.

14. **DATE AND PLACE OF FOURTEENTH CONGRESS**  
(agenda item 14)

Congress decided that Fourteenth Congress should be held in Geneva from Monday, 5 May to Saturday, 24 May 2003, subject to any change which might be decided by the Executive Council.

15. **CLOSURE OF THE SESSION** (agenda item 15)  
Thirteenth Congress closed at 4.20 p.m. on 26 May 1999.

# RESOLUTIONS ADOPTED BY THE SESSION

## RESOLUTION 1 (Cg-XIII)

### TECHNICAL REGULATIONS OF THE WORLD METEOROLOGICAL ORGANIZATION

THE CONGRESS,

NOTING:

- (1) Articles 8(d) and 14(c) of the Convention,
- (2) Resolution 1 (Cg-XII) — Technical Regulations of the World Meteorological Organization,
- (3) Resolution 4 (EC-XLVII) — Report of the extraordinary session (1994) of the Commission for Basic Systems,
- (4) Resolutions 4 (EC-XLIX) — Report of the eleventh session of the Commission for Basic Systems, 7 (EC-XLIX) — Amendments to the *Manual on the Global Telecommunication System*, Volume II, Regional aspects — The Antarctic, 8 (EC-XLIX) — Report of the twelfth session of the Commission for Marine Meteorology, and 9 (EC-XLIX) — Report of the tenth session of the Commission for Hydrology,
- (5) Recommendations 1 (CBS-Ext.(98)) — Amendments to the *Manual on the Global Observing System* (WMO-No. 544) — Volume I, Part III, 2 (CBS-Ext.(98)) — Amendments to the *Manual on the Global Telecommunication System* (WMO-No. 386), Volume I, Global aspects, Parts I, II and III, 3 (CBS-Ext.(98)) —

Amendments to the *Manual on the Global Data-processing System* (WMO-No. 485), 5 (CBS-Ext.(98)) — Amendments to the *Manual on Codes* (WMO-No. 306), Volume I.2, Part C, Common Features of FM 95-XI Ext. CREX, and 6 (CBS-Ext.(98)) — Amendments to the *Manual on Codes* (WMO-No. 306), Volume I.1, Alphanumeric Codes and Volume I.2, Binary Codes and Common Features,

AFFIRMS the authority of the Executive Council to approve amendments to the Technical Regulations or new regulations if they need to be implemented before the time of next Congress;

AUTHORIZES the Executive Council to approve Recommendations 1, 2, 3, 5 and 6 (CBS-Ext.(98));

REQUESTS the Secretary-General to arrange for the amendments approved by the Executive Council to be included in the Technical Regulations.

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NOTE: This resolution replaces Resolution 1 (Cg-XII), which is no longer in force.

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## RESOLUTION 2 (Cg-XIII)

### WORLD WEATHER WATCH PROGRAMME FOR 2000–2003

THE CONGRESS,

NOTING:

- (1) Resolution 2 (Cg-XII) — World Weather Watch Programme,
- (2) Resolution 3 (Cg-XII) — Radio-frequencies for meteorological activities,
- (3) *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902) agenda item 3.1,
- (4) 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,
- (5) Resolution 23 (Cg-XIII) — Fifth WMO Long-term Plan,
- (6) The *Eighteenth* (1997) (WMO-No. 855) and *Nineteenth* (1999) (WMO-No. 894) *Status Reports on the Implementation of the World Weather Watch*,

- (7) United Nations General Assembly Resolution 3234 (XXIX) — International Cooperation in the Peaceful Uses of Outer Space,

EXPRESSES:

- (1) Its satisfaction that progress has been made in the further improvement of the operation of the World Weather Watch (WWW) during the period 1995–1999, through:
  - (a) An increase in the generation and distribution of observational data from certain platforms such as satellites, aircraft, ships and buoys;
  - (b) An improved understanding of the impact of various observing systems on numerical weather prediction (NWP) as a first step to achieve a more cost-effective Global Observing System (GOS);
  - (c) Successful mediation of the impact of the cessation of the Omega radionavigation system on upper-air wind measurements;

- (d) An improved Global Telecommunication System (GTS) capacity and further implementation of advanced telecommunication techniques and services including Internet-like procedures on the GTS for the collection and distribution of data and products;
- (e) Increased use of the Internet and distributed databases complementary to the GTS for the dissemination of meteorological information;
- (f) Protection of radio frequencies allocated to meteorological aids and new radio-frequency allocations to meteorological satellites and wind profiler radars;
- (g) An improved quality and accuracy of NWP products, their better use by national Meteorological Services (NMSs), better and wider availability of specialized products, including extended and long-range predictions, the provision of products and services for special users, and visible progress in some emerging Global Data-processing System (GDPS) centres in developing countries, including the Association of South-East Asian Nations (ASEAN) Specialized Meteorological Centre (ASMC), the African Centre of Meteorological Applications for Development (ACMAD) and the Drought Monitoring Centres (DMCs);
- (h) Use of a new flexible character code and improvements in the binary data representation forms;
- (i) Improvement and broadening of the emergency response and related arrangements;
- (j) Working towards ensuring the resilience of the WWW system against the year 2000 problem;
- (2) Its further satisfaction that the implementation of Resolution 40 (Cg-XII) has increased the free and unrestricted exchange of WWW data and products;
- (3) Its concern that long-standing deficiencies remain and that new deficiencies have arisen in the implementation of the WWW in some Regions;
- (4) Its firm opinion that intensified and coordinated activities in support of the implementation, operation and maintenance of the WWW are needed to meet the objectives of the WMO Long-term Plan and maximize the benefits available to all Members;

## CONFIRMS:

- (1) That the WWW has the highest priority as the basic WMO Programme on which nearly all other programmes of the Organization depend;
- (2) That the WWW is an essential basis for the implementation of the Global Climate Observing System (GCOS);
- (3) That the WWW provides the basis for the operation of meteorological and hydrological services as well as for most of the other programmes of the Organization;
- (4) That the WWW continues to provide an effective mechanism for the application of developments in science and technology in operational meteorology so that full benefits can be reaped by all countries of the world;

- (5) That the WWW should be used only for peaceful purposes, due account being taken of the national sovereignty and security of States, in accordance with the provisions of the Charter of the United Nations and the spirit and tradition of the WMO Convention;

## CONSIDERING:

- (1) The absolute importance of meteorological observations for defining and monitoring climate variability and change,
- (2) That there is a pressing need to develop an integrated observing system strategy to achieve what would be a fundamental redesign of the GOS to meet requirements of all WMO Programmes in a cost-effective way,
- (3) That data gaps still exist in the surface-based networks of the GOS, particularly in the tropical belt, over the oceans and in remote land areas,
- (4) That shortcomings continue to exist in implementing and operating circuits and equipment of the GTS,
- (5) That the implementation and utilization of modern data-processing and forecasting systems and data management techniques need further adjustments to provide enhanced severe weather warnings and forecasts, environmental quality monitoring and prediction products and long-range forecasts and climate predictions,
- (6) That natural disasters and environmental emergencies continue to pose a major challenge for the WWW with respect to the provision of basic and specialized observational data and products,
- (7) That increasing requirements for meteorological and related environmental monitoring, combined with limited resources available worldwide for the implementation and operation of the WWW, make it all the more necessary to maximize cooperation and coordination and ensure optimum effectiveness,
- (8) That the application of advanced technology continues to open new possibilities of improving the WWW system, but also calls for special efforts in the provision of technical guidance and specialized training,

## DECIDES:

- (1) That the substance of the WWW Programme be as indicated in the Fifth WMO Long-term Plan adopted under Resolution 23 (Cg-XIII);
- (2) That the WWW Systems Support Activities should continue to be carried out as integral parts of each of the WWW programme components, with priority being given to:
- (a) Assisting developing countries in obtaining at least the minimum operational capabilities to meet national needs and to facilitate their participation in the WWW;
- (b) Increasing the level of implementation, especially in developing countries, and integration of key WWW components and facilities;
- (c) Improving the efficiency of WWW systems and operations;
- (d) Introducing new techniques and equipment along with the provision of the corresponding training and technical advice, as necessary and appropriate;



STRESSES the role to be played by regional associations in coordinating the WWW implementation, identifying deficiencies, specifying requirements and planning system support projects, on a regional scale;

INVITES the regional associations:

- (1) To recommend projects and procedures, as necessary, for the coordinated implementation of the WWW Programme in the Regions;
- (2) To recommend systems support and technical cooperation activities needed to assist Members in their implementation and operation of the WWW in accordance with the Programme;
- (3) To keep the WWW Programme under continuous review and to establish requirements for adjustments in the light of Members' changing requirements and developments in science and technology, bearing in mind the principles and directives laid down in the Plan;

REQUESTS the Executive Council:

- (1) To ensure that the further development and implementation of the WWW Programme is carried out in accordance with the Fifth WMO Long-term Plan;
- (2) To adjust the Programme, as necessary, particularly in the light of the recommendations made by the Commission for Basic Systems (CBS) and the regional associations;
- (3) To assist Members in all possible ways in meeting their respective responsibilities within the WWW Programme;
- (4) To promote the establishment of cooperative arrangements for the implementation, operation and maintenance of WWW system components, as appropriate;
- (5) To consider the financial, policy and strategic aspects of the use of new technology in the WWW;

REQUESTS the Executive Council and CBS:

- (1) To identify appropriate initiatives which might be pursued by Members and/or groups of Members, to maximize the value of the WWW;
- (2) To promote the use of environmental satellite systems in support of all WMO Programmes;
- (3) To develop, in close collaboration with partner organizations, including satellite operators, the Aircraft Meteorological Data Relay (AMDAR) Panel and shipping industries, a realistic design for a Future Composite Global Observing System (FCGOS) taking into account the results of observing system and simulation experiments of NWP centres and technological advances, and to promote the use of design proposals and criteria in investment and network planning decisions of Members;

URGES all Members, especially donor countries individually and through appropriate multinational arrangements, to cooperate actively and enthusiastically, in the implementation and operation of WWW and, in particular:

- (1) To continue as far as possible to implement, operate and maintain the surface-based subsystem of the GOS, especially in the data-sparse areas of the globe and to ensure higher quality and regularity of observations;
- (2) To develop, maintain and operate further the space-based subsystem of GOS;

- (3) To implement, upgrade, operate and maintain the GTS, including space-based data collection and dissemination capabilities and modern data communication services, to ensure the timely and reliable collection and distribution of data and products;
- (4) To enhance GDPS capabilities for the generation of higher quality and new types of products, their dissemination and use of NWP products and general circulation type coupled model output for the short-range up to multi-season time-scale and for climate predictions, using the present Regional Specialized Meteorological Centre (RSMC) designation and where appropriate, create RSMCs with climate monitoring and prediction specialization;
- (5) To improve the integration of the WWW system components by further developing and implementing suitable data management principles and functions;
- (6) To coordinate and pool their national efforts and resources, in order to establish realistic goals, minimize the implementation and operational costs, and avoid duplication of WWW activities as far as possible;
- (7) To participate in the deployment and use of new systems and techniques and, individually or collectively, evaluate their effectiveness and their integration in the WWW;
- (8) To keep the Secretary-General informed about their plans and activities regarding the implementation of the WWW;

URGES those Members concerned with the development and operation of meteorological satellites to continue to coordinate their activities with the Secretary-General so that all Members may receive the maximum benefit from meteorological satellites;

APPEALS to Meteorological Services of non-Member countries to apply the WWW procedures and techniques;

REQUESTS the Secretary-General:

- (1) To keep the Members informed of progress and developments in the planning and implementation of the WWW Programme;
- (2) To continue to improve the monitoring of the operation of the WWW;
- (3) To assist Members, as necessary, in overcoming difficulties which may arise in the implementation of the WWW Programme during the thirteenth financial period;
- (4) To propose projects and priorities for the consolidation and further implementation of key WWW facilities;
- (5) To coordinate the requirements of other WMO Programmes for systems support that could be provided by the WWW;
- (6) To assist the Executive Council, the regional associations and CBS in the implementation of this resolution;
- (7) To bring this resolution to the attention of all concerned;
- (8) To submit a report to Fourteenth Congress on the implementation of the Plan during the thirteenth financial period together with proposals for the continuation and further development of the WWW.

NOTE: This resolution replaces Resolution 2 (Cg-XII), which is no longer in force.

## RESOLUTION 3 (Cg-XIII)

**RADIO FREQUENCIES FOR METEOROLOGICAL ACTIVITIES**

THE CONGRESS,

NOTING:

- (1) The Fifth WMO Long-term Plan,
- (2) Resolution 3 (Cg-XII) — Radio frequencies for meteorological activities,
- (3) The current radio-frequency allocations to the Meteorological Aids, the Meteorological Satellite and the Earth Exploration Satellite Services in the Radio Regulations of the International Telecommunication Union (ITU),
- (4) The outcome of the ITU World Radiocommunication Conferences (WRC-95 and WRC-97),
- (5) The forthcoming ITU World Radiocommunication Conference (WRC-2000),

CONSIDERING:

- (1) The prime importance of radio frequencies for meteorological activities required for the safety of life and property, the protection of the environment and climate change studies,
- (2) The crucial importance of the allocation of suitable radio-frequency bands for the operation of surface-based meteorological observing systems, including in particular radiosondes, weather radars and wind profiler radars,
- (3) The crucial importance of the allocation of suitable radio-frequency bands for the operation of meteorological satellites, including data acquisition, data collection and data distribution links,

STRESSING that some radio-frequency bands are a unique natural resource due to their special characteristics and natural emissions enabling space-borne passive sensing of the atmosphere and the Earth surface, and deserve adequate protection from interference in the Earth Exploration Satellite Service,

NOTING FURTHER the new regulatory provisions decided by WRC-95 and WRC-97 to meet frequency requirements for meteorological and Earth exploration satellites (including space-borne remote sensing) and for wind profiler radars,

EXPRESSING, however, its serious concern at the continuing threat to the frequency bands below 3 GHz allocated to meteorological aids (radiosondes) and meteorological satellites posed by the development of other radiocommunication services,

REQUESTS the Commission for Basic Systems (CBS) to pursue the continuous review of regulatory and technical matters related to radio frequencies for operational and

research meteorological activities, in coordination with other technical commissions and in liaison with other relevant international bodies, in particular the Coordination Group for Meteorological Satellites (CGMS);

URGES all Members to do their utmost to ensure the availability and protection of suitable radio frequencies required for meteorological operations and research, and in particular:

- (1) To ensure that their national telecommunication administrations are fully aware of the importance of and requirements for radio frequencies for meteorological activities and to seek their support in the ITU World Radiocommunication Conferences and the ITU Radiocommunication Sector (ITU-R) activities;
- (2) To participate actively in the relevant national, regional and international activities on radiocommunication regulatory issues and, in particular, to involve experts from their Meteorological Services in the work of ITU-R, especially ITU-R Study Group 7 on Science Services;
- (3) To register adequately with their national telecommunication administrations all meteorological radiocommunication stations and radio frequencies used for operational, research and other meteorological purposes;

APPEALS to ITU and its Member Administrations to give due consideration to the WMO requirements for radio-frequency allocations for meteorological operations and research;

REQUESTS the Secretary-General:

- (1) To pursue as a matter of high priority the coordination role of the Secretariat in radio-frequency matters, especially with the ITU-R, including participation of WMO in ITU-R Radiocommunication Study Groups, conference preparatory meetings and World Radiocommunication Conferences;
- (2) To facilitate the coordination between national Meteorological or Hydrometeorological Services and their national telecommunication administrations, particularly in preparing the ITU World Radiocommunication Conferences, by providing appropriate information and documentation;
- (3) To assist CBS in the implementation of this resolution.

NOTE: This resolution replaces Resolution 3 (Cg-XII), which is no longer in force.

## RESOLUTION 4 (Cg-XIII)

**INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME**

THE CONGRESS,

NOTING:

- (1) Resolution 4 (Cg-XII) — Instruments and Methods of Observation Programme,
- (2) Resolution 4 (EC-L) — Report of the twelfth session of the Commission for Instruments and Methods of Observation,

CONSIDERING:

- (1) The continued need for the provision of high quality and homogeneous data which are of the utmost importance for operational and research programmes of WMO as well as for climate change studies,
- (2) The need for continuous improvement of meteorological, related geophysical and environmental measurement methodologies,
- (3) The importance of applying new technology for the cost-effective generation of measurements and acquisition of observational data,
- (4) The need to ensure complementary and cost-effective observing systems with a view to evolving a composite global observing system,
- (5) The continuing need for training of instrument specialists and technicians for the operation and maintenance of observing systems, especially from developing countries,
- (6) The need to carry out intercomparisons of instruments and observing systems,
- (7) The need for continuing close collaboration of the Commission for Instruments and Methods of Observation (CIMO) with the other technical commissions, especially with the Commission for Basic Systems (CBS), and Programmes of WMO for meeting their requirements for measurements and observations,
- (8) The need for close collaboration of WMO with manufacturers and suppliers of instruments and equipment,
- (9) The role of the Regional Instrument Centres (RICs) in progressing instrument calibration, training and capacity building,

REAFFIRMS that WMO, in further developing and implementing its Instruments and Methods of Observation Programme (IMOP), should continue collaboration with international organizations such as the International Organization for Standardization (ISO), the International Telecommunication Union (ITU) and with manufacturers and suppliers of meteorological, related geophysical and environmental instruments;

REQUESTS the Executive Council, with the assistance of CIMO and other relevant technical commissions to promote, guide and assist in the implementation of IMOP;

INVITES the president of CIMO to:

- (1) Study the requirement of operating equipment, in particular, automated weather stations, under harsh environmental conditions and develop guidance material for use by Members and manufacturers;

- (2) Develop guidance material on the maintenance of equipment, especially of automatic weather stations;
- (3) Study and develop guidance on siting and exposure of instruments operated in urban areas;
- (4) Keep under review, in consultation with the president of CBS, the use and reliability of the Global Positioning System (GPS)-radiosondes and provide guidance and advice to Members concerned as a matter of urgency;

INVITES the regional associations to continue providing active support for regional aspects of IMOP, especially as regards capacity building;

REQUESTS the presidents of technical commissions to keep under continuous study and review the aspects of instruments and methods of observation related to their fields of specialization and to communicate their requirements to CIMO;

URGES Members:

- (1) To collaborate actively in, and to give all possible support to, the implementation of IMOP;
- (2) To continue and, if possible, increase their activities for the development of new observing systems and improved instruments, including sensors for monitoring atmospheric composition and cost-effective upper-air observing systems;
- (3) To support and participate in global and regional intercomparisons of instruments and new methods of observation and to apply the results of those comparisons at their observing stations;
- (4) To continue the development of methods and algorithms for quality control of observing practices and procedures;
- (5) To ensure the training of instrument specialists and technicians through national and regional training programmes, as required;
- (6) To participate actively in the work of ISO, in the field of standardization of instruments and observing methods, as well as in the work of ITU regarding radio-frequency allocations;

REQUESTS the Secretary-General,

- (1) To take within available budgetary resources, necessary actions to assist WMO bodies, including CIMO, in the coordination and implementation of IMOP;
- (2) To provide assistance and advice to Members in the field of instruments and methods of observation;
- (3) To report annually to the Executive Council on the progress and future activities of IMOP;
- (4) To report to Fourteenth Congress on the progress achieved and to submit proposals for the future.

NOTE: This resolution replaces Resolution 4 (Cg-XII), which is no longer in force.

## RESOLUTION 5 (Cg-XIII)

## TROPICAL CYCLONE PROGRAMME

THE CONGRESS,

NOTING:

- (1) The twenty-second, twenty-third and twenty-fourth annual Status Reports on the Implementation of the Tropical Cyclone Programme issued in 1996, 1997, and 1998,
- (2) Actions taken particularly in relation to the International Decade for Natural Disaster Reduction (IDNDR),

EXPRESSES its appreciation for the contributions of Members to the activities conducted under the general and regional components of the Tropical Cyclone Programme (TCP) and for the invaluable assistance provided to developing countries to support implementation of the regional component through the WMO Voluntary Cooperation Programme (VCP), the United Nations Development Programme (UNDP), the European Commission, Finland, Japan, the United States, and bilateral arrangements;

FURTHER EXPRESSES its satisfaction with the progress so far achieved in implementing the TCP, particularly with regard to the improvements to the operational system resulting from the programmes of the regional tropical cyclone bodies and to the valuable guidance material published under the general component of the programme;

REAFFIRMS its grave concern at the heavy loss of life and severe damage still being caused by tropical cyclones and associated storm surges, floods, landslips and mudslides in many areas of the world and the human suffering, economic losses, set-back to social and economic development and destruction of the environment resulting from them;

CONSIDERS that, while the measures already taken under the TCP have helped many Members to improve their protective systems, continuing and more vigorous action to combat the adverse effects of tropical cyclones is a high priority requirement;

CONSIDERS FURTHER that the TCP has much to contribute to the mitigation of disasters caused by tropical cyclones and associated phenomena and hence to the follow-up activities to the IDNDR and to helping Members achieve sustainable development;

DECIDES:

- (1) That the TCP shall be further strengthened;
- (2) That the substance of the TCP be as indicated in Programme 1.8 of the Fifth WMO Long-term Plan (2000–2009) adopted under Resolution 23 (Cg-XIII);

URGES Members to ensure that their Meteorological and Hydrological Services take whatever steps are within their competence and coordinate with the appropriate authorities:

- (1) To promote awareness of the dangers faced from tropical cyclones and associated phenomena;
- (2) For wide dissemination and understanding of their tropical cyclone warnings and forecasts, particularly at the community and subnational level;
- (3) To see that the measures necessary to save human lives and reduce damage are carried out at all levels, including community level, as a consequence of tropical cyclone warnings and forecasts;

CALLS for the continuation of the fruitful and developing cooperation with other international organizations, especially the Economic and Social Commission for Asia and the Pacific (ESCAP), the United Nations Office for the Coordination of Humanitarian Affairs (UN/OCHA), the International Federation of Red Cross and Red Crescent Societies (IFRC), the Intergovernmental Oceanographic Commission (IOC), the South Pacific Regional Environment Programme (SPREP) and regional disaster preparedness agencies to promote a multidisciplinary approach towards the attainment of the humanitarian goals of the programme;

APPEALS to VCP donor Members, UNDP, development banks and other international organizations and funding agencies concerned with the goals of the TCP to give the maximum possible support to those activities and to contribute the resources essential for their expeditious implementation;

REQUESTS the Secretary-General:

- (1) To bring this resolution to the attention of all concerned;
- (2) To keep Members concerned fully informed of progress and developments in the planning and implementation of the programme;
- (3) To assist tropical cyclone-prone Members in their efforts to safeguard people and property from tropical cyclones by supporting, to the maximum extent possible within the available budgetary resources, activities related to the programme and especially those directly linked with the provision of accurate and timely warnings and the organization of proper community response.

NOTE: This resolution replaces Resolution 5 (Cg-XII), which is no longer in force.

## RESOLUTION 6 (Cg-XIII)

## INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE

THE CONGRESS,

NOTING:

- (1) Resolution 8 (Cg-XII) — Intergovernmental Panel on Climate Change,
- (2) Resolutions 1 (EC-XLVIII), 3 (EC-XLIX) and 3 (EC-L) — Intergovernmental Panel on Climate Change (IPCC),
- (3) References to the IPCC in Articles 3 and 5 of the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UN/FCCC),
- (4) The IPCC Decision Paper adopted by the Panel at its Thirteenth Session (Maldives, 22 and 25–28 September 1997),
- (5) The IPCC Decisions on the Principles Governing its Work, on the Procedures for the Preparation, Review, Approval, Adoption, Acceptance and Publication of its Reports and on its Programme on National Greenhouse Gas Inventories,

RECOGNIZING the importance of providing objective and timely assessments of the science, the impacts and the socio-economic consequences of climate change in different parts of the world and of the adaptation/mitigation options available to address climate change, and the importance of participation by governmental and non-governmental organizations, including industry and experts from all parts of the world in the issue,

EXPRESSES:

- (1) Its deep gratitude to Governments, regional economic integration units and other organizations for their support to the IPCC in cash and kind;
- (2) Its deep appreciation to the United Nations Environment Programme (UNEP) for its continued co-sponsorship of the Panel;
- (3) Its sincere thanks to the many scientists and other experts worldwide, who in their capacity as coordinating lead authors, lead authors, contributing authors, review editors and reviewers, have given and are giving generously of their time and effort to the

preparation of the IPCC reports and without whom the IPCC process would not be possible;

COMMENDS Professor B. Bolin for his extraordinary leadership of the IPCC in his capacity as the IPCC Chairperson during 1988–1997;

ENDORSES the actions of the Executive Council with regard to the continuing work programme of the Panel;

REAFFIRMS that an independent IPCC is indispensable for providing objective scientific-technical assessments of various issues related to climate change;

URGES Governments, regional economic integration units and other organizations to increase their support to the Panel in cash and kind during the thirteenth financial period;

REQUESTS the Secretary-General, jointly with the Executive Director of UNEP, to arrange for the continuation of the Panel and the dissemination of its reports, to maintain financial and organizational support to the IPCC Secretariat and to ensure the participation of specialists with appropriate expertise in the activities of the Panel;

FURTHER REQUESTS the Secretary-General to ensure that, where appropriate, the national Meteorological and Hydrological Services are more engaged in the activities of the Panel;

REQUESTS the Panel to continue to update its assessments, globally and regionally, of various issues related to climate change and to continue to assess and, as appropriate, develop methodologies for use and application by nations, Parties to the UN/FCCC and the Kyoto Protocol and other interested entities, taking into account in its work the needs arising from the differentiated responsibilities of different parts of the world;

FURTHER REQUESTS the Panel to report, through its Chairperson, to the Executive Council and to Fourteenth Congress on the progress of its activities.

NOTE: The resolution replaces Resolution 8 (Cg-XII), which is no longer in force.

## RESOLUTION 7 (Cg-XIII)

## GLOBAL CLIMATE OBSERVING SYSTEM

THE CONGRESS,

NOTING:

- (1) Resolution 11 (Cg-XII) — Global Climate Observing System,
- (2) The renewed Memorandum of Understanding by WMO, the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP), and the International Council for Science (ICSU) concerning the Global Climate Observing System (GCOS),
- (3) *Agenda 21: Programme of Action for Sustainable Development*,

(4) The United Nations Framework Convention on Climate Change (UN/FCCC),

(5) The Report on the Adequacy of the Global Climate Observing Systems prepared by the GCOS Secretariat for the UN/FCCC,

(6) United Nations General Assembly Resolution 52/200 — International cooperation to reduce the impacts of the *El Niño* phenomenon, and the Declaration of Guayaquil adopted at the First Intergovernmental Meeting of Experts on *El Niño*,

(7) 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 to the UN/FCCC,

CONSIDERING:

- (1) The continuing importance and urgency to acquire comprehensive information on the properties and evolution of the Earth's climate system for detecting climate change, for supporting climatological applications for economic development and for developing climate science and predictions,
- (2) The specific observational needs expressed by the Intergovernmental Panel on Climate Change (IPCC), the World Climate Research Programme (WCRP) and the International Geosphere-Biosphere Programme (IGBP); the global observations for sustainable development noted in Agenda 21 and the requirements for comprehensive observations in support of the UN/FCCC,
- (3) The close cooperation needed among the climate research activities of the WCRP and the IGBP, the data management, application and impact components of the World Climate Programme (WCP), and the various operational activities of the WMO scientific and technical programmes, to develop a comprehensive global observing system for climate,
- (4) The deficiencies, and in many parts of the world the decline, in the number and availability of systematic observations for climate,

RECOGNIZING:

- (1) The urgent need for ongoing coordination of global observing systems for climate to meet the needs of a range of different clients and the important role being played by the Steering Committee and the Secretariat of GCOS,
- (2) The active and supportive roles taken by the sponsoring organizations of GCOS, namely WMO, the IOC of UNESCO, UNEP and ICSU,
- (3) The interdisciplinary nature of the activities being undertaken to develop and implement a comprehensive approach to climate system observations,
- (4) The decision of Congress (Resolution 14 (Cg-XIII)) to establish a Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) and the enhanced potential that this offers for implementation of the ocean component of the GCOS,
- (5) The need for operational oceanography to be implemented following the same principles as used for meteorology,
- (6) The need to integrate both surface and space-based observations into an integrated global observing system,

RECOGNIZING with appreciation:

- (1) The support and guidance of the Executive Council in the planning and early implementation phases of GCOS,
- (2) The efforts of the Secretary-General to provide WMO leadership and to encourage support for GCOS,
- (3) The support and active participation by the constituent bodies of WMO in the GCOS planning activities,
- (4) The excellent inter-agency cooperation in the process of planning, development and initial implementation of GCOS and, in particular, the close partnership

between GCOS, the Global Ocean Observing System (GOOS), and the Global Terrestrial Observing System (GTOS),

REAFFIRMS that WMO should continue its leadership role in the further planning, development and implementation of GCOS;

DECIDES that:

- (1) GCOS should be continued as an essential activity in support of the Climate Agenda, the WCP, the UN/FCCC and other climate-related intergovernmental activities;
- (2) The inter-agency arrangements for coordination should be further strengthened in view of the increasing interest and involvement of Governments and, *inter alia*, the need for integrating both surface and space-based observations;

URGES Members:

- (1) To prepare national plans for undertaking programmes of systematic observation of the meteorological and hydrological components of the climate system based on the information developed by GCOS and its partner programmes, and to increase assistance to developing countries in their preparation of such plans and programmes to the extent possible;
- (2) To ensure that information on plans and programmes relating to their participation in global observing systems for climate are incorporated as an element of national communications to the UN/FCCC in the context of reporting on research and systematic observation;
- (3) To continue to support their national meteorological and atmospheric observing systems, including measurement of greenhouse gases, in order to ensure that the stations identified as elements of the GCOS networks, based on the World Weather Watch and Global Atmosphere Watch and underpinning the needs of the UN/FCCC, are fully operational and use best practices, and to take action to reverse the decline in such systems in some countries;
- (4) To consider enhancements to the GCOS Initial Operational System for atmospheric and hydrological observations through augmentation of existing systems and the addition of new elements as feasible;
- (5) To support actively the capacity building in developing countries to enable them to participate fully in GCOS including, *inter alia*, to collect, exchange and utilize data to meet local, regional and international needs;
- (6) To strengthen international and intergovernmental programmes assisting countries to acquire and use climate information through the provision of resources and the contribution of facilities to undertake quality control and archiving activities;
- (7) To consider the urgent request of the GCOS Steering Committee for additional project resources to carry forward the task of implementing GCOS and to respond to the needs of its clients, including the UN/FCCC and other environmentally-related conventions;
- (8) To ensure that their delegations to sessions of the UN/FCCC Conference of the Parties (COP) and its subsidiary bodies are properly informed of the key role

played by national Meteorological and Hydrological Services in implementing and maintaining observing systems necessary to meet national obligations under the Convention;

REQUESTS the Executive Council:

- (1) To keep under regular review developments within GCOS and to provide constructive guidance as it moves forward with implementation;
- (2) To take steps to develop further support among Members, sponsoring bodies, and international organizations for the implementation of global observing systems for climate;

REQUESTS GCOS and the WMO technical commissions to continue their interaction and cooperation in the development and implementation of GCOS;

REQUESTS the Secretary-General, using whatever flexibility might exist within the regular budget:

- (1) To take urgent action in support of the planning, development and implementation of GCOS, including

the development of responses to the UN/FCCC COP, particularly in the investigation of a process for securing enhanced support of Members and possibly through the support of regional meetings or workshops to assist Members in preparing and reporting on national plans and programmes for their participation in GCOS;

- (2) To continue to urge ongoing and new participation by sponsoring organizations in GCOS;
- (3) To articulate at all appropriate forums, including the UN/FCCC COP Subsidiary Body for Scientific and Technological Advice (SBSTA), that significant new funds are required by both Members and international agencies in order to be able to implement fully GCOS.

NOTE: This resolution replaces Resolution 11 (Cg-XII), which is no longer in force.

## RESOLUTION 8 (Cg-XIII)

### CLIMATE INFORMATION AND PREDICTION SERVICES PROJECT

THE CONGRESS,

NOTING:

- (1) Resolution 9 (Cg-XII) — Climate Information and Prediction Services (CLIPS),
- (2) Resolution 5 (CCI-XII) — Working Group on Climate Information and Prediction Services (CLIPS),
- (3) The inter-agency Climate Agenda which identifies climate services for sustainable development as one of the major thrusts within international climate-related programmes,
- (4) The leadership role provided by WMO under the CLIPS project in addressing the effects of the 1997–1998 *El Niño* event and in assessing its implications for the development of effective mechanisms for alerting decision makers in the future,
- (5) The concern expressed by the fiftieth session of the Executive Council over the constraints under which the CLIPS project is being implemented,

CONSIDERING:

- (1) The need to build an effective infrastructure for seasonal to interannual climate predictions that consolidates, in an operational framework, the progress made by research programmes sponsored by WMO in this area,
- (2) The need to support regional cooperation for capacity building and infrastructure development within NMHSs for the provision of climate monitoring services for seasonal to interannual climate predictions,
- (3) That the provision of climate information and predictions through effective climate applications and services can improve socio-economic decision making and support the goal of sustainable development,

- (4) The need to provide sufficient resources to ensure accomplishment of the objectives of the World Climate Applications and Services Programme (WCASP) and its CLIPS project for the benefit of the Members,

DECIDES that the CLIPS project should be continued as an essential activity within WCASP;

URGES Members to supplement through extrabudgetary contributions the resources required for the further development and implementation of the CLIPS project;

REQUESTS the presidents of the Commission for Climatology (CCI), the Commission for Basic System (CBS) and the Commission for Atmospheric Sciences (CAS) to develop jointly the concept of regional centres specializing in the provision of seasonal and interannual forecast services, through their relevant working bodies, such as the CBS Open Programme Area Group (OPAG) on Data-processing and Forecasting Systems, with a view to making all possible use of the existing WWW basic systems and designation procedures to create Regional Specialized Meteorological Centres (RSMCs) specializing in climate monitoring and prediction, which should include arrangements for the operational provision of climate services under the CLIPS project;

REQUESTS CCI to initiate activities towards formulating an ethical code of conduct to be promoted by WMO to prevent the misuse of advanced knowledge of seasonal forecasts;

REQUESTS the Secretary-General:

- (1) To consider appropriate and urgent actions to assure continued progress on CLIPS;
- (2) To make use of extrabudgetary resources such as the Climate and Atmospheric Environment Activities

(CAEA) Trust Fund to support the implementation of the CLIPS project;

- (3) To ensure close cooperation and coordination of CLIPS activities with other relevant WMO Programmes, particularly the World Climate Research Programme (WCRP), the Global Climate Observing System

(GCOS), the World Weather Watch (WWW) and the Hydrology and Water Resources (HWR);

- (4) To bring this resolution to the attention of all concerned.

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

## RESOLUTION 9 (Cg-XIII)

### WORLD CLIMATE RESEARCH PROGRAMME

THE CONGRESS,

NOTING:

- (1) Resolution 10 (Cg-XII) — World Climate Research Programme,
- (2) The Agreement between WMO, the International Council for Science (ICSU) and Intergovernmental Oceanographic Commission (IOC) on the World Climate Research Programme (WCRP) (*Report of the Fourteenth Session of the Joint Scientific Committee, Appendix B, WMO/TD-No. 564*),

RECOGNIZING:

- (1) The importance of developing further the scientific understanding of the physical processes which control climate, in view of human activities having reached a scale that are influencing regional and global climate,
- (2) The value of developing the scientific basis for predicting climate changes on all time-scales to reduce social and economic vulnerability to climatic impacts,
- (3) The need to reduce uncertainties associated with predictions of regional climate change and subsequent consequences for sea-level and ecosystems,

CONSIDERING:

- (1) That the sponsorship of the WCRP jointly by WMO, ICSU and IOC has strengthened interdisciplinary links in climate science and has provided unified scientific leadership for the conduct of all aspects of the WCRP,
- (2) That the WMO/ICSU/IOC Agreement on the WCRP is an effective institutional arrangement for the international planning and coordination of research on climate,
- (3) That the Joint Scientific Committee, established by WMO, ICSU and IOC has been successful in formulating far-reaching scientific plans for the programme and effectively guiding their implementation,
- (4) The benefits to the national Meteorological and Hydrological Services that have resulted and will continue to result from an improved understanding of

climate research issues and from the development of climate prediction,

- (5) That the United Nations Framework Convention on Climate Change (UN/FCCC) calls on Parties to the Convention to promote and cooperate in scientific research related to the climate system to further the understanding and to reduce or eliminate uncertainty regarding the magnitude and timing of climate change,

DECIDES to approve the continuation of the Agreement between WMO, ICSU and IOC for the conduct of the WCRP;

INVITES Members:

- (1) To take all possible steps to support the continuing implementation of climate research activities within the framework of the WCRP and its component projects, especially the development of observing and data management systems for determining key climate processes and the formulation and exploitation of numerical models of the climate system;
- (2) To exchange freely all relevant atmospheric, hydrological, terrestrial, oceanographic and cryospheric data for climate research;
- (3) To ensure that national delegations to the Conferences of the Parties to the UN/FCCC emphasize the importance of continuing active research related to the climate system and of supporting the activities organized by the WCRP;

REQUESTS the Executive Council and the Secretary-General, as appropriate and within available budgetary resources, to continue cooperation with ICSU and IOC and other governmental and non-governmental organizations in the framework of the WCRP, in order to promote the development of climate research and the study of global change.

NOTE: This resolution replaces Resolution 10 (Cg-XII), which is no longer in force.



## RESOLUTION 10 (Cg-XIII)

## ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME

THE CONGRESS,

NOTING:

- (1) The *Abridged Final Report with Resolutions and Recommendations of the Twelfth Session of the Commission for Atmospheric Sciences* (WMO-No. 879),
- (2) Resolution 13 (Cg-XI) — Atmospheric Research and Environment Programme,
- (3) The actions taken by Twelfth Congress and the Executive Council in implementing this resolution,
- (4) The Fifth WMO Long-term Plan — Atmospheric Research and Environment Programme,
- (5) The Vienna Convention for the Protection of the Ozone Layer, the Montreal Protocol on Substances that Deplete the Ozone Layer and its subsequent amendments and other environment-oriented conventions,

CONSIDERING:

- (1) The heightened public awareness and concerns for global, regional and local climate and environmental issues in general,
- (2) The responsibility of WMO within the United Nations system to provide the authoritative scientific voice on the state and behaviour of the atmosphere and climate of our planet,
- (3) The central role played by the atmosphere in environmental issues, which had been foremost among societal concerns during the past years and will continue well into the next century, such as acid deposition, stratospheric ozone depletion and related increase in ultraviolet-B radiation, the global increase of greenhouse gases and global change, tropospheric oxidant increase and the toxic chemicals in the environment,
- (4) The implementation of the WMO Global Atmosphere Watch (GAW) Programme as a coordinated monitoring system of networks of observing stations associated with a complete infrastructure ensuring quality through scientific control and data centres, the availability of data for WMO Members and regular scientific assessments on the state of the atmosphere,
- (5) The requirements of the Atmospheric Observation Panel for Climate (AOPC) of the Global Climate Observing System (GCOS) to include GAW stations in the Initial Operational System (IOS) of GCOS to observe changes in the distribution of atmospheric constituents and to provide input for climate models dealing with air pollution on a global and regional scale,
- (6) The international coordination role of WMO in environmental issues that are becoming more extensive and complex not only because of greater activity levels, but also because of the need to encompass a broader range of scientific disciplines (meteorology, atmospheric chemistry, hydrology, oceanography, biosphere sciences and human health) in the resolution of sustainable environmental development issues.

This presents a challenge that the Meteorological Services of the world must be ready to accept,

- (7) The potential of the national Meteorological and Hydrological Services (NMHSs) to contribute substantially to these developments via their extensive monitoring system infrastructures and specific scientific expertise in areas such as numerical modelling, real-time data processing and four-dimensional data assimilation techniques,
- (8) The recommendation of Twelfth Congress that the Commission for Atmospheric Sciences (CAS) organize meetings to review the activities of NMHSs as well as provide information on scientific developments related to environmental problems on smaller length time-scales and shorter time-scales than those of concern to the World Climate Programme (WCP) and the subsequent actions by CAS-XII and the fiftieth session of the Executive Council to introduce a new urban environmental meteorological research component into the GAW Programme,
- (9) That recent advances in the scientific understanding of relevant physical processes along with parallel developments in complementary computing, communications and observational technologies now make it possible to improve substantially forecasting performance with major economic and societal benefits,
- (10) The endorsement of the fiftieth session of the Executive Council of the proposal by CAS to establish the World Weather Research Programme (WWRP) that encompasses the former Programme on Very Short- and Short-range Weather Prediction Research and the Programme on Medium- and Long-range Weather Prediction Research,
- (11) The redefined CAS projects in the area of tropical meteorology research,
- (12) The continued need to maintain the efforts of Members in research and development of the physics and chemistry of clouds and weather modification research,

FURTHER NOTING that the programme contributes substantially to other WMO Programmes of global priority, particularly the World Weather Watch Programme, WCP, the Education and Training Programme and the Technical Cooperation Programme, those jointly sponsored initiatives such as GCOS, as well as those of other organizations, in particular the International Geosphere-Biosphere Programme (IGBP) International Global Atmospheric Chemistry (IGAC) Programme, the Cooperative Programme for the Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP), the International Council for Science (ICSU), and the International Decade for Natural Disaster Reduction (IDNDR),

DECIDES:

- (1) That AREP should focus on WMO activities concerning GAW, WWRP, the Tropical Meteorology Research Programme, and the Programme on Physics and

Chemistry of Clouds and Weather Modification Research and the related transfer of appropriate technology and proven methodologies among Members as indicated in the Fifth WMO Long-term Plan;

- (2) That education and training aspects be included in all components of the Atmospheric Research and Environment Programme (AREP);
- (3) That, in the implementation of AREP, WMO should continue to cooperate, as appropriate, with the United Nations Environment Programme (UNEP), the World Health Organization (WHO), the United Nations Development Programme (UNDP) and other relevant agencies;
- (4) That the WMO *International Meteorological Vocabulary* (WMO-No. 182) should be kept current through continual updating as required;

REQUESTS Members:

- (1) To give all possible support to the implementation of AREP, with high priority to GAW and WWRP;
- (2) To continue the incorporation of the observations of chemical composition and related physical characteristics of the atmosphere under GAW so as to become an integral part of atmospheric observations;

REQUESTS the president of CAS:

- (1) To arrange for the implementation of WMO activities in the specific areas covered by AREP;
- (2) To coordinate activities in the implementation of AREP with other relevant WMO Programmes and international organizations;
- (3) To ensure that CAS continues to give special attention to the interrelationships between cloud chemistry and cloud physics and their application to weather modification;
- (4) To arrange provision of assistance and advice with respect to the Education and Training Programme;
- (5) To arrange for the updating of the WMO *International Meteorological Vocabulary* (WMO-No. 182), as needed;

REQUESTS the Executive Council:

- (1) To take, within available budgetary resources, all necessary actions towards the fullest possible

implementation of AREP, in accordance with the Fifth WMO Long-term Plan;

- (2) To support the work of CAS, and other bodies concerned, in the development of component programmes of AREP;
- (3) To continue its coordinating role regarding GAW and the Programme on Physics and Chemistry of Clouds and Weather Modification Research with other relevant WMO activities through the Executive Council Panel of Experts/CAS Working Group on Environmental Pollution and Atmospheric Chemistry and the Executive Council Panel of Experts/CAS Working Group on Physics and Chemistry of Clouds and Weather Modification Research;

REQUESTS the Secretary-General:

- (1) To bring this resolution to the attention of all concerned;
- (2) To take all necessary action, within available budgetary resources, for the implementation of the programme;
- (3) To devote particular attention to the education and training aspects of AREP;
- (4) To assist Members participating in the programme, particularly developing Member countries, by facilitating the training and exchange of scientists, and the provision of advice, guidance, and services, as required, within available budgetary resources;
- (5) To take all necessary actions to develop and maintain collaboration with other agencies, such as UNEP, UNDP and others, which can contribute to the further development and implementation of the programme and to seek further financial support from such agencies and other national and international institutions and from Members;
- (6) To take all necessary action to ensure the updating, printing and wide distribution of the WMO *International Meteorological Vocabulary* (WMO-No. 182), as needed.

NOTE: This resolution replaces Resolution 13 (Cg-XI), which is no longer in force.

## RESOLUTION 11 (Cg-XIII)

### PUBLIC WEATHER SERVICES PROGRAMME

The CONGRESS,

NOTING:

- (1) Resolution 12 (Cg-XII) — Public Weather Services,
- (2) The *Abridged Final Report with Resolutions of the Fiftieth Session of the Executive Council* (WMO-No. 883),
- (3) The *Abridged Final Report with Resolutions and Recommendations of the Eleventh Session of the Commission for Basic Systems* (WMO-No. 854),
- (4) The *Abridged Final Report with Resolutions and Recommendations of the Extraordinary Session of the Commission for Basic Systems* (WMO-No. 893), agenda item 4.7,

CONSIDERING:

- (1) That the provision of the Public Weather Services (PWS) is one of the most fundamental functions of national Meteorological and Hydrological Services,
- (2) That the PWS is one of the most important channels through which the public can benefit from the work of the national Meteorological Services (NMS),
- (3) That an urgent need exists for continuing efforts to reduce the potential confusion relating to warnings and public forecasts as regards the safety of life and protection of property,

- (4) That every effort should be made to promote public understanding of the role of NMSs in the provision of public weather products and services and the benefits gained by the public from government support for the basic infrastructure of NMSs,
- (5) The continuous and rapid development in science and technology, coupled with the dynamic nature and rapid evolution of dissemination systems and communication pathways, and significant advances in graphics display capability,

URGES Members to give all possible support to the implementation of the PWS Programme through:

- (1) Continuing to strengthen their public weather services in support of safety of life and property by developing and improving their warning and forecast services, delivering these services effectively, monitoring and evaluating the accuracy and usefulness of those services, and ensuring that verification and evaluation methods are understood by the public;
- (2) Making full use of modern technologies in developing and improving the presentation and dissemination of services to the public through mass media;

- (3) Continuing to interact with the public on user needs and support and to improve public understanding and awareness as regards the services received from the NMS, and how to use those services effectively;

REQUESTS the president of the Commission for Basic Systems (CBS) to ensure that CBS continues to provide the technical guidance for the PWS Programme;

REQUESTS the Secretary-General:

- (1) To continue to assist Members in their efforts to implement public weather services activities at the national level;
- (2) To ensure the effective implementation of the Programme and in particular to give high priority to training requirements;
- (3) To coordinate the different elements of those WMO Programmes that can contribute effectively to the objectives of the PWS Programme and to promote collaboration with other interested international organizations.

NOTE: This resolution replaces Resolution 12 (Cg-XII), which is no longer in force.

## RESOLUTION 12 (Cg-XIII)

### AGRICULTURAL METEOROLOGY PROGRAMME

THE CONGRESS,

NOTING:

- (1) Resolution 13 (Cg-XII) — Agricultural Meteorology Programme,
- (2) The progress made in the implementation of the programme (including that on drought and desertification),
- (3) The United Nations Convention to Combat Desertification,
- (4) The *Abridged Final Report with Resolutions and Recommendations of the Twelfth Session of the Commission for Agricultural Meteorology* (WMO-No. 900),

COMMENDS the Secretary-General for his efforts to ensure the active participation of WMO and its Members in the negotiating process of the United Nations Convention to Combat Desertification and its implementation and in the implementation of the United Nations Framework Convention on Climate Change;

EXPRESSES its appreciation for steps taken to assist Members in combating desertification, in alleviating effects of drought and other extreme meteorological events and in applying agrometeorology in the development of sustainable farming systems;

RECOGNIZING:

- (1) That food production and food self-sufficiency continue to be of a high priority in many countries,
- (2) That there is a need for operational agrometeorological services for sustainable environmentally-friendly and economically-viable agricultural production and that there are clear difficulties, especially in the developing

countries, in matching the growing needs for increased agricultural production with concerns for environmental protection,

- (3) That there still remains the urgent need to improve agricultural production and protect its resource base, reduce losses and risks, decrease costs, increase efficiency in the use of water, energy and labour in agriculture, conserve natural resources, increase product quality and decrease pollution by agricultural chemicals and other agents that contribute to the degradation of the environment,
- (4) That desertification, drought and decrease of agricultural production continue to affect many countries, in particular in Africa, and that the world community has decided to take steps to combat desertification to alleviate the effects of drought and to develop sustainable farming systems,

ENDORSES the CAgM-XII decision on the implementation of the Agricultural Meteorology Programme as described in the Fifth WMO Long-term Plan;

URGES all Members:

- (1) To continue to promote the applications of meteorological, climatological and hydrological data and information in the implementation of agricultural activities and programmes, taking into account the Agricultural Meteorology Programme, including those on desertification and drought, and meteorological and agricultural developments in both the scientific and practical fields;

- (2) To develop their national agricultural meteorological services by transfer of knowledge and methodology especially through education and training programmes;
  - (3) To promote the development of methods to use remotely-sensed data for the provision of services to agriculture and to collaborate with the Commission for Climatology in the development of products for monitoring possible climate change;
  - (4) To promote within the context of the Climate Information and Prediction Services (CLIPS) the development and use of both short- and long-range weather forecasts and seasonal forecasts and warnings, as well as climatic analyses and forecasts, in agricultural operations and planning;
  - (5) To work closely with national and regional agricultural agencies to promote the most effective use of weather and climate information;
  - (6) To seek advice on the most practical use of agrometeorological knowledge, in particular for such purposes as conservation of natural resources and the resource base for agricultural production, land management, development of (multiple) cropping systems adapted to their changing environment, integrated pest management including locusts and the protection of agricultural products in storage and transit;
  - (7) To develop methods, procedures and techniques for the provision of meteorological services to agriculture, including farmers and forestry and rangelands operators;
  - (8) To identify meteorological data requirements for agricultural purposes;
  - (9) To introduce effective methods for the exchange of agrometeorological data and products and communication of information and warnings to farmers;
  - (10) To promote the use of agrometeorology in the development of sustainable farming systems;
- REQUESTS the Executive Council to conduct a regular review of the progress in the implementation of the Agricultural Meteorology Programme and to take appropriate action as may be required;
- REQUESTS the Secretary-General, within available budgetary resources:
- (1) To continue to support Members in their efforts to implement the priority activities of the Long-term Plan, at the national level including support to their efforts in combating desertification, alleviating the effects of drought and applying agrometeorology in the development of sustainable farming systems;
  - (2) To assist regional associations and their subsidiary bodies to implement the subregional and regional aspects of their priority activities in agrometeorology;
  - (3) To continue to cooperate and collaborate with other relevant international organizations in the implementation of the Long-term Plan, especially in the areas of education and training in agrometeorology and preparation of guidelines on the improvement of management practices in agriculture and forestry;
  - (4) To update, and or translate into the working languages of the Organization, publications on agricultural meteorology of interest to all Members and to disseminate them.
- NOTE: This resolution replaces Resolution 13 (Cg-XII), which is no longer in force.

## RESOLUTION 13 (Cg-XIII)

### AERONAUTICAL METEOROLOGY PROGRAMME

THE CONGRESS,

NOTING:

- (1) Resolution 14 (Cg-XII) — Aeronautical Meteorology Programme,
- (2) The *Abridged Final Report with Resolutions and Recommendations of the Eleventh Session of the Commission for Aeronautical Meteorology* (WMO-No. 899),

CONSIDERING:

- (1) That the aviation community is one of the primary recipients of meteorological services worldwide,
- (2) That the quality of aeronautical meteorological services has considerable importance on the safety, regularity and efficiency of aviation operations,
- (3) The need for an international TAF verification method to assess the performance of forecasts at different locations,
- (4) That a need exists for continuing efforts in the scientific, technical and procedural aspects of aeronautical meteorology to ensure the provision of timely and adequate meteorological services to meet fully the requirements for safety, economy and efficiency of rapidly-evolving aviation operations,
- (5) That close cooperation between WMO and the International Civil Aviation Organization (ICAO) is essential to reach this objective,
- (6) That close cooperation between WMO, the Agency for Air Safety in Africa and Madagascar (ASECNA), the International Air Transport Association (IATA) and other user organizations would contribute to insure cost effective and responsive meteorological services,
- (7) The importance of ensuring the wide availability and application of modern forecast techniques, through a vigorous training component,
- (8) The need for continuing close collaboration of the Commission for Aeronautical Meteorology (CAeM) with the other technical commissions, especially with the Commission for Basic Systems (CBS) in relation to the support provided by the World Weather Watch (WWW), with the Commission for Instruments and Methods of Observation (CIMO) in relation to

observing matters, and with the Commission for Atmospheric Sciences (CAS) in relation to the need for further scientific advances to benefit aeronautical meteorology,

DECIDES:

- (1) That the WMO Aeronautical Meteorology Programme be further strengthened;
- (2) That the substance of the Aeronautical Meteorology Programme be as indicated in Programme 4.3 of the Fifth WMO Long-term Plan, adopted under Resolution 23 (Cg-XIII);
- (3) That the activities under the Aeronautical Meteorology Programme for the thirteenth financial period be as indicated in the consolidated programme and budget, (2000–2003), as approved by Thirteenth Congress;

URGES Members to collaborate actively in, and give all possible support to, the implementation of the Aeronautical Meteorology Programme;

REQUESTS the Executive Council, with the assistance of CAeM and other relevant technical commissions concerned

(CAS, CBS and CIMO) to promote, guide and assist in the implementation of the Aeronautical Meteorology Programme;

REQUESTS the president of CAeM to ensure that the Commission takes the lead in the preparation of the appropriate material for the Sixth WMO Long-term Plan for the Aeronautical Meteorology Programme under the guidance of the Executive Council;

REQUESTS the Secretary-General:

- (1) To assist in the implementation of the Programme and in particular to give high priority to training requirements;
- (2) To collaborate in the implementation of the Programme with ICAO, ASECNA, and other aviation user groups and other interested organizations.

NOTE: This resolution replaces Resolution 14 (Cg-XII), which is no longer in force.

## RESOLUTION 14 (Cg-XIII)

### JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)

THE CONGRESS,

NOTING:

- (1) Articles 19 and 26 of the Convention,
- (2) General Regulations 179 to 194 and Annex III,
- (3) Resolution 10 (EC-XLI) — Joint IOC/WMO Committee for the Integrated Global Ocean Services System (IGOSS),
- (4) The *Abridged Final Report with Resolutions of the Fifty-first Session of the Executive Council* (WMO-No. 883), general summary paragraphs 6.4.4 to 6.4.8,
- (5) Resolution EC-XXXI.13 of the Intergovernmental Oceanographic Commission (IOC) and section 4.3 of the final report of IOC EC-XXXI,

NOTING FURTHER the requirement expressed by the Global Climate Observing System (GCOS) Steering Committee, the Global Ocean Observing System (GOOS) Steering Committee and the Joint Scientific Committee for the World Climate Research Programme (WCRP) for a coherent joint WMO/IOC mechanism for the implementation and international coordination of operational oceanography,

RECOGNIZING:

- (1) The substantial contribution made to WMO, and previously to the International Meteorological Organization, in the field of marine meteorology by the Commission for Marine Meteorology (CMM) since its establishment in 1907 and the need to maintain support for maritime safety services as well as responsibilities in the preparation of regulatory and guidance material for the Organization,
- (2) The major support already provided to operational oceanographic observing networks and services, the World Weather Watch, the World Climate Programme,

GOOS and GCOS, individually by CMM, the Integrated Global Ocean Services System (IGOSS) and the Data Buoy Cooperation Panel (DBCP),

RECOGNIZING FURTHER:

- (1) That although no precedents exist for a WMO technical commission jointly sponsored by another intergovernmental body, such a joint sponsorship can be achieved within the context of Articles 19 and 26 of the Convention, in particular when the responsibilities of the commission overlap significantly with those of the other body and joint sponsorship is in the interests of WMO,
- (2) That modification to the WMO General Regulations is required to introduce the concept of a jointly sponsored technical commission,

CONSIDERING:

- (1) The need for a fully coordinated mechanism for implementing the requirements for ocean and surface marine meteorological data in support of GOOS and GCOS,
- (2) The expanding requirements of all marine users for a comprehensive range of marine meteorological data and products,
- (3) The need to coordinate and manage better the existing range of marine-related activities of WMO and IOC to reduce duplication and overlap, enhance efficiencies and reduce costs to both bodies,
- (4) The potential benefits to be gained from making better use of the diverse and extensive range of expertise and facilities available to both WMO and IOC at all levels,

- (5) The benefits expected to flow to national Meteorological and Hydrological Services from enhanced international interdisciplinary cooperation,
- (6) The expected cost savings from a rationalization of existing marine-related bodies and activities and from joint support of marine programme activities by WMO and IOC,

DECIDES to modify the WMO General Regulations as specified in Annex 1 to this resolution, to introduce the concept of a jointly sponsored technical commission;

DECIDES FURTHER, subject to a similar decision being taken by the Twentieth IOC Assembly in June–July 1999:

- (1) To establish a Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), to replace the existing CMM and IGOSS, with terms of reference as given in Annex 2 to this resolution;
- (2) That JCOMM will become the reporting and coordinating mechanism for the DBCP and for other existing

and future operational ocean-related activities within WMO;

URGES Members:

- (1) To provide every support possible to JCOMM to contribute to its success, including the nomination of appropriate experts to serve on the technical commission and to undertake work on its behalf;
- (2) At the national level, to make efforts to enhance coordination and cooperation between meteorologists and oceanographers, both to ensure a balanced input to the work of JCOMM and to develop a truly multidisciplinary approach to marine monitoring and services in support of WMO and IOC Programmes and of the needs of all marine users;

REQUESTS the Secretary-General, in consultation with the Executive Secretary of IOC, the president of CMM and the chairperson of IGOSS, to establish procedures and a timetable for the transition to JCOMM, as well as a firm agreement on financing and Secretariat support for the new body.

ANNEX 1 TO RESOLUTION 14 (Cg-XIII)

**AMENDMENTS TO THE WMO GENERAL REGULATIONS TO INCLUDE THE CONCEPT OF A JOINTLY SPONSORED TECHNICAL COMMISSION**

Include new General Regulation 180 after existing General Regulation 179:

In conformity with Articles 19 and 26 of the Convention, a technical commission may be established jointly with another intergovernmental body of the United Nations system when the proposed terms of reference of the technical commission overlap substantially with the activities of the other body, and such joint sponsorship is deemed to be in the interests of WMO. In such a circumstance of joint sponsorship, the following terminology with respect to technical commissions within these regulations should be read as indicated:

- (a) Members shall also imply Member States of the cosponsor;

- (b) Secretary-General shall also imply Executive Head of the cosponsor;
- (c) Congress and Executive Council shall also imply Governing Bodies of the cosponsor;
- (d) Secretariat shall also imply the Secretariat of the cosponsor;
- (e) Organization shall also imply the cosponsoring body;
- (f) Permanent Representatives of Members of the Organization shall also imply the formal national focal points of the cosponsor;
- (g) Convention shall also imply the Convention, Statutes or other formal or legal defining document of the cosponsor;
- (h) Regulations shall also imply the Regulations of the cosponsor.

ANNEX 2 TO RESOLUTION 14 (Cg-XIII)

**AMENDMENTS TO ANNEX III TO THE GENERAL REGULATIONS**

Replace in the first paragraph “The technical commissions of the World Meteorological Organization.....,” the Commission for Marine Meteorology (CMM) by Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM).

Replace under the Individual terms of reference, II. Applications Commissions, the entry for Commission for Marine Meteorology (CMM) with the following:

**Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM)**  
The Technical Commission shall be responsible for matters relating to:

*Further development of the observing networks:*  
Under the guidance of the relevant scientific and operational programmes of IOC and WMO, development, maintenance, coordination and guidance of the operation of the global marine meteorological and oceanographic observing systems and supporting communications facilities of these Organizations to meet the needs of the IOC and WMO Programmes and in particular of the Global Ocean Observing System (GOOS), the Global Climate Observing System (GCOS) and the World Weather Watch (WWW). Evaluation on a continuing basis of the

efficiency of the overall observing system and suggesting and coordinating changes designed to improve it.

*Implementation of data management systems:*

Development and implementation, in cooperation with the Commission for Basic Systems (CBS), the Committee for International Oceanographic Data and Information Exchange (IODE), the International Council for Science (ICSU) and other appropriate data management bodies, end to end data management systems to meet the real-time operational needs of the present operational systems and the global observing systems; cooperation with these bodies in seeking commitments for operation of the necessary national compilation, quality control, and analysis centres to implement data flows necessary for users at time-scales appropriate to their needs.

*Delivery of products and services:*

Provision of guidance, assistance and encouragement for the national and international analysis centres, in cooperation with other appropriate bodies, to prepare and deliver the data products and services needed by the international science and operational programmes, Members of WMO and Member States of IOC. Monitoring of the use of observations and derived products and suggesting changes to improve their quality. Coordination of the safety-related marine meteorological and associated oceanographic services as an integral part of the

Global Maritime Distress and Safety System (GMDSS) of the International Convention for the Safety of Life at Sea (SOLAS).

*Provision of capacity building to Member States:*

Review and analysis of the needs of Member States of IOC and Members of WMO for education and training, and for technology transfer and implementation support in the areas of responsibility of the technical commission. Provision of the necessary technical publications, guidance material, and expert lecturers/trainers and operation of workshops as required to meet the needs. Development of projects to enhance Member States' capacity to participate in, and benefit from, the marine meteorological and oceanographic programmes of WMO and IOC.

*Assistance in the documentation and management of the data in international systems:*

Development of cooperative arrangements with the data management bodies of IOC, ICSU and WMO, such as IODE, the Commission for Climatology (CCI), and the ICSU World Data Centres to provide for comprehensive datasets (comprising both real-time and delayed mode data) with a high level of quality control, long-term documentation and archival of the data, as required to meet the needs of secondary users of the data for future long-term studies.

These responsibilities exclude those aspects specifically handled by other WMO constituent bodies or equivalent bodies of IOC.

## RESOLUTION 15 (Cg-XIII)

### MARINE METEOROLOGY AND ASSOCIATED OCEANOGRAPHIC ACTIVITIES

THE CONGRESS,

NOTING:

- (1) Resolution 15 (Cg-XII) — Marine Meteorology and Associated Oceanographic Activities,
- (2) Resolution 16 (Cg-XII) — WMO's involvement in operational oceanography,
- (3) Resolution 8 (EC-XLIX) — Report of the twelfth session of the Commission for Marine Meteorology,
- (4) Resolution 2 (EC-XLVIII) — Report of the seventh session of the Joint IOC/WMO Committee for the Integrated Global Ocean Services System (IGOSS),
- (5) The relevant resolutions of the Intergovernmental Oceanographic Commission (IOC) Assembly and Executive Council,
- (6) The report of the president of the Commission for Marine Meteorology (CMM),

RECALLING Resolution 14 (Cg-XIII) — Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM),

CONSIDERING:

- (1) That a continuing concerted effort by Members is needed in order that marine meteorological and

oceanographic services meet national, regional and international requirements, including in particular in respect of services provided for the safety of life and property at sea and for the prevention and control of marine pollution,

- (2) That all types of marine environmental services and research, including global climate monitoring, research and prediction, must be supported by efficient and coordinated programmes for the acquisition, exchange, processing and dissemination of all marine meteorological, oceanographic and other related marine environmental data, from both *in situ* and remotely-sensed sources,
- (3) That an increasing number of developing countries are becoming involved in the implementation of requirements and responsibilities for monitoring the marine environment and for the provision of meteorological and oceanographic services to marine users,

REAFFIRMS the principle that WMO, in further developing and implementing its marine meteorological and oceanographic activities, should continue to maintain direct contacts with international organizations representing

users' interests, should work jointly wherever possible with IOC and should further work in close cooperation with the International Maritime Organization (IMO) and other international bodies dealing with marine environmental programmes and projects;

REQUESTS the Executive Council, with the assistance of JCOMM, other relevant technical commissions, the IOC/WMO/United Nations Environment Programme (UNEP) Committee for the Global Ocean Observing System (GOOS) and the regional associations, to promote, guide and assist in the implementation of the WMO Marine Meteorology and Associated Oceanographic Activities Programme; URGES Members concerned to give all possible support to the implementation of the Marine Meteorology and Associated Oceanographic Activities Programme through:

- (1) Strengthening their marine meteorological and oceanographic services, including both basic services in support of the safety of life and property at sea as required under the International Convention for the Safety of Life at Sea (SOLAS) and specialized services for various marine user groups;
- (2) Continuing and/or expanding their contributions to the collection and archival of ships meteorological reports, sea-ice data and oceanographic data, including metadata;
- (3) Continuing and/or expanding their contributions to *in situ* marine observing and data collection systems;
- (4) Making full use of modern telecommunication facilities, including the International Maritime Satellite System (INMARSAT) and Argos, for the collection of marine environmental data and the dissemination of information;

- (5) Expanding the application of remotely-sensed ocean data to the provision of services and to global climate studies, and assisting developing countries to access and make best use of these data;
- (6) Assisting developing countries to fulfil their responsibilities under the Marine Meteorology and Associated Oceanographic Activities Programme by continuing and/or contributing to specialized training events and programmes in marine meteorology and physical oceanography, and also by facilitating their participation in marine observing programmes;

REQUESTS the co-presidents of JCOMM to ensure that JCOMM takes the lead in the preparation of the appropriate parts of the Sixth WMO Long-term Plan for the Marine Meteorology and Associated Oceanographic Activities Programme under the guidance of the Executive Council and in consultation with the chairperson of the Intergovernmental Committee for the Global Ocean Observing System (I-GOOS);

REQUESTS the Secretary-General, within the available budgetary resources:

- (1) To arrange for the coordination of WMO's activities under the Marine Meteorology and Associated Oceanographic Activities Programme with the IOC and other international organizations;
- (2) To assist in the implementation of these activities;
- (3) To bring this resolution to the attention of all concerned.

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

## RESOLUTION 16 (Cg-XIII)

### HYDROLOGY AND WATER RESOURCES PROGRAMME

THE CONGRESS,

NOTING:

- (1) Resolution 18 (Cg-XII) — Hydrology and Water Resources Programme,
- (2) Resolution 19 (Cg-XII) — Strategy and action plan for monitoring and assessing water resources of Africa,
- (3) Resolution 20 (Cg-XII) — World Hydrological Cycle Observing System (WHYCOS),
- (4) Resolution 21 (Cg-XII) — Global Runoff Data Centre (GRDC),
- (5) Resolution 9 (EC-XLIX) — Report of the tenth session of the Commission for Hydrology,
- (6) The report of the president of the Commission for Hydrology,
- (7) The views and recommendations on matters relating to freshwater of recent high-level intergovernmental meetings, in particular the nineteenth Special Session of the United Nations General Assembly (June, 1997) and the sixth Session of the United Nations Commission for Sustainable Development (April, 1998),
- (8) The recommendations of the fifth United Nations Educational, Scientific and Cultural Organization

(UNESCO)/WMO International Conference on Hydrology (February 1999),

NOTING FURTHER:

- (1) That the increasing demand and misuse of freshwater pose a serious threat to sustainable development, the protection of the environment and an equitable access to water in shared river basins and aquifers,
- (2) That water-related disasters are the cause of an increasing number of deaths and amount of property damage,
- (3) That, despite the availability of effective technology, many countries are unable to assess and manage their freshwater resource and provide protection from natural water-related disasters,
- (4) That improvements in, and the exchange of, this technology, could help to ameliorate this situation,
- (5) That the challenges of global change, and especially global climate change, require even greater efforts from hydrologists and those responsible for water resources management,
- (6) That there is increasing need for collaboration between the hydrological and meteorological (including climatological) communities in this regard,



## CONSIDERING:

- (1) That national Hydrological Services are essential to the management of water resources for human consumption, agriculture, energy production and industrial purposes and the environment, while avoiding irreversible degradation of water quality,
- (2) That such Services are also essential to activities aimed at mitigating the effects of droughts, floods, desertification and tropical cyclones, while, at the same time, these phenomena pose special problems for the collection, analysis and use of hydrological data,
- (3) That WMO has a responsibility to assist Members, particularly national Hydrological Services, to meet their obligations in this regard,
- (4) That the Hydrology and Water Resources Programme (HWRP) provides the framework for all scientific and technical aspects of WMO's activities in the field of hydrology and water resources,
- (5) That the Hydrological Operational Multipurpose System (HOMS) provides an effective means of meeting the differing needs of Members for technology transfer in the field of operational hydrology,

## DECIDES:

- (1) That the substance of the HWRP be as indicated in Part 6.5 of the Fifth WMO Long-term Plan adopted under Resolution 23 (Cg-XIII);
- (2) That WMO should continue its efforts, with the support of other donor countries and agencies, to develop the World Hydrological Cycle Observing System (WHYCOS) as a component of the HWRP;
- (3) To endorse the Implementation Plan for HOMS: 1997-2000 adopted by the tenth session of the Commission for Hydrology, and to encourage the Commission to take the necessary steps to ensure the effective implementation of HOMS well into the next century;
- (4) That WMO should promote the international exchange of hydrological data and products (as in Resolution 25 (Cg-XIII)) and provide advice in this regard, noting the particular needs of those States which share river basins and/or aquifers and those having limited capacity to implement the practice;
- (5) That, in the follow-up to the United Nations Conference on Environment and Development (UNCED), WMO should continue to take the lead as regards the reduction of risk from flood and drought hazards and, jointly with UNESCO, as regards water resource assessment for sustainable development;
- (6) That WMO should contribute actively to the follow-up to UNCED in respect to other areas of fresh-water dealt with in Agenda 21, such as capacity building;
- (7) That WMO should seek to improve further the coordination of the HWRP with UNESCO's International Hydrological Programme (IHP);

## INVITES Members:

- (1) To take all possible measures to continue full support to the implementation of the five component programmes of the HWRP;
- (2) To arrange for their Hydrological, Hydrometeorological and Meteorological Services to continue to cooperate in the implementation of national and international plans for the assessment and management of their water resources and in the reduction of risk from flood and drought hazards and to participate in the implementation of WHYCOS;
- (3) To continue their close coordination in the planning and implementation of national inputs to international programmes in the field of hydrology and water resources;
- (4) To institute or continue the cooperation between Hydrological, Hydrometeorological and Meteorological Services within shared river basins;
- (5) To participate in, and contribute to, technical cooperation activities in hydrology and water resources;

## REQUESTS the Secretary-General:

- (1) To continue to ensure the effective coordination of WHYCOS activities, further refining the general concept while assisting the development of regional HYCOS components to meet the needs of the Members concerned;
- (2) To undertake a review of WMO activities in Sub-Saharan Africa and to develop a strategy for increasing their effectiveness;

## REQUESTS the president of CHy:

- (1) To arrange for the implementation by CHy of relevant parts of the HWRP;
- (2) To continue the coordination of CHy activities with the regional inputs to the HWRP, including the possible implementation of joint projects;
- (3) To arrange for contributions from CHy to other WMO Programmes, as appropriate;

## REQUESTS the Executive Council and the Secretary-General, as appropriate and within the available budgetary resources:

- (1) If circumstances permit, to increase support to the HWRP in view of the increasing need for its enhanced participation in the resolution of the world water issues;
- (2) To take all the necessary action to assist CHy and all bodies concerned in implementing the HWRP, in accordance with DECIDES (1);
- (3) To continue to provide assistance in support of training events for Members in the fields of hydrology and water resources, particularly those in developing countries and other countries-in-need;
- (4) To continue to cooperate with other governmental and non-governmental organizations in the field of hydrology and water resources.

NOTE: This resolution replaces Resolution 18 (Cg-XII), which is no longer in force.

## RESOLUTION 17 (Cg-XIII)

## EDUCATION AND TRAINING PROGRAMME

THE CONGRESS,

NOTING:

- (1) Resolution 22 (Cg-XII) — Education and Training Programme,
- (2) Resolution 10 (EC-L) — Executive Council Panel of Experts on Education and Training,
- (3) That education and training in meteorology, operational hydrology and related disciplines is a substantive part of the work of WMO,

CONSIDERING:

- (1) That suitably trained staff are the key to the effectiveness of national Meteorological and Hydrological Services (NMHSs) and are thus fundamental to the successful implementation of all the individual WMO Programmes,
- (2) That the Education and Training Programme is needed as a vehicle to promote capacity building by assisting NMHSs in the attainment of self-sufficiency in meeting their training needs and in developing their human resources,
- (3) That the need for trained specialists in the application of meteorology, operational hydrology and related disciplines in support of social and economic progress at the global, regional and national levels remains acute in many developing countries,

DECIDES:

- (1) That the major thrusts of the Education and Training Programme should be directed towards assisting Members in obtaining educated and trained staff for the continued development of their NMHSs so as to enable them to discharge their ongoing operational functions as well as to meet the challenges of new techniques and technologies and expanding responsibilities;
- (2) That special emphasis should be placed on developing and maintaining the continuing education of staff in all fields of activities of the Organization and on promoting the exchange of training knowledge, resources and expertise between Members, making particular use of relevant new and emerging technologies and techniques;

URGES Members:

- (1) To collaborate actively in, and to give all possible support to, the implementation of the Organization's education and training activities particularly by strengthening the network of the WMO Regional Meteorological Training Centres (RMTCs) and the exchange of experts for the benefit of all concerned;
- (2) To strengthen their national capacity in the attainment of self-sufficiency in meeting their training needs and in developing their human resources;
- (3) To make maximum use of the training opportunities offered by WMO RMTCs for the training of their staff

and, along with donor agencies, to expand their efforts to assist those centres to become more efficient and focused on the highest priority regional needs;

- (4) To provide the Secretariat and other Members with modern training materials available in their own Services for the benefit of other Members and the training efforts of RMTCs;
- (5) To make their best efforts to encourage national and regional training institutions to apply computer-aided and distance learning technologies and to use the Internet in the learning process;

INVITES the presidents of regional associations and technical commissions to keep under continuous review the relevant education and training issues for a better coordination and to study regional and specialized training needs of Members;

REQUESTS the Executive Council:

- (1) To take all necessary actions to enable the Education and Training Programme to meet its objectives under the Fifth WMO Long-term Plan;
- (2) To continue its overall coordination and to review regularly the status of the Organization's Education and Training Programme;

REQUESTS the Secretary-General:

- (1) To collaborate closely with Members to ensure the effective implementation of the Organization's education and training activities;
- (2) To continue, within the available resources, to provide assistance and advice on the training equipment, materials and methodology suitable for use by WMO RMTCs, NMHSs and national training institutions;
- (3) To provide education and training support from regular or extrabudgetary resources to activities in the new priority areas of emphasis within major WMO Programmes;
- (4) To support strongly any requests from Members for assistance for education and training in the fields of meteorology and operational hydrology from the United Nations Development Programme (UNDP), other international bodies, and national bodies, including bilateral arrangements;
- (5) To maintain close liaison with the Standing Conference of Heads of Training Institutions of National Meteorological Services (SCHOTI) with respect to the effective use of distance learning technologies with emphasis on computer-aided learning techniques, particularly in RMTCs and developing countries.

NOTE: This resolution replaces Resolution 22 (Cg-XII), which is no longer in force.

## RESOLUTION 18 (Cg-XIII)

**THE WMO VOLUNTARY COOPERATION PROGRAMME**

THE CONGRESS,

NOTING:

- (1) That, in accordance with the directives contained in Resolution 23 (Cg-XII) — The WMO Voluntary Cooperation Programme (VCP), the VCP has functioned in the twelfth financial period in a highly satisfactory manner,
- (2) That this Programme is a major element in the implementation of the World Weather Watch Programme as well as of other scientific and technical programmes of WMO and in the provision of fellowships,
- (3) That this Programme is an appropriate mechanism for the promotion and support of technical cooperation among developing countries (TCDC),
- (4) That during recent years, on average, annual contributions received for the Voluntary Cooperation Programme Fund (VCP(F)) amounted to US\$ 360 000 and contributions received in the equipment and services component, Voluntary Cooperation Programme Equipment and Services (VCP(ES)), included fellowships amounted to US\$ 6.5 million,

COMMENDS the Members concerned for their continued support to the success of this Programme;

CONSIDERING the continued and increasing needs for support during the thirteenth financial period for the implementation of the various technical programmes of WMO,

DECIDES:

- (1) That the WMO VCP shall be continued in the thirteenth financial period;
- (2) That as in the twelfth financial period, the fields of cooperation covered by the VCP during the thirteenth financial period shall include:
  - (a) The implementation of the WWW as first priority;
  - (b) The granting of short-term and long-term fellowships;
  - (c) The support to short-term training seminars for personnel engaged in WWW and other activities covered under the VCP;
  - (d) The support to meteorological applications activities;

- (e) The support to the activities of the Hydrology and Water Resources Programme;
- (f) The establishment of observing and data-processing facilities necessary for the World Climate Programme;
- (g) The support to activities within the World Climate Applications and Services Programme;
- (h) The establishment and maintenance of the Global Atmosphere Watch stations;
- (i) The support to meteorological and hydrological activities related to the environment protection;
- (j) The implementation of the Internet capability at the national Meteorological and Hydrological Services in support of WMO Programmes;

(3) That the VCP in the thirteenth financial period shall follow the same general procedures as during the twelfth financial period;

(4) That special assistance should be provided to new Members of the Organization including the Newly Independent and Small Island Developing States within the framework of the VCP;

URGES Members of the Organization to contribute to the maximum extent possible to the Programme during the thirteenth financial period both in financial form and in equipment and services, including fellowships, and to use the mechanism of TCDC, where possible;

AUTHORIZES the Executive Council to review the present rules and procedures for the operation of the VCP, when necessary, bearing in mind the decisions of Thirteenth Congress;

REQUESTS the Secretary-General:

- (1) To continue to administer the VCP during the thirteenth financial period;
- (2) To report to Fourteenth Congress on the assistance rendered during the thirteenth financial period, in addition to the annual report on the VCP distributed to Members.

NOTE: This resolution replaces Resolution 23 (Cg-XII), which is no longer in force.

## RESOLUTION 19 (Cg-XIII)

**USE OF OFFICIAL AND WORKING LANGUAGES WITH SPECIAL REGARD TO ARABIC AND CHINESE**

THE CONGRESS,

NOTING:

- (1) WMO General Regulations 117 to 122,
- (2) Resolution 50 (Cg-VII) — Use of the Chinese language — whereby it was decided that Chinese shall

be an official and working language of WMO and that the implementation of the decision shall be effected on a step-by-step basis,

- (3) Resolution 54 (Cg-VIII) — Use of the Arabic language — whereby it was decided that Arabic shall

- be an official and working language of WMO and that the implementation of the decision shall be effected on a step-by-step basis,
- (4) That Eleventh Congress agreed to the extension of use of Arabic for documentation of the sessions of Congress, the Executive Council (except the short session held immediately after Congress) and Regional Associations I (Africa) and II (Asia) during the eleventh financial period,
  - (5) That Twelfth Congress approved, within a zero real growth budget, the extension of the provision of documentation in Arabic to sessions of all relevant constituent bodies as well as the provision of documentation in Chinese for sessions of Congress, the Executive Council and Regional Association II during the twelfth financial period,

## CONSIDERING:

- (1) The need to treat all WMO official and working languages in an equitable manner in accordance with the General Regulations,
- (2) The need to manage language services in such a way as to achieve the lowest cost while preserving the quality of the services and the impartiality of the Secretariat,

## DECIDES:

- (1) That Arabic translation services be provided for correspondence;
- (2) That documentation for sessions of the technical commissions shall also be provided in Chinese, and that General Regulation 120 shall be amended accordingly;

REQUESTS the Secretary-General to implement the above decisions on an equitable basis for all official and working languages.

## RESOLUTION 20 (Cg-XIII)

## USE OF PORTUGUESE

## NOTING:

- (1) That the Portuguese language is a historical language of science and culture spoken by 200 million people in Angola, Brazil, Cape Verde, Guinea Bissau, Mozambique, Portugal, and Sao Tome and Principe, who are Member countries of WMO and of three of its regional associations, and is used in some international organizations,
- (2) Resolution 26 (Cg-XII) — Use of Portuguese, and the request of Regional Association I that Congress reconsider its request to include Portuguese as an official and working language of WMO,

CONSIDERING that the work of WMO would be facilitated by the use of Portuguese,

## DECIDES:

- (1) That Portuguese shall be used for interpretation at sessions of Regional Associations I and III using available resources, and of Congress subject to the availability of extrabudgetary resources;
- (2) To continue with existing arrangements for a separate trust fund account to provide such extrabudgetary resources;

REQUESTS the Secretary-General to explore the most cost-effective means of providing Portuguese interpretation, including the use of locally-contracted interpreters, where appropriate;

URGES all WMO Members to contribute to this trust fund.

## RESOLUTION 21 (Cg-XIII)

## PUBLICATIONS PROGRAMME FOR THE THIRTEENTH FINANCIAL PERIOD

## THE CONGRESS,

## NOTING:

- (1) Resolution 27 (Cg-XII) — Publications Programme for the twelfth financial period,
- (2) That the accurate and timely production and distribution of publications in the agreed languages is essential to almost all functions of the Organization and that as a matter of general policy, high priority shall be given to the Publications Programme,
- (3) That the publications of the Organization generally fall into two broad categories:
  - (a) Mandatory publications, defined by the Convention, the General Regulations or by specific decisions of Congress, for which funds are

provided directly under the Publications Programme,

- (b) Programme-supporting publications, such as WMO Technical Notes, World Weather Watch Planning Reports, Operational Hydrology Reports, Marine Science Affairs Reports, Special Environmental Reports, the WMO Blue Training Series, etc., for which funds are provided under the relevant scientific and technical programmes,

## DECIDES:

- (1) That the mandatory publications of WMO and the languages in which these publications shall be issued are as shown in the annex to this resolution;

- (2) That the management of the Publications Programme, notably the presentation and method of reproduction of the publications and 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 guidance given by the Executive Council;

REQUESTS the Executive Council:

- (1) To 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 and the widening availability of alternatives to printed material;

- (2) To consider any proposed economies resulting from a lack of resources and to provide guidance on the best way to protect the information flow to Members and others through the Publications Programme;

REQUESTS the Secretary-General to assist in those reviews by providing the Executive Council, and any mechanism it may establish to oversee the introduction of electronic publishing, with information on available funds, facilities, sales potentials and any possible limitations.

NOTE: This resolution replaces Resolution 27 (Cg-XII), which is no longer in force.

ANNEX TO RESOLUTION 21 (Cg-XIII)

WMO MANDATORY PUBLICATIONS AND THE LANGUAGES IN WHICH THEY SHALL BE ISSUED IN THE THIRTEENTH FINANCIAL PERIOD

<i>Publication</i>	<i>Number</i>	<i>Languages</i>
<b>1. Basic documents</b>		
(a) <i>Basic Documents</i> Convention and General Regulations	WMO-No. 15	A, C, E, F, R, S
(b) <i>Agreements and Working Arrangements with Other International Organizations</i>	WMO-No. 60	E, F, R, S
(c) <i>Technical Regulations</i>	WMO-No. 49	A, C, E, F, R, S
(d) Annexes to the <i>Technical Regulations</i> :		
(i) <i>International Cloud Atlas, Volume 1</i>	WMO-No. 407	} All in E, F, R, S
(ii) <i>Manual on Codes</i>	WMO-No. 306	
(iii) <i>Manual on the Global Telecommunication System</i>	WMO-No. 386	
(iv) <i>Manual on the Global Data-processing System</i>	WMO-No. 485	
(v) <i>Manual on the Global Observing System</i>	WMO-No. 544	
(vi) <i>Manual on Marine Meteorological Services</i>	WMO-No. 558	
<b>2. Operational publications</b>		
(a) <i>Meteorological Services of the World</i>	WMO-No. 2	Bilingual: E-F
(b) <i>Composition of WMO</i>	WMO-No. 5	Bilingual: E-F
(c) <i>Weather Reporting</i>	WMO-No. 9	
(i) Volume A — Observing stations		Bilingual: E-F*
(ii) Volume B — Data processing		E*
(iii) Volume C1 — Catalogue of meteorological bulletins		Bilingual: E-F
(iv) Volume C2 — Transmissions schedules		Bilingual: E-F
(v) Volume D — Information for shipping		Bilingual: E-F*
(d) <i>International List of Selected, Supplementary and Auxiliary Ships</i>	WMO-No. 47	Bilingual: E-F
(e) <i>Compendium of Training Facilities for Meteorology and Operational Hydrology</i>	WMO-No. 240	M
(f) <i>Climatological normals (CLINO) for the period 1961-1990</i>	WMO-No. 847	M
<b>3. Official records</b>		
(a) Abridged reports with resolutions of Congress		A, C, E, F, R, S
(b) Proceedings of Congress		E, F
(c) Abridged reports with resolutions of the Executive Council		A, C, E, F, R, S
(d) Abridged reports with resolutions and recommendations of the regional associations		Same as for session documentation
(e) Abridged reports with resolutions and recommendations of the technical commissions		A, C, E, F, R, S

**4. WMO Guides**

(a) <i>Guide to Meteorological Instruments and Methods of Observation</i>	WMO-No. 8	E, F, R, S
(b) <i>Guide to Climatological Practices</i>	WMO-No. 100	A, E, F, R, S
(c) <i>Guide to Agricultural Meteorological Practices</i>	WMO-No. 134	} All in E, F, R, S
(d) <i>Guide to Hydrological Practices</i>	WMO-No. 168	
(e) <i>Guide on the Global Data-processing System</i>	WMO-No. 305	
(f) <i>Guide to Marine Meteorological Services</i>	WMO-No. 471	
(g) <i>Guide on the Global Observing System</i>	WMO-No. 488	
(h) <i>Guide on the Automation of Data-processing Centres</i>	WMO-No. 636	
(i) <i>Guide to Wave Analysis and Forecasting</i>	WMO-No. 702	
(j) <i>Guide on Meteorological Observation and Information Distribution Systems at Aerodromes</i>	WMO-No. 731	
(k) <i>Guide on to Practices for Meteorological Offices Serving Aviation</i>	WMO-No. 732	
(l) <i>Guide to the Applications of Marine Climatology</i>	WMO-No. 781	
(m) <i>Guide to the Preservation and Management of Climatological Data</i>	WMO-No. . . .	
(n) <i>Guide on World Weather Watch Data Management</i>	WMO-No. 788	
(o) <i>Guide to Public Weather Services Practices</i>	WMO-No. 834	

**5. Terminologies**

<i>International Meteorological Vocabulary</i>	WMO-No. 182	M
<i>International Glossary of Hydrology (jointly with UNESCO)</i>	WMO-No. 385	M

**6. Annual reports of WMO**

E, F, R, S

**7. WMO Bulletin**

E, F, R, S

## NOTES:

\* Expanded introductory and explanatory text in four official languages.

A - Arabic; C - Chinese; E - English; F - French; R - Russian; S - Spanish; M - Multilingual

## RESOLUTION 22 (Cg-XIII)

## INFORMATION AND PUBLIC AFFAIRS PROGRAMME

## THE CONGRESS,

## NOTING:

- (1) The *Abridged Final Report with Resolutions of the Forty-eighth Session of the Executive Council* (WMO-No. 846), general summary paragraph 14.1.2,
- (2) The *Abridged Final Report with Resolutions of the Fiftieth Session of the Executive Council* (WMO-No. 883), agenda items 15.1, and 15.2,

## CONSIDERING:

- (1) The need for a greater visibility of the Organization and the national Meteorological and Hydrological Services (NMHSs) and the indispensable role they play in support of the socio-economic development and progress of all nations including safety and security of life and property,
- (2) The important role communications can play in mitigating the devastating impact of the current trends of extreme climatic variability aggravated by abnormal events of *El Niño/La Niña* (1997/98/99), the continuing depletion of the ozone layer and growing water scarcity and pollution,

- (3) That the WMO Global Communication Strategy should guide and enhance, through effective approaches and means, the process of making NMHSs and WMO more visible and better appreciated,
- (4) That in a financially difficult context, a strategic approach to communications might enable WMO and its Members to increase the cost-effectiveness of their activities,

DECIDES to maintain a WMO Information and Public Affairs Programme, the objectives of which should be to inform the public and to foster a greater understanding by decision makers of:

- (a) Advances in the sciences of meteorology, hydrology and related disciplines;
- (b) The significance of weather, climate and water resources to the sustainable development of nations;
- (c) The impact of climate variability and extreme weather events on social, health and economic sectors;
- (d) The important role of NMHSs in mitigating natural disasters and in contributing to socio-economic progress;

- (e) The active role of WMO in international cooperation in the fields of meteorology, operational hydrology and related disciplines;
- (f) The contributions of meteorology and hydrology through interaction and dialogue;

URGES Members to take appropriate measures to support the Information and Public Affairs Programme, to develop an active public information programme at the national level and to implement the WMO Global Communication Strategy giving a local voice to a global vision;

REQUESTS the Secretary-General:

- (1) To consider appropriate and urgent actions to assure continued progress in implementing the WMO Information and Public Affairs Programme and its Global Communication Strategy in cooperation with national institutions through the Permanent Representatives, and with international organizations, both governmental and non-governmental;
- (2) To collaborate closely with Members to ensure mutual assistance and support in matters related to public information and communication including

partnerships and constituency-building, resource mobilization and contacts with the media, non-governmental organizations and advocacy groups, academic circles, parliamentarians, the private sector and corporate foundations and other civil society institutions and public figures;

- (3) To make best possible use of available and extra-budgetary resources to strengthen the Information and Public Affairs Programme, which is supportive of, and integrated with, the major WMO Programmes;
- (4) To take appropriate action for the implementation of the WMO Fiftieth Anniversary Communication Strategy and Activities and Fundraising Guidelines and to provide guidance and support for NHMSs to commemorate the anniversary;
- (5) To bring this resolution to the attention of all concerned.

NOTE: This resolution replaces Resolution 28 (Cg-XII), which is no longer in force.

## RESOLUTION 23 (Cg-XIII)

### FIFTH WMO LONG-TERM PLAN

THE CONGRESS,

NOTING the decision of Twelfth Congress in Resolution 30 (Cg-XII) concerning the preparation of the Fifth WMO Long-term Plan,

ADOPTS, under the provision of Article 8(a), (b) and (c) of the WMO Convention, the Fifth WMO Long-term Plan (hereinafter called "the Plan") for the period 2000-2009;

REQUESTS the Secretary-General to arrange for the publication and distribution of the Plan and a self-contained Summary for Decision Makers to all Members and constituent bodies of WMO and to other international forums and organizations, including funding institutions, as appropriate;

URGES Members to take the Plan into account in developing and carrying out their national programmes in

meteorology, hydrology and related disciplines, as well as in their participation in the programmes of the Organization; REQUESTS the Executive Council, the regional associations, the technical commissions and the Secretary-General to adhere to the policies and strategies set forth in the Plan and to organize their activities to achieve the overall and main long-term objectives as defined in the Plan;

FURTHER REQUESTS the Executive Council to use the Plan as a benchmark to monitor progress and performance in the implementation of the programmes and activities of the Organization and to submit a report to Fourteenth Congress.

NOTE: This resolution replaces Resolution 29 (Cg-XII), which remains in force only until 31 December 1999.

## RESOLUTION 24 (Cg-XIII)

### PREPARATION OF THE SIXTH WMO LONG-TERM PLAN

THE CONGRESS,

NOTING Resolution 23 (Cg-XIII) — Fifth WMO Long-term Plan,

CONSIDERING:

- (1) That WMO Long-term Plans are a useful guide to Members and their national Meteorological and Hydrological Services (NMHSs) in consolidating their own planning policies, programmes, and activities,

- (2) That there is a continuing need for a longer lead time in planning the main directions of the scientific and technical work of the Organization to assist Members in their planning activities and WMO itself in providing a long-term framework within which to develop programme plans,
- (3) That the WMO planning process enables the Organization to reflect on its goals and aspirations, as

well as to anticipate and/or respond to changes and variations,

- (4) That the WMO planning system has added to the effectiveness and status of WMO within the United Nations system,
- (5) That the WMO Long-term Plans should:
  - (a) Be forward looking and strategically oriented, setting targets reflecting the goals, aspirations, objectives and priorities of the Organization;
  - (b) Include an implementation component which clearly follows and is an integral part of the established strategy,

REAFFIRMING that the overall purpose of the planning process in WMO is to set broad objectives and strategy for the Organization and to provide sufficient guidance for the formulation of the four-year programme and budget document of WMO,

NOTING FURTHER that the method of preparation of WMO Long-term Plans under the guidance of the Executive Council provided a suitable model for the evolution of subsequent Plans,

DECIDES that the Sixth WMO Long-term Plan should be prepared;

REQUESTS the Executive Council:

- (1) To study further, in the light of the experience gained during the preparation of the previous Plans, the format, contents and, in particular, the period of

coverage of the future Plan with a view to improve further the planning process and WMO Long-term Plans;

- (2) To establish the necessary coordination mechanism for the preparation of the Sixth WMO Long-term Plan;

REQUESTS the regional associations:

- (1) To provide a forum for consideration of the Plan and, in particular, to provide an integrated view of their respective activities and priorities within the context of the Sixth WMO Long-term Plan;
- (2) To coordinate, as necessary, national contributions to regional aspects of the Plan;

REQUESTS the technical commissions to lead the formulation of all scientific and technical aspects of WMO Programmes and activities falling within their respective responsibilities;

REQUESTS the Secretary-General:

- (1) To provide Secretariat support for implementing those decisions;
- (2) To ensure that the programme and budget proposals for the fourteenth financial period and the draft Sixth WMO Long-term Plan are fully coordinated;
- (3) To submit the draft Sixth WMO Long-term Plan to Fourteenth Congress on behalf of the Executive Council.

NOTE: This resolution replaces Resolution 30 (Cg-XII), which is no longer in force.

## RESOLUTION 25 (Cg-XIII)

### EXCHANGE OF HYDROLOGICAL DATA AND PRODUCTS

THE CONGRESS,

NOTING:

- (1) 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,
- (2) The inclusion of dedicated observations of the climate system, including hydrological phenomena, as one of the four main thrusts of The Climate Agenda, which was endorsed by Twelfth Congress,
- (3) That Technical Regulation [D.1.1] 8.3.1(k), states that, in general, the routine functions of national Hydrological Services (NHSs) should include, *inter alia*, “making the data accessible to users, when, where and in the form they require” and that the Technical Regulations also contain a consolidated list of data and product requirements to support all WMO Programmes,
- (4) That the nineteenth Special Session of the United Nations General Assembly agreed, in its overall review and appraisal of the implementation of Agenda 21, that there is an urgent need to “... foster regional and international cooperation for information dissemination and exchange through cooperative approaches among United Nations institutions, ...” (A/RES/S-19/2, paragraph 34(f)),

- (5) That the fifty-first session of the United Nations General Assembly adopted, by resolution 51/229, the Convention on the Law of the Non-navigational Uses of International Watercourses, Article 9 of which provides for “regular exchange of data and information”,
- (6) That the Intergovernmental Council of the International Hydrological Programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO) adopted at its twelfth session Resolution XII-4 which dealt with the exchange of hydrological data and information needed for research at the regional and international levels,

CONSIDERING:

- (1) The significance attached by the International Conference on Water and the Environment (ICWE) (Dublin, 1992) to extending the knowledge base on water and enhancing the capacity of water sector specialists to implement all aspects of integrated water resources management,
- (2) The call of world leaders at the United Nations Conference on Environment and Development (UNCED) (Rio de Janeiro, 1992) for a significant strengthening of, and capacity building in, water resources assessment, for increasing global commitment to exchange scientific data and analyses and for promoting access to strengthened systematic observations,



- (3) That the United Nations Commission on Sustainable Development (CSD) in its Decision 6/1 "Strategic Approaches to Freshwater Management" has strongly encouraged States to promote the exchange and dissemination of water-related data and information, and has recognized "the need for periodic assessments ... for a global picture of the state of freshwater resources and potential problems",
- (4) The call by the nineteenth Special Session of the United Nations General Assembly "for the highest priority to be given to the serious freshwater problems facing many regions, especially in the developing world" and the "urgent need ... to strengthen the capability of Governments and international institutions to collect and manage information ... and environmental data, in order to facilitate the integrated assessment and management of water resources",
- (5) The requirements for full, open and prompt exchange of hydrological data and products in support of various international conventions, such as the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, and the Convention to Combat Desertification,
- (6) The requirement for the global exchange of hydrological information in support of scientific investigations of world importance such as those on global change and the global hydrological cycle, and as a contribution to relevant programmes and projects of WMO, other United Nations agencies, the International Council for Science (ICSU) and other organizations of equivalent status,
- (7) The opportunities for more efficient management of water resources and the need for cooperation in mitigating water-related hazards in transboundary river basins and their water bodies which depend on the international exchange of hydrological data and information,
- (8) The increasing recognition through scientific and technical endeavours, such as the Global Energy and Water Cycle Experiment (GEWEX), of the importance of hydrological data and products in improving the understanding of meteorological processes and subsequently the accuracy of meteorological products,

## RECOGNIZING:

- (1) The responsibility of Members and their NHSs to provide for the security and well-being of the people of their countries, through mitigation of water-related hazards and sustainable management of water resources,
- (2) The potential benefits of enhanced exchange of hydrological data and information within shared river basins and aquifers, based on agreements between the Members concerned,
- (3) The continuing need for strengthening the capabilities of NHSs, particularly in developing countries,
- (4) The right of Governments to choose the manner by which, and the extent to which, they make hydrological data and products available domestically and internationally,

- (5) The right of Governments also to choose the extent to which they make available internationally data which are vital to national defense and security. Nevertheless, Members shall cooperate in good faith with other Members with a view to providing as much data as possible under the circumstances,
- (6) The requirement by some Members that their NHSs earn revenue from users, and/or adopt commercial practices in managing their businesses,
- (7) The long-established provision of some hydrological products and services on a commercial basis and in a competitive environment, and the impacts, both positive and negative, associated with such arrangements,

ADOPTS a stand of committing to broadening and enhancing, whenever possible, the free and unrestricted<sup>1</sup> international exchange<sup>2</sup> of hydrological data and products, in consonance with the requirements for WMO's scientific and technical programmes;

FURTHER ADOPTS the following practice on the international exchange of hydrological information:

- (1) Members shall provide on a free and unrestricted basis those hydrological data and products which are necessary for the provision of services in support of the protection of life and property and for the well-being of all peoples;
- (2) Members should also provide additional hydrological data and products, where available, which are required to sustain programmes and projects of WMO, other United Nations agencies, ICSU and other organizations of equivalent status, related to operational hydrology and water resources research at the global, regional and national levels and, furthermore, to assist other Members in the provision of hydrological services in their countries;
- (3) Members should provide to the research and education communities, for their non-commercial activities, free and unrestricted access to all hydrological data and products exchanged under the auspices of WMO;
- (4) Respecting (2) and (3) above, Members may place conditions on the re-export<sup>3</sup>, for commercial purposes, of these hydrological data and products, outside the receiving country or group of countries forming a single economic group;
- (5) Members should make known to all Members, through the WMO Secretariat, those hydrological data and products which have such conditions as in (4) above;

<sup>1</sup> "Free and unrestricted" means non-discriminatory and without charge. "Without charge", in the context of this resolution means at no more than the cost of reproduction and delivery, without charge for the data and products themselves.

<sup>2</sup> "Exchange", in the context of this resolution, means the movement of data and products between countries or, as is more likely the case in the field of hydrology, the movement of data and products from one country to another.

<sup>3</sup> "Re-export", in the context of this resolution, means to redistribute, physically or electronically, outside the receiving country, group of countries forming a single economic group, or regional and global data centres, directly or through a third party.

- (6) Members should make their best efforts to ensure that the conditions placed by the originator on the additional hydrological data and products are made known to initial and subsequent recipients;
- (7) Members shall ensure that the exchange of hydrological data and products under this resolution is consistent with 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;
- URGES Members, in respect of the operational and scientific use of hydrological data and products, to:
- (1) Make their best efforts to implement the practice on the international exchange of hydrological data

and products, as described in FURTHER ADOPTS (1) to (7);

- (2) Assist other Members, to the extent possible, and as agreed upon, in developing their capacity to implement the practice described in FURTHER ADOPTS (1) to (7);

REQUESTS the Executive Council to:

- (1) Invite the Commission for Hydrology to provide advice and assistance on technical aspects of the implementation of the practice on the international exchange of hydrological data and products;
- (2) Keep the implementation of this resolution under review and report to Fourteenth Congress;

DECIDES to review the implementation of this resolution at Fourteenth Congress.

## RESOLUTION 26 (Cg-XIII)

### ROLE AND OPERATION OF NATIONAL METEOROLOGICAL SERVICES

THE CONGRESS,

RECALLING its Resolution 30 (Cg-XI) — Development of national Meteorological and Hydrological Services,

FURTHER RECALLING that the United Nations General Assembly, the Economic and Social Council (ECOSOC) and the Regional Economic and Social Commissions have called upon WMO to contribute, within its competence, to the international, regional and national activities which promote and support sustainable development, especially activities pertinent to weather- and climate-related natural disasters, climate change and the protection of the environment,

RECOGNIZING that the many activities under the WMO scientific and technical programmes are tailored to meet the above concerns and that these are implemented through the national Meteorological Services (NMSs) of the Members of the Organization in cooperation with other data and service providers,

AWARE that one of the major thrusts of the Fifth WMO Long-term Plan is the strengthening of the core activities and responsibilities of NMSs;

CONSIDERING that the effective role and operation of NMSs are essential to ensure the provision of weather, climate and other relevant services to meet national and international responsibilities of countries, as well as the effective implementation of the WMO scientific and technical programmes,

CONSIDERING FURTHER that the provision of meteorological and related services by NMSs as well as the basic role and operation of NMSs are being re-examined in many countries, including the provision of data and services by other parts of Government and the private sector,

RECOGNIZING the needs expressed for WMO guidance on the role and operation of NMSs, while also recognizing the diversity in the circumstances of individual countries such

as their economic framework, legal systems and relevant government policies,

FURTHER RECOGNIZING that the strengthening of NMSs contributes significantly to a more effective WMO and, in turn, an enhanced WMO can greatly assist the strengthening of NMSs and the effectiveness of their services to their national communities,

ACKNOWLEDGING that the status and visibility of NMSs are strongly linked to its mission and the effective fulfilment of this mission through the appropriate provision of relevant information, products and services,

INVITES Members to ensure the formulation of a clear statement of mission for their NMSs;

URGES Members to mandate the NMS as the official voice in issuing weather warnings for public safety to help minimize risks to the health and safety of citizens as well as the primary national authority and official source of information and policy advice on the present and future state of the atmosphere and other aspects of national weather and climate, in support of policy development;

FURTHER URGES Members to identify and reaffirm clearly their responsibilities in relation to meteorological data collection and exchange as well as weather and climate service provision inherent in their Membership of the Organization which include:

- (1) Ensuring the provision of those essential meteorological and related services which are deemed to be in the public interest, especially those which relate to general community safety and welfare;
- (2) Ensuring the collection and exchange of meteorological and related data and associated products to which they have committed through various treaties and conventions relating to the environment (particularly the United Nations Framework Convention on Climate Change, the United Nations Convention on

Desertification and the Vienna Convention for the Protection of the Ozone Layer), and especially through the principle and practice of WMO Resolution 40 (Cg-XII) on the exchange of meteorological and related data and products under the auspices of the WMO Convention;

- (3) Contributing to national economic and physical security as well as the provision of essential support for national strategies for sustainable development;
- (4) Sustaining environmental research and development of relevant applications;
- (5) Maintaining the integrity and continuity of the long-term national climate record;

INVITES Members to recognize explicitly:

- (1) The importance of codifying the core mission for their NMSs in national legislation or some other formal instrument;
- (2) The need to provide, or ensure the provision of, the basic infrastructure necessary to sustain that mission at the national level;
- (3) That the unique nature of meteorological service provision requires a high level of international cooperation and collective action by all data and service providers;
- (4) The fundamental importance of universal commitment to the free and unrestricted international exchange of essential meteorological data and products in line with the letter and spirit of Resolution 40 (Cg-XII);
- (5) That a single, authoritative national source of meteorological warnings to the public is essential in potentially dangerous weather situations involving safety of life and property;
- (6) The need for sustained cooperation in the design of an evolving international framework which can

accommodate a range of alternative methods of supplying services at the national level without impairing the stability of the international system;

- (7) That whatever form or model the NMSs take, it is imperative that government financial support, directly or through "government-as-customer" contracts, is provided to operate and maintain the required relevant basic infrastructure, monitoring and services in the national and global public interest;

REQUESTS the Executive Council:

- (1) To keep the subject of the role and operation of NMSs under review;
- (2) To set up the necessary mechanism to ensure the further strengthening of the role and operation of NMSs;
- (3) To facilitate cooperative activities with all related data and service providers;
- (4) To suggest mechanisms by which Members could more actively involve the media, the private sector and academia in the work of WMO and the national Meteorological and Hydrological Services;
- (5) To suggest ways of enhancing cooperation with international representatives of the various sectors respecting the principles that underpin the Organization, including Article 26 of the Convention;
- (6) To address the problem of definitions of relevant commonly used terms;
- (7) To undertake a similar consideration with respect to the national Hydrological Services;

REQUESTS the Secretary-General to continue his efforts to assist Members, including in seeking and providing scientific, technical, management, financial and other support for the development of NMSs and the enhancement of their role and operation.

## RESOLUTION 27 (Cg-XIII)

### THE YEAR 2000 PROBLEM

THE CONGRESS,

NOTING:

- (1) With the change from the year 1999 to the year 2000, various problems, commonly known as "the year 2000 problem", are likely to occur with software and even hardware of computer systems,
- (2) Resolution 5 (EC-XLIX) — The year 2000 problem,
- (3) There could be failures in infrastructure such as telecommunications and electric power beyond the control of national Meteorological and Hydrological Services (NMHSs),
- (4) Operations may be affected at a number of specific dates (e.g. 9 September 1999, 29 February 2000, etc.) by the year 2000 problem,
- (5) Less than eight months remain until the critical date of 1 January 2000,

CONSIDERING that the year 2000 problem may present major problems for NMHSs and for the World Weather

Watch (WWW) to the extent that the fundamental responsibility of NMHSs may be compromised with serious consequences for end users, in particular aviation and the safety of life and property,

REQUESTS the Commission for Basic Systems (CBS):

- (1) To pursue consideration of the year 2000 problem, as a matter of high priority, with a view to ensuring a sustained and reliable operation of WWW systems;
- (2) To develop a mechanism for monitoring the operation of the WWW over the change to the year 2000 and for responding to problems that may be detected;
- (3) To assist Members in developing contingency plans;

URGES Members:

- (1) To take the urgent necessary action at the national level to ensure that all their systems which are essential to meteorological and hydrological operations, in particular those contributing to the WWW, are year 2000 compliant;

- (2) To prepare national contingency plans in light of possible system or infrastructure failures, including those beyond the control of NMHSs;
- (3) To carry out comprehensive end-to-end tests of their year 2000 readiness, including tests of systems necessary for the provision of information and, especially, warnings to the public;
- (4) To reach out to and, if possible, assist neighbouring Members in their efforts to deal with the year 2000 problem;

REQUESTS the Secretary-General:

- (1) To contact any Members operating Regional Telecommunication Hubs, World Meteorological Centres and Regional Specialized Meteorological

Centres which have not yet provided assurances that these component parts of the WWW are year 2000 compliant with a view to obtaining a complete picture of the situation;

- (2) To remind Members to inform the Secretariat of their plans for ensuring that their systems, in particular those contributing to WWW, are year 2000 compliant;
- (3) To support CBS in its efforts to assist Members in addressing the year 2000 problem through its development of contingency plans, monitoring activities and possible establishment of a year 2000 Situation Centre;
- (4) To assist Members in their relations with manufacturers.

## RESOLUTION 28 (Cg-XIII)

### MAXIMUM EXPENDITURES FOR THE THIRTEENTH FINANCIAL PERIOD

THE CONGRESS,

NOTING:

- (1) Article 23 of the WMO Convention,
- (2) Article 4 of the Financial Regulations of the Organization,

AUTHORIZES the Executive Council during the thirteenth financial period from 1 January 2000 to 31 December 2003:

- (1) To incur expenditures of two hundred and fifty-two million three hundred thousand Swiss francs, (SFR 252 300 000), the division of such expenditures into parts being shown in the annex to this resolution;
- (2) To approve biennial appropriations within these limits;

FURTHER AUTHORIZES the Executive Council to incur any necessary expenditures additional to the sum stated above, resulting from:

- (1) Any unanticipated increases in Secretariat staff salaries and allowances over and above 1.3 per cent per

annum as from 1 May 1999, consequent to changes in the United Nations salaries and allowances, if the Executive Council is satisfied that they cannot reasonably be met without affecting adversely the programmes approved by Congress;

- (2) Any substantial increase in inflation estimates over and above the 1.3 per cent per annum as from 1 May 1999 to the extent that the Executive Council is satisfied that they cannot reasonably be met by economies within the approved budget;

REQUESTS the Executive Council to take such action as may be necessary to ensure that, if there is any beneficial change in any of the cost factors mentioned in FURTHER AUTHORIZES (1) and (2), there will be an appropriate reduction in the maximum expenditure of the Organization unless the Executive Council finds that there is a need to re-allocate these resources to address high-priority programme requirements.

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## ANNEX TO RESOLUTION 28 (Cg-XIII)

**MAXIMUM EXPENDITURE FOR THE THIRTEENTH FINANCIAL PERIOD**  
(Thousands of Swiss francs)

<i>Revenue</i>	<i>Expenditures</i>	<i>Assessed budget</i>	<i>High priority programmes to be funded within SFR 3.5 million<sup>(1)</sup></i>	<i>Total</i>
Assessed contributions	248 800.0	1. Policy-making organs	5 871.7	5 871.7
Proceeds from relocation of WMO Headquarters Building <sup>(1)</sup>	3 500.0	2. Executive management	13 161.5	13 161.5
		3. Scientific and technical programmes:		
		3.0 Overall coordination of the scientific and technical programmes	3 980.8	3 980.8
		3.1 World Weather Watch Programme	26 563.2	1 500.0
		3.2 World Climate Programme	24 880.0	530.0
		3.3 Atmospheric Research and Environment Programme	14 430.4	307.4
		3.4 Applications of Meteorology Programme	14 481.6 <sup>(2)</sup>	150.0
		3.5 Hydrology and Water Resources Programme	11 196.0	11 196.0
		3.6 Education and Training Programme	14 928.0	250.0
		3.7 Technical Cooperation Programme	5 722.4	200.0
		3.8 Regional Programme	15 674.4	562.6
		<b>Sub-total Part 3</b>	<u>131 856.8</u>	<u>3 500.0</u>
		4. Programme support services and publications	49 267.2	49 267.2
		5. Administration	43 716.6	43 716.6
		6. Other budgetary provisions	2 114.8	2 114.8
		7. Acquisition of capital assets — Headquarters building	2 811.4	2 811.4
<b>TOTAL</b>	<u><b>252 300.0</b></u>	<b>TOTAL</b>	<u><b>248 800.0</b></u>	<u><b>3 500.0</b></u>
				<u><b>252 300.0</b></u>

(1) Refer to general summary paragraph 8.9.

(2) This amount of SFR 150 000 shown here is for the Public Weather Services Programme.

## RESOLUTION 29 (Cg-XIII)

**EQUAL OPPORTUNITIES FOR PARTICIPATION OF WOMEN IN  
METEOROLOGY AND HYDROLOGY**

THE CONGRESS,

NOTING:

- (1) Recommendation 2 (CHy-X) — Participation of women in the work of the Commission,
- (2) Resolution 18 (CCI-XII) — Participation of women in the work of the Commission,
- (3) Resolution 13 (XII-RA IV) — Participation of women in the work of the Region,
- (4) Resolution 5 (CAS-XII) — Participation of women in the work of the Commission,

- (5) Resolution 1 (CBS-Ext.(98)) — Encouragement of equal opportunities for participation of men and women in the work of the Commission for Basic Systems,
- (6) Resolution 19 (CAgM-XII) — Encouragement of equal opportunities for participation of men and women in the field of agricultural meteorology,
- (7) Resolution 1 (CAeM-XI) — Encouragement of equal opportunities for participation of men and women in the work of the Commission,

## NOTING FURTHER:

- (1) The appeals made in Chapter 24 of Agenda 21: Programme of Action for Sustainable Development (Rio de Janeiro, 1992) on global action for women towards sustainable and equitable development,
- (2) The United Nations Conference on Women (Beijing, 1995) and its recognition of the importance of women and their contributions to science,
- (3) That several WMO regional associations and technical commissions had passed recommendations and resolutions encouraging increased participation by women in the work of those constituent bodies,
- (4) The recommendations of the International Experts Meeting on the Participation of Women in Meteorology and Hydrology (Bangkok, December 1997) and the results of the WMO survey on the participation of women in meteorology, hydrology and related fields,
- (5) That the fiftieth session of the Executive Council (Geneva, 1998) had requested Members to encourage the participation of women in meteorology and hydrology,

## CONSIDERING:

- (1) The need for trained professionals in the work of WMO,
- (2) That, in some countries, to ensure a proportional balance of men and women in science and technology, more emphasis may be needed to encourage women's education,
- (3) That a conducive work environment and conditions are necessary in order for women to participate fully in the activities of the national Meteorological and

Hydrological Services (NMHSs) and to advance their careers,

WELCOMING and supporting the very active participation of those women delegates attending Congress, the Executive Council, technical commissions and regional associations, ENCOURAGES increased participation of women in these and other WMO bodies,

FURTHER ENCOURAGES Members to identify focal points in their NMHSs to build a network in support of this activity; URGES Members to implement appropriate recommendations made by the International Expert Meeting on the Participation of Women in Meteorology and Hydrology, held in Bangkok, Thailand in December 1997;

RECOMMENDS that Members:

- (1) Continue to encourage, promote and facilitate equal opportunities for the education of women of all ages in science and technology in order to prepare them for entering scientific professions such as meteorology and hydrology;
- (2) Facilitate the participation of women in education and training activities organized by WMO;
- (3) Provide active encouragement and support for equal opportunity for the participation of women in all fields of meteorology including climatology and hydrology, at decision-making levels, and in regional, national and international cooperation programmes;

REQUESTS the Secretary-General to continue his efforts as regards this important issue and to report to Fourteenth Congress on progress made on aspects of the implementation of this resolution during the thirteenth financial period.

## RESOLUTION 30 (Cg-XIII)

### ESTABLISHMENT OF THE FINANCIAL REGULATIONS OF THE WORLD METEOROLOGICAL ORGANIZATION

THE CONGRESS,

## NOTING:

- (1) That Article 8(d) of the Convention of the World Meteorological Organization authorizes Congress to determine regulations prescribing the procedures of the various bodies of the Organization, and in particular, the Financial Regulations,
- (2) The decisions taken by previous Congresses, in establishing Financial Regulations,

CONSIDERING that Article 13 of the Financial Regulations, Financial Regulations 7.3, 8.6, 9.9 and the text of

paragraph 5 of the Additional Terms of Reference governing External Audit (annex to Financial Regulation 15.3) require amendment,

DECIDES that the Financial Regulations as set out in the annex to this resolution shall apply to the thirteenth financial period, commencing on 1 January 2000.

NOTE: This resolution replaces Resolution 32 (Cg-XII), which remains in force only until 31 December 1999.

## ANNEX TO RESOLUTION 30 (Cg-XIII)

**PROPOSED REVISIONS TO THE FINANCIAL REGULATIONS****ARTICLE 1  
Applicability**

- 1.1 These Regulations shall govern the financial administration of the World Meteorological Organization (hereinafter called the Organization). They may be amended only by Congress. In the event of any conflict between any provisions of these Regulations and any provisions of the Convention, the Convention shall prevail.

**ARTICLE 2  
The financial period**

- 2.1 The financial period shall be four years beginning on 1 January of the calendar year immediately following a session of Congress and ending on 31 December of the fourth year.
- 2.2 Nevertheless, in the event that a session of Congress is completed before the beginning of the last full year of a financial period, a new financial period shall begin on 1 January following that session of Congress.

**ARTICLE 3  
Maximum expenditures for the financial period**

- 3.1 Estimates of maximum expenditures which may be incurred by the Organization in the financial period shall be prepared by the Secretary-General.
- 3.2 The estimates shall cover the income and expenditures for the financial period to which they relate and shall be presented in Swiss francs.
- 3.3 The estimates shall be divided into parts, sections, chapters and articles and shall be accompanied by such informational annexes and explanatory statements as may be requested by, or on behalf of, Congress, and such further annexes or statements as the Secretary-General may deem necessary and useful.
- 3.4 The estimates shall be submitted to the Executive Council at least five weeks prior to the meeting at which they will be considered. The Executive Council shall examine them and prepare a report on them to Congress.
- 3.5 The estimates prepared by the Secretary-General shall be transmitted to all Members at least six months prior to the opening of Congress. The report of the Executive Council on the estimates shall be transmitted with the estimates or as soon as possible thereafter, but not later than three months before the beginning of the session of Congress.
- 3.6 The maximum expenditures for the following financial period shall be voted by Congress after consideration of the estimates and of any supplementary

estimates prepared by the Secretary-General and of the reports of the Executive Council on them.

- 3.7 Supplementary estimates for the financial period may be submitted to the Executive Council by the Secretary-General during the interval between the submission of the estimates to the Executive Council and the opening of Congress.
- 3.8 The Secretary-General shall prepare each supplementary estimate in a form consistent with the applicable portion of the estimates for the financial period.
- 3.9 When time permits, the Executive Council shall examine the supplementary estimates and prepare a report thereon to Congress; otherwise they shall be left for consideration by Congress.

**ARTICLE 4  
Authorization of appropriations for the financial period**

- 4.1 The maximum expenditures voted by Congress shall constitute an authority to the Executive Council to approve appropriations for each of the two bienniums comprising the financial period. The total appropriations shall not exceed the amount voted by Congress.
- 4.2 Transfers between appropriation parts may be authorized by the Executive Council, subject to the total amount of such transfers not exceeding 3 (three) per cent of the total maximum expenditure authorized for the financial period.

**ARTICLE 5  
The biennium**

- 5.1 The first biennium will begin with the commencement of the financial period, followed by the second biennium beginning on 1 January of the third year of the financial period.

**ARTICLE 6  
The biennial budget**

- 6.1 The biennial budget estimates shall be prepared by the Secretary-General.
- 6.2 The estimates shall cover income and expenditure for the biennium to which they relate and shall be presented in Swiss francs.
- 6.3 The biennial budget estimates shall be divided into parts, sections, chapters and articles and shall be accompanied by such informational annexes and explanatory statements as may be requested by, or on behalf of, the Executive Council, and such further annexes or statements as the Secretary-General may deem necessary and useful.

6.4 The Secretary-General shall submit to the regular meeting of the Executive Council estimates for the following biennium. The estimates shall be transmitted to all members of the Executive Council at least five weeks prior to the opening of the regular session of the Executive Council.

6.5 The budget for the following biennium shall be approved by the Executive Council.

6.6 Supplementary estimates may be submitted by the Secretary-General whenever necessary.

6.7 The Secretary-General shall prepare these supplementary estimates in the same form as that of the applicable portions of the estimates for the biennium and shall submit the estimates to the Executive Council for approval.

#### ARTICLE 7

##### Appropriations

7.1 The appropriations approved by the Executive Council shall constitute an authorization to the Secretary-General to incur obligations and make payments for the purposes for which the appropriations were approved and up to the amounts so approved.

7.2 Appropriations shall be available for obligation during the biennium to which they relate.

7.3 Appropriations shall remain available for twelve months following the end of each of the two biennia to which they relate to the extent that they are required to discharge contractual obligations in respect of orders placed, contracts awarded, services received, and any other legal obligation entered into during the biennium. At the end of the first biennium the remaining balance shall be re-appropriated subject to the approval of the Executive Council to the corresponding parts of the budget of the second biennium for the implementation of the programme approved by Congress. At the end of the second biennium the balance of the appropriations shall be surrendered.

7.4 At the end of the period provided in Regulation 7.3 above, the then remaining balance of any appropriations retained shall be surrendered.

7.5 Notwithstanding the provisions of Regulations 7.3 and 7.4 in the case of outstanding legal obligations in respect of fellowships, the portion of the appropriation required shall remain available until the fellowships are completed or otherwise terminated. At the time of the termination of the fellowship, any remaining balance shall be retained in the General Fund for the sole purpose of financing further long-term and short-term fellowships.

7.6 Amounts surrendered in accordance with Regulations 7.3 and 7.4 shall be retained for the purposes approved by Congress for the financial period subject to the provisions of Regulation 9.1.

7.7 A transfer between appropriation sections may be made by the Secretary-General subject to confirmation by the Executive Council.

#### ARTICLE 8

##### Provision of funds

###### Assessments

8.1 Appropriations shall be financed by contributions from Members of the Organization according to the scale of assessments determined by Congress, such contributions to be adjusted in accordance with the provisions of Regulation 8.2. Pending the receipt of such contributions the appropriations may be financed from the Working Capital Fund.

8.2 For each of the two years of a biennium the contributions of Member States shall be assessed on the basis of one half of the appropriations approved by the Executive Council for the biennium, except that adjustments shall be made to the assessment in respect of supplementary appropriations for which contributions have not previously been assessed on Member States.

8.3 After the Executive Council has approved the biennial budget and determined the amount needed for the Working Capital Fund, the Secretary-General shall:

- (a) Transmit the relevant documents to the Members of the Organization;
- (b) Inform the Members of their commitments in respect of annual contributions and advances to the Working Capital Fund;
- (c) Request them to remit their contributions and advances.

8.4 Contributions and advances shall be considered as due and payable in full within thirty days of the receipt of the communication of the Secretary-General referred to in Regulation 8.3 above, or as of the first day of the year to which they relate, whichever is the later. As of 1 January of the following year, the unpaid balance of such contributions and advances shall be considered to be one year in arrears.

8.5 Annual contributions and advances to the Working Capital Fund of the Organization shall be assessed and paid in Swiss francs.

8.6 Notwithstanding the provisions of Regulation 8.5 and to facilitate payments by Members, the Secretary-General may accept, to the extent he may find it practicable, payments of contributions in freely convertible currencies other than the Swiss franc. The exchange rate applicable to these payments in establishing their equivalent in the currency of the State in which the Organization has its headquarters shall be the official United Nations rate of exchange in force on the date of credit to the WMO bank account.

8.7 Payments made by a Member of the Organization shall be credited first to the Working Capital Fund, then applied in chronological order to the reduction of the contributions which are due in accordance with the scale of assessments.

8.8 Notwithstanding the provisions of Regulation 8.7, amounts received in respect of the current year's contribution will be credited to that year providing



that the full yearly instalment due under the terms of special arrangements as established by Congress concerning the repayment of long-outstanding contributions has been paid to the Organization. These special arrangements may be concluded with any Member being in arrears for more than four years on the date of entry into force of such arrangements.

8.9 The Secretary-General shall submit to the regular sessions of the Executive Council a report on the collection of contributions and advances to the Working Capital Fund.

*Contributions from new Members*

8.10 New Members of the Organization shall be required to make a contribution for the unexpired portion of the biennium in which they become Members and to provide their proportion of the total advances to the Working Capital Fund at rates to be determined provisionally by the Executive Council, subject to subsequent approval by Congress.

*Contributions from Members withdrawing from the Organization*

8.11 A Member withdrawing from the Organization shall make its contribution for the period from the beginning of the biennium in which it withdraws up to and including the date of its withdrawal and shall be entitled only to the amount standing to its credit in the Working Capital Fund, less any sum due from that Member of the Organization.

ARTICLE 9  
**Funds**

9.1 There shall be established a General Fund for the purpose of accounting for expenditures authorized under Regulations 7.1, 7.2 and 7.3. The General Fund will be credited with contributions paid by Member States under Regulations 8.1, 8.10, 8.11 and miscellaneous income as defined under Regulation 10.1. Cash surpluses on the General Fund except that part of such surplus which represents income from interest received on funds other than the Working Capital Fund shall be credited on the basis of the scale of assessments to the Members of the Organization as follows:

- (a) For Members who have paid in full their previous contributions, by deduction from the next assessment;
- (b) For Members who have paid in full their contribution in respect of all previous financial periods, but who have not paid in full their contributions in respect of the period which relates to the surplus to be distributed, by reduction of their arrears, and thereafter by deduction from the next assessment;
- (c) For Members who are in arrears for more than the financial period concerning the one which

relates to the surplus to be distributed, their share of the surplus will be retained by the World Meteorological Organization in a special account and will be paid when the provisions of Regulation 9.1 (a) or (b) are met.

9.2 Income from interest on funds other than the Working Capital Fund which forms part of the cash surplus for any financial period shall be disposed of in accordance with decisions of Congress, and in the manner determined by Congress due consideration being given to the date of receipt of assessed contributions of Members of the Organization.

*Working Capital Fund*

9.3 There shall be established a Working Capital Fund to an amount fixed by Congress and for purposes to be determined from time to time by the Executive Council. The moneys of the Working Capital Fund shall be advanced by the Members of the Organization, or at the discretion of Congress provided from interest to the extent that it is earned on the investment of the cash resources of the Fund. Interest retained in the Fund shall be credited to Members' advance accounts in accordance with current balances. Advances by Members shall be calculated by the Executive Council in accordance with the scale of assessments for the apportionment of the expenses of the Organization, and shall be carried to the credit of those Members which have made such advances.

9.4 Advances made from the Working Capital Fund to finance appropriations during a biennium shall be reimbursed to the Fund as soon as and to the extent that income is available for that purpose.

9.5 Except when such advances are recoverable from some other source, advances made from the Working Capital Fund for unforeseen and extraordinary expenses or other authorized purposes shall be reimbursed through the submission of supplementary estimates.

9.6 Income derived from investments of the Working Capital Fund, not retained in the Fund to meet an increase in the level of the capital of the Fund, shall be credited to miscellaneous income.

9.7 Trust funds, reserve and special accounts may be established by the Secretary-General and shall be reported to the Executive Council.

9.8 The purpose and limits of each trust fund, reserve and special account shall be clearly defined by the Executive Council. Unless otherwise provided by the Congress, such funds and accounts shall be administered in accordance with the present Financial Regulations.

9.9 Income derived from investments of trust funds, reserve and special accounts shall be credited as provided in the provisions applicable to such funds or accounts or at the request of the donors at any time. In other circumstances, Regulation 10.1 shall apply.

<p style="text-align: center;">ARTICLE 10 <b>Other income</b></p> <p>10.1 All other income, except:</p> <p>(a) Contributions to the budget;</p> <p>(b) Direct refunds of expenditures made during the biennium;</p> <p>(c) Advances or deposits to funds and accounts;</p> <p>(d) Interest earned on the Working Capital Fund to the extent that it is required to augment the level of the Working Capital Fund;</p> <p>shall be classed as miscellaneous income, for credit to the General Fund, unless otherwise specified in accordance with Regulation 9.9.</p> <p style="text-align: center;"><i>Voluntary contributions, gifts or donations</i></p> <p>10.2 Voluntary contributions, whether or not in cash, may be accepted by the Secretary-General, provided that the purposes for which the contributions are made are consistent with the policies, aims and activities of the Organization and provided that the acceptance of such contributions which directly or indirectly involve additional financial liability for the Organization shall require the consent of Congress or, in case of urgency, of the Executive Council.</p> <p>10.3 Moneys accepted for purposes specified by the donor shall be treated as trust funds or special accounts under Regulations 9.7 and 9.8.</p> <p>10.4 Moneys accepted in respect of which no purpose is specified shall be treated as miscellaneous income and shall be reported as "gifts" in the annual accounts.</p> <p style="text-align: center;">ARTICLE 11 <b>Custody of funds</b></p> <p>11.1 The Secretary-General shall designate the bank or banks in which the funds of the Organization shall be kept.</p> <p style="text-align: center;">ARTICLE 12 <b>Investment of funds</b></p> <p>12.1 The Secretary-General may make short-term investments of moneys not needed for immediate requirements and shall inform the Executive Council periodically of the investments thus made.</p> <p>12.2 The Secretary-General may make long-term investments of moneys standing to the credit of trust funds, reserve and special accounts, except as may be otherwise provided by the appropriate authority in respect of each such fund or account and having regard to the particular requirements as to the liquidity of funds in each case.</p> <p style="text-align: center;">ARTICLE 13 <b>Internal control</b></p> <p>13.1 The Secretary-General shall:</p> <p>(a) Establish detailed financial procedures in order to ensure effective financial administration and the exercise of economy;</p>	<p>(b) Cause all payments to be made on the basis of supporting vouchers and other documents which ensure that the services or goods have been received, and that payments have not previously been made;</p> <p>(c) Designate the officers who may receive moneys, incur obligations and make payments on behalf of the Organization.</p> <p>13.2 (a) In addition to payments authorized under clause (b) below, and notwithstanding Regulation 13.1 (b) above, the Secretary-General may, when he deems it in the interest of the Organization to do so, authorize progress payments;</p> <p>(b) Except where normal commercial practice in the interest of the Organization so requires, no contract or purchase order shall be made on behalf of the Organization which requires a payment in advance of the delivery of goods or performance of contractual services.</p> <p>13.3 No obligations shall be incurred until allotments or other appropriate authorizations have been made in writing under the authority of the Secretary-General.</p> <p style="text-align: center;"><i>Ex gratia payments</i></p> <p>13.4 The Secretary-General may with the approval of the President make such ex gratia payments as he deems to be necessary in the interest of the Organization, provided that a statement of such payments shall be submitted to the Executive Council with the biennial accounts.</p> <p style="text-align: center;"><i>Writing-off of losses or deficiencies</i></p> <p>13.5 The Secretary-General may, after full investigation, authorize the writing-off of losses of cash, stores and other assets, except unpaid contributions, provided that a statement of all such amounts written off shall be submitted to the External Auditor with the biennial accounts.</p> <p style="text-align: center;"><i>Contracts and purchases</i></p> <p>13.6 Tenders for equipment, supplies, and other requirements shall be invited by advertisement, except where the Secretary-General deems that, in the interests of the Organization, a departure from the rule is desirable.</p> <p style="text-align: center;"><i>Internal audit and investigation</i></p> <p>13.7 Under the broader scheme of internal oversight which would include the programme evaluation mechanism, the Secretary-General shall establish an Internal Audit and Investigation Service (IAIS). It shall provide for an independent verification of financial, administrative and operational activities of WMO in order to ensure:</p> <p>(a) The regularity of the receipt, custody and disposal of all funds and other financial resources of the Organization;</p> <p>(b) The conformity of expenditure with the appropriations or other financial provisions voted by</p>
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Congress or approved by the Executive Council, or with the purpose and rules related to trust funds and special accounts;

- (c) The compliance of all financial and other management activities with the established legislation;
- (d) The timeliness, completeness and accuracy of financial and other administrative data; and
- (e) The effective, efficient and economical use of all resources of the Organization.

13.8 The IAIS shall also be responsible for investigating all allegations or presumptions of fraud, waste or mismanagement.

13.9 The Secretary-General shall appoint a technically qualified Chief of IAIS after consulting with, and obtaining the approval of, the President of WMO acting on behalf of the Executive Council. Notwithstanding Articles 9, 10 and 11 of the Staff Regulations dealing with separation from service, disciplinary measures and appeals, respectively, the Secretary-General shall likewise consult the President of WMO acting on behalf of the Executive Council and obtain his approval before separation of the Chief of IAIS. These actions by the President in accordance with General Regulation 145 shall be reported to the following regular session of the Executive Council.

13.10 The IAIS shall function in accordance with the following provisions.

- (a) The Chief of IAIS shall report directly to the Secretary-General;
- (b) IAIS shall have full, free and prompt access to all records, property, personnel, operations and functions within the Organization which, in IAIS opinion, are relevant to the subject matter under review;
- (c) IAIS shall be available to receive directly from individual staff members complaints or information concerning the possible existence of fraud, waste, abuse of authority or other irregular activities. No reprisals shall be taken against staff members providing such information unless this was wilfully provided with the knowledge that it was false or with intent to misinform;
- (d) IAIS shall report the results of its work and make recommendations to the Secretary-General with a copy to responsible managers for action and the External Auditor. At the request of the Chief of IAIS, any such report shall be submitted to the Executive Council together with the Secretary-General's comments thereon;
- (e) IAIS shall submit a summary report annually to the Secretary-General with a copy to the External Auditor on IAIS activities, including the orientation and scope of such activities. This report shall be submitted to the Executive Council by the Secretary-General together with any comments he/she wishes to make.

#### ARTICLE 14 The accounts

14.1 The Secretary-General shall submit accounts for each biennium. In addition he shall maintain, for management purposes, such accounting records as are necessary and shall submit biennial accounts showing for the biennium to which they relate:

- (a) The income and expenditures of all funds;
- (b) The status of appropriations, including:
  - (i) The original budget appropriations;
  - (ii) The appropriations as modified by any transfers;
  - (iii) Credits, if any, other than the appropriations approved by the Executive Council;
  - (iv) The amounts charged against those appropriations and/or other credits;
- (c) The assets and liabilities of the Organization.

He shall also give such information as may be appropriate to indicate the current financial position of the Organization.

14.2 The biennial accounts of the Organization shall be presented in Swiss francs. Accounting records may, however, be kept in such currency or currencies as the Secretary-General may deem necessary.

14.3 Appropriate separate accounts shall be maintained for all trust funds, reserve and special accounts.

14.4 The biennial accounts shall be submitted by the Secretary-General to the External Auditor not later than 31 March following the end of the biennium.

14.5 Not later than thirteen months after the ending of a financial period, the Secretary-General shall submit to the External Auditor an account of the total expenditures made in respect of that financial period.

14.6 The Secretary-General will submit to each regular session of the Executive Council an unaudited account on the status of implementation of the current biennial budget and a report on the financial situation of the Organization.

#### ARTICLE 15 External audit

##### *Appointment*

15.1 An External Auditor, who shall be the Auditor-General (or officer holding the equivalent title) of a Member State, shall be appointed in the manner and for the period decided by the Executive Council.

##### *Tenure of office*

15.2 If the External Auditor ceases to hold that office in his own country, his tenure of office as External Auditor shall thereupon be terminated and he shall be succeeded as External Auditor by his successor as Auditor-General. The External Auditor may not otherwise be removed during his tenure of office except by the Executive Council.

*Scope of audit*

- 15.3 The audit shall be conducted in conformity with generally accepted common auditing standards, and, subject to any special directions of the Executive Council, in accordance with the additional terms of reference set out in the annex to these Regulations.
- 15.4 The External Auditor may make observations with respect to the efficiency of the financial procedures, the accounting system, the internal financial controls and, in general, the administration and management of the Organization.
- 15.5 The External Auditor shall be completely independent and solely responsible for the conduct of the audit.
- 15.6 The Executive Council may request the External Auditor to perform certain specific examinations and issue separate reports on the results.

*Facilities*

- 15.7 The Secretary-General shall provide the External Auditor with the facilities he may require in the performance of the audit.
- 15.8 For the purpose of making a local or special examination or of effecting economies of audit cost, the External Auditor may engage the services of any national Auditor-General (or equivalent title) or commercial public auditors of known repute or any other person or firm who, in the opinion of the External Auditor, is technically qualified.

*Reporting*

- 15.9 The External Auditor shall issue reports on the audit of the financial statements and relevant schedules reflecting the position of the final accounts for each biennium and for the financial period, which shall include such information as he deems necessary in regard to matters referred to in Regulation 15.4 and in the Additional Terms of Reference.
- 15.10 The External Auditor's reports shall be transmitted, together with the relevant audited financial statements, to the Executive Council, which shall examine them in accordance with any directions given by Congress.
- 15.11 The financial statement for the biennium and the accounts for the financial period, together with the External Auditor's certificates, shall be transmitted to the Members of the Organization by the Secretary-General.

## ARTICLE 16

**Decisions involving expenditures**

- 16.1 No regional association, technical commission or other competent body shall take a decision involving either an administrative change in a programme approved by Congress or the Executive Council, or the possible requirement of expenditure, unless it has received and taken account of a report from the Secretary-General on the administrative and financial

implications of the proposal. Where, in the opinion of the Secretary-General, the proposed expenditure cannot be made from the existing appropriations, it shall not be incurred until the Executive Council has made the necessary appropriations, unless the Secretary-General certifies that provision can be made under the conditions of the resolution of the Executive Council relating to unforeseen expenditure.

## ARTICLE 17

**General provisions**

- 17.1 In case of urgency and with the approval of the President of the Organization, the Secretary-General shall refer to Members, for decision by correspondence, financial matters which are beyond the competence of the Executive Council.
- 17.2 The applications of any of the present Regulations may be suspended for a period which shall not extend beyond the next session of Congress if the Executive Council has decided that the matter under consideration is of such a character that a decision should be taken before the next Congress. In such circumstances, the proposal of the Executive Council for such a suspension shall be communicated by the Secretary-General to all Members for consultation and subsequently for a postal ballot according to the procedures for voting by correspondence in the General Regulations.
- 17.3 In the application of Regulation 17.1 the proposal shall be adopted, and in the application of Regulation 17.2 the suspension of regulations shall be put into force, if two-thirds of the votes cast for and against which have reached the Secretariat within ninety days of the date of dispatch of the request to vote to Members are in the affirmative. The decisions shall be communicated to all Members.
- 17.4 In case of doubt as to the interpretation or application of any of these Financial Regulations, the Secretary-General is authorized to rule thereon, subject to confirmation by the President in important cases.
- 17.5 The present Financial Regulations do not apply to the field projects of the technical cooperation activities of the Organization financed by the United Nations Development Programme; the Secretary-General is authorized to administer those activities under Financial Regulations and Rules established by the governing body and the Administrator of the United Nations Development Programme.

## ANNEX

**ADDITIONAL TERMS OF REFERENCE GOVERNING EXTERNAL AUDIT**

- (1) The External Auditor shall perform such audit of the accounts of the Organization, including all trust funds

and special accounts, as he deems necessary in order to satisfy himself:

- (a) That the financial statements are in accord with the books and records of the Organization;
- (b) That the financial transactions reflected in the statements have been in accordance with the rules and regulations, the budgetary provisions and other applicable directives;
- (c) That the securities and moneys on deposit and on hand have been verified by certificate received direct from the Organization's depositaries or by actual count;
- (d) That the internal controls are adequate in the light of the extent of reliance placed thereupon;
- (e) That procedures satisfactory to the External Auditor have been applied to the recording of all assets, liabilities, surpluses and deficits.

(2) The External Auditor shall be the sole judge as to the acceptance in whole or in part of certifications and representations by the Secretary-General and may proceed to such detailed examination and verification as he chooses of all financial records, including those relating to supplies and equipment.

(3) The External Auditor and his staff have free access at all convenient times to all books, records and other documentation which are, in the opinion of the External Auditor, necessary for the performance of the audit. Information which is classified as privileged and which the Secretary-General (or his designated senior official) agrees is required by the External Auditor for the purposes of the audit and information classified as confidential shall be made available on application. The External Auditor and his staff shall respect the privileged and confidential nature of any information so classified which has been made available and shall not make use of it except in direct connection with the performance of the audit. The External Auditor may draw the attention of the Executive Council to any denial of information classified as privileged which in his opinion was required for the purpose of the audit.

(4) The External Auditor shall have no power to disallow items in the accounts but shall draw to the attention of the Secretary-General for appropriate action any transaction concerning which he entertains doubt as to legality or propriety. Audit objections to these, or any other transactions, arising during the examination of the accounts shall be communicated immediately to the Secretary-General.

(5) The External Auditor shall express and sign an opinion on the financial statements of the Organization. The opinion shall include the following basic elements:

- (a) The identification of the financial statements audited;
- (b) A reference to the responsibility of the Secretary-General and the responsibility of the External Auditor;
- (c) A reference to the audit standards followed;
- (d) A description of the work performed;
- (e) An expression of opinion on the financial statements as to whether:

- (i) The financial statements present fairly the financial position as at the end of the period and the results of the operations for the period;
  - (ii) The financial statements were prepared in accordance with the stated accounting policies;
  - (iii) The accounting policies were applied on a basis consistent with that of the preceding financial period;
- (f) An expression of opinion on the compliance of transactions with the Financial Regulations and legislative authority;
- (g) The date of the opinion;
- (h) The External Auditor's name and position;
- (i) Should it be necessary, a reference to the report of the External Auditor on the financial statements.
- (6) The report of the External Auditor to the Executive Council on financial operations of the period should mention:
- (a) The type and scope of his examination;
  - (b) Matters affecting the completeness or accuracy of the accounts, including, where appropriate:
    - (i) Information necessary to the correct interpretation of the accounts;
    - (ii) Any amounts which ought to have been received but which have not been brought to account;
    - (iii) Any amounts for which a legal or contingent obligation exists and which have not been recorded or reflected in the financial statements;
    - (iv) Expenditures not properly substantiated;
    - (v) Whether proper books of accounts have been kept. Where in the presentation of statements there are deviations of a material nature from the generally accepted accounting principles applied on a consistent basis, these should be disclosed;
  - (c) Other matters which should be brought to the notice of the Executive Council, such as:
    - (i) Cases of fraud or presumptive fraud;
    - (ii) Wasteful or improper expenditure of the Organization's money or other assets (notwithstanding that the accounting for the transaction may be correct);
    - (iii) Expenditure likely to commit the Organization to further outlay on a large scale;
    - (iv) Any defect in the general system or detailed regulations governing the control of receipts and disbursements or of supplies and equipment;
    - (v) Expenditure not in accordance with the intention of Congress and/or the Executive Council after making allowance for duly authorized transfers within the budget;
    - (vi) Expenditure in excess of appropriations as amended by duly authorized transfers within the budget;

<p>(vii) Expenditure not in conformity with the authority which governs it;</p> <p>(d) The accuracy or otherwise of the supplies and equipment records as determined by stock-taking and examination of the records;</p> <p>(e) If appropriate, transactions accounted for in a previous biennium concerning which further information has been obtained or transactions in a later biennium concerning which it seems desirable that the Executive Council should have early knowledge.</p> <p>(7) The External Auditor may make such observations with respect to his findings resulting from the audit and such comments on the Secretary-General's financial</p>	<p>report as he deems appropriate to the Executive Council or to the Secretary-General.</p> <p>(8) Whenever the scope of audit of the External Auditor is restricted, or whenever he is unable to obtain sufficient evidence, the External Auditor shall refer to the matter in his report, making clear in his report the reasons for his comments and the effect on the financial position and the financial transactions as recorded.</p> <p>(9) In no case shall the External Auditor include criticism in his report without first affording the Secretary-General an adequate opportunity of explanation on the matter under observation.</p> <p>(10) The External Auditor is not required to mention any matter referred to in the foregoing that, in his opinion, is insignificant in all respects.</p>
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## RESOLUTION 31 (Cg-XIII)

### SHORT-TERM BORROWING AUTHORITY

THE CONGRESS,

NOTING that the bulk of the cash resources required for the implementation of the regular programme of the Organization as approved by Congress and the Executive Council derives from the contributions paid by its Members and from the advances made to the Working Capital Fund, NOTING also that substantial delays may occur in the receipt of the contribution assessed on some of its Members,

STRESSES the need to ensure the financing of the approved biennial budget, and, to this end;

URGES all Members to pay, on time as foreseen in the Convention, their assessed contributions including arrears, if any;

AUTHORIZES the Secretary-General, if the cash balance of the Working Capital Fund proves to be temporarily inadequate for financing the approved budget, to borrow funds on a short-term basis:

- (a) From the Voluntary Cooperation Fund and from the Publications Fund to the extent that such borrowing does not affect the activities financed under these two funds;
- (b) Only in extreme circumstances when no other alternative is available and after consultation with the Executive Council, or the President of WMO acting on its behalf, from Governments, banks or other external sources, as a last resort if the acquisition of funds

under the authority given in (a) proves to be insufficient or not possible provided that the maximum amount of such borrowing shall not exceed two months expenditure from the approved biennial budget and that the loan shall be limited in time to six months;

DECIDES that the repayment of such short-term loans shall be made as soon as contributions received make this possible, it being understood that repayment of loans made under the external borrowing authority will have priority over the repayment of funds borrowed internally and that repayment to funds other than the Working Capital Fund will be made before the repayment to the Working Capital Fund;

DECIDES FURTHER that interest due on such short-term loans shall be charged under Part 6.30 — Insurance, Staff Compensation Fund, audit costs, contingencies and unforeseen expenditures, of the biennial budget if it cannot be met from miscellaneous income;

REQUESTS the Secretary-General to report to the Executive Council on the action taken within the framework of the present resolution.

NOTE: This resolution replaces Resolution 36 (Cg-XII), which remains in force only until 31 December 1999.

## RESOLUTION 32 (Cg-XIII)

**ASSESSMENT OF PROPORTIONAL CONTRIBUTIONS OF MEMBERS FOR THE THIRTEENTH FINANCIAL PERIOD**

THE CONGRESS,

NOTING:

- (1) Article 24 of the Convention of the World Meteorological Organization,
- (2) Resolution 33 (Cg-XII) — Assessment of proportional contributions of Members for the twelfth financial period,

DECIDES:

- (1) That the scale of assessment of proportional contributions of Members for the year 2000 shall be as presented in Table 1 of the annex to this resolution and for the years 2001 to 2003 the scales shall be based on the United Nations scale of assessments adopted by the fifty-fifth United Nations General Assembly in the year 2000 and adjusted for difference in memberships;
- (2) That the latest United Nations scales to be approved by the United Nations General Assembly should be adopted as the basis for the calculation of the WMO scale of assessments, duly adjusted for difference in memberships;
- (3) That the proportional contributions of countries specified in Table 2 of the annex to this resolution which are not Members but which may become Members shall be assessed as shown in Table 2;

AUTHORIZES the Secretary-General to accept and implement any proposal for the adjustment of individual percentage

assessments submitted jointly by two or more Members, provided that the aggregate percentage assessments of any Members submitting such a proposal shall remain after adjustment equal to their aggregate assessments as set out in the annex to this resolution and, to inform the Executive Council of any such arrangements;

AUTHORIZES the Executive Council:

- (1) To adjust the scale of assessment for the years 2001 to 2003 using the United Nations scale of assessments adopted by the fifty-fifth United Nations General Assembly in the year 2000 and adjusted for difference in Memberships provided that for the WMO scale the minimum rate shall remain at 0.02 per cent and that corrections shall be made to ensure that no Member's rate of assessment would increase to a level which would exceed 200 per cent of the WMO scale for 2000;
- (2) To make a provisional assessment in respect of non-Members in the event of any such non-Members becoming Members, the method of assessment being based on principles similar to those governing the assessments laid down in this resolution.

NOTE: This resolution replaces Resolution 33 (Cg-XII), which remains in force only until 31 December 1999.

## ANNEX TO RESOLUTION 32 (Cg-XIII)

**Table 1**  
**TABLE OF PROPORTIONAL CONTRIBUTIONS FOR THE THIRTEENTH FINANCIAL PERIOD**

<i>Member</i>	<i>Scale of assessment for 2000</i>	<i>Member</i>	<i>Scale of assessment for 2000</i>
Afghanistan, Islamic State of	0.02	Bosnia and Herzegovina	0.02
Albania	0.02	Botswana	0.02
Algeria	0.12	Brazil	1.59
Angola	0.02	British Caribbean Territories	0.02
Antigua and Barbuda	0.02	Brunei Darussalam	0.02
Argentina	0.56	Bulgaria	0.02
Armenia	0.02	Burkina Faso	0.02
Australia	1.46	Burundi	0.02
Austria	0.92	Cambodia	0.02
Azerbaijan	0.02	Cameroon	0.02
Bahamas	0.02	Canada	3.06
Bahrain	0.02	Cape Verde	0.02
Bangladesh	0.02	Central African Republic	0.02
Barbados	0.02	Chad	0.02
Belarus	0.09	Chile	0.10
Belgium	1.08	China	0.88
Belize	0.02	Colombia	0.11
Benin	0.02	Comoros	0.02
Bolivia	0.02	Congo	0.02

<i>Member</i>	<i>Scale of assessment for 2000</i>	<i>Member</i>	<i>Scale of assessment for 2000</i>
Cook Islands	0.02	Lithuania	0.02
Costa Rica	0.02	Luxembourg	0.07
Côte d'Ivoire	0.02	Macao	0.02
Croatia	0.04	Madagascar	0.02
Cuba	0.02	Malawi	0.02
Cyprus	0.03	Malaysia	0.17
Czech Republic	0.15	Maldives	0.02
Democratic People's Republic of Korea	0.02	Mali	0.02
Democratic Republic of the Congo	0.02	Malta	0.02
Denmark	0.71	Mauritania	0.02
Djibouti	0.02	Mauritius	0.02
Dominica	0.02	Mexico	0.94
Dominican Republic	0.02	Micronesia, Federated States of	0.02
Ecuador	0.02	Monaco	0.02
Egypt	0.08	Mongolia	0.02
El Salvador	0.02	Morocco	0.04
Eritrea	0.02	Mozambique	0.02
Estonia	0.02	Myanmar	0.02
Ethiopia	0.02	Namibia	0.02
Fiji	0.02	Nepal	0.02
Finland	0.60	Netherlands	1.59
France	6.38	Netherlands Antilles and Aruba	0.02
French Polynesia	0.02	New Caledonia	0.02
Gabon	0.02	New Zealand	0.24
Gambia	0.02	Nicaragua	0.02
Georgia	0.02	Niger	0.02
Germany	9.61	Nigeria	0.04
Ghana	0.02	Niue	0.02
Greece	0.37	Norway	0.59
Guatemala	0.02	Oman	0.05
Guinea	0.02	Pakistan	0.06
Guinea-Bissau	0.02	Panama	0.02
Guyana	0.02	Papua New Guinea	0.02
Haiti	0.02	Paraguay	0.02
Honduras	0.02	Peru	0.07
Hong Kong, China	0.02	Philippines	0.07
Hungary	0.14	Poland	0.28
Iceland	0.03	Portugal	0.34
India	0.31	Qatar	0.04
Indonesia	0.17	Republic of Korea	0.50
Iran, Islamic Republic of	0.24	Republic of Moldova	0.02
Iraq	0.04	Republic of Yemen	0.02
Ireland	0.22	Romania	0.07
Israel	0.32	Russian Federation	1.59
Italy	5.30	Rwanda	0.02
Jamaica	0.02	Saint Lucia	0.02
Japan	18.18	Samoa	0.02
Jordan	0.02	Sao Tome and Principe	0.02
Kazakstan	0.07	Saudi Arabia	0.70
Kenya	0.02	Senegal	0.02
Kuwait	0.17	Seychelles	0.02
Kyrgyz Republic	0.02	Sierra Leone	0.02
Lao People's Democratic Republic	0.02	Singapore	0.17
Latvia	0.02	Slovakia	0.04
Lebanon	0.02	Slovenia	0.07
Lesotho	0.02	Solomon Islands	0.02
Liberia	0.02	Somalia	0.02
Libyan Arab Jamahiriya	0.17	South Africa	0.36



<i>Member</i>	<i>Scale of assessment for 2000</i>	<i>Member</i>	<i>Scale of assessment for 2000</i>
Spain	2.53	United Republic of Tanzania	0.02
Sri Lanka	0.02	United States of America	24.67
Sudan	0.02	Uruguay	0.05
Suriname	0.02	Uzbekistan	0.02
Swaziland	0.02	Vanuatu	0.02
Sweden	1.21	Venezuela	0.24
Switzerland	1.18	Viet Nam, Socialist Republic of	0.02
Syrian Arab Republic	0.06	Yugoslavia	0.04
Tajikistan	0.02	Zambia	0.02
Thailand	0.16	Zimbabwe	0.02
The former Yugoslav Republic of Macedonia*	0.02	Total	100.00
Togo	0.02		
Tonga	0.02		
Trinidad and Tobago	0.02		
Tunisia	0.03		
Turkey	0.43		
Turkmenistan	0.02		
Uganda	0.02		
Ukraine	0.29		
United Arab Emirates	0.19		
United Kingdom of Great Britain and Northern Ireland	5.23		

NOTE: For the years 2001 to 2003, the United Nations scales to be approved by the fifty-fifth United Nations General Assembly (in the year 2000) adjusted for difference in memberships would be adopted.

\* Following the decision of the United Nations General Assembly on 8 April 1993, the State is being previously referred to for all purposes within the Organization as "the former Yugoslav Republic of Macedonia" pending settlement of difference that has arisen over its name.

**Table 2**  
**COUNTRIES WHICH MAY BECOME MEMBERS**

Andorra	0.02	Republic of Kiribati	0.02
Bhutan	0.02	Saint Kitts and Nevis	0.02
Equatorial Guinea	0.02	Saint Vincent and the Grenadines	0.02
Grenada	0.02	San Marino	0.02
Holy See	0.02	Tuvalu	0.02
Liechtenstein	0.02		
Marshall Islands	0.02		
Nauru	0.02		
Palau	0.02		

\* Based on the decision regarding minimum percentage to be applied.

## RESOLUTION 33 (Cg-XIII)

### REVIEW OF THE WORKING CAPITAL FUND

THE CONGRESS,

NOTING:

- (1) Resolution 34 (Cg-XII) — Review of the Working Capital Fund — and Articles 8 and 9 of the Financial Regulations,
- (2) That the Financial Regulations provide for the establishment of a Working Capital Fund financed by advances from Members in the scale of proportional contributions to the General Fund of the Organization,

DECIDES:

- (1) That the Working Capital Fund shall continue to be maintained for the purposes specified in Financial Regulations 9.4 and 9.5;

- (2) That the principal of the Working Capital Fund during the thirteenth financial period shall be SFR 4 976 000 for 2000–2003;
- (3) That the shortfall of the Fund shall be covered by crediting interest earned on the investment of cash resources of the Working Capital Fund. The interest earned will be credited to the individual Members' advance accounts in the Working Capital Fund. As an exception, the existing advances of each Member shall, notwithstanding the provisions of Articles 8 and 9 of the Financial Regulations, be frozen at the level fixed for the financial period set by Twelfth Congress for the years 2000 and 2001;
- (4) That the total existing advances assessment on Members, i.e. SFR 4 727 567 shall be re-apportioned in

accordance with Article 9.3 of the Financial Regulations based on the scale of assessment for the year 2003 in the year 2002 and the differences settled with the Members;

REQUESTS the Executive Council to review and recommend to Fourteenth Congress changes to the level of the Working Capital Fund and the mechanism of its financing.

## RESOLUTION 34 (Cg-XIII)

### SECRETARY-GENERAL'S CONTRACT

THE CONGRESS,

NOTING Article 21(a) of the Convention of the World Meteorological Organization,

DECIDES that the terms of the appointment of the Secretary-General should be set forth in the draft contract in the annex to this resolution.

NOTE: This resolution replaces Resolution 37 (Cg-XII), which remains in force only until 31 December 1999.

#### ANNEX TO RESOLUTION 34 (Cg-XIII)

#### SECRETARY-GENERAL'S CONTRACT

In application of Article 21(a) of the Convention of the World Meteorological Organization, prescribing that the Secretary-General shall be appointed by Congress on such terms as Congress may approve; and

Having regard to the resolution adopted by the Thirteenth Congress of the World Meteorological Organization approving the terms of appointment included in the present agreement;

*It is hereby agreed* as follows:

Between the World Meteorological Organization, hereinafter called the Organization, represented by its President, on the one part, and Professor G. O. P. Obasi, appointed Secretary-General by the Thirteenth World Meteorological Congress during its meeting of 14 May 1999, on the other part,

1. The Secretary-General's term of appointment shall take effect from 1 January 2000.
2. The Secretary-General, at the time of taking up his appointment, shall subscribe to the following oath or declaration:

"I solemnly swear (undertake, affirm, promise) to exercise in loyalty, discretion and conscience the functions entrusted to me as an international civil servant of the World Meteorological Organization, to discharge these functions and regulate my conduct with the interests of the Organization only in view, and not to seek or accept instructions in regard to the performance of my duties from any government or other authority external to the Organization".

This oath or declaration shall be made orally by the Secretary-General in the presence of the President and either a Vice-President or another member of the Executive Council.

3. During the term of his appointment, the Secretary-General shall enjoy the privileges and immunities in keeping with his office which are granted him by appropriate agreements entered into by the Organization; he shall not engage in any activity that is incompatible with the proper discharge of his duties as Secretary-General of the Organization; he shall renounce any employment or remunerated activities other than those of Secretary-General of the Organization, except those activities authorized by the Executive Council; he shall not accept any honour, decoration, favour, gift or remuneration from any source external to the Organization without first obtaining the approval of the Executive Council.

4. The term of appointment of the Secretary-General shall end:

- (a) By expiration of this agreement on 31 December 2003; or
- (b) By this official's resignation submitted in writing to the President of the Organization, in which case the Secretary-General shall cease his functions two months after the date of acceptance of his resignation by the Executive Council; or
- (c) By termination for serious failure to carry out his duties and obligations, and in particular those set out in paragraphs (2) and (3) of this agreement. In such case, the Secretary-General shall be heard as of right by the Executive Council; if the Executive Council decides to terminate the appointment, the decision shall take effect two months after the date of pronouncement and on conditions to be determined by the Executive Council. After consultation with the Executive Council, the

President of the Organization may suspend the Secretary-General from the exercise of his functions pending investigation by the Executive Council and until this Council has taken a decision.

5. The Secretary-General shall receive from the Organization:

- (a) An annual salary of US\$ 118 142 net (after deduction for staff assessment), with the application of the appropriate post adjustment at a rate equivalent to that applied to Executive Heads of other comparable specialized agencies, salary and post adjustment to be paid in monthly installments; and
- (b) An annual representation allowance of SFR 24 000, to be paid in monthly instalments; and
- (c) Other allowances including dependency benefits, education, installation and repatriation grants, payment of removal, if pertinent, and travel and subsistence allowances as appropriate and under the conditions applicable to Under-Secretaries of the United Nations.

All the above-mentioned sums will be paid in the currency of the country where the Secretariat is located, unless the Executive Council and the Secretary-General agree to some other arrangement.

The salary and emoluments received from the Organization will be free of tax.

6. The Secretary-General shall be allowed 30 working days' leave each year. In order that the Secretary-General may take his annual leave every two years in his home

country, the Organization shall pay the expenses in connection with the travel of the Secretary-General, his spouse and his dependent children, under the conditions applicable to Under-Secretaries of the United Nations.

7. The Secretary-General shall participate in any social security scheme established by the Organization, the benefits he would receive being not less favourable than those which would accrue in similar circumstances to an official of the next highest rank of the staff covered by the scheme.

8. Any divergence of views concerning the application or interpretation of the present agreement, which it shall not have been possible to settle by direct discussion between the parties, can be submitted by one or the other of the parties to the judgement of the Administrative Tribunal, the competence of which is recognized by the Organization, whose decisions will be final. For any appeals by the Secretary-General against the non-observance of the statutes of the United Nations Joint Staff Pension Fund, of which the Secretary-General shall be a participant in accordance with the regulations and rules of that Fund, the Administrative Tribunal whose jurisdiction has been accepted by the Organization for pension cases is recognized hereby as the competent arbitrator.

Done and signed in duplicate at ..... on the ..... 1999.

.....  
(J. W. Zillman)  
President of the World  
Meteorological Organization

.....  
(G. O. P. Obasi)  
Secretary-General appointed  
by the Thirteenth World  
Meteorological Congress

## RESOLUTION 35 (Cg-XIII)

### DEVELOPMENT OF A PROPOSAL FOR THE REPLACEMENT OF THE TERM "REGIONAL ASSOCIATION"

THE CONGRESS,

NOTING:

- (1) General summary paragraphs 15.1.3.1 to 15.1.3.3 of the *Abridged Final Report with Resolutions and Recommendations of the Eleventh Session of RA I (Africa)* (WMO-No. 820),
- (2) General summary paragraph 3.7.0.13 of the *Abridged Final Report with Resolutions of the Twelfth World Meteorological Congress* (WMO-No. 827),
- (3) General summary paragraphs 17.2.1 to 17.2.3 of the *Abridged Final Report with Resolutions of the Fiftieth Session of the Executive Council* (WMO-No. 883),
- (4) Annex III of the *Abridged Report with Resolutions of the Tenth World Meteorological Congress* (WMO-No. 681) concerning Congress decisions relating to Article 28 of the WMO Convention — Acceptability of proposed amendments (Article 28(a)),

- (5) General summary paragraph 5.1.2 of the *Abridged Report with Resolutions of the Sixth World Meteorological Congress* (WMO-No. 292),

CONSIDERING:

- (1) The difficulties involved in the use of the term "regional association" which reflects neither the institutional level nor the statutory importance of a WMO regional body in relation to some Members' governmental authorities, particularly of the French-speaking countries,
- (2) The view expressed by the Executive Council at its fiftieth session that consideration should be given so that the term "Regional Association" could be better translated into French, in order to reflect more appropriately the status of the constituent body,
- (3) That the selection of a new term for "Regional Association" should be appropriate to the Members of

all Regions and should reflect the functioning of the constituent body as a permanent body which works through its session as well as between sessions through its president and subsidiary bodies and is entitled to adopt decisions by correspondence,

DECIDES that, in principle, the term "Regional Association" should be replaced by another term;

REQUESTS the Secretary-General and the Executive Council:

- (1) To arrange for the preparation of a proposal for the consideration of Fourteenth Congress for the replacement of the term "Regional Association" by another term, in line with Article 28 of the WMO Convention;
- (2) To propose the consequential changes in particular to the relevant regulations of the General Regulations.

## RESOLUTION 36 (Cg-XIII)

### AMENDMENTS TO THE GENERAL REGULATIONS — LIMITATION OF THE NUMBER OF TERMS OF OFFICE OF THE SECRETARY-GENERAL

THE CONGRESS,

NOTING:

- (1) General summary paragraph 10.4.6 of the *Abridged Final Report with Resolutions of the Twelfth World Meteorological Congress* (WMO-No. 827),
- (2) Resolution 12 (EC-L) — Limitation of the number of terms of office of the Secretary-General,

CONSIDERING:

- (1) That Resolution 12 (EC-L) was based on the conclusion of the meeting organized by the Permanent Representative of France in accordance with the guidelines of Twelfth Congress referred to in NOTING (1) in that resolution,

- (2) That these conclusions have enabled Congress to reach consensus on the issue of the limitation of the number of terms of office of the Secretary-General,

DECIDES:

- (1) To approve the following new General Regulation:

#### REGULATION 195 BIS

A Secretary-General may serve a maximum of three four-years terms. This regulation will take effect from Fourteenth Congress and will apply to any candidate who may have previously served in the post;

- (2) To renumber the other Regulations accordingly.

## RESOLUTION 37 (Cg-XIII)

### TERMS OF REFERENCE OF THE TECHNICAL COMMISSIONS

THE CONGRESS,

NOTING:

- (1) General Resolution 179 and its annex,
- (2) The proposal for a change in its terms of reference adopted by CHy-X and subsequently noted by the forty-ninth session of the Executive Council,
- (3) The view of CCI-X for the revision of its terms of reference,
- (4) The adjustments to the terms of reference proposed by the president of CCI on behalf of the Commission,

CONSIDERING the importance of ensuring that WMO's scientific and technical activities are in line with the needs of Members and with developments in the fields concerned,

DECIDES:

- (1) To retain the general terms of reference applicable to all technical commissions (reference General Regulation 179);
- (2) To adopt the revised terms of reference of CHy and CCI as given in the annex to this resolution;
- (3) To retain unchanged the terms of reference of the other technical commissions;

REQUESTS the Secretary-General to inform all concerned of this decision and to continue to support the work of the technical commissions as provided for in the General Regulations.

## ANNEX TO RESOLUTION 37 (Cg-XIII)

**ANNEX III TO THE GENERAL REGULATIONS**  
**(Individual terms of reference of CHy and CCI — amended texts)**

**COMMISSION FOR HYDROLOGY (CHy)**

The Commission shall be responsible for:

- (a) Advisory activity in hydrology and water resources, including, but not limited to:
  - (i) The measurement of basic variables characterizing the quantity and quality of water and sediment in the hydrological cycle;
  - (ii) The acquisition of other related characteristics describing the properties of basins, rivers, and the inland water bodies;
  - (iii) The collection, transmission, processing, storage, quality control — archiving, retrieval and dissemination of data and information;
  - (iv) Hydrological forecasts and warnings, both under natural and accidental conditions;
  - (v) The development and improvement of methods and technology required for the items above;
  - (vi) The application of water-related data and information to the assessment, effective management, and sustainable development of water resources and to the protection of society from hydrological hazards;
- (b) Promoting and facilitating the international exchange of experience, transfer of technology, research uptake, education, and training and development to meet the needs of national Hydrological Services or other organizations fulfilling the functions of such Services including programme management and public awareness (e.g. through the Hydrological Operational Multipurpose System and other mechanisms);
- (c) Promoting and facilitating the international exchange and dissemination of information, terminology, data, standards, forecasts and warnings;
- (d) Promoting the collaboration and linkages among operational hydrology, meteorology, and environmental management;
- (e) Raising awareness in the wider community of the social, economic and environmental significance of water and promoting the role of hydrology in the mitigation of hydrological hazards and in the development and management of water;
- (f) Supporting cooperation between WMO, the International Hydrological Programme of the United Nations Educational, Scientific and Cultural Organization, the International Association of Hydrological Sciences and other governmental and non-governmental organizations on matters related to hydrology and water resources;

- (g) Supporting and, where appropriate, taking the lead in, coordinating within WMO terrestrial water-related matters, including the activities of the regional associations' working group on hydrology.

**COMMISSION FOR CLIMATOLOGY (CCI)**

The Commission shall be responsible for promoting and facilitating activities relating to climate and its relationship with human well-being, human activities, natural ecosystems and sustainable development, including:

- (a) Coordination and consolidation of general requirements for observations, data collection, supply and exchange for all components of the World Climate Programme and its associated activities;
- (b) Identification of best practices in the collection, quality control, archiving, access to and further management of climate data, including near-real-time data, proxy data, remote sensing data and metadata;
- (c) Analysis and monitoring of climate, its spatial and temporal variations and the issue of climate data and products in support of research, applications and impact assessments;
- (d) Development of statistical and other objective methods for analysing climate data;
- (e) Evaluation and review of operational climate predictions;
- (f) Preparation of authoritative statements on climate;
- (g) Identification, development and improvement of services, applications and supporting research concerning the influences of climate and weather;
- (h) Identification of priority areas relating to the climates of natural and managed ecosystems and for alleviating problems arising from human effects on local and regional climate;
- (i) Capacity building and technology transfer;
- (j) Effective presentation of climatological information to users and the assessment of cost-benefit information;
- (k) Provision of advice on issues relating to the access and availability of climatological data and services;

The Commission has special responsibilities to advise and guide the World Climate Applications and Services Programme and the World Climate Data and Monitoring Programme, while providing support to many activities under the framework of the Climate Agenda.

## RESOLUTION 38 (Cg-XIII)

## REVIEW OF PREVIOUS CONGRESS RESOLUTIONS

## THE CONGRESS,

CONSIDERING that it is important not to let accumulate a collection of resolutions from previous Congresses, some of which would have become redundant and others which have been replaced by new decisions,

## NOTING:

- (1) General Regulation 135 concerning the review of previous Congress resolutions,
- (2) Resolution 41 (Cg-XII) — Review of previous Congress resolutions,

HAVING EXAMINED its previous resolutions still in force,

## DECIDES:

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

Second Congress (Cg-II)	18 (Cg-II);
Third Congress (Cg-III)	3, 4, 29 (Cg-III);
Fifth Congress (Cg-V)	6, 15, 30 (Cg-V);
Seventh Congress (Cg-VII)	9, 23, 32, 39 (except paragraph 1 under DECIDES and paragraph 1 of the Annex) (Cg-VII);

Eighth Congress (Cg-VIII)	33, 36, 48 (Cg-VIII);
Ninth Congress (Cg-IX)	4, 9, 30 (Cg-IX);
Tenth Congress (Cg-X)	9, 22, 29, 31 (Cg-X);
Eleventh Congress (Cg-XI)	8, 19, 24, 30, 37 (Cg-XI);
Twelfth Congress (Cg-XII)	6, 7, 16, 19, 20, 21, 24, 25, 26, 35, 40 (Cg-XII);

- (2) To keep in force but only until 31 December 1999: Resolutions 29, 31, 32, 33, 34, 36 and 37 (Cg-XII);
- (3) Not to keep in force other resolutions adopted before the thirteenth session of Congress;
- (4) To publish the texts of resolutions kept in force pursuant to resolutions adopted by Thirteenth Congress\*.

NOTE: This resolution replaces Resolution 41 (Cg-XII), which is no longer in force.

\* The full text of the resolutions of Congress and the Executive Council which are kept in force are published in *Resolutions of Congress and the Executive Council* (WMO-No. 508).

# ANNEXES

## ANNEX I

Annex to paragraph 2.3.1 of the general summary

### RECOMMENDATIONS OF THE FINANCIAL ADVISORY COMMITTEE TO THIRTEENTH CONGRESS

#### Consideration of the Secretary-General's programme and budget proposals for the thirteenth financial period (2000–2003)

##### Recommendation 1

The Committee recommends that Congress approves an assessed programme and budget for the thirteenth financial period in the amount of SFR 248.8 million and authorizes an additional programme expenditure for high priority items of SFR 2.4 million to be funded from savings resulting from the relocation of WMO Headquarters. This sum of SFR 251.2 million is equivalent to the compromise proposal of the fiftieth session of the Executive Council of SFR 257.3 million, taking into account the proportional adjustment due to lower actual inflation and the Consultative Committee on Administrative Questions (CCAQ) projection of 1.3 per cent inflation per annum.

#### Contribution matters

*Proportional contributions of Members — Twelfth financial period*

##### Recommendation 2

The Committee recommends that Congress confirms assessments made by the Executive Council in respect of new Members during the twelfth financial period.

*Scale of contributions for the thirteenth financial period*

##### Recommendation 3

That Thirteenth Congress adopts a scale of assessed proportional contributions for the thirteenth financial period based on the conclusions and recommendation of the Cg-XIII Subcommittee on Contributions. The Subcommittee will be established to address the various issues involved in consultation with those countries which would be most affected by changes to the scale of assessment.

#### Working Capital Fund

##### Recommendation 4

- 4.1 That Thirteenth Congress maintains the present level of the Working Capital Fund at 2 per cent of

the approved maximum expenditure for the thirteenth financial period (2000–2003);

- 4.2 That any resulting increase in the principal of the Working Capital Fund be provided by crediting interest earned on investments of the cash resources of the Fund to individual Members' accounts in the Fund until such time as the principal reaches the approved level of 2 per cent of the maximum expenditures;
- 4.3 That notwithstanding the provisions of Regulations 8 and 9 of the Financial Regulations, advances made by the existing Members should be frozen at the level fixed for the financial period set by Twelfth Congress, and that the advances assessed for new Members joining the Organization after 1 January 2000 would be assessed at the rates established for the year 2000.

#### Measures to overcome persistent cash flow problems

##### Recommendation 5

That Thirteenth Congress:

- 5.1 Keep in force Resolution 31 (Cg-X) — Incentive scheme for early payment of contributions; Resolution 37 (Cg-XI) — Suspension of Members for failure to meet financial obligations; and Resolution 35 (Cg-XII) — Settlement of long outstanding contributions;
- 5.2 Adopt Resolution 31 (Cg-XIII) — Short-term borrowing authority.

#### Review of other Congress documents having budgetary and financial implications

#### Other financial matters

##### Recommendation 6

- 6.1 That Congress adopts the relevant revisions to the WMO Financial Regulations as proposed by the Secretary-General, except those for Article 13.7 onwards on the subject of internal audit and investigation;
- 6.2 That the principal of the Staff Compensation Plan Reserve Fund during the thirteenth financial period

- be kept unchanged at SFR 306 000, the level fixed by Tenth Congress;
- 6.3 That any balance left on the Publications Fund and the Joint Climate Research Fund at 31 December 1999 be carried over to the thirteenth financial period (2000–2003).

### Building Fund

#### Recommendation 7

That Congress adopts the draft text for inclusion in the general summary of its report, as contained in Cg-XIII/Doc. 10.1(2), Appendix.

## ANNEX II

Annex to paragraph 3.7.1.34 of the general summary

### TRUST FUND FOR TECHNICAL COOPERATION PROGRAMME DEVELOPMENT ACTIVITIES

#### Terms of reference and rules

#### Introduction and purpose of the Fund

1. It may be recalled that during the previous financial period and up to 1996, WMO was able to obtain resources from the United Nations Development Programme (UNDP) under the sectoral support scheme to assist Members in the identification of their requirements and in the formulation of meteorological development plans and project proposals for submission to partners. This scheme greatly facilitated the work of the Secretariat in responding to the requests of national Meteorological and Hydrological Services (NMHSs) of Members and allowed the preparation of several national and regional project proposals. In addition, the scheme fostered possibilities for the inclusion of prepared proposals in the UNDP country programmes and in bilateral proposals by recipient countries.

2. In view of the changes which occurred in the UNDP programme arrangements and valid as at January 1997, sectoral support funds are no longer directly available to WMO. Through the new procedures, funds for technical support and policy and programme development are available with local UNDP offices and regional bureaux and are more difficult to access due to their limitations and the competition with other sectors. WMO has been successful in tapping some UNDP resources at the national and regional levels for programme development and technical support activities, in a limited number of cases. However, the needs of NMHSs of Members continue to increase especially in the new world context and tendencies of Governments to request NMHSs to seek alternative sources for the funding of their activities. Noting that there are very limited resources available in the regular budget for such activities, the Executive Council requested the Secretary-General to prepare a proposal for the establishment of a Trust Fund to facilitate the development of technical cooperation projects.

3. The Fund will be established from voluntary cash contributions from Members, bilateral and multilateral funding agencies, including the World Bank, regional development banks, and from non-governmental

organizations and the private sector in view of the intergovernmental nature of the Organization. Contributions should also come from the reimbursement of project development costs incurred, as soon as the funding of the project is secured, as much as possible. Contributions may include grants and donations and shall be normally made in Swiss francs or any other convertible currency.

#### Administration of the Fund

4. The Secretary-General of WMO, or his authorized representative, shall be responsible for the management of funds contributed by the above-mentioned donors through WMO.

5. The Secretary-General of WMO shall administer the Fund in accordance with the financial regulations, standing instructions and established procedures of WMO, supplemented by the provision of the present rules.

6. The accounting of the expenditures of the Fund shall be as provided for in paragraph 5 above as well as for any other directly identifiable charges related to the administration of the Fund (e.g. costs of consultants, experts, scientific and technical staff, bank charges and/or commissions, communication charges, etc.). The interest accrued from any investment of the principal of the Fund will constitute an income to the Fund.

7. Financial reports on the Fund will be made in Swiss francs. The United Nations rate of exchange prevailing on the date of the transaction or report will apply for the conversion into Swiss francs of contributions or income received and payments made or charges incurred in any other currency. WMO shall submit a financial report annually to the Executive Council and shall report to Congress on the overall use of the Fund.

8. The biennial statement of income and expenditure of the Fund will be incorporated in the overall audited financial statements submitted by the Secretary-General of WMO to the Executive Council for approval. External audit will be conducted as provided for in the



WMO Financial Regulations. The audit report will be available to contributing partners on request.

#### Procedures for the utilization of the Fund

9. The utilization of the Fund shall be based upon decisions of the Secretary-General, based on the requests received from Members and on the priorities defined by the Executive Council.

10. The Secretary-General of WMO will not enter into any financial commitments unless he has received the funds required.

#### Legal responsibilities

11. Under no circumstances will the Fund be made liable to pay and/or reimburse any taxes on emoluments or honorarium, or any customs and import duties, value added taxes or similar charges. If applicable, these will be payable by the beneficiaries of the support provided.

#### Review of the rules

12. Congress may review these rules in the light of the experience gained and make any changes as appropriate.

### ANNEX III

Annex to paragraph 4.1.1 of the general summary

#### PROVISIONAL PROGRAMME OF SESSIONS OF CONSTITUENT BODIES DURING THE THIRTEENTH FINANCIAL PERIOD (2000–2003)

<i>Session</i>	<i>Place</i>	<i>Remarks</i>
2000		
Executive Council (fifty-second session)	Geneva	
Regional Association II (Asia) (twelfth session)	Republic of Korea	
Commission for Basic Systems (twelfth session)		
Commission for Hydrology (eleventh session)	Nigeria	
2001		
Executive Council (fifty-third session)	Geneva	
Regional Association III (South America) (thirteenth session)	Venezuela	} Conjoint sessions of RA III and RA IV on an experimental basis
Regional Association IV (North and Central America) (thirteenth session)	Ecuador	
Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (first session)	Iceland	
Commission for Climatology (thirteenth session)	Botswana	Under consideration
2002		
Executive Council (fifty-fourth session)	Geneva	
Regional Association I (Africa) (thirteenth session)	Portugal (Madeira)	
Regional Association V (South-West Pacific) (thirteenth session)	Samoa (Apia)	
Regional Association VI (Europe) (thirteenth session)	Hungary	
Commission for Aeronautical Meteorology (twelfth session)	Canada (Montreal)	Conjoint meeting with ICAO/MET Divisional Meeting
Commission for Atmospheric Sciences (thirteenth session)	Norway	
Commission for Instruments and Methods of Observation (thirteenth session)	Slovakia	
Commission for Basic Systems (extraordinary session)		
2003		
Fourteenth World Meteorological Congress	Geneva	
Executive Council (fifty-fifth session)	Geneva	
Commission for Agricultural Meteorology (thirteenth session)	Slovenia	Under consideration

## ANNEX IV

Annex to paragraph 7.2.14 of the general summary

**GENEVA DECLARATION OF THE THIRTEENTH WORLD METEOROLOGICAL CONGRESS**

We, the delegates from 170 Member States and Territories of the World Meteorological Organization (WMO), meeting in Geneva from 4 to 26 May 1999 at the Thirteenth World Meteorological Congress, declare as follows:

We *NOTE* that the United Nations General Assembly, the Economic and Social Council and the regional economic and social commissions have appealed to WMO to contribute, within its field of competence, to the action taken at the international, regional and national levels to promote and support sustainable development, especially activities pertinent to weather- and climate-related natural disasters, climate change and the protection of the environment.

We *FURTHER NOTE* the contributions already made by, and through, WMO in response to the above appeal, particularly through the global ensemble of national Meteorological and Hydrometeorological Services which is crucial to international strategies for the protection of the global environment such as in addressing climate change and stratospheric ozone depletion issues, among others.

We *RECOGNIZE* the importance of a unique and integrated international system for the observation, collection, processing and dissemination of meteorological and related data and products, implemented within the framework of WMO's World Weather Watch.

We are *AWARE* of the need to ensure the appropriate implementation of the letter and spirit of Resolution 40 adopted by the Twelfth World Meteorological Congress on the "WMO policy and practice for the international exchange of meteorological and related data and products, including guidelines on relationships in commercial meteorological activities".

We *APPEAL* to all Governments to ensure that the national practices in force in their countries, especially through their national Meteorological and Hydrometeorological Services, conform with the above referred policy, practice and guidelines for the international exchange of meteorological and related data and products.

We *REAFFIRM* the vital importance of the mission of the national Meteorological and Hydrometeorological Services in observing and understanding weather and climate and in providing meteorological and related services in support of national needs. This mission may be expressed as a contribution to national needs in the following areas:

- (a) Protection of life and property;
- (b) Safeguarding the environment;
- (c) Contributing to sustainable development;
- (d) Ensuring continuity of the observations of meteorological and related data including climatological data;

- (e) Promotion of endogenous capacity building;

- (f) Meeting international commitments; and

- (g) Contributing to international cooperation.

We *ARE COGNIZANT* that, weather and climate systems do not recognize political borders and are continuously interacting. Hence, no one country can be fully self-reliant in meeting all of its requirements for meteorological services and countries need to work together in a spirit of mutual assistance and cooperation.

We *EXPRESS* deep concern about the potential impacts on the provision of meteorological services worldwide of any development which endangers the unique and integrated international system for obtaining and exchanging meteorological and related data and products, a system which has benefited the global community for over 100 years. These developments can adversely affect the effective and efficient provision of appropriate meteorological data, information, products and services, as well as the role and operation of national Meteorological and Hydrometeorological Services, resulting in unfavourable impacts on national economies, the environment, the well being of peoples and the whole world community.

We *RECOGNIZE* that it is for the various stakeholders in each country, in full awareness of their country's national goals, requirements, resources and aspirations to evaluate and decide on a country-specific strategy for future provision of meteorological and related services and to find the greatest possible harmony between the principle of their national sovereignty and their international obligations under the WMO Convention and other related environmental treaties and agreements.

We *URGE* that whatever form or model the national Meteorological and Hydrometeorological Services take, government financial support be provided to operate and maintain the required relevant basic infrastructure, monitoring and services in the national and global public interest, and that such support be strengthened where needed.

We *CALL* on all Governments to give due consideration to the statements expressed in this Declaration. We believe that this will be in the interest of sustainable development, in support of national economies and social progress and that this contributes significantly to the reduction of loss of life and property caused by natural disasters and other catastrophic events, as well as to safeguard the environment and the global climate for present and future generations of humankind.

## APPENDIX A

### LIST OF PERSONS ATTENDING THE SESSION

#### A. Representatives of WMO Members

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
<b>Afghanistan, Islamic State of</b>	H. Tandar	Principal delegate
<b>Albania</b>	K. Krisafi M. Sanxhaku M. Gega (Ms)	Principal delegate Alternate Delegate
<b>Algeria</b>	F. Ounnar A. Bourbala A. Bekhouche M. Debihi O. Ghalem (Ms) A. Guerst A. Ould-Amara A. Terchi A. Zehar M. Merabet A. Lagha	Principal delegate Alternate Delegate Delegate Delegate Delegate Delegate Delegate Delegate Delegate Delegate
<b>Angola</b>	S. Pegado Da Silva (Ms) M. Constantino	Principal delegate Delegate
<b>Argentina</b>	R. A. Sonzini A. Repetti (Ms)	Principal delegate Delegate
<b>Armenia</b>	G. S. Kodjoyan S. Ohanian	Principal delegate Delegate
<b>Australia</b>	J. W. Zillman D. J. Gauntlett (4-8.5) V. K. Tsui (10-26.5) J. T. Davidson D. J. Gauntlett (10-26.5) P. Lawrence B. R. Morton K. J. O'Loughlin S. M. Pearce (Ms) V. K. Tsui (4-9.5) E. Van der Wal	Principal delegate Alternate Alternate Delegate Delegate Delegate Delegate Delegate Delegate Delegate Adviser
<b>Austria</b>	P. Steinhauser T. Loidl F. Neuwirth	Principal delegate Alternate Delegate
<b>Azerbaijan</b>	Z. F. Musaev Z. Farzaliev	Principal delegate Alternate
<b>Bahamas</b>	K. L. Lightbourne A. W. Rolle	Principal delegate Alternate
<b>Bahrain</b>	A. Majeed H. Isa H. B. Salman Al-Khalifa	Principal delegate Delegate
<b>Bangladesh</b>	E. M. Hossain	Principal delegate
<b>Barbados</b>	C. R. Layne S. Rudder (Ms)	Principal delegate Adviser
<b>Belarus</b>	Y. M. Pokoumeiko S. I. Mikhnevich S. Anoshko	Principal delegate Alternate Delegate
<b>Belgium</b>	H. Malcorps G. Demarée	Principal delegate Delegate

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
<b>Belgium (Cont.)</b>	E. Honnay (Ms) J.-M. Noirfalisse A. Quinet M. Vinck	Delegate Delegate Delegate Delegate
<b>Belize</b>	C. Depradine	Principal delegate
<b>Benin</b>	F. J. B. Hounton	Principal delegate
<b>Bolivia</b>	C. Diaz J. Loayza	Principal delegate Delegate
<b>Bosnia and Herzegovina</b>	E. Sarac M. Muminovic S. Avdic (Ms) S. Fadzhan M. Kordic N. Kustrinovic	Principal delegate Alternate Delegate Delegate Delegate Delegate
<b>Botswana</b>	G. K. Ramothwa (Ms) M. K. Mathlaga (Ms)	Principal delegate Delegate
<b>Brazil</b>	A. C. Athayde J. M. Rezende R. Coimbra A. M. Dall'Antonia H. D. Hofer F. Meyer	Principal delegate Alternate Delegate Delegate Delegate Delegate
<b>British Caribbean Territories</b>	T. W. Sutherland C. Depradine	Principal delegate Delegate
<b>Brunei Darussalam</b>	H. A. K. Tengah A. A. Latif	Principal delegate Delegate
<b>Bulgaria</b>	V. Sharov I. Krastelnikov	Principal delegate Delegate
<b>Burkina Faso</b>	N. F. Ouattara	Principal delegate
<b>Burundi</b>	A. Nahayo E. Kabushemeye-Ntamwana (Ms)	Principal delegate Alternate
<b>Cameroon</b>	B. H. Mbifngwen R. Owona Etende C. M. Bomba	Principal delegate Alternate Delegate
<b>Canada</b>	G. A. McBean D. Grimes B. Angle P. Chen S. Cormie (Ms) N. Cutler (Ms) B. J. O'Donnell O. Jalbert	Principal delegate Alternate Delegate Delegate Delegate Delegate Delegate Adviser
<b>Cape Verde</b>	E. F. Santos Soares E. De Brito (Ms)	Principal delegate Delegate
<b>Chad</b>	N. Betoloum M. Tchitchaou	Principal delegate Alternate
<b>Chile</b>	N. Makuc X. Ares (Ms) F. Emst R. Velasco	Principal delegate Delegate Delegate Adviser

<i>Member</i>	<i>Name</i>	<i>Capacity</i>	<i>Member</i>	<i>Name</i>	<i>Capacity</i>	
<b>China</b>	Wen Kegang	Principal delegate	<b>Czech Republic</b> ( <i>Cont.</i> )	K. Pešata	Delegate	
	Yan Hong	Alternate		P. Sepel'ák	Delegate	
	Cai Jianyuan	Delegate		J. Nemeč	Adviser	
	Chen Xiaoguang	Delegate	<b>Democratic People's Republic of Korea</b>	Hong Song	Principal delegate	
	Ruan Shui-Gen	Delegate		Kin Ho Bu	Delegate	
	Wang Caifang	Delegate		Ri Chol	Delegate	
	Wang Xiaomin (Ms)	Delegate		Ri Tae Gun	Delegate	
	Xin Xianhua	Delegate		So Chol	Delegate	
	Xu Nanshan	Delegate	<b>Democratic Republic of the Congo</b>	K. Mupande	Principal delegate	
	Zhang Guocai	Delegate		M. Cizungu	Alternate	
	Zhao Yang Ling (Ms)	Delegate		B. Agamana (Ms)	Delegate	
	Zheng Guogang	Delegate	<b>Denmark</b>	L. P Prahm	Principal delegate	
	Zhou Shuguang	Delegate		C. Christensen	Alternate	
	Zhu Zheng Yi	Delegate		L. Wester-Andersen (Ms)	Delegate	
<b>Colombia</b>	P. Leyva-Franco	Principal delegate	<b>Djibouti</b>	I. O Robleh	Principal delegate	
	D. Pabon	Alternate		<b>Dominica</b>	C. E. Berridge	Principal delegate
	M. E. Posada-Corrales (Ms)	Delegate	<b>Dominican Republic</b>		Y. Román (Ms)	Principal delegate
<b>Comoros</b>	A. M. Rebba (4-17.5)	Principal delegate		<b>Ecuador</b>	N. Salazar	Principal delegate
	M. A. B. Poundja (18-26.5)	Principal delegate	J. C. Castrillon		Delegate	
<b>Congo</b>	F. Oyou	Principal delegate	L. Gallegos		Delegate	
	J. Biabaroh-Iboro	Delegate	<b>Egypt</b>	M. A. Mahran	Principal delegate	
	A. Miampika	Delegate		A. M. Rebba	Alternate	
<b>Cook Islands</b>	A. Ngari	Principal delegate		A. Tarek	Delegate	
	<b>Costa Rica</b>	N. Ruiz de Angulo (Ms)		Principal delegate	A. E. Amer	Delegate
		E. Zárate	Alternate	<b>El Salvador</b>	V. M. Lagos Pizzati	Principal delegate
		O. Acuña	Delegate		M. Castro Grande	Alternate
		G. Chaves	Delegate	<b>Eritrea</b>	B. Woldeyohannes	Principal delegate
		J. Coghi Arias	Delegate		A. Habtemicael	Delegate
		L. Dachner (Ms)	Delegate		<b>Estonia</b>	P. Karing
		M. B. Dengo	Delegate	<b>Ethiopia</b>		F. Yimer Aboye
		P. Grane	Delegate		A. A. Amaha	Delegate
		C. Guillermet	Delegate		Tesfaye (Ms)	Delegate
		M. Odio (Ms)	Delegate		K. Asefa	Delegate
		E. Penrod	Delegate	B. Kassahun	Delegate	
		M. Perez (Ms)	Delegate	<b>Fiji</b>	R. Prasad	Principal delegate
		L. Rojas B.	Delegate		<b>Finland</b>	E. Jatila
J. Rodriguez		Delegate	M. Alestalo	Delegate		
R. Saborio	Delegate	P. Huhtaniemi	Delegate			
R. Ulate	Delegate	L. Leskinen (Ms)	Delegate			
J. M. Dengo-Garrón	Adviser	T. Raivio (Ms)	Delegate			
<b>Côte d'Ivoire</b>	A. Kignaman Soro	Principal delegate	J. T. Riissanen	Delegate		
	C. Bouah-Kamon	Delegate	M. Sagbom (Ms)	Delegate		
	G. Flegbo	Delegate	P. Seuna	Delegate		
	M. Sakho	Delegate	<b>France</b>	J.-P. Beysson	Principal delegate	
<b>Croatia</b>	M. Matvijev	Principal delegate		M. Bocoz (Ms)	Alternate	
	C. Grebša	Delegate		D. Lambergeon	Alternate	
	J. Smitlehner	Delegate		O. Moch	Alternate	
<b>Cuba</b>	T. Gutierrez	Principal delegate		P. Petit	Alternate	
	C. Amat Fores	Delegate		J.-C. Tallard-Fleury	Alternate	
	A. Hernández-Quesada (Ms)	Delegate	P. Hubert	Delegate		
<b>Cyprus</b>	K. Philaniotis	Principal delegate	<b>French Polynesia</b>	A. Rigaud (Ms)	Principal delegate	
	P. Kestoras	Alternate		<b>Gabon</b>	D. Ondo Ndong	Principal delegate
<b>Czech Republic</b>	I. Obrusnik	Principal delegate	A. M. Betole		Delegate	
	M. Somol	Alternate				
	M. Wolek	Alternate				
	J. Kubát	Delegate				

<i>Member</i>	<i>Name</i>	<i>Capacity</i>	<i>Member</i>	<i>Name</i>	<i>Capacity</i>	
<b>Gabon (Cont.)</b>	Y. Bikes (Ms)	Delegate	<b>Iran, Islamic Republic of</b>	A. M. Noorian	Principal delegate	
	A. Mackosso (Ms)	Delegate		A. H. Delju	Alternate	
	M. Angone-Abena (Ms)	Adviser		H. Soleymanpour	Alternate	
<b>Gambia</b>	A. T. Nije	Principal delegate		M. Baharvand	Delegate	
	P. A. Cham	Delegate		E. Farman (Ms)	Delegate	
	B. P. Jallow	Delegate		T. Farvar	Delegate	
	A. Manneh	Delegate		G. H. Kamali	Delegate	
<b>Georgia</b>	N. Beradze	Principal delegate		M. Nili	Delegate	
<b>Germany</b>	U. Gärtner	Principal delegate		L. Salimabadi (Ms)	Delegate	
	H. Eberle	Alternate		B. Sanagi	Delegate	
	B. Anger	Delegate		A. Sedaghatkerdar	Delegate	
	H. Bauer	Delegate		A. Vazifeh	Delegate	
	U. Einsfelder (Ms)	Delegate		<b>Iraq</b>	F. A. Ghalib	Alternate
	D. Frömming	Delegate		<b>Ireland</b>	D. Murphy	Principal delegate
	K. Hofius	Delegate			E. Murphy	Alternate
	H. Hüster	Delegate	B. Ardif		Delegate	
	U. Kalbitzer	Delegate	T. Hanney		Delegate	
	S. Mildner	Delegate	<b>Israel</b>	Z. Alperson	Principal delegate	
	J. Ringeltaube	Delegate		G. Koren	Alternate	
V. Vent-Schmidt	Delegate	T. Guluma (Ms)		Adviser		
<b>Ghana</b>	N. B. Yelifari	Principal delegate	<b>Italy</b>	C. Finizio	Principal delegate	
	G. K. Anaglate	Delegate		M. Capaldo	Alternate	
	Y. Osei-Brimpong (Ms)	Delegate		L. De Chiara	Delegate	
	J. Wellens-Mensah	Delegate		G. Maracchi	Delegate	
	J. J. Nwaneampeh	Adviser		F. Prodi	Delegate	
<b>Greece</b>	C. Gkagkaoudaki (Ms)	Principal delegate		L. M. Michaud	Adviser	
	(4-16.5)			G. Onorati	Adviser	
	G. Sakellaridis (17-26.5)	Principal delegate	<b>Jamaica</b>	S. McGill (Ms)	Principal delegate	
	I. Bassiakos	Alternate		K. G. A. Hill	Alternate	
M.-F. Katsimardou-Refene (Ms)	Delegate	F. Hall		Delegate		
		C. Maryns (Ms)		Delegate		
<b>Guinea</b>	M. L. Bah	Principal delegate	<b>Japan</b>	Y. Takigawa	Principal delegate	
	A. Kourouma (Ms)	Alternate		T. Hiraki	Alternate	
<b>Guyana</b>	D. K. Jaigopaul	Principal delegate		A. Chiba	Delegate	
<b>Haiti</b>	J. Antonio	Principal delegate		M. Kawata	Delegate	
	M. M. Duchatellier (Ms)	Delegate		H. Sasaki	Delegate	
	F. Gaspard	Delegate		K. Shida	Delegate	
<b>Honduras</b>	G. Bu Figueroa (Ms)	Principal delegate		S. Sumi	Delegate	
	R. F. Licona Azcona (Ms)	Alternate	M. Takesawa	Delegate		
<b>Hong Kong, China</b>	H. K. Lam	Principal delegate	T. Uehara	Delegate		
	<b>Hungary</b>	I. Mersich	Principal delegate	<b>Jordan</b>	H. Al-Sha'er	Principal delegate
M. Kaba (Ms)		Alternate	J. Rabadi		Alternate	
P. Bakonyi		Delegate	A. H. Abu Azim		Delegate	
Z. Buzàs (Ms)		Delegate	N. Kafawin		Delegate	
S. Nagy		Delegate	<b>Kazakstan</b>	T. Kudekov	Principal delegate	
Z. Varga		Delegate		A. Zhumadilov	Alternate	
<b>Iceland</b>	M. Jonsson	Principal delegate		Z. Abishev	Delegate	
	<b>India</b>	R. R. Kelkar		Principal delegate	E. Zhussupov	Delegate
		M. M. K. Sardana	Alternate	<b>Kenya</b>	E. A. Mukolwe	Principal delegate
S. Kumar		Delegate	K. I. Essendi		Alternate	
N. Sen Roy		Delegate	K. A. A. Rana		Delegate	
<b>Indonesia</b>		S. Diharto	Principal delegate		E. W. Ngare	Adviser
	S. Sutoyo	Alternate	<b>Kuwait</b>	R. Al-Sane	Principal delegate	
	S. Shirley (Ms)	Delegate		K. Shuaibi	Delegate	
	M. P. Hendrasgoro	Adviser	<b>Lao Peoples Democratic Republic</b>	T. Vongsipason	Principal delegate	
	L. H. Rustam (Ms)	Adviser		<b>Latvia</b>	A. Leitass	Principal delegate

<i>Member</i>	<i>Name</i>	<i>Capacity</i>	<i>Member</i>	<i>Name</i>	<i>Capacity</i>
<b>Lebanon</b>	A. P. Bejjani	Principal delegate	<b>Morocco (Cont.)</b>	A. El Kadiri	Delegate
	I. Barakt-Diab	Delegate		B. Louaked	Delegate
	A. S. Issa	Delegate		M. L. Selassi	Delegate
<b>Lesotho</b>	B. T. Sekoli	Principal delegate	<b>Mozambique</b>	F. Lucio	Principal delegate
	M. Moleleki	Delegate	<b>Myanmar</b>	H. Htay Aung	Principal delegate
<b>Libyan Arab Jamahiriya</b>	T. A. Borgan	Principal delegate		Kyaw Swe Tint	Delegate
	M. Abuseif	Delegate	<b>Namibia</b>	A. E. S. Amer	Principal delegate
	M. J. El-Ghadi	Delegate	<b>Nepal</b>	K. S. Yogacharya	Principal delegate
<b>Lithuania</b>	O. M. Salem	Delegate		N. B. Shrestha	Delegate
	P. Korkutis	Principal delegate		M. B. Basnyat	Delegate
<b>Luxembourg</b>	F. Neu	Principal delegate	<b>Netherlands</b>	H. M. Fijnaut	Principal delegate
	R. Kipgen	Delegate		A. Kattenberg	Alternate
<b>Macao</b>	Fong Soi Kun	Principal delegate		J. R. T. Frederiks	Delegate
	A. Viseu	Alternate		P. M. M. Warmerdam	Hydrological adviser
	Ku Chi Meng	Delegate	<b>Netherlands</b>	A. J. Dania	Principal delegate
	Hao I Pan	Delegate	<b>Antilles and Aruba</b>	P. L. Trappenberg	Delegate
<b>Madagascar</b>	C. A. Rasolonay	Principal delegate	<b>New Caledonia</b>	M.-A. Lecorcher (Ms)	Principal delegate
	C. Razafy (Ms)	Alternate	<b>New Zealand</b>	J. R. Lumsden	Principal delegate
	P. R. Edafe	Delegate		N. Gordon	Alternate
	J. C. Razaranaina	Delegate		M. Gubb	Delegate
	M. Zafera	Delegate	<b>Niger</b>	I. Also	Principal delegate
<b>Malawi</b>	D. R. Kamdonyo	Principal delegate		M. Diarra	Alternate
<b>Malaysia</b>	Lim Joo Tick	Principal delegate		M. Saloum	Delegate
	Ling Leong Kwok	Alternate	<b>Nigeria</b>	A. Y. Salahu	Principal delegate
	Ahmad Jazri Mohd Tohar	Delegate		L. E. Akeh	Delegate
<b>Maldives</b>	A. Majeed	Principal delegate		E. E. Ekuwen	Delegate
<b>Mali</b>	K. Konaré	Principal delegate		J. A. Hanidu	Delegate
<b>Malta</b>	M. L. Bartolo	Principal delegate		I. D. Nnodu	Delegate
	F. T. Gauci	Alternate		S. C. Nwokedi	Delegate
	J. Aquilina (Ms)	Delegate		O. O. Odumosi	Delegate
<b>Mauritania</b>	M. B. O. M. Laghdaf	Principal delegate	<b>Niue</b>	H. Vavae (Ms)	Principal delegate
	M. S. Ould Lemine	Delegate	<b>Norway</b>	A. Grammelvedt	Principal delegate
<b>Mauritius</b>	R. R. Vaghjee	Principal delegate		L. Svendsen (Ms)	Alternate
	H. K. Bhunjoo	Delegate		V. Bjorhim	Delegate
	U. C. Dwarka- Canabady (Ms)	Delegate		K. Repp	Delegate
	A. Koodoruth	Delegate	<b>Oman</b>	M. S. Al-Rawahi	Principal delegate
<b>Mexico</b>	R. Sawmy	Delegate		A. R. S. Al-Harmi	Delegate
	A. Jaime	Principal delegate		N. S. Al-Riyami	Delegate
	C. Espinosa González	Alternate		S. Y. M. Al-Saifi	Delegate
	E. Cubero-Gómez	Delegate	<b>Pakistan</b>	Q. Z. Chaudhry	Principal delegate
<b>Micronesia, Federated States of</b>	H. Gutierrez	Observer		M. Akram	Alternate
	G. Joel	Principal delegate		T. Janjua (Ms)	Delegate
<b>Monaco</b>				M. S. Quazi	Delegate
	M. Fétrier	Principal delegate	<b>Panama</b>	J. Bonagas	Principal delegate
	E. Lindenfeld	Alternate		M. Garrido (Ms)	Adviser
<b>Mongolia</b>	Z. Batjargal	Principal delegate	<b>Papua New Guinea</b>	J. Nako	Principal delegate
	S-O. Bold	Alternate	<b>Paraguay</b>	H. Valiente	Principal delegate
	D. Dagvadorj	Delegate		C. Moreno	Alternate
	B-O. Erdenebulgan	Delegate		R. Recalde	Delegate
<b>Morocco</b>				R. Ugarriza	Delegate
	A. Diouri	Principal delegate	<b>Peru</b>	G. Rojas-Barrantes	Principal delegate
	A. Belhouji	Delegate		J. Canales	Delegate
	A. Chaachoo	Delegate		E. B. Villegas	Delegate

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
<b>Philippines</b>	L. A. Amadore	Principal delegate
	M. A. Catalina (Ms)	Alternate
<b>Poland</b>	J. Zielinski	Principal delegate
	T. Klinski	Alternate
	D. Manczyk	Delegate
	R. Klejnowski	Adviser
<b>Portugal</b>	F. Quintas Ribeiro	Principal delegate
	O. F. Rasquinho	Alternate
	C. Tavares	Alternate
	M. A. Alves	Delegate
	R. A. Carvalho	Delegate
	M. Ruivo	Delegate
<b>Qatar</b>	A. Botao	Adviser
	A. H. Al-Mulla	Principal delegate
<b>Republic of Korea</b>	A. H. Mohamed	Alternate
	Sung-Eui Moon	Principal delegate
<b>Republic of Moldova</b>	Kwang-Joon Park	Delegate
	Jai-Ho Oh	Delegate
	Jeong-Gyoo Park	Delegate
	Kyung-Sup Shin	Delegate
	Yun-Ang Chung	Delegate
<b>Republic of Yemen</b>	V. Sofroni	Principal delegate
	A. A. Almakaleh	Principal delegate
	F. Al Obthani	Delegate
<b>Romania</b>	M. Al-Attar	Delegate
	A. Al-Hada	Delegate
	I. Sandu	Principal delegate
	A. Ciubreag	Delegate
<b>Russian Federation</b>	A. Bedritsky	Principal delegate
	S. Khodkin	Alternate
	Y. Izrael	Delegate
	A. Maximov	Delegate
	T. Mishina (Ms)	Delegate
	A. Vasiliev	Delegate
	O. Chamanov	Adviser
	R. Kolodkin	Adviser
A. Kovalenko	Adviser	
<b>Rwanda</b>	D. Musoni	Principal delegate
	L. de G. Munyazogeye	Delegate
<b>Saint Lucia</b>	B. N. Lamontagne	Principal delegate
<b>Samoa</b>	F. Malele	Principal delegate
<b>Saudi Arabia</b>	N. Twafiq	Principal delegate
	S. Baazim	Delegate
	J. A. Bantan	Delegate
	S. Bukhari	Delegate
	N. Murshid	Delegate
<b>Senegal</b>	A. C. Diallo (Ms)	Principal delegate
	A. Ndiaye	Alternate
	M. Gueye	Delegate
	I. Ndiaye	Delegate
	M. Yattara	Delegate
<b>Seychelles</b>	L. Chang-Ko	Principal delegate
	F. C. M. Bijoux	Alternate
<b>Singapore</b>	Woon Shih Lai	Principal delegate
	Sim Choon Siong	Delegate
	H. K. Ann	Adviser

<i>Member</i>	<i>Name</i>	<i>Capacity</i>
<b>Slovak Republic</b>	S. Škulec	Principal delegate
	K. Petöcz	Alternate
	P. Cellár	Delegate
	M. Hubcej	Delegate
	O. Majercáková (Ms)	Delegate
	K. Martinka	Delegate
<b>Slovenia</b>	M. Ondrás	Delegate
	F. Rosocha	Adviser
	D. Hrček	Principal delegate
	F. Miksa	Delegate
<b>Solomon Islands</b>	D. Rogelj	Delegate
	B. Zupančič	Delegate
	C. Iroi	Principal delegate
<b>South Africa</b>	G. Iroi	Principal delegate
	G. C. Schulze	Principal delegate
	J. R. Coetzee Geret	Delegate
	P. Montwedi	Delegate
	B. Qwabe (Ms)	Delegate
<b>Spain</b>	S. van Biljon	Delegate
	E. Coca Vita	Principal delegate
	R. Perez-Hernandez	Alternate
	J. Segovia	Alternate
	J. Garcia-Legaz	Delegate
<b>Sri Lanka</b>	C. Martinez (Ms)	Delegate
	J. M. Salas	Delegate
	J. Tamayo-Carmona	Delegate
	E. Cormenzana	Delegate
	A. Rodriguez Fontal	Delegate
<b>Sudan</b>	A. W. Mohottala	Principal delegate
	A. S. U. Mendis	Delegate
<b>Swaziland</b>	M. E. K. Abdalla	Principal delegate
	A. Sheikh Idris	Delegate
	E. D. Dlamini	Principal delegate
<b>Sweden</b>	P. M. Dlamini	Alternate
	M. E. Madlopha	Delegate
	H. Sandebring	Principal delegate
<b>Switzerland</b>	J. Nilsson	Alternate
	G. Wennerberg (Ms)	Delegate
	T. Gutermann	Principal delegate
	W. B. Gyger	Alternate
	F. Frei	Delegate
	D. Keuerleber	Delegate
	E. Mayoraz	Delegate
	G. Müller	Delegate
	M. Spreafico	Delegate
	J. Ambühl	Adviser
P. Brandt	Adviser	
<b>Syrian Arab Republic</b>	A. Rubli	Adviser
	B. Schädler	Adviser
	N. Al-Shalabi	Principal delegate
	M. Tomeh	Alternate
<b>Thailand</b>	F. Hanoui	Delegate
	S. Jabbour	Delegate
	M. Soleiman	Delegate
	B. Kasme	Adviser
<b>Thailand</b>	P. Patvivatsiri	Principal delegate
	K. Moongtin	Delegate

<i>Member</i>	<i>Name</i>	<i>Capacity</i>	<i>Member</i>	<i>Name</i>	<i>Capacity</i>													
<b>The former Yugoslav Rep. of Macedonia</b>	I. Panov (4-10.5)	Principal delegate	<b>United States of America (Cont.)</b>	K. E. Johnson (Ms)	Adviser													
	L. Mančevski (11-26.5)	Principal delegate		C. McMahon (Ms)	Adviser													
	G. Petreski	Alternate		R. D. McPherson	Adviser													
	K. Lazaroski	Delegate		W. McPherson	Adviser													
	D. Mijatovic	Delegate		J. F. W. Purdom	Adviser													
	N. Nikolovski	Delegate		C. Sprinkle	Adviser													
	B. Stefanovska-Sekovska (Ms)	Delegate	L. Taylor	Adviser														
<b>Tonga</b>	V. Palu	Principal delegate	<b>Uruguay</b>	I. Dutra	Principal delegate													
	P. Havea	Delegate		Maisonnave (Ms)														
<b>Trinidad and Tobago</b>	E. Henry	Principal delegate		C. Perez del Castillo	Alternate													
	L. Boodhoo (Ms)	Delegate		L. Dupuy-Lasserre (Ms)	Delegate													
<b>Tunisia</b>	K. Morjane	Principal delegate		F. Perazza	Delegate													
	M. Allouche	Alternate	C. Sgarbi	Delegate														
	A. Ben Jemaa	Delegate	<b>Uzbekistan</b>	V. E. Chub	Principal delegate													
	M. Ketata	Delegate		<b>Vanuatu</b>	W. T. Vuti	Principal delegate												
	C. M'Hamed	Delegate			<b>Venezuela</b>	F. Camargo Duque	Principal delegate											
K. Baccar	Adviser	T. Carballo		Delegate														
<b>Turkey</b>	H. Acar (4-12.5)	Principal delegate		C. O. Farias de Peña (Ms)		Delegate												
	M. Cebeci (12-19.5)	Principal delegate	D. Parra (Ms)	Delegate														
	R. Saritas (12-26.5)	Alternate	V. Rodriguez	Delegate														
	H. Bacanli	Delegate	<b>Viet Nam, Socialist Republic of</b>	Nguyen Cong Thanh	Principal delegate													
	V. Vural	Delegate		Tran Cam Hung (Ms)	Delegate													
	N. Yaman	Delegate		Tran Duc Hai	Delegate													
	R. Yilmaz	Delegate	<b>Zambia</b>	G. B. Chipeta	Principal delegate													
<b>Uganda</b>	Bwango-Apuuli	Principal delegate		P. N. Sinyinza	Alternate													
	<b>Ukraine</b>	V. Lipinsky		Principal delegate	A. Hussen	Delegate												
M. Maimeskoul		Alternate	E. Katongo	Adviser														
V. Grynyshyn		Delegate	<b>Zimbabwe</b>	M. C. Zinyowera	Principal delegate													
Y. Pavlov		Delegate		T. J. B. Jokonya	Alternate													
<b>United Arab Emirates</b>	A. W. Al Khateeb	Principal delegate		T. T. Chieamba	Delegate													
	A. Kamal	Alternate		N. Kanyowa	Delegate													
	A. R. Al Mandoos	Delegate		C. L. Zavazava	Delegate													
	A. H. M. Al-Ali	Delegate																
	T. A. Al-Awadhi	Delegate																
<b>United Kingdom of Great Britain and Northern Ireland</b>	P. Ewins	Principal delegate	B. Representatives of non-Member countries of WMO															
	D. Shaw	Alternate	<b>Kiribati</b>	T. Tekena														
	J. Bradley	Delegate		<b>Tuvalu</b>	H. Vavae (Ms)													
	C. Johnson (Ms)	Delegate	C. Observer															
	R. Lyne	Delegate	<b>Palestine</b>	I. Musa														
	P. Mason	Delegate		D. Presidents of technical commissions														
	R. Patton (Ms)	Delegate		<table border="1"> <thead> <tr> <th><i>Commission</i></th> <th><i>Name</i></th> </tr> </thead> <tbody> <tr> <td>President CAeM</td> <td>N. D. Gordon</td> </tr> <tr> <td>President CAgM</td> <td>C. J. Stigter (past president representing the acting president)</td> </tr> <tr> <td>President CAS</td> <td>A. Eliassen</td> </tr> <tr> <td>President CBS</td> <td>S. Mildner</td> </tr> <tr> <td>President CCI</td> <td>Y. Boodhoo</td> </tr> </tbody> </table>			<i>Commission</i>	<i>Name</i>	President CAeM	N. D. Gordon	President CAgM	C. J. Stigter (past president representing the acting president)	President CAS	A. Eliassen	President CBS	S. Mildner	President CCI	Y. Boodhoo
	<i>Commission</i>	<i>Name</i>																
	President CAeM	N. D. Gordon																
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President CAS	A. Eliassen																	
President CBS	S. Mildner																	
President CCI	Y. Boodhoo																	
G. Ryall (Ms)	Delegate																	
F. Smith (Ms)	Delegate																	
R. Shearman	Adviser																	
J. Wallace	Adviser																	
G. Warrington	Adviser																	
<b>United Republic of Tanzania</b>	M. S. Mhita	Principal delegate																
	N. S. Kuwese	Delegate																
	A. Mchumo	Delegate																
	D. G. Rutashobya	Delegate																
	F. Malambuigi	Delegate																
<b>United States of America</b>	J. J. Kelly, Jr. (4-16.5)	Principal delegate																
	J. E. Jones (17-26.5)	Principal delegate																
	R. S. Greenfield (4-16.5)	Alternate																
	M. C. Yerg (17-26.5)	Alternate																
	D. G. Brandon	Delegate																
	J. M. Garner	Delegate																
	K. E. Weston (Ms)	Delegate																



<i>Commission</i>	<i>Name</i>
President CHy	K. Hofius
President CIMO	S. K. Srivastava
President CMM	J. Guddal
E. Invited experts	
Chairperson, Steering Committee for GCOS	K. Dawson
Chairperson, Joint Scientific Committee for WCRP	W. L. Gates
F. IMO lecturer	
G. A. McBean	
G. Scientific lecturers	
C. Folland	
N. Nicholls	
H. Representatives of international organizations	

<i>Organization</i>	<i>Name</i>
<b>United Nations</b>	K. Annan, Secretary-General
<b>United Nations Office at Geneva (UNOG)</b>	S. Khelnitski
<b>Economic Commission for Europe (ECE)</b>	L. Nordberg
<b>Secretariat of the United Nations Convention to Combat Desertification (UNCCD)</b>	H. A. Diallo A. Cissoko R. Boulharouf M. L. Allouane
<b>United Nations Development Programme (UNDP)</b>	E. Bonev B. Coppens
<b>United Nations Environment Programme (UNEP)</b>	A. L. Alusa B. Bulwa (Ms) F. Schlingemann
<b>Secretariat of the United Nations Framework Convention on Climate Change (UN/FCCC)</b>	V. Matsarski D. Tirpak
<b>Secretariat of the Office for the Coordination of Humanitarian Affairs (UN/OCHA)</b>	V. Sakkharou
<b>Food and Agriculture Organization of the United Nations (FAO)</b>	N. Brandstrup (Ms) M. Smith
<b>United Nations Educational, Scientific and Cultural Organization (UNESCO)</b>	P. Bernal A. Szollosi-Nagy
<b>Intergovernmental Oceanographic Commission (IOC)</b>	P. Bernal G. Holland C. Summerhayes
<b>International Civil Aviation Organization (ICAO)</b>	O. Turpeinen

<i>Organization</i>	<i>Name</i>
<b>International Atomic Energy Agency (IAEA)</b>	M. S. Opelz (Ms)
<b>African Centre of Meteorological Applications for Development (ACMAD)</b>	M. S. Boulahya
<b>Agency for Air Safety in Africa and Madagascar (ASECNA)</b>	L. Ganguenon O. Issoufou- Oubandawaki J.-J. Kracmar A. B. M'Bougoua J.-P. Makosso M. Ould Lab Y. Pafadnam R. Ramasitera A. C. Sahili
<b>Committee on Earth Observation Satellites (CEOS)</b>	T. Mohr
<b>Caribbean Meteorological Organization (CMO)</b>	C. E. Berridge
<b>European Centre for Medium Range Weather Forecasts (ECMWF)</b>	D. Burridge
<b>Oil Industry International Exploration and Production Forum (E&amp;P Forum)</b>	C. J. Shaw
<b>European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)</b>	S. Castañer (Ms) P. Counet
<b>Regional Committee for Water Resources of the Central American Isthmus (CRRH)</b>	M. Campos
<b>European Space Agency (ESA)</b>	E. Oriol-Pibernat (Ms)
<b>International Association of Broadcast Meteorology (IABM)</b>	G. Fleming W. G. Giles T. Molina I. Niedek (Ms) D. Walch
<b>International Astronautical Federation (IAF)</b>	R. Ramirez de Arellano (Ms)
<b>International Council for Science (ICSU)</b>	J. W. M. La Rivière
<b>International Decade for Natural Disaster Reduction (IDNDR)</b>	P. Boullé C. Rose (Ms) W. Wagner
<b>International Union of Geodesy and Geophysics (IUGG)</b>	R. List
<b>League of Arab States (LAS)</b>	M. H. Doos
<b>Organization of the Islamic Conference (OIC)</b>	O. Jafar
<b>South Pacific Regional Environment Programme (SPREP)</b>	N. L. Koop P. Lefale
<b>Permanent Joint Technical Commission for Nile Waters (PJTC)</b>	M. M. Elamin

## 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	
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1.2 Establishment of a Credentials Committee		1.2(1), Chairperson, Credentials Committee	
1.3 Approval of the agenda	1.3(1)		
Explanatory memorandum relating to the provisional agenda	1.3(2)		
1.4 Establishment of committees			
1.5 Report of the Credentials Committee		1.5(1); 1.5(2); 1.5(3); 1.5(4), Chairperson, Credentials Committee	
		1.5(5), President of WMO	
1.6 Approval of the minutes			
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2.2 Report by the Secretary-General		2.2, Chairperson, Committee A	
2.3 Report by the chairperson of the Financial Advisory Committee	2.3(1)	2.3, Chairperson, Committee of the Whole	
2.4 Consolidated report on amendments to the Technical Regulations	2.4(1)	2.4, Chairperson, Committee A	1
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3.1.1 Instruments and Methods of Observation Programme; the report of the president of CIMO	3.1.1(1)	3.1.1, Vice-chairperson, Committee B	4
3.1.2 WMO satellite activities	3.1.2(1)	3.1.2, Vice-chairperson, Committee B	
3.1.3 Tropical Cyclone Programme	3.1.3(1)	3.1.3, Vice-chairperson, Committee B	5
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3.2 World Climate Programme			
3.2.0 World Climate Programme; the report of the president of CCI	3.2.0(1)	3.2.0, Chairperson, Committee B	
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3.2.5 World Climate Applications and Services Programme	3.2.5(1)	3.2.5, Chairperson, Committee B	8
3.2.6 World Climate Impact Assessment and Response Strategies Programme	3.2.6(1)	3.2.6, Chairperson, Committee B	
3.2.7 World Climate Research Programme	3.2.7	3.2.7, Chairperson, Committee B	9
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3.6.4 Support to the training events under other WMO major Programmes			

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	Report by the president of RA III	3.8.0(3)		
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## APPENDIX C

# LIST OF ABBREVIATIONS

ACC	United Nations Administrative Committee on Coordination
ACMAD	African Centre of Meteorological Applications for Development
ACSAD	Arab Centre for Studies of Arid Zones and Dry Lands
AGRHYMET	Regional Training Centre for Agrometeorology and Operational Hydrology and their Applications
AIJ	Activities Implemented Jointly
AMDAR	Aircraft Meteorological Delay Relay
ANSEP	Air Navigation Services Economics Panel
AOC-HYCOS	West and Central Africa Hydrological Cycle Observing System
AOPC	Atmospheric Observation Panel for Climate
APELL	Awareness and Preparedness for Emergencies at Local Level
APT	Asia-Pacific Telecommunity
APT	Automatic Picture Transmission
ARCHISS	Archival Climatic History Survey Project
AREP	Atmospheric Research and Environment Programme
ARGO	Array for Real-time Geostrophic Oceanography
ASC	Area Support Centre
ASEAN	Association of South-East Asian Nations
ASECNA	Agency for Air Safety in Africa and Madagascar
ASMC	ASEAN Specialized Meteorological Centre
ATCM	Antarctic Treaty Consultative Meeting
ATEAM	Advanced Techniques Applied to Aeronautical Meteorology
AWARE	Air, Water and Related Environment Centre
AWG	Advisory Working Group
CAeM	Commission for Aeronautical Meteorology
CAGM	Commission for Agricultural Meteorology
CAEA	Climate and Atmospheric Environment Activities
CAL	Computer-aided Learning
CAS	Commission for Atmospheric Sciences
CAT	Computer-assisted Translation
CBS	Commission for Basic Systems
CCAQ	Consultative Committee on Administrative Questions
CCI	Commission for Climatology
CDM	Clean Development Mechanism
CDMS	Climate Database Management System
CEOS	Committee on Earth Observation Satellites
CEPT	European Conference of Postal and Telecommunications Administrations
CGMS	Coordination Group for Meteorological Satellites
CHy	Commission for Hydrology
CHR	International Commission for the Hydrology of the Rhine Basin
CICG	Geneva International Conference Centre
CIMO	Commission for Instruments and Methods of Observation
CITEL	Inter-American Telecommunication Commission
CLICOM	Climate Computing
CLIMAG	Climate Prediction for Agriculture
CLIPS	Climate Information and Prediction Services
CLIVAR	Climate Variability and Predictability
CMM	Commission for Marine Meteorology
COMET	Cooperative Programme for Operational Meteorology Education and Training
COP	Conference of the Parties
COSNA	Composite Observing System for the North Atlantic
CRASH	Comprehensive Risk Assessment
CRSP	Collaborative Research Support Programme
CSD	United Nations Commission on Sustainable Development
CSM	Climate System Monitoring

CTA	Technical Centre for Agricultural and Rural Cooperation
CTBTO	Comprehensive Nuclear Test Ban Treaty Organization
DARE	Data Rescue
DBCP	Data Buoy Cooperation Panel
DCP	Data Collection Platform
DDB	Distributed Databases
DHA	Department of Humanitarian Affairs
DM	Data Management
DMC	Drought Monitoring Centre
EC	Executive Council
EC/AGE	Executive Council Advisory Group on the Exchange of Meteorological and Related Data and Products
ECMWF	European Centre for Medium-Range Weather Forecasts
ECOSOC	Economic and Social Council
ECE	United Nations Economic Commission for Europe
EMEP	Cooperative Programme for the Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ENSO	<i>El Niño</i> /Southern Oscillation
EPS	European Polar System
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
ETRP	Education and Training Programme
EUCOS	European Composite Observing System
EUMETSAT	European Organization for the Exploitation of Meteorological Satellites
5LTP	Fifth WMO Long-term Plan
4LTP	Fourth WMO Long-term Plan
FAO	Food and Agriculture Organization of the United Nations
FCGOS	Future Composite Global Observing System
FAM	Foundation for Applied Meteorology
G3OS	Interagency Sponsors Group for the Three Global Observing Systems
GARP	Global Atmospheric Research Programme
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
GEWEX	Global Energy and Water Cycle Experiment
GMDSS	Global Maritime Distress and Safety System
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GOS	Global Observing System
GOSSP	Global Observing Systems Space Panel
GPS	Global Positioning System
GRDC	Global Runoff Data Centre
GSN	GCOS Surface Network
GTOS	Global Terrestrial Observing System
GTS	Global Telecommunication System
GUAN	GCOS Upper-air Network
GURME	GAW Urban Research Meteorological Environment Project
GWP	Global Warming Potential
HELP	Hydrology for Environment, Life and Policy
HiRID	High Resolution Imager Data
HOMS	Hydrological Operational Multipurpose System
HRIT	High Rate Information Transmission
HWRP	Hydrology and Water Resources Programme



HYCOS	Hydrological Cycle Observing System
HYNET	Intercomparison of Operational Hydrological Network Design Techniques
IACCA	Inter-agency Committee on the Climate Agenda
IAEA	International Atomic Energy Agency
IAHS	International Association of Hydrological Sciences
IAI	Inter-American Institute for Global Change Research
IAIS	Internal Audit and Investigation Service
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICARDA	International Center for Agricultural Research in the Dry Areas
ICSPRO	Inter-Secretariat Committee on Scientific Programmes Relating to Oceanography
ICSU	International Council for Science
ICWE	International Conference on Water and the Environment
IDB	Inter-American Development Bank
IDNDR	International Decade for Natural Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAC	International Global Atmospheric Chemistry Programme
IGAD	Intergovernmental Authority on Development
IGBP	International Geosphere-Biosphere Programme
IGOS	Integrated Global Observing Strategy
IGOSS	Integrated Global Ocean Services System
I-GOOS	Intergovernmental Committee for the Global Ocean Observing System
IHDP	International Human Dimensions Programme on Global Environmental Change
IHP	International Hydrological Programme
IITA	International Institute for Tropical Agriculture
ILO	International Labour Organization
IMO	International Maritime Organization
IMO	International Meteorological Organization
IMOP	Instruments and Methods of Observation Programme
INFOCLIMA	World Climate Data Information Referral Service
INFOHYDRO	Hydrological Information Referral Service
INMARSAT	International Maritime Satellite System
IOC	Intergovernmental Oceanographic Commission
IODE	International Oceanographic Data and Information Exchange
IOS	Initial Operational System
IPA	Information and Public Affairs
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
ISSC	International Social Science Council
ITU	International Telecommunication Union
ITU-R	ITU Radiocommunication Sector
IUGG	International Union of Geodesy and Geophysics
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JI	Joint Implementation
JIU	Joint Inspection Unit
JRC	Joint Research Centre
JSC	Joint Scientific Committee
JSTC	Joint Scientific and Technical Committee
KNMI	Royal Netherlands Meteorological Institute
LAS	League of Arab States
LRIT	Low Rate Information Transmission
LRPT	Low Rate Picture Transmission
MCSS	Marine Climatological Summaries Scheme
MDD	Meteorological Data Distribution
MED-HYCOS	Mediterranean Hydrological Cycle Observing System

METEOREX	Exhibition of Meteorological Instruments, Equipment and Services
MPERSS	Marine Pollution Emergency Response Support System
MTN	Main Telecommunication Network
NAOS	North Atlantic Ocean Stations
NCDC	National Climatic Data Center
NESDIS	National Environmental Satellite, Data and Information Service
NGO	Non-governmental Organization
NHS	National Hydrological Service
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
OECD	Organization for Economic Cooperation and Development
OIS	Operational Information Service
OOPC	Ocean Observation Panel for Climate
OPAG	Open Programme Area Group
PATU	Pan-African Telecommunications Union
PHARE	Operation "PHARE" — Poland and Hungary: Assistance for Economic Restructuring
PROMET	Provision of Meteorological Information Required Before and During Flight (former title)
PROMET	Provision of Meteorological Information Required by Civil Aviation (new title)
PWS	Public Weather Services
RA	Regional Association
RADIUS	Risk Assessment Tools for Diagnosis of Urban Areas Against Seismic Disasters
RAFC	Regional Area Forecast Centre
RBSN	Regional Basic Synoptic Network
READER	Reference Antarctic Data for Environmental Research
RIC	Regional Instrument Centre
RMTC	Regional Meteorological Training Centre
RMTN	Regional Meteorological Telecommunication Network
RSMC	Regional Specialized Meteorological Centre
RTH	Regional Telecommunication Hub
6LTP	Sixth WMO Long-term Plan
SADC	Southern African Development Community
SADC-HYCOS	SADC Hydrological Cycle Observing System
SANREM	Sustainable Agriculture and Natural Resource Management
SBSTA	Subsidiary Body for Scientific and Technological Advice
SCAR	Scientific Committee on Antarctic Research
SCHOTI	Standing Conference of Heads of Training Institutions of National Meteorological Services
SDUS	Small-scale Data Utilization Station
SEACAMP	South-East Asian Centre for Atmospheric and Marine Prediction
SIDS	Small Island Developing States
SOLAS	International Convention for the Safety of Life at Sea
SOO	Ship of Opportunity
SPARC	Stratospheric Processes and their Role in Climate
SPREP	South Pacific Regional Environment Programme
START	System for Analysis, Research and Training
STEND	System for Technology Exchange for Natural Disasters
TACIS	Technical Assistance to the Commonwealth of Independent States
TCDC	Technical Cooperation Among Developing Countries
TCO	Technical Cooperation
TCP	Tropical Cyclone Programme
TCP/IP	Transmission Control Protocol/Internet Protocol
TECO	Technical Conference

TOGA	Tropical Ocean and Global Atmosphere Programme
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
UNDP	United Nations Development Programme
UN/ECA	United Nations Economic Commission for Africa
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN/FCCC	United Nations Framework Convention on Climate Change
UNFIP	United Nations Fund for International Partnership
UN/OCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNOPS	United Nations Office for Project Services
USDA	United States Department of Agriculture
VCP	Voluntary Cooperation Programme
VCP(ES)	Voluntary Cooperation Equipment and Services
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
WDC	World Data Centre
WEFAX	Weather Facsimile
WGH	Working Group on Hydrology
WHO	World Health Organization
WHYCOS	World Hydrological Cycle Observing System
WIAG	WHYCOS International Advisory Group
WIOMAP	Western Indian Ocean Marine Applications Project
WIPO	World Intellectual Property Organization
WMO	World Meteorological Organization
WMOSA	World Meteorological Organization Satellite Activities
WOCE	World Ocean Circulation Experiment
WO <sub>3</sub> DC	World Ozone Data Centre
WWRP	World Weather Research Programme
WWW	World Weather Watch
Y2K	Year 2000 problem

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