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# GENERAL SUMMARY OF THE WORK OF THE SESSION

The World Meteorological Organization held its Fifteenth Congress at the International Conference Centre of Geneva from 7 to 25 May 2007, under the chairmanship of Mr A.I. Bedritsky, President of the World Meteorological Organization. The list of participants is given in the appendix to the present report.

## 1. ORGANIZATION OF THE SESSION *(agenda item 1)*

### 1.1 OPENING OF THE SESSION *(agenda item 1.1)*

**1.1.1** The Fifteenth Congress of the World Meteorological Organization opened at 10.00 a.m. on 7 May 2007 at the International Conference Centre of Geneva with Mr A.I. Bedritsky in the Chair.

**1.1.2** A minute of silence was observed in honour of Professor G.O.P. Obasi, former Secretary-General from 1984 to 2003 and Secretary-General Emeritus of the World Meteorological Organization, who passed away on 3 March 2007 in Abuja, Nigeria; Mr R.L. Kintanar, former President of the Organization from 1979 to 1987, who passed away on 6 May 2007 in the Philippines, and other former staff who had passed away since Fourteenth Congress.

**1.1.3** The President welcomed all participants to Congress, which was a highlight in the life of the world hydrometeorological community and an example of cooperation in action, with WMO a key player. The Organization worked with governments to limit the negative impacts of weather and climate on society. It was very important to maintain the same spirit of cooperation that had characterized generations of scientists working in the National Meteorological and Hydrological Services (NMHSs) throughout the world.

He believed that Congress provided an excellent opportunity to assess the progress of the past four years. Decisions taken would make it possible to better define the role of the NMHSs and strengthen international cooperation, which was essential for those Services to develop further in the service of humanity. In addition, it would be necessary to discuss changes to the Convention of the World Meteorological Organization. WMO had broadened and strengthened its cooperation with the United Nations and other international organizations. In particular it had taken part in the 2005 World Summit – High-level Plenary Meeting of the sixtieth session of the General Assembly. As a result, WMO had understood the importance of including early warning plans in its Natural Disaster Prevention and Mitigation Programme. Operational hydrology activities within the Hydrology and Water Resources Programme should be further expanded.

It was necessary to develop cooperation with international funding agencies, in order to improve the potential of the NMHSs, especially in the least developed countries. The Development Cooperation and Regional Activities Department had been set up for that purpose. Furthermore, education and training in developing countries should continue to be given importance.

WMO had always played a leading role in climate studies and climate change. The Organization's programmes, in particular the World Climate Programme, had greatly furthered the understanding by the public and governments of climate change as a global, complex problem. The outcome performance of WMO in that area would be discussed in the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC).

The Global Earth Observation System of Systems launched after Fourteenth Congress aimed at integrating existing systems into a coordinated, sustainable system of observing systems to meet user requirements. Since then, much had been done to promote the understanding of the need to integrate observing systems, but further progress in that direction would be needed.

Since 2004, a number of structural and organizational changes had been introduced in the Secretariat upon the proposal of the Secretary-General in order to improve integrity by setting

up a new internal audit system; transparency by submitting key information for decision-making; and efficiency, by introducing cost-effective operations. The efforts of the Secretary-General were supported by a new WMO Code of Ethics based on traditional WMO values. The President urged Members to adopt the Code and actively support its application.

The Organization was confronted with a number of problems, not least the fraud, that affected its role and operation. It also had an impact in the provision of meteorological and hydrological services by NMHSs. However, it had functioned effectively and achieved a great deal over the past four years, and was well prepared to meeting the challenges of the fifteenth financial period with a clear vision of its strategy.

**1.1.4** Mr Laurent Moutinot, Vice-President of the State Council of the Republic and Canton of Geneva, said that the work of Fifteenth Congress would be an important step in promoting awareness of climate change and strategies to help protect the air, a precious resource. Natural disasters, tsunamis, drought and unprecedented climatic upheavals had turned the survival of the planet into the main concern of citizens, and the media. The work of Congress in preparing the Organization's Strategic Plan would attract global media coverage and raise hopes among those concerned about the future of the planet.

**1.1.5** Speaking on behalf of the Swiss authorities, H.E. Mr M. Ambühl, Secretary of State of the Federal Department of Foreign Affairs of Switzerland, said that climate change affected developing countries in particular, but that its impact was keenly felt in Switzerland as well. As most natural disasters were caused by hydrometeorological phenomena, discussions on climate change were making the general public and decision makers more aware of the importance of weather, water and climate in daily life, especially since the recent publication of reports by the Intergovernmental Panel on Climate Change. WMO had made important contributions to the IPCC reports but, thanks to its programmes, meteorological centres, global observing systems and network of National Meteorological and Hydrological Services, it was doing more than merely creating the basis for scientific research and climate change prediction. Without WMO, it would be impossible to meet the increasing need for hydrometeorological data and prevent, or at least mitigate, natural disasters caused by climate events. A strong WMO, dedicated to its fundamental missions, was therefore essential.

Indeed, WMO had experienced some difficult times in recent years. The embezzlement of funds discovered some weeks after Fourteenth Congress had caused serous damage. Switzerland, as a host country and Member State of several international organizations, strongly condemned any offence committed within those organizations, including WMO. Four years hence, however, the matter had been dealt with in great depth. The Government of Switzerland considered that the strengthening of internal oversight, the recent establishment of an Audit Committee and the new Code of Ethics were appropriate measures to prevent such irregularities in the future.

Transparency could be further increased through participation of Member countries between Congress sessions, as observers in the Executive Council and subsidiary bodies dealing with important governance issues. In addition, they should enjoy easy access to the documents of those bodies.

Switzerland would continue to provide WMO with technical scientific cooperation, with particular emphasis on the Global Atmosphere Watch Programme. The Federal Council had decided not only to maintain, but to increase, its financial participation in the World Radiation Centre in Davos. The Permanent Representative of Switzerland with WMO, Mr D.K. Keuerleber-Burk, serving in his capacity as president of Regional Association VI (Europe) until 2009, would also give priority to enhancing coordination with the less developed Member countries.

**1.1.6** Mr Ban Ki-moon, Secretary-General of the United Nations, emphasized in his message that Congress was meeting at a time of unprecedented public awareness of the importance of

weather, climate and water and their relation to sustainable development. WMO facilitated the international exchange of essential and timely information related thereto through its excellent global observation and telecommunication networks. That capability was vital to the achievement of the United Nations Millennium Development Goals. WMO also played an important role in promoting scientific understanding of the global climate at a time when climate change was high on the international agenda. According to the Intergovernmental Panel on Climate Change, warming of the planet was unequivocal, its impact clearly noticeable and clearly affected by human activities. WMO and National Meteorological and Hydrological Services could greatly assist societies in adapting.

WMO should continue its efforts to promote enhanced applications of science and technology, including the use of climate and weather information, and to improve predictions and early warnings on impending weather and climate hazards. Relevant officials should provide the necessary support, including budgetary support. Other important WMO undertakings included the International Flood Initiative under UN-Water, and the United Nations International Strategy for Disaster Reduction.

**1.1.7** The President conveyed a message from H.E. Mr M. Fradkov, Prime Minister of the Russian Federation, congratulating all participants of the Fifteenth World Meteorological Congress on behalf of his Government. WMO was a unique specialized agency of the United Nations and one of the oldest, which was making an important contribution to the search for responses to the challenges facing the world.

Clearly WMO played a significant role in bringing States together to solve global problems related to freshwater, clean air and climate. The Russian Federation had taken an active part in creating and developing WMO and its predecessor, the International Meteorological Organization, which had elected the representative of Russia as President of the Organization on two occasions, 1879–1896 and 2003–2007.

**1.1.8** H.E. Professor Victor Chub, Minister, General Director of UZHYDROMET, and Permanent Representative of Uzbekistan with WMO, read a message from H.E. Prime Minister Mr Sh. Mirzieev of Uzbekistan. WMO was a trustworthy international institution that facilitated the use of modern scientific and technical achievements in the field of meteorology for the benefit of all humankind. Through WMO, Uzbekistan was working to forge new links with the global community. It was gratifying to see the high level of cooperation that existed between his country and WMO, the Organization's attention to Uzbekistan and the development of Hydrometeorological Services throughout the Central Asian region.

**1.1.9** A message from H.E. Mr Hui Liangyu, Vice-Premier of China, was read by H.E. Mr Sha Zukang, Ambassador and Permanent Representative of China to the United Nations Office at Geneva and other International Organizations in Switzerland. WMO had been instrumental in promoting cooperation in the international meteorological and hydrological communities and in actively conducting global weather and climate monitoring, research, impact assessment and adaptation to climate change. WMO had made significant contributions to meteorological and hydrological services aimed at achieving sustainable development. Meteorological and hydrological work had played an important role in preparedness and mitigation of natural disasters and in the exploitation and utilization of climate resources. China had developed a concept of “public-, security- and resource-oriented meteorology”.

China had always taken an active part in WMO Programmes and activities. WMO and its Members should continue implementing a policy of free and unrestricted exchange of data and products to ensure the proper functioning of meteorological and hydrological operations and research activities. The Government of China would continue to participate in and support WMO Programmes and activities and looked forward to seeing WMO play an even greater role supporting sustainable development in the world.

**1.1.10** H.E. Hon. Mahinda Samarasinghe, MP, Minister of Disaster Management and Human Rights of Sri Lanka, stated that as the Minister in charge of Meteorology in Sri Lanka, he was well aware of the tremendous amount of work performed by the WMO for the benefit of Member countries in meteorology, hydrology and disaster management.

The scale of response from WMO and other international agencies in the aftermath of the tsunami in December 2004 was commendable. The Meteorological Service in Sri Lanka had received assistance in the form of communication upgrades, staff training and technical assistance from WMO. Several other capacity enhancement projects were under way in Sri Lanka, such as plans to procure a Doppler radar system, upgrade the upper-air observation system, and automate the weather-observing network.

The Sri Lanka Disaster Management Act had been enacted, providing a legal basis for instituting a disaster risk management system in the country. The Act provided for the establishment of the National Council for Disaster Management, a high-level inter-ministerial body under the chairmanship of the President aimed at providing direction to disaster risk management in Sri Lanka, with the Disaster Management Centre as the lead agency. A 10-year road map for disaster risk management – *towards building a safer Sri Lanka* – was under way, promoting multi-stakeholder efforts through integrated disaster risk management.

**1.1.11** H.E. Mr Predrag Nenezić, Minister of Tourism and Environmental Protection of Montenegro, pointed out that his Government was fully committed to international integrations at all levels. Although it was the youngest State and a new Member of the Organization, Montenegro had supported WMO Programmes and objectives since its establishment and its hydrometeorological service had cooperated with WMO on the implementation of its Convention. He urged WMO to support the modernization of the Montenegro National Hydrometeorological Service so that it could join regional and global systems, and looked forward to strengthened cooperation with WMO and the countries of Region VI (Europe).

**1.1.12** H.R.H. Prince Turki bin Nasser bin Abdulaziz, Minister of Meteorology and Environment and President of the Presidency of Meteorology and Environment of Saudi Arabia, said that his country had always cooperated with the international community in meteorological endeavours. Saudi Arabia continued to assume its responsibilities at the regional level and had initiated a major upgrade of its communication, surface-observing, satellite and Doppler radar systems and launched a limited area ETA model to enhance its numerical forecasting capabilities.

His Government was determined to work closely with the parties concerned to realize the objectives of WMO and those of the international community. The Presidency of Meteorology and the Environment had put in place a centre for monitoring of drought and desertification. It had also launched, in collaboration with WMO, the second phase of a project on cloud seeding, and had participated in the AMDAR programme. Furthermore, a training centre in southern Saudi Arabia would be upgraded to a specialized centre for applied and theoretical meteorology, to be supported by WMO training programmes and King Abdulaziz University, in Jeddah.

His country had launched a five-year meteorological and environmental awareness campaign and the first dedicated meteorology and environment satellite channel called “My Environment”. In conclusion, Saudi Arabia was seeking membership of the Executive Council representing Region II (Asia). It was to be hoped that all Members would support its candidacy.

**1.1.13** H.E. Hon. Professor Mike Oquaye, MP, Minister of Communications of Ghana, indicated that the year of Fifteenth Congress coincided with the year of the fiftieth anniversary of the independence of Ghana. Congress should encourage Members to implement systems and services aimed at reducing poverty and the burden of the underprivileged in society, especially women and children. As the developing world’s primary providers of food and drinking water, women needed every encouragement to go about their duties as National Meteorological and Hydrological Services provided them with weather information for cropping and harvesting. The

general public also looked up to WMO and the NMHSs to provide early warning on weather- and climate-related disasters to reduce the impacts of those events on society.

There were unequal opportunities in terms of technological advancement and a lack of resources in developing countries. WMO was to be commended for its efforts in bringing together policymakers, researchers and practitioners to discuss ways to reduce the emission of greenhouse gases and their impact on climate change. The Government of Ghana would continue to support WMO efforts to provide innovative and useful weather and climate information and services with a view to achieving sustainable development.

**1.1.14** H.E. Hon. Mr Natan Teewe, Minister for Information, Communication, Transport, Tourism and Meteorology of Kiribati, said that his country was experiencing a change in weather patterns. WMO was playing a vital role in providing guidelines, training and required instruments to enhance capacity-building in Kiribati.

It was to be hoped that Congress would strengthen international cooperation and that the participants would work together to address the global issues related to climate change for the well-being of future generations.

**1.1.15** H.E. Hon. Jeremiah C. Sulunteh, Minister of Transport of Liberia, said that the country was facing enormous post-war challenges. Liberia could hardly boast of adequate meteorological and hydrological services because of the loss of significant resources in physical infrastructure and trained staff. Weather services in support of social and economic ventures to strengthen activities such as agriculture, water resource management and weather services remained a challenge. Natural disasters caused considerable damage. In that context, a Presidential Disaster Committee headed by the Vice-President of Liberia had been commissioned by the President. He thanked WMO, Members and the European Union for their support in the development of meteorology and hydrology in his country.

**1.1.16** H.E. Professor Jan Szyszko, Minister of Environment of Poland, drew attention to the role his country had played within WMO since its inception and the Government's activities leading to the reduction of adverse effects of extraordinary natural phenomena. The Institute of Meteorology and Water Management made every effort to strengthen and modernize the infrastructure and enhance its capability to contribute effectively to the socio-economic development of Poland in all areas related to meteorology, hydrology and the environment.

It was a good idea for WMO to be involved in the organization of the World Climate Conference. The Organization should focus on operational activities in support of National Meteorological and Hydrological Services, thus contributing to the enhancement of an early warning system against dangerous phenomena. The WMO Secretariat should increase transparency in relations with WMO Members, and the Hydrology and Water Resources Programme should be enhanced in the light of water stress and its scarcity.

The Polish State Hydrological and Meteorological Service, which had been upgraded during 2000–2005, was willing to share advances with WMO Members and offered to provide training courses to assist other Services. WMO Member countries were invited to attend the fourteenth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change to be held in Poznan, Poland, on 8 December 2008.

**1.1.17** H.E. Hon. Paul Karalus, Minister of Transport and Meteorological Services of Tonga, said that as a Member of WMO his country's priority was to participate in the global endeavour to understand the atmosphere and climatic patterns that were undergoing critical changes. He thanked WMO and the Governments of Australia, New Zealand and the United Kingdom of Great Britain and Northern Ireland for their help in the recent establishment of a basic forecasting centre. However, there was a need for capacity-building assistance in his country, in particular with regard to multi-skilled human resources mobilization. Tonga was facing the effects of rising sea level and

the increasing vagaries of climatic violence. Tonga was interested in the trading of carbon credits as a way of adapting to climate change and variability.

**1.1.18** The Honorable Ms Sarah Sayifwanda MP, Minister of Communications and Transport of Zambia, expressed her appreciation to WMO, in particular through its Technical Cooperation Programme, for assistance it had provided to her country since Zambia joined the Organization in 1964. More effective use of climate information and services would enable many climate-sensitive sectors, such as agriculture, energy and water resources, and health, to cope better with the natural variability of climate and adapt to develop climate change.

The Government of Zambia had pledged to review the performance of the meteorological sector. Zambia was satisfied with the ongoing reforms within the WMO Secretariat aimed at strengthening internal controls and oversight, restoring integrity and enhancing transparency and efficiency. WMO Offices in Africa should be strengthened in order to meet the increasing workload.

**1.1.19** H.E. Ms Rejoice Mabudafhasi, Deputy Minister for Environmental Affairs and Tourism of South Africa, emphasized that many current environmental challenges were strongly linked to weather, climate and water. The highest percentage of natural disasters was caused by hydrometeorological phenomena. More needed to be done to help vulnerable National Meteorological and Hydrological Services improve forecasting tools and build skilled human resources through WMO-supported collaboration between Members' NMHSs and other regional centres. There had been considerable investment by governments on the latest meteorological infrastructure, but the challenge to NMHSs in developing countries, particularly in the least developed countries, remained and required concrete solutions.

The International Conference on Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services, held in Madrid, Spain, from 19 to 22 March 2007, had demonstrated the potential and realized benefit of meteorology to various key socio-economic sectors and the important advisory role of the NMHSs vis-à-vis their governments, funding agencies and various key sectors.

**1.1.20** H.E. Hon. M.A. Zahoud, Secretary of State for Water of Morocco, outlined the progress made in modernizing meteorology in Morocco, which had raised awareness of the role played by meteorology in economic development and the safety of life and property. Morocco was thus seen as an intermediary between Europe and Africa as regards meteorological development, hosting international events, providing assistance to African countries in such fields as weather modification and numerical weather prediction and assuming responsibilities within regional and international organizations, in collaboration with the relevant WMO departments. Morocco had also become an associate member and Euro-Mediterranean partner of the European Centre for Medium-Range Weather Forecasts. Major problems facing the world's population were water scarcity, drought, desertification, environmental degradation and the climatic and meteorological fluctuations that sometimes had disastrous impacts. All countries as well as international and non-governmental organizations should unite their efforts, resources and skills, under the aegis of WMO, which Morocco unconditionally supported, to create the necessary synergy worldwide to ensure the well-being of humanity and the planet.

**1.1.21** H.E. Mr I. Jazairy, Permanent Representative of Algeria to the United Nations Office at Geneva and other international organizations in Switzerland, expressed his appreciation for the remarkable work accomplished over the period since Fourteenth Congress. The creation of the Natural Disaster Prevention and Mitigation Programme had certainly been of great support to the National Meteorological and Hydrological Services, but disaster prevention required intensified international and regional cooperation, particularly as regards setting up an early warning system for tsunamis, in the Mediterranean as in the Pacific. In partnership with other international organizations, WMO should also participate actively in implementing international conventions, particularly as regards desertification, biodiversity and climate change. Capacity-building for

NMHSs was closely linked to the transfer of technologies to facilitate proper interpretation of meteorological and hydrological data and products, and benefited sustainable development and poverty reduction. For its part, Algeria had continued to provide training and fellowships for African meteorologists at its WMO Regional Training Centre and to host a Regional Telecommunication Hub, a Regional Specialized Meteorological Centre, a Regional Radiation Centre and a Regional Instrument Centre, all of which were being modernized.

The efforts of the Secretary-General to improve the management of its internal oversight were welcome and the proposed amendment to the WMO basic documents would have to reflect them, together with the new concerns of both developed and developing countries.

**1.1.22** Vice-Admiral Conrad C. Lautenbacher, Jr. (U.S. Navy, retired), Under Secretary of Commerce for Oceans and Atmosphere and Administrator of the National Oceanic and Atmospheric Administration (NOAA), United States of America, described the Earth observation results delivered to society since Fourteenth Congress. Noting the strong commitment of WMO to operations, building linkages between Members and supporting the Global Earth Observation System of Systems (GEOSS), a strong weather and climate observing and communications infrastructure and the integration of systems to strengthen interoperability, data collection and information exchange were highly valued. Recent regional efforts, such as the Indian Ocean Tsunami Warning System, the GOES-10 satellite repositioning in the Americas, Earth observation capabilities in Africa for public health, the North American Drought Monitor and expanded GEONETCast coverage, had resulted in real products. Globally, observations and modelling were producing state-of-the-art climate science. Operations and the sustainability of systems were best implemented through partnerships among countries as the responsible parties; facilitation and coordination by international organizations such as WMO and the Intergovernmental Oceanographic Commission of UNESCO; and private sector and public participation. WMO and its Members could accomplish that given their continued focus on basic observing systems and capacity-building. The Natural Disaster Prevention and Mitigation Programme could support upgrades to the Global Telecommunication System/WMO Information System; and investment in modelling for severe weather, flash floods and climate variability would have widespread value. The meteorological community was the ambassador for integrated observing programmes and could reach beyond existing networks to achieve results across economic sectors and national boundaries. WMO Members should inform their Ministers of the importance of Earth observing programmes to the protection of life and property and to supporting sustainable development. In becoming members of the Group on Earth Observations (GEO) countries could benefit fully from the leveraging of valuable data sets and information products produced by various organizations and programmes. Participation was therefore encouraged in the GEOSS Ministerial Summit, to be held in South Africa in November 2007.

**1.1.23** H.E. Mr Gilbert G. Noël Ouedraogo, Minister of Transport of Burkina Faso, pointed out that the main challenges facing the international community and Africa in particular were poverty reduction, strengthening of the democratic process, stability of institutions and governance. While Africa had immense natural resources that should provide a good opportunity for socio-economic development, paradoxically, the continent had been confronted by climate variations and natural disasters such as flooding, drought and locust invasions, which had brought famine and desolation in Burkina Faso, Chad, Mali, the Niger and other countries. Consequently, African policymakers had, over recent years, given high priority to climate variability and change in their poverty reduction programmes. In that context, meteorological information was of prime importance, making a vital contribution towards the control of weather and climate change and thus to promoting sustainable development. A welcome partnership had developed between Burkina Faso and WMO, as illustrated by the Saaga precipitation enhancement programme that had significantly contributed towards food security and was about to be extended to the whole subregion. WMO should, however, strengthen technical and scientific cooperation in three main areas: implementation of operational observing, data-processing and data dissemination networks; improvement of weather forecasts and climate prediction; and capacity-building in the National Meteorological and Hydrological Services.

**1.1.24** H.E. Mr Souleymane Kane, Minister of Transport and Civil Aviation of Niger, on behalf of his Government, expressed support for the important activities of WMO and the remarkable efforts made by the Secretary-General and his staff despite the many constraints, in particular for the least developed countries. There were still considerable gaps and shortcomings for which innovative, low-cost solutions were needed, including capacity-building in certain States. As discussed at the fourteenth session of Regional Association I, held in Ouagadougou from 14 to 23 February 2007, cooperation in the development of regional activities was also needed, particularly as efforts undertaken by several governments to ensure food security had been jeopardized by the impacts of severe weather and climatic events such as droughts, heatwaves, locust invasions, dust storms, tsunamis and cyclones. Congress should therefore evaluate the national and regional capacities for early warning of such phenomena and make proposals for mitigating their economic, social, health and environmental impacts, as that was of crucial importance, particularly in the Sahelian region. Notably, Niger, which hosted many specialized institutions in Niamey, had begun implementation of a special programme of the President of Niger on methods for recovery from land degradation, ecosystem regeneration and water resources management through hydro-agricultural works. Congress should create the necessary synergies for implementation of the WMO Programmes and give the necessary means to the Secretariat in striving towards excellence and placing meteorology and hydrology at the service of sustainable development.

**1.1.25** Mr Patricio Bernal, Executive Secretary of the Intergovernmental Oceanographic Commission (IOC) and Assistant Director-General of the United Nations Educational, Scientific and Cultural Organization (UNESCO), conveyed the greetings of the oceanographic community and the Director-General of UNESCO to WMO and noted that there had been a steady increase in cooperation between WMO and IOC over the past four years. The most recent Joint Consultative Meeting of the IOC and WMO Officers had reviewed various activities undertaken jointly by WMO and the IOC of UNESCO, such as follow-up to the tsunami event, Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, World Climate Research Programme and Ocean Science, GEO, Global Observing System/Global Ocean Observing System/Global Climate Observing System as well as preparations for the International Polar Year 2007–2008 and other issues of mutual interest. Progress had been made in those activities and close cooperation between IOC and WMO would continue.

**1.1.26** Mr Y. Mahamat, Director General of the Agency for Air Navigation Safety in Africa and Madagascar (ASECNA), made a brief presentation of ASECNA, its origins, current status, mission and activities in the fields of meteorology, aeronautical meteorology and meteorological training. ASECNA maintained excellent relations with WMO, the International Civil Aviation Organization, the European Organization for the Exploitation of Meteorological Satellites and the European Union as well as with the National Meteorological and Hydrological Services of its Member States. The Agency had plans to modernize the operation of the Meteorological Services, with substantial investment anticipated already in 2007 to meet priority requirements. The plans covered the four key areas of World Area Forecast System implementation, World Weather Watch implementation, training activities and cooperation. As a result, the quality of the services to aviation would be improved, in particular through strengthening of meteorological observing stations, information systems and capacity-building at the Regional Specialized Meteorological Centre in Dakar. Likewise, modern training means would be introduced at the training centres, especially the African School of Meteorology and Civil Aviation in Niamey, and consideration was being given to establishing a Liaison Office within the WMO Secretariat.

**1.1.27** Congress noted with sadness the passing away of the former Secretary-General and Secretary-General Emeritus of WMO, Professor G.O.P. Obasi, who served as Secretary-General for 20 years continuously until the end of his mandate on 31 December 2003.

**1.1.28** Mr M.L. Bah, president of RA I (Africa), conveyed a message of condolences following the deaths of Permanent Representatives and eminent personalities related to WMO, including Mr H. Diallo, former Director of the Technical Cooperation Department, Professor G.O.P. Obasi,

former Secretary-General and Secretary-General Emeritus of WMO, and Mr R.L. Kintanar, former President of WMO. He paid homage to Professor Obasi's considerable accomplishments on behalf of Africa and the whole world, highlighting Professor Obasi's vision for the future of meteorology as evident in his contribution to the organization of the United Nations World Conference on Environment and Development, held in Rio de Janeiro, Brazil, from 3 to 14 June 1992, and the implementation of the various United Nations conventions concerning the environment. Professor Obasi would remain in the memory of future generations of meteorologists as the founder of many regional centres of excellence for training specialists in atmospheric sciences and for the great efforts he had made to attain the Organization's objectives.

**1.1.29** Mr A.M.H. Isa, president of RA II (Asia), expressed sympathy and deepest condolences to the family of Professor Obasi. Professor Obasi had been most diligent in promoting meteorology in developing countries and instrumental in raising the profile and visibility of National Meteorological and Hydrological Services in the least developed countries. He had played a key leadership role in promoting international cooperation and in promoting global solutions to various scientific issues within the scope of competence of WMO.

**1.1.30** Mr Viñas García, president of RA III (South America), pointed out that for more than 20 years Professor Obasi had devoted his life to promoting meteorological activities, especially in developing countries. As president of RA III, and on behalf of the Members of the Region, he expressed condolences to Professor Obasi's family and friends and Members of WMO.

**1.1.31** Mr C. Fuller, president of RA IV (North America, Central America and the Caribbean), said that, during a period of turbulent change in the international arena, Professor Obasi had steadily ensured that the Organization and the National Meteorological and Hydrological Services remained the authoritative voices on all meteorological and hydrological matters. As a former academic and educator, he had appreciated the need for the NMHSs to have well-qualified professional and technical staff, championing the cause of developing countries as regards fellowships and technical support to ensure the sustainability and development of their Services. During his tenure, the number of Regional Meteorological Training Centres had increased and the quality of their programmes had been enhanced. He had overseen the strengthening of the global observing programme and the exchange of data as well as a dramatic improvement of forecasting and warning systems.

**1.1.32** Mr A. Ngari, president of RA V (South-West Pacific), conveyed his condolences to Mrs Obasi and her family for their loss. The legacy of Professor Obasi would continue to live in the Region, particularly as Professor Obasi had believed in academic pursuits, and the promotion of meteorology and hydrology in developing countries could be seen in that Region as a result. An increase in WMO Members in RA V in the past eight years was further evidence of the vision of Professor Obasi.

**1.1.33** Mr D.K. Keuerleber-Burk, president of RA VI (Europe), extended condolences to the family and relatives of Professor Obasi. Professor Obasi had headed the Organization for more than 20 years, preparing it for the twenty-first century, and had had the foresight to take into account the needs of developing countries, to set up new programmes and to erect a new building of which all Members could be proud.

**1.1.34** Mr Qin Dahe of the Chinese Delegation said that Professor Obasi had been devoted to the advancement of international cooperation in the fields of meteorology, hydrology and geophysical sciences throughout his life. From 1984 to 2003, as Secretary-General of WMO, he had led international efforts to solve many environmental issues. He had also been a great facilitator for a number of United Nations environment-related conventions and programmes, including the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification, the Intergovernmental Panel on Climate Change and the Vienna Convention for the Protection of the Ozone Layer. Professor Obasi had also made significant contributions to promoting meteorology and hydrology in developing countries,

particularly in Africa. The gap between developed and developing countries in that regard had been narrowed. Condolences on the passing away of Mr R.L. Kintanar were also expressed to his family. The former President of WMO had been highly esteemed for his devotion to WMO and the meteorological community as a whole.

**1.1.35** Mr I. Cacic of the Croatian Delegation, on behalf of the Informal Conference of South-East European Directors, expressed deep sorrow at the death of Professor G.O.P. Obasi, as well as gratitude for his 20 fruitful years as Secretary-General. After his involvement, the first Informal Conference of South-East European Directors had been organized in 2001 and had become a regular occurrence. Participation in the feasibility study on the status and the needs of the National Meteorological and Hydrological Services was then notably under the umbrella of WMO, the World Bank and the International Strategy for Disaster Reduction. Professor Obasi's influence was also reflected in the establishment of the Subregional Drought Management Centre for South-Eastern Europe. Professor Obasi had been at the forefront in drawing the world's attention to the issue of climate change and protection of the ozone layer, and had played an important role in the negotiations leading to the establishment of the related United Nations conventions.

**1.1.36** Mr A.R. Al-Harami of the Omani delegation expressed condolences to the family of Professor Obasi. As Professor Obasi had dedicated all his efforts to the development of WMO for 20 years, he proposed that a conference hall in the WMO building be named in his honour.

**1.1.37** Congress noted the outstanding services rendered by the late Professor G.O.P. Obasi and his outstanding contributions in support of the activities of the Organization and for the initiatives launched by him for the promotion of meteorology and operational hydrology. Congress requested the Executive Council to study ways and means of immortalizing the memory of Professor G.O.P. Obasi.

### 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 follows:

Regional Association I – Cameroon, Ethiopia, Libyan Arab Jamahiriya and Namibia
Regional Association II – Mongolia, Saudi Arabia and Sri Lanka
Regional Association III – Ecuador
Regional Association IV – Barbados and Jamaica
Regional Association V – Tonga
Regional Association VI – Italy, Jordan, Poland and Spain

Mr F. Uirab (Namibia) was elected chairperson of the Credentials Committee.

### 1.3 APPROVAL OF THE AGENDA *(agenda item 1.3)*

Congress approved the proposed annotated agenda as contained in Cg-XV/Doc. 1.3, REV. 1.

### 1.4 ESTABLISHMENT OF COMMITTEES *(agenda item 1.4)*

The following committees were established:

#### *Nomination Committee*

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

Regional Association I – Guinea (president of RA I), Burkina Faso and Zambia
Regional Association II – Bahrain (president of RA II) and Pakistan
Regional Association III – Venezuela (president of RA III)
Regional Association IV – Belize (president of RA IV) and Netherlands Antilles and Aruba
Regional Association V – Cook Islands (president of RA V)
Regional Association VI – Switzerland (president of RA VI), Belgium and Hungary

Mr A. Majeed H. Isa (Bahrain) was elected chairperson of the Nomination Committee.

***Working committees***

**1.4.2** Two working committees were established to consider various agenda items as indicated below:

(a) **Working Committee A**

Co-chairpersons: Ali Mohammad Noorian (Islamic Republic of Iran)
M.M. Rosengaus Moshinsky (Mexico)

The Committee reported to Congress on the following agenda items:

3.1, 3.2, 3.3, 3.4, 3.9, 6, 7.1, 7.2, 7.3, 7.5, 9.1 and 9.3

(b) **Working Committee B**

Co-chairpersons: T. Sutherland (British Caribbean Territories)
C.Y. Lam (Hong Kong, China)

The Committee reported to Congress on the following agenda items:

2.1, 2.2, 2.4, 3.5, 3.6, 3.7, 3.8, 3.10, 4, 5, 7.4, 8, 9.2, 10, 11.1, 11.2 and 11.3

**1.4.3** The following subcommittees reporting to the working committees were established for in-depth discussion and detailed consideration of particular items:

- Amendments to the Convention, Chairperson, A. Eliassen (Norway);
- Amendments to the General, Technical and Financial Regulations, Chairperson, J.R. Mukabana (Kenya);
- Hydrology and Water Resources, Chairperson, I. Obrusnik (Czech Republic);
- Strategic and Operational Planning, Chairperson, D. Grimes (Canada);
- Budget and Proportional Contributions, Chairperson, W. Kusch (Germany);
- Financial Matters, Chairperson, J. Lumsden (New Zealand).

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

The Credentials Committee submitted five reports concerning the credentials of the delegates of Members, non-Members and international organizations. Those reports were approved by Congress.

## 1.6 MINUTES *(agenda item 1.6)*

**1.6.1** Congress decided that no minutes of plenary meetings at sessions of Congress should be prepared unless otherwise decided for special items. Audio recordings of plenaries would continue to be made and would be retained for the record.

**1.6.2** Congress decided to prepare minutes for items 2.1, 2.2, 12.1, 12.2, 12.3 and 15. The minutes of the second, third, fourth, eighth and ninth plenary meetings were approved during the session, and the minutes of the tenth and nineteenth plenary meetings would be approved by correspondence.

**1.6.3** Congress also decided to suspend General Regulation 109 for the duration of the Congress and agreed on the distribution of documents eight hours prior to discussion at plenary meetings.

## 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, including the summary of the activities of the Organization, its constituent bodies and the Secretariat since the close of Fourteenth Congress.

**2.1.2** The President underlined the importance of the work done by WMO during the intersessional period and expressed his appreciation to all those who had contributed to the achievements and successes of the Organization. The membership of the Organization had recently increased to 188, with Montenegro being the newest Member of WMO. The officers elected at Fourteenth Congress continued their duties, except for the Third Vice-President position, which had become vacant after Mr Rabiolo informed the President that he was no longer the Permanent Representative of Argentina with WMO. Likewise, the Executive Council, the regional associations and the technical commissions, as well as the Secretariat, had carried out their work efficiently. The fraud case discovered by the Secretariat had overshadowed the work of the Organization since Fourteenth Congress. Measures had been taken, both to minimize the damage and to ensure that the situation would not recur, and the case had been transmitted to the Swiss authorities.

**2.1.3** During the next four years, the Organization would have to face several challenges. Those included the necessity to develop a strategic plan to respond more efficiently to the activities of the Organization; the need to strive to achieve recognition of the role of WMO as the main source of statistical data on hazardous meteorological and hydrological phenomena; the need to develop indicators linking the risks of natural disasters on the economy and the population; the need to expand partnerships with both the United Nations and other organizations; developing further the concept of hydrometeorological security; assessing the social and economic benefits of meteorological and hydrological services; contributing to the International Polar Year 2007–2008; participating actively in the preparations for the World Climate Conference-3; increasing the accuracy of weather forecasting; fostering the introduction of new education and training technologies; addressing the crucial issue of disaster prevention and mitigation; creating an appropriate coordination mechanism for international WMO cooperation; and integrating resource mobilization to achieve the strategic goals of WMO.

**2.1.4** Congress reviewed the various matters affecting the current operation and future development of the Organization as summarized in the report of the President and expressed its satisfaction with the work done on those and other issues in preparation for their consideration by Fifteenth Congress. Congress further noted with satisfaction the action taken by the President on behalf of the Executive Council since its fifty-fifth session in May 2003.

**2.1.5** Those matters in the report of the President that called for specific action by the 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 various issues were covered in the documents submitted to Congress under relevant agenda items.

**2.2.2** The Secretary-General noted the presence of Ministers and high-ranking officials at the opening ceremony and welcomed to the Congress the most recent Member of WMO, Montenegro. He recalled that during the months following his appointment he had concentrated on preparing to assume his future responsibilities. However, a major fraud involving the misappropriation of WMO fellowship funds had been discovered shortly after Fourteenth Congress and an internal investigation had been initiated. Although there were very few precedents within the United Nations system, it was decided to hand over the case to the highly respected Swiss Judiciary, which had so far recovered about US$ 300 000 from the estimated US$ 3.5 million of embezzled funds. Upon assuming his post in January 2004, the Secretary-General had assigned the highest priority and urgency to an overarching reform effort through an action plan, coupled with advice from internal and external experts, including the WMO external auditor, the United Nations Comptroller and the Joint Inspection Unit, while providing regular information to the Executive Council, the Permanent Representatives and Members' Missions in Geneva. He stressed the vital role of the Audit Committee, established by the Executive Council at its fifty-sixth session in June 2004, and announced that, in its report to Congress, the Audit Committee would provide information on its recent meeting with the judge responsible for the investigation, in particular that the judge's presentation was consistent with information provided by the Secretary-General, who had waived the immunity of WMO staff whenever requested to do so. The Secretary-General noted that, since 2004, the External Auditor had been able to issue three consecutive unqualified opinions of WMO accounts. The Secretary-General reviewed measures adopted in the areas of fellowships and financial controls, as well as those taken to actively engage the Secretariat staff, which had received extensive training on fraud detection and the new WMO Code of Ethics. He noted that essential lessons had been learned from the dramatic situation existing at the beginning of the financial period, to the point that WMO was currently much stronger and more transparent. The Secretary-General concluded by expressing his appreciation to all Secretariat staff for their dedication and their support in the collective effort to rebuild the Organization.

**2.2.3** Congress noted the measures taken for changes to the Secretariat in order to enhance support to Members, increase the role, contribution and visibility of WMO including National Meteorological and Hydrological Services, and to ensure improved mutually beneficial interaction with relevant operational, scientific, academic, capacity-building and policymaking institutions and bodies at the national, regional and international levels.

**2.2.4** Congress noted with appreciation the actions taken by the President and the Secretary-General for fraud prevention, such as the establishment of the Audit Committee of the Executive Council, the Internal Oversight Office and the Fellowships Committee, to further enhance internal controls and oversight, and to restore integrity, enhance transparency and improve efficiency, as well as keeping Members informed of the progress on the matter. In that context, Congress invited the President and the Secretary-General to take further measures and actions for transparency and for Members to be more involved.

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

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

### 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, in accordance with the authority delegated to it by Fourteenth Congress, the Executive Council had approved a substantial number of amendments to Annexes II, III, IV and V to Volume I of the *Technical Regulations* (WMO-No. 49), proposed by the Commission for Basic Systems, to Annex VI, proposed by the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, and to Volume III, proposed by the Commission for Hydrology.

**2.4.3** Congress 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 that had to be implemented before the next session of Congress. 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-XV) – Technical Regulations of the World Meteorological Organization.

## 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)*

**3.1.0.1** Congress noted with appreciation the report of the president of the Commission for Basic Systems (CBS) on the activities of the Commission since Fourteenth Congress and welcomed the contribution of CBS to the implementation and utilization of World Weather Watch (WWW) basic systems comprising Earth and space-based observing, telecommunication, data-processing and forecasting systems and data management techniques to provide enhanced severe weather warnings and forecasts, environmental monitoring and prediction products, including long-range forecasts and climate predictions, in particular with a view to enabling the NMHSs to mitigate and respond to natural disasters. Congress also welcomed the contribution of CBS in the development of the Public Weather Services programme (see agenda item 3.4.1). Congress was also pleased by the significant contribution and critical role of CBS as regards cross-cutting programmes and activities, including Natural Disaster Prevention and Mitigation, the WMO Information System (WIS) and Quality Management Framework. Congress noted with satisfaction that CBS had intensified collaboration with the Commission for Atmospheric Sciences concerning the World Weather Research Programme (in particular THORPEX and Public Weather Services matters), with the Commission for Climatology concerning seasonal to inter-annual climate predictions as well as data management and Global Climate Observing System matters, with the Commission for Instruments and Methods of Observation concerning automatic weather stations and radiosonde systems, with the Commission for Aeronautical Meteorology concerning aeronautical codes and AMDAR, and with the Joint WMO/IOC Commission for Oceanography and Marine Meteorology concerning marine in situ observing systems, including voluntary observing ship as well as data management and WIS development. Congress noted the role of the president of CBS in representing the Commission at sessions of other technical commissions and regional associations, in the Meetings of the Presidents of Technical Commissions, in the Executive Council Advisory Group on the International Exchange of Data and Products and in the Consultative Meetings on High-level Policy on Satellite Matters.

**3.1.0.2** Congress noted that CBS had held its thirteenth session in St Petersburg, Russian Federation, from 23 February to 3 March 2005, and its extraordinary session in Seoul, Republic of Korea, from 9 to 16 November 2006. The thirteenth session had been preceded by a Technical Conference on Public Weather Services, held on 21 and 22 February 2005, which focused on innovations and new technologies for improved services, disaster mitigation and prevention, and social and economic benefits of Public Weather Services. The extraordinary session had been preceded by a Technical Conference on the WMO Information System, held from 6 to 8 November 2006, where presentations of technical solutions and prototypes were made and recommendations on WIS plans, objectives and enhanced services for all WMO Programmes were developed. Congress recognized the value of the continuing practice of organizing Technical Conferences just preceding CBS sessions.

**3.1.0.3** Congress recalled with satisfaction that the existing CBS Open Programme Area Groups Expert Teams included more than 160 experts and had accomplished a great deal of work. More than 50 meetings, workshops and seminars had been held since 2004 on matters falling under the Commission's purview or otherwise related to the WWW. It appreciated the important role of the CBS Management Group in the coordination of overall CBS activities. Congress was pleased to note the inter-programme role entrusted to several CBS Expert Teams for ensuring coordination and collaboration with other WMO Programmes in addressing cross-cutting requirements. It noted that the CBS activities and accomplishments were reviewed in detail under the relevant agenda items, especially 3.1.1 to 3.1.4 and 3.4.1.

**3.1.0.4** Congress recognized with appreciation that CBS had greatly invigorated its collaboration with the regional associations. That was achieved through the practice of facilitating the participation of the chairpersons of the six Regional Working Groups on the WWW in the sessions of the Commission, participation of relevant regional coordinators or rapporteurs in the CBS Expert Teams, and a series of expert-level meetings and workshops in the Regions facilitated by CBS lead experts. That had, over the years, improved the WWW implementation activities in the Regions and ensured a better understanding of Region-specific aspects in the work of CBS. In that regard, Congress emphasized the essential role of regional Working Groups on Planning and Implementation of the WWW (WG-PIW) in developing and coordinating regional implementation of WWW and related systems, including strategic plans for enhancing basic systems, implementation plans for the migration to table-driven code forms, plans for WIS development and implementation, capacity-building and training activities. Congress emphasized that, within the limit of available resources, the budget allocated to the regional WG-PIW activities should be sufficient to effectively carry out their important activities to meet the expected goals.

**3.1.0.5** Congress also encouraged an increased participation of representatives of other technical commissions and programmes in sessions of CBS, as that promoted inter-programme coordination and collaboration. It noted that significant progress had been made in the establishment of Regional Climate Centres in Region II. RA II had recommended both the Tokyo Climate Centre and the Beijing Climate Centre as components of the network of Regional Climate Centres. Congress asked the Commission for Basic Systems to facilitate the establishment of Regional Climate Centres in collaboration with the Commission for Climatology.

**3.1.0.6** Congress noted the significant activities that were taking place towards the creation of an Integrated Global Observing System (see agenda item 7.4). It urged CBS Open Programme Area Groups and the Secretariat to ensure that their work was closely linked up with that initiative to ensure that maximum benefits and efficiencies were realized.

**3.1.0.7** Congress recognized that the WWW had continued to be the “core” operational facility for all WMO Programmes as well as many international programmes of other agencies. Congress reaffirmed that the WWW continued to be the backbone Programme of WMO that not only accomplished its goals through the coordinated efforts of Members, but also actively contributed to cross-cutting activities, particularly the technical development of the WMO Information System and of the concept of integrated observing systems. As well, the Global Data-processing and

Forecasting System continued to be an important data-synthesizing component that supported an increasing number of meteorological applications, including emergency response, early warning systems, and in enhancing socio-economic benefits. Congress also agreed that there was a need to strengthen the visibility of the WWW, by increasing public awareness of the unique WMO Programme, which contributed to the security of life and property and sustainable development. It confirmed that the unique components of the WWW should provide significant, if not core, contributions to the GEOSS and that collaboration, in turn, should contribute to further the development and enhancement of the World Weather Watch. Congress also stressed the need to explore additional resources for strengthening the components of the WWW, especially in developing countries.

**3.1.0.8** Congress noted that the indispensable role and substance of the WWW Programme and related CBS activities were reflected in the WMO Strategic Plan. It also confirmed that WWW continued to provide an effective mechanism for the application of developments in science and technology in operations of meteorological and hydrological services as well as for most of the other WMO Programmes. Congress stressed the need to ensure that the budget of the World Weather Watch Programme reflected the highest priority attributed to that Programme and was sufficient to carry out its important activities to fulfil the core activities of the Organization. Congress adopted Resolution 2 (Cg-XV) – World Weather Watch Programme for 2008–2011.

### 3.1.1 Global Observing System *(agenda item 3.1.1)*

**3.1.1.1** Congress noted with appreciation that the Global Observing System (GOS), through coordinated efforts of Members, continued to provide unique and sustainable observational data and information on the state of the Earth and its atmosphere to meet evolving requirements of various users. It underlined that along with the broadening satellite data and services, especially through research and development satellites, further improvements were achieved in the availability of data produced by other components of the GOS, notably marine and AMDAR data. Congress specifically noted NOAA activities to move GOES-10 to 60 degrees West in order to enhance coverage of the Americas, the EUMETSAT decision to continue dissemination of Meteosat-8 imagery through EUMETCast for that region and the contribution of Spain to a WMO trust fund for the acquisition of receivers for the Ibero-American NMHSs. By significantly improving satellite detection of such natural hazards as severe storms, floods, drought, landslides and wildfires, those moves would help to protect lives and property in North, Central and South America as well as the Caribbean. Congress also welcomed the decision of EUMETSAT to relocate Meteosat-7 to continue the Indian Ocean Data Coverage mission until 2008, as well as the DCP service provided for buoys operated in support of the Indian Ocean Tsunami Warning System, as agreed by the Coordination Group for Meteorological Satellites at its thirty-fourth session, held in Shanghai, China, from 2 to 7 November 2006.

**3.1.1.2** Congress noted with satisfaction that the major activities of CBS in the domain of observations were concentrated on the evolution of the Global Observing System, coordination and advice on satellite system matters, satellite utilization and products, requirements and representation of data from automatic weather stations, scientific evaluation of Observing System Evaluations and Observing System Simulation Experiments, cooperation with the Global Climate Observing System, integration of AMDAR in WWW operations, and revision and updating of GOS regulatory material. As a result of individual and collective activities of Members and the Secretariat during 2004–2007, the availability of reports on the Main Telecommunication Network had shown an increasing stability, globally, constituting the following:

- Surface data: 79 per cent of expected reports (with 2 per cent oscillation during the period);
- Upper-air data: 71 per cent of expected (positive trend from 63 per cent in 2003);
- BUOY reports increased from 11 000 to 34 000;

- AIREP varied between 3 400 and 5 200;
- AMDAR reports increased from 15 000 to 42 000.

Congress noted with concern that the number of ships contributing to the Voluntary Observing Ships (VOS) scheme was decreasing. It reiterated the importance of the VOS as a component of the GOS, and of the Port Meteorological Officers as the bridge between NMHSs and the shipping industry. It therefore urged CBS to continue to work closely with JCOMM and the shipping industry to reverse that trend and enhance global coverage of marine meteorological data on the Global Telecommunication System. In that context, Congress noted the report of the WMO-IMO Consultative Meeting (Geneva, 12–13 February 2007) and the concern raised by ship owners regarding ships' security arising from the real-time availability of ships' weather reports on external websites. It also noted that the matter would be discussed by the Executive Council at its fifty-ninth session. Congress recognized the need to continue to work closely with the International Civil Aviation Organization and the aviation industry to ensure the continued expansion of the essential AMDAR Programme. Recognizing the limitations of the current monitoring statistics, Congress asked CBS to consider new ways of measuring the effectiveness of the Global Observing System.

**3.1.1.3** Congress appreciated and supported recent CBS proposals in the context of the operations and development of the future composite GOS, which aimed to contribute markedly to alleviating deficiencies in the surface and upper-air data coverage. Congress reaffirmed that the Global Observing System should continue its fundamental mission in providing, through coordinated efforts of Members, timely, reliable and consistent meteorological data to meet the national, regional and global requirements. In view of the growing significance of the GOS operations, Congress adopted Resolution 3 (Cg-XV) – Global Observing System.

### 3.1.2 WWW information system and services, including the Global Telecommunication System and data management (*agenda item 3.1.2)*

**Global Telecommunication System**

**3.1.2.1** Congress noted with satisfaction the significant progress made in the implementation of the Global Telecommunication System (GTS). Implementation of the improved Main Telecommunication Network project was nearing completion and had facilitated a progressive but rapid implementation of effective and reliable data-communication network services for the core GTS services. Congress expressed its great appreciation for the collaborative and fruitful efforts made by the NMHSs concerned that contributed to the upgrade of the overall Global Telecommunication System as well as to an effective building block for the WMO Information System. GTS links had been significantly improved in all Regional Meteorological Telecommunication Networks, although serious shortcomings persisted in some Regions at the regional and national levels. Considerable progress was also made in the implementation of computer-based systems for GTS/GDPFS functions in WWW centres through the introduction of cost-effective PC-based systems in several developing countries.

**3.1.2.2** Congress was pleased that CBS continued to develop and update recommended practices and guidance on information and communication technologies that had facilitated taking early benefit from the new opportunities by Members and regional associations, and attaining a more cost-effective GTS. Congress emphasized the importance of providing and sharing information, experience and advice between NMHSs on new information and communication techniques and services, and it requested to further strengthen those activities in the future. Congress encouraged Members and regional associations, with the technical support of CBS, to pursue their fruitful efforts towards a 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. In that respect, Congress made a plea for resolute cooperative efforts to support the modernization of national data collection of National Meteorological Centres and Regional Telecommunication Hubs systems in developing countries, in order to overcome the persisting

shortcomings in national and regional data collection, particularly in parts of Region I, with the highest priority to National Meteorological Centres that were not yet connected to the Global Telecommunication System.

**3.1.2.3** Congress noted with appreciation that in several regions the Regional Meteorological Telecommunication Networks were being improved by the continued implementation of advanced data-communication network services, that had proven to be cost-effective, with a very high reliability and full security, a guaranteed quality of service and an easy connectivity and scalability. Congress noted that new and imaginative administration and financial arrangements and partnership were required to share and take full benefit from those new data-communication network services, and it invited NMHSs to be as flexible as possible in that regard, taking account of respective national policies.

**3.1.2.4** Congress emphasized the prime importance of using relevant international industry standards and technology, which were providing better opportunities for considerable enhancements in the capacity, versatility and cost-effectiveness of information systems and services. Use of international standards was also greatly facilitating effective cooperation assistance to developing countries. Congress also noted with appreciation the guidance for using the Internet developed by CBS on procedures and implementation options that would minimize the operational and security risks for NMHSs. It noted with appreciation the work that had been performed by CBS and requested it to pursue the continuous review, update and further development and promotion of relevant recommended practices and guidance on information and communication technology.

**3.1.2.5** Congress noted with satisfaction the extensive implementation and significant technological upgrades of satellite-based multipoint telecommunications systems that were operating as integrated components of the GTS for the distribution of large volumes of information, in complement to the dedicated connections. Each WMO Region was completely covered by at least one satellite-based data-distribution system, and several systems were implemented at the national or subregional level. Satellite-based systems using digital video broadcasting or digital audio broadcasting techniques, which were enabling a very cost-effective distribution of large volumes of data, were implemented or firmly planned in several Regions. Congress expressed its gratitude to all Members and organizations operating satellite-based meteorological data distribution systems for the benefit of all NMHSs.

**3.1.2.6** Congress was pleased that CBS continued to further enhance operational procedures for the effective exchange of data, products and related metadata, including high-priority information such as warnings. It noted with satisfaction the operational arrangements made for the effective support to tsunami warning systems for the prompt distribution of warnings and the collection and exchange of sea-level, deep-ocean tsunami detection and seismic data. Congress asked CBS to further review the exchange and routing mechanisms for messages and files on the GTS, considering the WMO Information System and with a view to improving exchange of high-priority data and products in support of a virtual all-hazards network within the WIS-GTS.

**WMO Information System**

**3.1.2.7** Congress recalled the Fourteenth Congress decision to establish an overarching WMO Information System (WIS) that would be used for the collection and sharing of information for all WMO and related international programmes. Congress recognized the good progress that has been made in demonstrating the technological solutions for WIS through pilots and prototypes projects, but noted that much work remained to be done before an operational version of WIS could be realized. It emphasized the need for adequate financial and human resources for the proper development of WIS and, importantly, its introduction into operations, complementing and following up the considerable efforts made by a few Members. In that regard, it expressed satisfaction for the establishment of a WIS Trust Fund to facilitate potential financial donations from

Members and organizations for fostering the technical development and implementation of the key components of the WMO Information System.

**3.1.2.8** Congress agreed that the WMO Information System should provide three fundamental types of services to meet the different requirements, as follows:

(a) *Routine collection and dissemination service for time-critical and operation-critical data and products:* The service was based on real-time "push" mechanism including multicast and broadcast; it would be implemented essentially through dedicated telecommunication means providing a guaranteed quality of service;

(b) *Data discovery, access and retrieval service:* The service was based on request/reply "pull" mechanism with relevant data management functions; it would be implemented essentially through the Internet;

(c) *Timely delivery service for data and products:* The service was based on delayed mode "push" mechanism; it would be implemented through a combination of dedicated telecommunication means and of public data-communication networks, especially the Internet.

Congress recognized the importance of all three service components to the WMO Information System. Congress recognized the routine collection and dissemination service and the timely delivery service not only supported the basic operations of NMHSs but were also critical to the WIS architecture and their improvement should have the highest priority.

**3.1.2.9** Congress emphasized that the WIS implementation should build upon existing WMO information systems in a smooth and evolutionary process. It agreed that the WIS implementation plan had two parts that would be developed in parallel:

(a) *Part A:* the continued consolidation and further improvements of the GTS for time-critical and operation-critical data, including its extension to meet operational requirements of WMO Programmes in addition to the World Weather Watch (including improved management of services);

(b) *Part B:* an extension of the information services through flexible data discovery, access and retrieval services to authorized users, as well as flexible timely delivery services.

Congress emphasized that, in implementing Part A of the WIS implementation plan, highest priority should be given to overcoming the persisting shortcomings in the current GTS implementation.

**3.1.2.10** Congress also noted the WMO Integrated Global Data Dissemination Service as one component of the WIS, which, as a system, was the exchange scheme of space-based observation data and products for WMO Programmes (see also agenda item 3.10).

**3.1.2.11** Congress emphasized that the support and involvement of all NMHSs, including regional associations and technical commissions, in the WIS development was a crucial factor for ensuring a successful implementation and a shared ownership of the system. An important goal for the WIS had been facilitating a cost-effective access to and reception of WMO Programmes' data and products for NMHSs of developing countries and least developed countries. Congress emphasized the need for a coordinated action plan to build capacity in developing countries to enable them to participate in WIS, and the importance of involving developing countries' experts in the development work of WIS to take account of the realistic capabilities, opportunities and constraints for the participation of the NMHSs of developing countries in the WIS. Congress emphasized the importance of continuing to promote the awareness of WIS services to the NMHSs as well as potential user communities, including through a pilot demonstration project with the involvement of NMHSs from developing countries.

**3.1.2.12** Congress confirmed the leading role of CBS in the further development of the WIS, and noted with satisfaction that it had established several CBS Information Systems and Services Expert Teams to directly contribute to the WIS development. It re-affirmed that WIS was serving all WMO Programmes and confirmed the critical role of the Intercommission Coordination Group on the WMO Information System (ICG- WIS) as a coordination mechanism spanning across WMO Programmes and technical commissions, as well as across global and regional levels. It emphasized that significant further work was required from all the individual WMO Programmes and Regions, as well as through a common effort, to ensure the successful development and implementation of the WMO Information System. It agreed that the WIS activities should be supported through contributions from each Programme, which should be commensurate with their respective budgetary resources. Congress recognized that the Regional Working Groups on Planning and Implementation of the WWW should take a leading role in the regional WIS development and planning.

**3.1.2.13** As the WIS was developing as a major component of all WMO Programmes, Congress emphasized the need for appropriate regulatory documentation including organization and recommended practices and procedures, for example a Manual on the WMO Information System, as well as an implementation plan and guidance material for facilitating the implementation by Member countries at the global, regional and national levels. It tasked CBS, in collaboration with the ICG-WIS, to develop regulatory documentation in phases based on the validation of preliminary organizational, functional and operational design. Congress noted with appreciation that CBS, upon ICG-WIS recommendations, agreed upon procedures for the designation Global Information System Centres (GISC) and the Data Collection or Production Centres (DCPC), which were similar to the procedures that had been successfully used for Regional Specialized Meteorological Centres under the World Weather Watch Programme. Congress endorsed in principle those procedures and encouraged Members to adhere to them until their eventual inclusion in regulatory documentation related to the WIS. It noted that the designation of DCPCs was mainly based on the functions and operational capabilities of centres and would also take consideration of the geographical distribution and relevant zone of responsibility, in coordination with the relevant regional associations.

**3.1.2.14** Congress noted and supported the main following activities and time frame for the development and implementation of the WMO Information System, and urged all Members and the Secretary-General to identify the necessary resources for reaching the following objectives:

(a) Consolidate plans on development, governance and implementation of WIS: 2007–2008;

(b) Develop WIS regulatory documentation and guidance material: 2007–2008;

(c) Implementation of first operational GISC: 2008;

(d) Implementation of other operational GISCs: 2009–2011;

(e) Implementation of DCPCs, i.e. WIS interfaces at WMO programmes' centres: 2008–2011.

**3.1.2.15** Congress emphasized that the WIS, as a system with essential data exchange and data management services, would have to play a core role in the GEOSS as an essential WMO contribution with respect to weather, water and climate data and products. In that regard, it invited GEO to consider WIS as a core contribution of WMO to the GEOSS.

**WWW Data Management**

**3.1.2.16** Congress was pleased to note that a large number of WWW centres were participating in the annual global monitoring of WWW operations. The special Main Telecommunication Network monitoring was providing complementary results on a quarterly basis enabling more detailed analysis. It was pleased that CBS continued to improve monitoring procedures and was implementing an integrated monitoring plan, and it agreed that efforts should be pursued to monitor all types, including

binary forms, of data and products. Congress expressed its appreciation that Germany was providing, free of charge to WMO Members, a comprehensive PC-based monitoring software.

**3.1.2.17** Congress was pleased that CBS had developed and agreed upon, in coordination with other technical commissions, version 1.0 of the WMO core metadata profile of the International Organization for Standardization (ISO) metadata standard, with a view to providing unambiguous description of data exchanged by all WMO Programmes. Noting the importance of ensuring the interoperability of information systems between the WMO Programmes and outside the WMO community, Congress requested all WMO Programme to join their efforts with CBS in the further development of WMO metadata taking benefit of international standards, in particular the 19100 ISO series of geographic information standards, for defining, describing, exchanging and managing information within WIS. It welcomed the interaction with ISO in developing extensions to the current metadata standards to meet WMO Programme requirements, for example for time information. Congress stressed the need to assist NMHSs in implementing metadata generation and exchange, and requested CBS to develop recommended practices, procedures and guidelines for operation, including training. Congress also noted initiatives aiming at standardizing the presentation and exchange of spatial information, which embedded meteorological data, such as INSPIRE of the European Union, and it stressed the need to ensure that WMO Programme requirements and the relevant WMO systems and standards were recognized by those initiatives.

**3.1.2.18** Congress noted with satisfaction the continuous development of the WMO codes and code tables, in particular table-driven code forms FM 92 GRIB Edition 2, FM 94 BUFR and FM 95 CREX, in response to new and evolving requirements, such as the exchange of sea-level data for tsunami warning systems, as well as new requirements from aeronautical meteorology.

**3.1.2.19** Congress noted the slow implementation of the migration to table-driven code forms, which had begun on 2 November 2005; it supported the initiative taken by the Commission for Basic Systems to increase the awareness of the benefit of the migration by the NMHSs. Congress urged all WMO Members and regional associations, with the Commission's guidance, to develop and implement plans for the migration as soon as feasible to meet the requirements of the rapidly evolving science and technology, including the capabilities of new observing systems. Congress stressed the need of developing countries for assistance in implementing the migration in the form of guidance, encoder-decoder software, training and pilot projects. Congress expressed appreciation that ECMWF and some WMO Members made encoding/decoding software available free of charge for WMO Members, including some remote assistance. It was pleased to note the training activities that had been carried out and agreed they should be pursued, with the involvement of Regional Meteorological Training Centres.

**3.1.2.20** Congress noted the demand of the WMO user community for the use of modern industry standards for data representation, such as XML; it strongly supported the initiative of the Commission for Basic Systems to assess, in coordination with other WMO technical commissions, the advantages, disadvantages and implications of different data representation systems, for example BUFR, CREX, XML, NetCDF and HDF, for their use in real-time operational international exchanges between NMHSs and in transmission of information to users outside the NMHSs; emerging requirements from the aeronautical community were addressed in collaboration between the Commission for Basic Systems, the Commission for Aeronautical Meteorology and the International Civil Aviation Organization.

**Radio frequencies for meteorological activities**

**3.1.2.21** Congress noted with satisfaction the current radio-frequency allocations and regulatory provisions of the International Telecommunication Union (ITU) Radio Regulations that were addressing requirements for meteorological and related environmental activities, through specific radiocommunication services (Meteorological Aids, Meteorological Satellite, Earth Exploration-Satellite – including passive remote sensing – and Radiolocation for weather and wind profiler radars). Noting the favourable outcome of the World Radiocommunication Conference 2003

(WRC-03), held in Geneva from 9 June to 4 July 2003, in that regard, Congress expressed its appreciation for the active preparation and participation of WMO, including the Commission for Basic Systems, NMHSs, meteorological satellite agencies and the WMO Secretariat, and for the ITU and its Member Administrations recognizing the prime importance of the relevant radio-frequency allocations for meteorological and related environmental activities required for the safety of life and property, disaster prevention and mitigation, the protection of the environment, climate change studies and scientific research. It further expressed its satisfaction with the joint ITU/WMO publication, *Handbook – Use of Radio Spectrum for Meteorology* and the WMO Workshop on Radio Frequencies for Meteorology (Geneva, 20–21 March 2006).

**3.1.2.22** Nonetheless, Congress stressed that the threat on the full range of radio-frequency bands allocated for meteorological and related environmental systems was continuing with the increasing development and expansion of new commercial radiocommunication systems. Congress noted that the WRC-07 agenda included several items of serious importance for meteorology, related to meteorological satellites, meteorological radars and spaceborne passive remote sensing. It noted with appreciation that a WRC-07 WMO position document had been submitted to relevant ITU preparatory groups and distributed to WMO Members and relevant international organizations, with a view to facilitating an effective preparation of national WRC-07 positions favourable for the WMO-related issues. Congress re-affirmed the crucial importance of suitable radio-frequency bands for the operation of surface-based meteorological observing systems, including in particular radiosondes, weather radars, wind profiler radars, and of meteorological and research and development satellites, including remote sensing, data collection and data distribution links. The utmost importance should be attached to ensuring absolute protection of the special bands allocated to space-borne passive sensing, which were a unique natural resource for atmospheric and Earth surface measurements that had an irreplaceable role for weather, water and climate operations (forecasts, warnings) and research.

**3.1.2.23** Congress strongly urged Members to actively participate in radio-frequency activities, especially the preparation of WRC issues, conducted by their national telecommunication administrations, by regional radiocommunication organizations (European Conference of Postal and Telecommunications Administrations for Europe, Asia Pacific Telecommunity for Asia-Pacific, Inter-American Telecommunication Commission for the Americas, African Telecommunications Union for Africa and the Arab League for 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 CBS to pursue the continuous review of regulatory and technical radio-frequency matters and the development of guidance and information materials for NMHSs, and the Secretary-General to ensure that the active role of the Secretariat be pursued as a matter of high priority in coordinating and supporting radio-frequency activities. Congress re-affirmed the prime importance of radio-frequency matters for meteorological and related environmental operations and research, and adopted Resolution 4 (Cg-XV) – Radio frequencies for meteorological and related environmental activities.

### 3.1.3 Global Data-processing and Forecasting System, including Emergency Response Activities *(agenda item 3.1.3)*

**3.1.3.1** The Global Data-processing and Forecasting System (GDPFS) was the main component of the WWW system that operated real-time and non-real-time systems and services for producing meteorological analyses and forecasts, in continuous cycles around the clock. Its network of operational meteorological centres was part of a global early warning system for meteorological and environmental hazards.

**3.1.3.2** Congress, with the view to realizing greater benefits from numerical weather prediction (NWP) system developments, integrating real-time observational data for tracking and forecasting of hazards, requested the Commission for Basic Systems to increase its attention to applications of NWP systems, particularly in very short-range forecasting (up to 12 hours). Congress further

emphasized that Members should continue investing in data-processing and use of NWP products as indispensable tools for weather forecasting, contributing directly to the WMO Natural Disaster Prevention and Mitigation Programme.

**3.1.3.3** Congress noted the development in Roshydromet (Russian Federation) of a list of standards related to techniques of preparation and delivery of short-range weather forecasts. Congress requested the Commission for Basic Systems to consider those standards and, if appropriate, develop guidelines on short-range forecasting.

**Severe Weather Forecasting**

**3.1.3.4** Congress noted with satisfaction the significant development and progress of the Severe Weather Forecasting Demonstration Project (SWFDP), from concepts to the first SWFDP regional subproject, implemented in the south-eastern region of Africa in 2006, focusing on heavy precipitation and strong winds, and involving three global producing centres (ECMWF, Met Office UK, NCEP (USA)), three regional centres (RSMC Pretoria, RSMC La Réunion, ACMAD) and five national centres (NMCs Botswana, Madagascar, Mozambique, United Republic of Tanzania and Zimbabwe).

**3.1.3.5** The participating National Meteorological and Hydrological Services recognized and appreciated the support from the global and regional centres.

**3.1.3.6** Congress, noting the importance of accurate and timely severe weather warnings for Members and that if the SWFDP in south-eastern Africa was successful, decided that its concept should be expanded and implemented throughout RA I and to other WMO Regions especially in developing countries. In that regard, Congress requested the Commission for Basic Systems to consider the possibility of implementing similar projects in Africa and the South Pacific Islands.

**3.1.3.7** Congress agreed that the existing SWFDP would have to be evaluated, based on regular reviews of the status of the project's implementation as well as the specific benefits that were being realized by users. In that regard, it urged the participating NMHSs to provide timely feedback and on a routine basis so that a comprehensive evaluation could be performed immediately following the end of the demonstration phase (November 2007) to determine which aspects of the demonstration phase, and how those aspects, would be continued as part of operational severe weather forecasting programmes of the NMHSs of that region.

**3.1.3.8** Congress was informed by the participating NMHSs that the SWFDP was benefiting very significantly to the weather forecasting and severe weather warnings programmes, in terms of both accuracy and timeliness of warnings, as well as other application areas in their countries, through greater and more effective use of existing products from global and regional GDPFS Centres. In addition, the project was facilitating the training of many forecasters. Broad support for the project was heard, in particular the recognition of Members working together to achieve important goals of WMO, especially for developing countries and least developed countries.

**3.1.3.9** Congress also noted that the project was contributing significantly and in a very concrete way to capacity-building in the NMHSs through better understanding and use of numerical weather prediction and ensemble prediction system (EPS) products, and was providing the opportunity to improve the interaction with Disaster Management and Civil Protection Authorities, thereby supporting the goal of increasing the visibility of NMHSs. In addition, it recognized the role of the GDPFS in enhancing the return on WMO investment in observational and communication systems.

**3.1.3.10** Congress was informed about the "Meteoalarm" service of EUMETNET where current weather warnings of many European countries were integrated into a single Web-based source of information, located at http://www.meteoalarm.eu. It was emphasized that while warnings were improved from more effective use of all supporting data and data-processing and forecasting

systems, the international exchange of warning information, especially among neighbouring countries, increased the benefits to the safety and security of populations.

**Numerical Weather Prediction Strategy for Developing Countries**

**3.1.3.11** Congress agreed that an overarching vision for such a NWP strategy should be: "NMHSs in developing countries are able to implement and maintain reliable and effective routine forecasting and severe weather warning programmes through enhanced use of NWP products and delivery of timely and authoritative forecasts and early warnings, thereby contributing to reducing the risk of disasters from natural hazards."

**3.1.3.12** In implementing such a strategy, Congress emphasised the need to assess the forecast production infrastructure as an end-to-end process, from observation to service delivery, to ensure that any significant shortfalls interfering with the desired results were addressed and remedied. That would include, for example, ensuring adequate telecommunications to support the timely flow of critical observation and forecast information, and adequate local data-processing and display capabilities to support the forecast and warning process. In addition, training was required to effect capacity-building and further implementation of advancing technologies in developing countries and least developed countries.

**3.1.3.13** Congress recommended that Centres running global NWP models facilitate the acquisition of boundary conditions required by NMCs to enable them to run Limited Area Models matching their operational requirements. Congress also emphasized the need for NWP Centres, for example RSMCs, to disseminate their products to NMHSs of countries covered by their models' domains and to work in consultation with NMHSs to further develop and propagate the benefits of NWP systems into neighbouring regions.

**3.1.3.14** Congress endorsed the organizing concept of a "consortium" of participating Centres; Members should systematically consider using that approach to share expertise, knowledge and resources, building upon a common regional NWP model to accelerate progress in improvements of the model and the use of products, in a sustainable way.

**Long-range Forecasting**

**3.1.3.15** Noting that Fourteenth Congress had agreed that a reliable operational global long-range forecasting (LRF) system should include three types of centres: Global Producing Centre (GPC), Regional Climate Centre (RCC) and National Meteorological Centre (NMC), Congress appreciated that the Commission for Basic Systems at its 2006 extraordinary session, held in Seoul, Republic of Korea, from 9 to 16 November 2006, had recognized nine official GPCs (Melbourne, Montreal, Beijing, Toulouse, Tokyo, Seoul, Exeter, Washington and ECMWF) that met the requirements for GPCs, including an agreed minimum list of global LRF products. Congress requested that those products be made available to as many RCCs and NMCs as possible for the purpose of enabling them to perform their tasks. Congress encouraged other centres producing global LRF to work at achieving the criteria for GPC designations.

**3.1.3.16** Congress requested collaboration between the Commission for Basic Systems and the Commission for Climatology to develop the minimum set of functions and services required of Regional Climate Centres, in order to support their official designation and inclusion in the *Manual on the Global Data-processing and Forecasting System* (WMO-No. 485), Volume I – Global Aspects. As well, ongoing coordination was required to ensure that operational products from the GPCs met the requirements for seasonal forecasting services provided by RCCs and NMHSs.

**3.1.3.17** Given the anticipated improvements in skill of LRF by using a multi-model ensemble approach, Congress agreed that some GPCs of LRF could serve as collectors of global LRF data to build multi-model ensembles, and requested that standards for multi-model ensemble products be developed. Congress noted that ECMWF was already disseminating multi-model ensemble

products based on Met Office UK, Météo-France and ECMWF LRF model output (EURO SIP) and that GPC Seoul and GPC Washington had agreed to explore the use of multi-model ensembles for long-range forecasting.

**3.1.3.18** Congress noted that some Regional Climate Centres and National Meteorological Centres would need assistance for training users (or other trainers), and requested Global Producing Centres to identify and provide suitable experts for interpretation and use of GPC LRF products, verification techniques, for example local verification of RCC-generated products and applications.

**Probabilistic Forecasting and Ensemble Prediction Systems**

**3.1.3.19** Congress requested that developments continued on the application of EPS-based outputs, including training on usage and capacity-building in NMHSs, as well as development of user requirements for uncertainty information in weather forecasts and warnings, and in support of decision-making that depended importantly on infrequently occurring meteorological conditions.

**3.1.3.20** Congress further encouraged EPS-producing centres to provide to Members access to as many as possible of their EPS products relevant to severe weather forecasting, such as probabilistic charts of meteorological parameters, “EPS-grams” (time series) of EPS outputs, or indices such as the “Extreme Forecast Index” developed at ECMWF. Congress expressed appreciation for the provision of location-specific products such as the EPSgrams by ECMWF to WMO Members and took note of the current capabilities of some Members for running nested EPS with very high resolution to better represent the probability of occurrence of local severe weather events. Congress encouraged Members to use those products and requested them to provide feedback to the producing centres.

**3.1.3.21** Congress emphasized the continuing need for training and capacity-building measures on the use of EPS products and probabilistic forecasting at many NMHSs in order to realize the benefits, especially for developing countries.

**Environmental Emergency Response Activities**

**3.1.3.22** Congress noted with satisfaction that the specialized application of atmospheric transport and dispersion modelling in environmental emergency response was well established with eight RSMCs (Beijing, Obninsk, Tokyo, Montreal, Washington, Melbourne, Exeter, Toulouse) of the GDPFS that were in 24/7 readiness to support NMHSs and the International Atomic Energy Agency for response to nuclear incidents. Congress supported extending the programme to include response to non-nuclear incidents or hazards, such as chemical incidents, smoke from large fires, gas and ash emissions from volcanic eruptions, or other airborne hazards.

**3.1.3.23** Congress stressed the importance of regular exercises to maintain effective emergency response, in particular to be led by the RSMCs with the participation of the relevant NMHSs.

**3.1.3.24** Congress noted that many countries had started or were exploring the possibility of renewing their nuclear energy programmes and therefore it would be wise for WMO and NMHSs to be better prepared to provide guidance on meteorological and hydrological aspects of planning, siting, and operating nuclear power plants. It was noted that WMO Technical Note No. 170 entitled “Meteorological and Hydrological Aspects of Siting and Operation of Nuclear Power Plants” was outdated and incomplete, as it had been completed before the 1986 Chernobyl nuclear power plant accident. Congress noted that it was a matter that would require the cooperation with the International Atomic Energy Agency and requested the Secretary-General to correspond with that Agency. Congress also noted that several technical commissions could be involved in the updating of the technical document.

**3.1.3.25** Recognizing the importance and urgency of the necessary work in that regard, indeed as a measure that contributed to disaster risk reduction, Congress emphasized the need to augment the Secretariat resources to effectively undertake the work in a timely fashion.

**3.1.3.26** To effectively deliver meteorological support to environmental emergency response, Congress recommended that the Commission for Basic Systems continue to build cooperation with relevant international organizations that had the lead responsibilities for coordinating or managing public safety in relation to airborne or waterborne hazards, for example the International Atomic Energy Agency for radiological hazards.

**3.1.3.27** Congress expressed its appreciation to the representative of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) for making a presentation on the successes of the cooperation between the two organizations, and highlighted the exchange of information and sharing of scientific and technical expertise that had taken place. Congress endorsed that collaboration and noted that such occasions to collaborate with other international organizations, in particular where high-quality meteorological data observations and information supporting broad societal benefits were exchanged, were essential.

**3.1.3.28** Congress noted that the collaboration with the Comprehensive Nuclear-Test-Ban Treaty Organization in atmospheric transport modelling had reached a mature stage for both the implementation of a CTBTO-WMO “backtracking” (locating the source of a detected airborne material) response system meeting CTBTO requirements, and with the same technology, the readiness of RSMCs with the capability to provide emergency backtracking service to National Meteorological and Hydrological Services upon request.

**Training and Capacity-building**

**3.1.3.29** Congress emphasized the use of facilities and opportunities with distance training, such as the COMET (USA) programme, EUMETCal modules, and the WMO Space Programme Virtual Laboratory High Profile Training Event concept to collaborate in the development of training modules. Congress recommended that training materials must include materials and case studies relevant to varying needs of Members in different regions of the world, and that such materials be made available in different languages, with the assistance of Members.

**3.1.3.30** Congress also recognized that given the dramatic technical evolution of the Global Data-processing and Forecasting System in the recent period, a complete review of the WMO *Guide to the Global Data-processing System* (WMO-No. 305) was necessary and should be undertaken with the assistance of some experts and/or a suitable consultant.

**3.1.3.31** Congress encouraged the Secretariat, with the assistance of the Commission for Basic Systems, to organize various numerical weather prediction training and capacity-building initiatives into a WMO coordinated strategy. Events organized or co-sponsored by the Secretariat should be coordinated, as much as possible, with initiatives coming directly from NMHSs, in particular those with Regional Specialized Meteorological Centres, or other agencies that were or could be opened to participants from other NMHSs, and in particular from neighboring National Meteorological Centres.

### 3.1.4 WWW system support activities, including the Operational Information Service and WWW monitoring activities *(agenda item 3.1.4)*

**3.1.4.1** Congress emphasized that addressing identified WWW deficiencies would improve meteorological services with regard to safety, climate monitoring, disaster reduction and poverty alleviation. Congress requested the Commission for Basic Systems and regional associations to continue identifying gaps in the implementation and operation of the World Weather Watch, and defining guidelines for the allocation of priorities in the support of the implementation of WWW systems and services. Congress requested the Secretary-General, in collaboration with Members

and funding agencies, to give a high priority to resource mobilization for supporting the implementation and operation of the World Weather Watch, in particular for mitigating the deficiencies observed.

**3.1.4.2** The CBS software registry provided information to Members on the software packages offered by individual Members through the WMO Web server. As the World Weather Watch was dependent on computer-based solutions for its operation, Congress invited WWW centres to consider offering meteorological application software for free exchange among Members and to provide relevant updates to the CBS software registry. Congress noted the difficulties met by developing countries in the purchase of software packages, including licences, and their maintenance. Congress agreed that the issue should be taken into account in the offers of donor countries, in particular as regards the possibility of developing common "standard" software packages, such as packages for automatic weather stations and/or visualization systems.

**3.1.4.3** Congress recalled that the objective of the Operational Information Service was to collect from, and distribute to, WMO Members and WWW centres detailed and up-to-date information on facilities, services and products made available in the day-to-day operation of the World Weather Watch. Congress was pleased to note that the updated operational information was available on the WMO server. Congress noted that some parts of *Weather Reporting* (WMO-No. 9), Volume A – *Observing Stations* and Volume C1 – *Catalogue of Meteorological Bulletins*, in particular those parts related to Region I, were not completed or timely updated by Members. Such deficiencies hampered the management, including the monitoring of the operation, of the World Weather Watch. Congress urged Members to review and update the operational information. Congress also reaffirmed that an important goal was to facilitate a rapid access to the information through interactive online access services. Congress noted with satisfaction that the distribution of the operational information in paper format had been phased out.

**3.1.4.4** In order to facilitate access to reference information required for World Weather Watch operations, Congress reaffirmed that the *Manual on Codes* (WMO-No. 306) and the *Manual on the Global Telecommunication System* (WMO-No. 386), which were distributed in accordance with the scheme agreed within the Publications Programme, should also be posted on the WMO server in the various languages as defined in the Publications Programme (see Resolution 26 (Cg-XV) – Publications Programme for the fifteenth financial period).

### 3.1.5 Instruments and Methods of Observation Programme; the report of the president of CIMO *(agenda item 3.1.5)*

**3.1.5.1** Congress agreed that standardization was a key area of Commission for Instruments and Methods of Observation (CIMO) activities and that the current trend in preparation of technical advice to Members should continue. It noted that the seventh edition of the *Guide to Meteorological Instruments and Methods of Observation* (WMO-No. 8) had been adopted by the Commission for Instruments and Methods of Observation at its fourteenth session, held in Geneva from 7 to 14 December 2006, and agreed that it was the unique source of information for observing network managers and technicians to keep the national observing networks standardized to guarantee the required quality of NMHSs' products and services to users. Congress requested the Secretary-General to publish the electronic versions of the Guide in all relevant languages on the WMO website so as to make it widely accessible. Congress recognized a need for further guidance for use and standardization of remote sensing observing systems, such as wind profilers, lidars and microwave radiometers, and their integration with in situ observing systems and requested the Commission for Instruments and Methods of Observation to proceed with the establishment of CIMO test beds to address that issue.

**3.1.5.2** Congress recognized the importance of traceability of measurements to System International (SI) standards for the required quality and worldwide compatibility of observational data. Congress requested the Secretary-General to collaborate in that respect with the

International Bureau of Weights and Measures and to promote further the concept of traceability to SI among Members.

**3.1.5.3** Congress recognized the importance of regular calibration of field instruments in the concept of traceability and noted difficulties of Members, especially from developing countries, that had not yet been able to establish their own calibration laboratories. It therefore requested the Secretary-General to assist those Members, as appropriate, and to collaborate with relevant regional and national and United Nations authorities to facilitate the temporary exportation and importation of instruments for calibration in other countries.

**3.1.5.4** Congress agreed that difficulties in linking NMHSs working standards with international standards might be overcome through the strengthened Regional Instrument and Regional Radiation Centres (RICs, RRCs). It strongly encouraged that those centers should be significantly strengthened to offer required services to their Members and requested the Secretary-General to assist in identification of funding sources to address the needs of the centres. Noting that the newly established RIC in Casablanca, Morocco, established by Regional Association I at its fourteenth session, held in Ouagadougou, Burkina Faso, from 14 to 23 February 2007, and the recently upgraded RIC Cairo, Egypt, had full capabilities and functions, Congress requested the regional associations, in collaboration with the Commission for Instruments and Methods of Observation, to regularly assess the capabilities and functions of their respective Regional Instrument Centres and Regional Radiation Centres and to propose remedial actions as appropriate, and to ensure proper geographical balance within the Regions.

**3.1.5.5** Congress reaffirmed its continuing commitment to conduct instrument intercomparisons to guarantee the worldwide compatibility and homogeneity of data, a fundamental need for quality of NMHSs products and services. It noted that a preliminary list of urgently needed instrument intercomparisons had been approved by the Commission for Instruments and Methods of Observation at its fourteenth session and agreed that the funding of intercomparisons had been a long-standing issue and should be addressed by the Secretary-General so that at least partial funding was made available in the regular WMO budget for that important activity, as requested by the Executive Council at its fifty-seventh session in 2005.

**3.1.5.6** Recognizing the importance of an intercomparison of hydrological gauges that had been included by the Commission for Instruments and Methods of Observation at its fourteenth session in the preliminary list of WMO intercomparisons, Congress requested the Commission for Hydrology to help in implementing that activity. Congress also requested CIMO to organize instrument intercomparisons in all WMO Regions and in all climate conditions. That would greatly facilitate global relevance of the results of the intercomparisons and a balanced participation of Members and manufacturers.

**3.1.5.7** Noting the results of the: (a) WMO Laboratory Intercomparison of Rainfall Intensity Gauges (Netherlands, Italy, France; September 2004–September 2005); (b) WMO Intercomparison of High Quality Radiosonde Systems, Vacoas, Mauritius, 2–25 February 2005; and (c) Tenth International Pyrheliometer Comparison and conjointly organized Regional Pyrheliometer Comparisons, Davos, Switzerland, 26 September–14 October 2005, and their potential impact on the quality of the Global Observing System, Congress requested CIMO to assist Members in the implementation of results and recommendations of the above intercomparisons.

**3.1.5.8** Congress noted that the increased implementation of automatic weather systems, especially in the developing countries, might introduce potential inhomogeneities in comparison with the traditional measurements and requested CIMO to address that issue through its standardization activities and instrument intercomparisons. It also requested CIMO to assist Members in the implementation of automatic weather systems, including the quality control procedures that would ensure the required quality of automatic weather system data and to advise Members in the rehabilitation of their obsolete or war-damaged networks.

**3.1.5.9** Congress noted the environmental concerns of Members using mercury-based instruments and requested CIMO to investigate alternative solutions.

**3.1.5.10** Congress agreed to continue in the current trend in building the capacities of Members related to the Instruments and Methods of Observation Programme. It noted that CIMO had identified urgent needs for training in the operational practice of NMHSs in the area of: (a) upper-air observations (in situ and remote sensing) and (b) metrology and calibration.

**3.1.5.11** Congress noted with satisfaction that the Russian Federation would host the Technical Conference on Meteorological and Environmental Instruments and Methods of Observation (TECO-2008) and the Exhibition of Meteorological Instruments, Related Equipment and Services (METEOREX-2008) in St Petersburg from 27 to 29 November 2008, and requested the Secretary-General to support participation from developing countries in those capacity-building events.

**3.1.5.12** Congress adopted Resolution 5 (Cg-XV) – Instruments and Methods of Observation Programme.

**3.1.6 Tropical Cyclone Programme** *(agenda item 3.1.6)*

**3.1.6.1** Congress noted with satisfaction the achievements and progress made by the Tropical Cyclone Programme (TCP) in both the general component and the regional component of the Programme since Fourteenth Congress, especially in association with the International Strategy for Disaster Reduction.

**3.1.6.2** Congress stressed that the Tropical Cyclone Programme should continue to give priority to capacity-building, which was essential for a sustained augmentation of the tropical cyclone warning services provided by National Meteorological and Hydrological Services, particularly in small island developing States in the tropical cyclone basins and least developed countries that were equally vulnerable to tropical cyclones. In that respect, Congress placed a high value on continuation of the co-sponsorship by WMO for the annual RA IV Workshops on Hurricane Forecasting and Warning organized by NOAA at RSMC Miami, the biennial Southern Hemisphere Training Courses on Tropical Cyclones by the Australian Bureau of Meteorology, and the biennial RA I Training Courses on Tropical Cyclones by Météo-France at RSMC La Réunion.

**3.1.6.3** Noting the significant effectiveness in operational practice, Congress emphasized the need of promoting training attachment of operational forecasters at TC RSMCs and Tropical Cyclone Warning Centres during the cyclone season and storm-surge experts at the Indian Institute of Technology and other institutes in India. Congress therefore requested the Secretary-General to enhance the coordination with those Centres to promote such activities. In that regard, Congress welcomed the offer of Mauritius to conduct attachment training, especially for English-speaking countries, in collaboration with RSMC La Réunion.

**3.1.6.4** Congress noted with satisfaction that the Tropical Cyclone Programme had strengthened cooperation with the Public Weather Services Programme in implementing training workshops with a common aim of assisting Members to improve their provision of support for safety of life and property. It stressed that those workshops should continue to be organized 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.

**3.1.6.5** Congress strongly supported collaboration between the Tropical Cyclone Programme and the Marine Meteorology and Oceanography Programme, through JCOMM, in the series of Regional Workshops on Storm Surge and Wave Forecasting as an important initiative of WMO and IOC to enhance the capabilities of Members in the field of natural disaster prevention and mitigation, and expressed its appreciation to all Members concerned for their material support to the workshops. It was pleased to note that the workshop had been successful with “hands-on”

training, which was aimed at the effective transfer of operational wave and storm surge forecasting skills, as well as technology transfer in the form of freeware for storm surge and wave modelling and forecasting. Congress agreed that those activities should be continued and further strengthened in the future and, in that context, noted with appreciation that consideration was being given to including elements of inundation modelling in the workshops, in collaboration with the hydrological community, through the Commission for Hydrology. Congress noted with appreciation the first JCOMM Scientific and Technical Symposium on Storm Surges to be held in Seoul, Republic of Korea, in October 2007, and encouraged the participation of tropical cyclone experts in that symposium.

**3.1.6.6** Congress noted the need for closer liaison and enhanced coordination among the six TC RSMCs and Tropical Cyclone Warning Centres concerned. To that end, Congress agreed on the continuation of the series of technical coordination meetings among the six TC RSMCs and TCWCs concerned with regard to their role, function and responsibility, and to technical matters of common interest. It approved the organization of the Sixth TC RSMCs/TCWCs Technical Coordination Meeting in 2009. In that connection, Congress noted with appreciation that the Government of Indonesia had agreed to fund the establishment of Jakarta TCWC, which would start its operation in November 2007.

**3.1.6.7** Noting the requirements within the framework of the five regional tropical cyclone bodies for further strengthening of warning systems and measures to minimize disasters caused by tropical cyclones and associated storm surges, floods and landslides, Congress emphasized the importance of developing collaborations through concrete initiatives in linking three major components of their activities, i.e. operational meteorology, hydrology and disaster risk reduction from the viewpoint of a multi-hazard early warning system. To that effect, it agreed that there was an urgent need to encourage proactive participation of hydrologists and disaster risk reduction experts in the regular sessions of the five tropical cyclone regional bodies to identify gaps and requirements that could be addressed through collaborations and partnerships to support enhanced coastal and marine risk management decision processes.

**3.1.6.8** Congress stressed critical contributions of the Tropical Cyclone Programme to the WMO Natural Disaster Prevention and Mitigation Programme and noted with appreciation efforts under way for coordination of the TCP, the Hydrology and Water Resources Programme and the Natural Disaster Prevention and Mitigation Programme activities in that regard.

**3.1.6.9** Congress encouraged the National Meteorological and Hydrological Services and relevant institutions to promote research on the impact of global warming on tropical cyclones. That might be of great significance to many nations, particularly to small island and low-lying coastal countries.

**3.1.6.10** Congress requested the Tropical Cyclone Programme to strengthen its study on the categorization of tropical cyclone intensity toward the establishment of a universal categorization of tropical cyclones.

**3.1.6.11** In view of the great benefits of the International Workshop on Tropical Cyclones (IWTC), Congress requested the Secretary-General to pursue, as appropriate, the recommendations from IWTC-VI and agreed to support the Seventh International Workshop on Tropical Cyclones (IWTC-VII). In that regard, Congress noted that France had offered to host the IWTC-VII in La Réunion in 2010.

**3.1.6.12** Congress urged the Secretary-General to ensure that the TCP office of the Secretariat be appropriately resourced to ensure continued delivery to the essential work of the Programme and its key contribution to disaster prevention and mitigation.

**3.1.6.13** Noting the data policy of EUMETSAT towards the countries exposed to tropical cyclones, and that the mission of Meteosat-7 could be discontinued in 2008, Congress requested

EUMETSAT to consider the possibility of extending the mission of Meteosat-7 until an operational satellite became available for the Indian Ocean Data Coverage.

**3.1.6.14** Congress endorsed the continuation of the following TCP sub-projects for the period 2008–2011:

(a) TCP sub-project No. 23: Combined effects of storm surges/wind waves and river floods in low-lying areas;

(b) TCP sub-project No. 25: Study on the economic and societal impacts of tropical cyclones;

(c) TCP sub-project No. 26: Evaluation of tropical cyclone warning systems (their effectiveness and deficiencies).

**3.1.6.15** Congress adopted Resolution 6 (Cg-XV) – Tropical Cyclone Programme.

**3.1.7 WMO Antarctic activities** *(agenda item 3.1.7)*

**3.1.7.1** Congress noted with appreciation the work of the Executive Council through its Working Group on Antarctic Meteorology in coordinating the implementation of meteorological programmes in the Antarctic. It particularly appreciated that, despite the hostile environmental conditions and the logistic problems, the basic World Weather Watch systems and other applications programmes had been implemented at a high degree of sustainability thanks to individual and collective Member efforts. The Antarctic Basic Synoptic Network and the Antarctic Basic Climatological Network had been further expanded by inclusion of automatic weather stations together with an increased number of drifters, expanded deployment opportunities, data collection and processing, and sea-level measurements on the Antarctic continent.

**3.1.7.2** Congress reiterated the importance of Antarctic data to the study of global climate and environment and urged Members concerned to continue integrated meteorological and geophysical observation programmes in the Antarctic. It particularly encouraged Members operating Antarctic stations to maintain and strengthen their contribution to the Global Climate Observing System in support of climate change detection and attribution and the Antarctic research objectives of the World Climate Research Programme. In the context of the International Polar Year 2007–2008, it noted with satisfaction the plans and significant contributions to be provided by WMO Members. Congress noted with satisfaction that the IPY data exchange policy was in compliance with WMO resolutions and encouraged Members to exchange observational data from IPY projects via the Global Telecommunication System in near-real-time to support activities within relevant WMO application programmes. Congress requested the Executive Council to coordinate planned IPY activities in the Antarctic related to atmospheric science.

**3.1.7.3** Congress confirmed the importance of WMO collaboration with other international organizations, in particular with the Antarctic Treaty Consultative Meetings, the Scientific Committee on Antarctic Research, the Joint Scientific Committee of the World Climate Research Programme, the Council of Managers of National Antarctic Programmes and the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology. Such collaboration had been fruitful and should be continued to ensure a coordinated and cost-effective implementation of the scientific and technical programmes in the Antarctic.

**3.1.7.4** Congress approved the Secretary-General's programme and budget proposal related to the WMO Antarctic activities and adopted the appropriate section for inclusion in the WMO Strategic Plan.

**3.1.7.5** Congress adopted Resolution 7 (Cg-XV) – WMO Antarctic Activities.

## 3.2 WORLD CLIMATE PROGRAMME *(agenda item 3.2)*

### 3.2.0 World Climate Programme; the report of the president of CCl *(agenda item 3.2.0)*

**Commission for Climatology**

**3.2.0.1** Congress noted the report of the president of the Commission for Climatology (CCl) on its activities since Fourteenth Congress. It expressed satisfaction with the successful fourteenth session of the Commission, held in Beijing, China, from 3 to 10 November 2005, and with the Technical Conference on Climate as a Resource that had preceded it on 1 and 2 November 2005.

**3.2.0.2** Congress took note that the Commission at its fourteenth session had revised the working structure of the Commission, which currently included a Management Group; one Implementation Coordination Team and several Rapporteurs (on climate-related hazards, on the Guide to Climatological Practices, on GEOSS, and a gender focal point) reporting directly to the Management Group; and four Open Programme Area Groups comprising 12 Expert Teams and 3 Rapporteurs.

**3.2.0.3** Congress took note that the Commission at its fourteenth session had considered the vast potential for climate applications to key socio-economic sectors, including water, agriculture, health, renewable energy, tourism and urban matters, and supported the need to develop partnerships at all levels for effective delivery of end-to-end climate products and services. Other priorities included understanding and effectively communicating on El Niño and La Niña; data management and metadata issues; development of CCl-driven standards for climate observations; research into climate change detection; and inclusion of satellite and marine aspects in climate system monitoring.

**3.2.0.4** Congress was pleased to note that the Commission at its fourteenth session had amended the vision of the Commission as follows: “The vision of the CCl is to stimulate, understand, lead and coordinate international technical activity to obtain and apply climate information and knowledge in support of sustainable socio-economic development and environmental protection.”

**3.2.0.5** Congress further approved the theme for the Technical Conference that would precede the fifteenth session of the Commission for Climatology, as follows: Changing climate and demands for sustainable development.

**3.2.0.6** Congress noted that the important role and substance of the World Climate Programme and related CCl activities were reflected in the WMO Strategic Plan.

### 3.2.1 Coordination activities within the Climate Agenda *(agenda item 3.2.1)*

**Report of the Eighth Session of the Executive Council Advisory Group on Climate and Environment**

**3.2.1.1** Congress was informed that the Executive Council at its fifty-fifth session in May 2003 had re-established its Advisory Group to advise on the involvement and leadership of WMO in climate and environment matters, policy implications to WMO of the decisions of international organizations and conventions on climate, effectiveness of climate activities in supporting national and international activities related to sustainable development, promotion of cooperation between WMO technical commissions, regional bodies and of Members, and determine the need for more effective inter-agency mechanisms for climate coordination activities.

**3.2.1.2** Congress agreed that National Meteorological and Hydrological Services could consider strengthening their focus on weather-climate linkage to end-users and adaptation to

climate variability and change for the benefit of sustainable development and emerging societal needs. It stressed to Members to classify their climate activities and deliverables that were relevant to the United Nations Framework Convention on Climate Change, and to develop programmes as well as services that strengthened new multidisciplinary partnerships. It noted that the link between climate science and decision makers who could benefit from the science were not well developed and would benefit from additional efforts to amplify that connection at the national and international levels.

**3.2.1.3** Congress noted that the Climate Agenda, which emerged from the Intergovernmental Meeting in 1993, with many elements, inter-agency issues and climate practices under four components of the World Climate Programme (WCP), was still valid and comprised the scientific backbone of the global climate activities. It noted that the Advisory Group, at its eighth session, held in Geneva on 17 and 18 January 2007, had taken into consideration developments and changes that had taken place in the course of time in international climate coordination activities, and believed that Resolution 7 (Cg-XII) – World Climate Programme and its coordination, needed to be updated in terms of references, terminologies, procedures and future directions for coordination of climate activities. To that effect, Congress adopted Resolution 8 (Cg-XV) – World Climate Programme and its coordination.

**3.2.1.4** Congress agreed that in view of the importance of ensuring the WMO technical leadership and effective role in partnership to climate and environmental activities, the Executive Council should consider re-establishing its Advisory Group on Climate and Environment with revised terms of reference.

**3.2.1.5** Congress noted with satisfaction the resolutions adopted by the United Nations General Assembly at its sixty-first session in 2006, in which it had confirmed and supported the role of WMO in contributing to climate-related activities, including the implementation of the Programme of Action for the Least Developed Countries for the Decade 2001–2010, international cooperation on humanitarian assistance in the field of natural disasters, strengthening emergency relief, rehabilitation, reconstruction and prevention in the aftermath of the Indian Ocean tsunami, follow-up to the Fourth World Conference on Women, implementation of Agenda 21 and outcomes of the World Summit on Sustainable Development, follow-up to and implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, international cooperation to reduce the impacts of El Niño, natural disasters and vulnerability, protection of the global climate for existing and future generations, implementation of the United Nations Convention to Combat Desertification particularly in Africa, the involvement of WMO in the work of the Convention or Biological Diversity, and implementation of the first United Nations Decade for the Eradication of Poverty. It encouraged National Meteorological and Hydrological Services to increase their efforts in those areas to ensure scientific and technical leadership and efficient partnership.

**World Climate Conference-3**

**3.2.1.6** Congress recalled that the concept of a World Climate Conference-3 (WCC-3) had existed since Thirteenth Congress and Fourteenth Congress and such a Conference would greatly benefit WMO in re-establishing its scientific leadership position in climate. It further recalled that the Executive Council at its fifty-sixth session in 2004 had requested the Secretary-General to establish an ad hoc exploratory committee to determine funding sources, requirements, venue and science programme for a World Climate Conference-3. Congress took note that the Executive Council at its fifty-seventh session in 2005 had welcomed the report of the ad hoc committee and its recommendation that WMO consider the development of a WCC-3 on the basis of scientific advances in seasonal to inter-annual, and possibly decadal, forecasting as an overarching theme for the Conference.

**3.2.1.7** Congress noted the practical needs of decision makers to adapt to changes on all timescales from seasonal to multidecadal. Therefore, some Members recommended that all

timescales from seasonal to multidecadal be included in the remit of the Conference. All Members in the Congress agreed that a WCC-3 should have practical, real-world outcomes.

**3.2.1.8** Congress further noted that, based on the proposal of the Executive Council at its fifty-seventh session in 2006, a Provisional Organizing Committee (POC) had been established with 15 members to develop a meeting plan for WCC-3, including scope, science programme, content of a high-level segment, and timing and budget. The Committee had met three times in 2005 and 2006 and had submitted reports to the fifty-seventh and fifty-eighth sessions of the Executive Council. Congress was informed that the Secretary-General had consulted with relevant international bodies in developing proposals and potential partnership in WCC-3, including the participation of the international agencies in a meeting of POC in Geneva on 27 and 28 November 2006. It noted that POC had developed a cogent science agenda and a refined set of issues for the high-level segment. In particular, POC had developed the "Expectations for high-level segment", which provided specific actions to be considered at the high-level segment of a WCC-3. It further noted that the third session of POC had developed improved cost estimates for a WCC-3 and a plan for resource mobilization.

**3.2.1.9** Many Members expressed support for the idea of holding another world climate conference, but one Member expressed objection in principle to global conferences. All agreed that any WCC-3 should produce outcomes of comparable significance to those of the prior world climate conferences so as to merit the interest of Ministers and justify the cost and effort involved. Some Members also noted the importance of having a conference that could raise the awareness of climate issues within their governments.

**3.2.1.10** Congress noted the recommendation of the Provisional Organizing Committee that the overarching theme for the Conference be "Climate prediction for decision-making: focusing on seasonal to inter-annual timescales". It further noted that the Committee had developed four scientific sub-themes on: (a) climate prediction science; (b) maximizing global exchange, sharing and application of climate prediction products; (c) applications and socio-economic benefits of climate prediction; and (d) using climate predictions in decision-making. Congress noted that such a conference had the potential to deliver near-term benefits by promoting disaster risk reduction and achievement of the Millennium Development Goals and that it would help WMO bridge the gap between scientists and end-users. Congress suggested a conference title of "Predicting Weather and Climate for a Changing World" with the understanding that the final title would be set in the course of the organization of the Conference.

**3.2.1.11** As most aspects of climate prediction and application depended on the availability of continuous, high-quality climate observations, Congress endorsed the inclusion, within sub-themes (a) or (b) above, of a session on the progress and plans of the Global Climate Observing System, two decades after its establishment, a result of the Second World Climate Conference.

**3.2.1.12** Congress noted that the Provisional Organizing Committee had analysed the estimated costs for four possible scenarios for a WCC-3 and had concluded that in the light of the importance of a WCC-3 to WMO and the ever-increasing interest in the application of climate prediction to many societal issues, WMO should plan for a large conference that would be completed within a five-day workweek with a science segment of three and half days and a high-level policy segment of one and a half days potentially leading to a Ministerial Declaration. Congress noted and supported the recommendation of the Committee that the science segment be organized with parallel sessions on the four sub-themes, as that allowed for greater individual participation in the conference and for greater scientific depth in some of the presentations. The delegation of Switzerland expressed its interest to host WCC-3 and through its Permanent Mission to the United Nations Office and other international organizations in Geneva, reserved the Geneva International Conference Centre (with a capacity for 3 000 persons) from 12 to 16 October 2009 for the WCC-3.

**3.2.1.13** Congress agreed that any costs for organizing and holding a WCC-3 must be funded from extrabudgetary resources and emphasized implementing efficient mechanisms for resource mobilization. It further noted the concerns over maintaining continuity in planning, coordinating and organizing the lead-time activities for a proposed WCC-3 over the years prior to holding the conference, and urged the Secretary-General to support continuation of the work on WCC-3 through establishing an International Organizing Committee on WCC-3 funded with extrabudgetary resources.

**3.2.1.14** Congress noted the importance of providing guidance and oversight in the course of preparations for a WCC-3 and noted that the Executive Council could play such a role.

**3.2.1.15** Congress adopted Resolution 9 (Cg-XV) – World Climate Programme – World Climate Conference-3.

### 3.2.2 Support to climate change-related activities, including IPCC and the Conventions on Climate Change, Biodiversity and Desertification *(agenda item 3.2.2)*

**Cooperation with the Secretariats of the Intergovernmental Panel on Climate Change, the Global Climate Observing System and the World Climate Research Programme**

**3.2.2.1** Congress noted that WMO was represented at the Plenary Sessions and Working Group meetings of the Intergovernmental Panel on Climate Change. It further encouraged active participation of National Meteorological and Hydrological Services in support to the work of the Panel. Congress also took note that WMO participated in the sessions of the Global Climate Observing System Steering Committee and the World Climate Research Programme Joint Scientific Committee sessions. It recognized that there was a strong need for closer coordination and links between activities of those programmes and other relevant programmes of the sponsors including operational agencies, climate applications communities and the media. Congress welcomed the new level of interaction between those programmes and encouraged further building of stronger synergy, especially on data rescue, that could complete the databases needed for climate research and applications within the developing countries.

**3.2.2.2** Congress urged the Secretary-General to support establishment of a Capacity-building Programme for NMHSs to produce and interpret future climate scenarios, at the regional and national scales, in order to better support communities, national decision makers and coordination with relevant agencies. In addition, Congress urged all Members to contribute to the wide dissemination and interpretation of the IPCC Fourth Assessment Report and its key findings.

**3.2.2.3** Congress requested the IPCC to consider separating in time preparation of the Working Group I contribution to the IPCC Fifth Assessment Report from those of Working Groups II and III in order to ensure more comprehensive use of the latest model projections of climate change (Working Group I) in the assessments of impacts, vulnerabilities and measures for adaptation (Working Group II). Congress expressed its strong support to current IPCC efforts in disseminating the three Working Group summaries for policymakers of the Fourth Assessment Report and particularly noted the necessity of accelerating their translation into other languages.

**3.2.2.4** Congress adopted Resolution 10 (Cg-XV) – Intergovernmental Panel on Climate Change.

**United Nations Framework Convention on Climate Change**

**3.2.2.5** Congress noted with pleasure that since the tenth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change, WMO had increased its visibility and involvement in the work of the Convention and expressed its appreciation to the Secretary-General for the progress being made in the WMO practical partnership in the Convention.

**3.2.2.6** Congress further took note that the Conference of the Parties at its twelfth session had adopted the Programme as the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change, officially recognizing the role of WMO and NMHSs in the programme. To that effect, Congress urged Members to take a proactive role in planning national and regional programmes on adaptation to climate variability and change and requested the Secretary-General to facilitate the participation of WMO and NMHSs in the implementation of the Nairobi Work Programme based on the modalities and deliverables identified in the WMO Concept Paper.

**3.2.2.7** Congress noted that many Members requested the Secretary-General to organize technical workshops on climate change impacts and vulnerability to enhance the capability of NMHSs to respond to governmental needs and assist them in fulfilling their role efficiently in national adaptation practices. Congress took note that such workshops would require additional financial resources and requested the Secretary-General to take appropriate measures to implement such an initiative.

**3.2.2.8** Congress further noted with pleasure that on “Research and systematic observation”, the Conference of the Parties at its twelfth session had re-emphasized the importance of in situ observation networks, high-quality data and activities that delivered sustained observation infrastructure and encouraged collaboration with, inter alia, National Meteorological and Hydrological Services.

**3.2.2.9** Congress took note that WMO, along with other partners such as WCRP, GCOS, IPCC, the International Research Institute for Climate and Society and the United Nations Economic Commission for Africa, had jointly organized successful side events at the sessions of the UNFCCC Conference of the Parties and of the Subsidiary Body for Scientific and Technological Advice. It observed with satisfaction that such joint initiatives had highlighted the role of WMO Programmes and promoted the understanding of delegations to such conferences on improved climate observations, monitoring, prediction and services. Congress further noted with appreciation the initiatives taken by many NMHSs, such as the National Meteorological Service of Morocco, to organize regional meetings on climatic change together with WMO and IPCC. Congress also appreciated that an IPCC information meeting would be held in Morocco on 26 June 2007.

**3.2.2.10** Congress appreciated the initiative taken by the Secretary-General to inform the Members of the major decisions and outcomes of the sessions of the Conference of the Parties and commended active participation of delegates from NMHSs in their capacities as national delegates to sessions of the Conference of the Parties and the Subsidiary Body for Scientific and Technological Advice of the UNFCCC. It welcomed those developments as a positive way forward for a stronger partnership in the work of the Convention.

**3.2.2.11** Congress noted with appreciation that an international seminar on Climate Change and Development took place in the Vatican on 26 and 27 April 2007 under the aegis of the Pontifical Council for Justice and Peace and the Pontifical Academy of Sciences, with the participation of over 80 scientists and experts from 20 countries and authoritative rapporteurs at the scientific and ministerial levels. The initiative was in line with the long-standing pontifical support to meteorology and related geophysical sciences.

**United Nations Convention to Combat Desertification**

**3.2.2.12** Congress expressed its appreciation to the Secretary-General for his wide-ranging actions in support of the United Nations Convention to Combat Desertification (UNCCD) within the programmes and activities of WMO, such as the Technical Workshop on Drought Preparedness in the Balkans within the context of the UNCCD, Poiana Brasov, Romania (25–26 October 2004); the Second Technical Workshop on the Establishment of a Subregional Centre Relating to Drought in South-Eastern Europe in the context of the UNCCD, Sofia, Bulgaria (26–28 April 2006); and the active participation of WMO in the sixth and seventh sessions of the Conference of the Parties to the Convention.

**3.2.2.13** Congress congratulated the Secretariat on the initiative taken to collaborate actively with the UNCCD Secretariat for the establishment of the Drought Management Centre for South-Eastern Europe. Congress noted that a meeting of the NMHSs, UNCCD focal points and the designated drought researchers from South-Eastern Europe was held in Ljubljana, Slovenia, in April 2007 to discuss the draft project proposal for the Centre. Noting the importance of the establishment of the Centre for the countries in South-Eastern Europe to cope more effectively with the future impacts of drought in their region, Congress urged the Secretary-General to continue to work actively with the donor community in seeking funding for its establishment and smooth functioning.

**3.2.2.14** As a successful partnership between NMHSs and regional bodies, Congress noted that the Islamic Republic of Iran Meteorological Organization had established a Drought Monitoring Centre, which provided technical support to Member States of the Economic Cooperation Organization in Central and West Asia.

**3.2.2.15** Congress noted that WMO had participated actively in the seventh session of the Conference of Parties, held in Nairobi, Kenya, from 17 to 28 October 2005. Congress took note that a major outcome of WMO efforts was a decision by the seventh session according priority to the effects of climate variations in land degradation in the future Programme of Work of the Committee on Science and Technology of the Convention and inviting WMO to organize an International Workshop on Climate and Land Degradation in 2006.

**3.2.2.16** Congress recalled that the United Nations General Assembly had declared 2006 as the International Year of Deserts and Desertification and that WMO had organized a number of activities in the spirit of its implementation.

**3.2.2.17** Congress was pleased to note that WMO and UNCCD had organized the International Workshop on Climate and Land Degradation in Arusha, United Republic of Tanzania (11–15 December 2006) and that the workshop was co-sponsored by the Fund for International Development of the Organization of the Petroleum Exporting Countries, the United Nations Development Programme and the United Nations Educational, Scientific and Cultural Organization. Noting that a report on the workshop would be presented to the eighth session of Conference of the Parties to the Convention, to be held in Spain in September 2007, Congress encouraged Members to participate actively within their national delegations for the eighth session.

**3.2.2.18** Congress expressed its strong support for training in the fields of drought and desertification, taking advantage of the funding facilities available under the Convention. Congress noted with appreciation the initiative taken by WMO to organize the training seminar on the Application of Climatic Data for Desertification Control, Drought Preparedness and Management of Sustainable Agriculture, in St John's, Antigua (21–29 April 2004).

**Convention on Biological Diversity**

**3.2.2.19** Congress was pleased to note that WMO was a member of the Ad Hoc Technical Expert Group on Biological Diversity and Climate Change established by the Convention on Biological Diversity (CBD) and contributed to a CBD Technical Report.

**3.2.2.20** Congress noted that WMO contributed actively to the CBD activities of the Expert Group appointed by the Conference of the Parties to the Convention and to the CBD Technical Report on the interlinkages between biodiversity and climate change, to develop advice or guidance for promoting synergy among activities to address climate change at the national, regional and international levels, where appropriate, including activities to combat desertification and land degradation, and activities for the conservation and sustainable use of biodiversity.

**3.2.2.21** Considering the importance of the implementation and monitoring of activities that interlinked across biodiversity, climate change and land degradation and desertification, Congress

encouraged WMO to continue active participation in the work of the Subsidiary Body on Scientific, Technical and Technological Advice and the Ad Hoc Technical Expert Group on Biological Diversity and Climate Change.

**3.2.2.22** Congress further took note that increasing attention was being paid by the CBD to several important weather- and climate-related issues related to biological diversity. It encouraged the Members to examine the opportunities for case studies and interlinkages between biodiversity and climate change in their countries in collaboration with relevant agricultural universities and research institutions.

**Regional Climate Centres**

**3.2.2.23** Congress was informed of developments in the establishment of Regional Climate Centres (RCCs). In November 2003, WMO had established Guidelines on organization and implementation of Regional Climate Centres. Since that time, Regions had considered establishment of RCCs or RCC networks, through their respective Working Groups on Climate Related Matters. RA II recommended to Fifteenth Congress the Beijing Climate Centre and Tokyo Climate Centre as components of the network of Regional Climate Centres, and indicated that those would benefit the region in climate prediction and related services and climate change activities, and help Members contribute to the United Nations Framework Convention on Climate Change. Furthermore, Congress noted the intention of the National Meteorological and Hydrological Services of the Newly Independent States expressed at the eighteenth session of the Intergovernmental Council for Hydrometeorology of the Commonwealth of Independent States (Dushanbe, Tajikistan, 4–5 April 2007) to establish a distributed North-Eurasian Regional Climate Centre. In RA I the Working Group on Climate Related Matters highlighted benefits of a special task team to complement the Working Groups on Climate Related Matters in Regions still in very early stages of Regional Climate Centre implementation. Congress encouraged all regional associations to involve, in particular, NMHSs with appropriate potential to accelerate the process and continue their efforts to establish Regional Climate Centres to serve the needs of their Regions.

**3.2.2.24** Congress noted that the Commission for Climatology Implementation/Coordination Team was the formal mechanism for further discussion on establishment and implementation of WMO RCCs, and that membership of the Team included the chairpersons of the Working Groups on Climate Related Matters, should they exist, or an appropriate expert nominated by the president of the regional association. Congress further noted that the CCl ICT was scheduled to meet from 2 to 4 October 2007 to discuss RCC issues including coordination with the Commission for Basic Systems and all relevant technical commissions on RCC functions. To expedite RCC implementation, Congress requested the Secretariat:

(a) To encourage the Regional Climate Centres to assess the socio-economic impact of climate services on the relevant sectors, conduct climate impact studies at the regional scale and help improve the ability of NMHSs to communicate climate risks;

(b) To hold a follow-up technical meeting on Organization and Implementation of Regional Climate Centres to facilitate the exchange of experience among the WMO Regions and to identify the minimum requirements for RCC functions and services;

(c) To take appropriate measures to ensure a closer link between the RCC approach and the concept of an overarching, integrated WMO Information System for full access to climate information and prediction;

(d) To initiate a joint CCl-CBS process to assess the requests of the Regions for official designation as WMO RCCs and, as a priority, to amend the *Manual on the Global Data-processing and Forecasting System* (WMO-No. 485), Volume 1 – Global Aspects, to include a clear definition of a Regional Climate Centre and the mechanism for its

designation, along with agreed-upon roles and responsibilities and minimum set of required functions and services for WMO designation.

**Status of the third edition of the WMO *Guide to Climatological Practices* (WMO-No. 100)**

**3.2.2.25** Congress noted that the Expert Team on the Guide to Climatological Practices, at its meeting in Geneva in 2006, had revised the workplan based on the expert assessment of the remaining work, and had established a new timeframe for delivery. Given the availability of sufficient resources, the project could be delivered to WMO for approval and publishing in late 2007. Congress requested the Secretary-General to facilitate, as a matter of priority, finalization, translation into WMO official languages and distribution of the third edition of the Guide, with the least possible delay. Furthermore, Congress noted with pleasure that the final draft of the Guide had been made available on the Commission for Climatology website prior to Fifteenth Congress.

### 3.2.3 Global Climate Observing System *(agenda item 3.2.3)*

**3.2.3.1** Congress welcomed the report by Mr John Zillman, Chairperson of the Global Climate Observing System (GCOS) Steering Committee, on progress with the implementation of the Global Climate Observing System. It expressed particular appreciation to the past Chairperson, Mr Paul Mason, for his outstanding contribution during his tenure. Congress also recorded its appreciation to the GCOS Steering Committee and its Panels and the many experts who had served on them, to its constituent bodies and its GCOS co-sponsors, and to the GCOS Director and Secretariat, for their dedicated commitment to GCOS implementation during the previous four years and for the progress achieved.

**3.2.3.2** Congress endorsed the overall strategy for further development of the Global Climate Observing System as proposed by the Steering Committee, including in particular its emphasis on a coordinated, WMO-wide response to the *Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC* (GCOS-92, WMO/TD-No. 1219) by the technical commissions and other intergovernmental bodies responsible for the component systems of GCOS. Congress was pleased to note that the Global Climate Observing System would contribute to all three top-level objectives of the WMO Strategic Plan.

**3.2.3.3** Congress welcomed the completion of the GCOS Regional Workshop Programme and the 10 associated Regional Action Plans for improving climate observing systems in developing countries. It called for increased efforts to generate support for the actions identified in the Regional Action Plans and in the Implementation Plan through funding support for NMHSs and other agents for implementation, recognizing in particular the need for enhanced support to developing countries for producing and delivering climate products and services. Congress commended the development of the Climate for Development in Africa (ClimDev Africa) Programme and its endorsement by the African Union Commission, the United Nations Economic Commission for Africa, the African Development Bank, the UK Department for International Development, the G-8 nations, and others. Congress strongly supported the ClimDev Africa initiative and agreed that African NMHSs should take a lead role at the national level in implementation of its observation and service components.

**3.2.3.4** Congress expressed grave concern at the continuing difficulty in maintaining adequate climate observing networks in many parts of the world, especially in developing countries, as well as the potential unavailability over the next decade of several vital satellite records of Essential Climate Variables, including key oceanographic missions such as the precision altimeters. It was pleased, however, to note the significant progress that had been made in implementing and improving the GSN and GUAN baseline networks, including the revitalization of a number of stations. Congress expressed strong appreciation for the voluntary contributions of several Members to the Climate Observing System Fund and the GCOS Cooperation Mechanism that had made that progress possible, noting a number of specific examples where the support had been crucial. It nevertheless emphasized the urgent need for additional support to continue improving

the availability and quality of data across the GSN and GUAN networks, noting in particular the high cost of consumables in many cases and problems in disseminating observations, especially in developing countries. Congress expressed appreciation to Australia, Chile, Germany, the Islamic Republic of Iran, Morocco, Mozambique and the United Kingdom for agreeing to join Japan and the United States as regional CBS Lead Centres for GCOS Data.

**3.2.3.5** Recognizing a need to better allow NMSs to work towards target goals for the Global Climate Observing System, to better determine requirements to support other initiatives such as GEOSS and UNFCCC requirements, and to better understand how to optimize efforts given the increasingly integrated nature of WMO observing systems, Congress urged the Secretary-General and Members to support wherever possible observation system and data impact studies with a view to producing software tools that could be used by NMSs to optimize the spatial and temporal design of their observation networks into the future.

**3.2.3.6** Congress was pleased to note the continuing enhancements in the ocean observing system, coordinated through the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, noting that the percentage of requirements being met had increased from 45 per cent to 56 per cent during the past intersessional period. At the same time, it recognized the specific problems inherent in implementing and maintaining the ocean observing system, including the high unit cost involved in gathering ocean data, and the particular efforts that would be required to ensure the long-term sustainability of the ocean components currently being supported through research funding. Congress expressed appreciation to those Members already supporting the ocean observing system and urged as many other Members as possible to contribute to that work.

**3.2.3.7** Congress noted with appreciation the increasing commitment of WMO Programmes and technical commissions to climate observation, in particular through their acceptance of actions requested of them in the Implementation Plan. It stressed that implementing those actions should be a collaborative effort between the Commissions and those responsible for the GCOS programme, noting with appreciation the joint support for training workshops organized by the Commission for Instruments and Methods of Observation and the GCOS-CBS collaboration in many GSN and GUAN revitalization activities, for example.

**3.2.3.8** Congress welcomed the development of detailed requirements for satellite-based observations for climate presented in the report *Systematic Observation Requirements for Satellite-based Products for Climate* (GCOS-107, WMO/TD-No. 1338). It emphasized the importance of implementing the systems that would meet the stringent requirements of accuracy and stability, noting that in many cases that would require additional research and development activities. Congress commended the ongoing collaboration with space agencies through the Committee on Earth Observation Satellites, the Coordination Group for Meteorological Satellites and the WMO Space Programme, with the objective of establishing, and ensuring continuity of, the climate data record from space.

**3.2.3.9** Congress emphasized the importance of establishing GCOS National Committees and National Coordinators for improving the institutional cooperation and collaboration among various agencies in each country toward meeting GCOS needs and objectives. It urged Members to establish such mechanisms, noting with appreciation that a number of Members had already done so.

**3.2.3.10** Congress was pleased that the Global Climate Observing System had been recognized as the climate component of GEOSS. It encouraged Members and the various climate-related international bodies responsible for the component systems of GCOS to work closely together to ensure that GCOS effectively met the needs of the “Climate” Societal Benefit Area of GEOSS, as well as the climate-related data needs of other GEOSS Societal Benefit Areas.

**3.2.3.11** Congress welcomed the strong support of the Subsidiary Body for Scientific and Technological Advice of the United Nations Framework Convention on Climate Change for the

implementation and operation of GCOS networks in support of the research and systematic observation requirements of the Convention. It invited the Conference of the Parties to the Convention to join the sponsoring agencies of the Global Climate Observing System in a coordinated international effort to muster the necessary resources for ensuring the full implementation of GCOS in line with the time frames and strategies of the Implementation Plan. Congress noted the request by the Subsidiary Body for Scientific and Technological Advice at its twenty-third session for a comprehensive report on progress in implementing the Implementation Plan for consideration at its thirtieth session in 2009 and endorsed the plans of the GCOS Steering Committee and Secretariat for preparation of the proposed report.

**3.2.3.12** Congress noted the ongoing efforts towards the establishment of a framework for the preparation of guidance materials, standards and reporting guidelines for terrestrial observing systems for climate, as had been requested by Fourteenth Congress and recommended in the 2004 Implementation Plan. It reiterated the importance of the development of such a framework by WMO, the other GCOS sponsors and the sponsors of the Global Terrestrial Observing System, and requested that an update on progress in that initiative be presented to the Executive Council at its sixtieth session.

**3.2.3.13** Congress welcomed the collaboration between the governing bodies and the secretariats of GCOS, WCRP and IPCC in arranging a workshop later in 2007 aimed at ensuring that the lessons learned from the IPCC Fourth Assessment Report would be appropriately incorporated in future planning for the Global Climate Observing System and the World Climate Research Programme.

**3.2.3.14** Congress recognized the vital role of the GCOS Secretariat in facilitating and supporting the work of the Steering Committee and the various WMO and other constituent bodies and agents for implementation in their efforts to achieve the full and successful implementation of GCOS. It commended the Secretariat for its work during the previous four years, but concluded that a substantially enhanced effort was needed in support of planning, coordination, communication and implementation if GCOS were to succeed in meeting its objectives and the high expectations of Members. While expressing great appreciation for the significant extrabudgetary resources contributed to date by Members and international organizations in support of the Global Climate Observing System, Congress appealed urgently to Members, GCOS co-sponsors and other climate-related international organizations to explore all available means for substantial strengthening of the joint Secretariat. It particularly encouraged other Members to join Germany in the practice of seconding a Junior Professional Officer to the Secretariat.

**3.2.3.15** Congress adopted Resolution 11 (Cg-XV) – Global Climate Observing System.

### 3.2.4 World Climate Data and Monitoring Programme *(agenda item 3.2.4)*

**3.2.4.1** Congress was pleased to note that the main challenges and priorities highlighted by Fourteenth Congress in Observing Requirements and Standards for Climate, Climate Analysis and Monitoring, Data Rescue and Data Management had made substantial progress. In that regard, Congress reiterated its call made during its previous session to regional associations to take into account the various guidelines, documents and publications developed through the World Climate Data and Monitoring Programme (WCDMP) in determining the networks of meteorological observing stations and requirements for data exchange, data management and data rescue, in support of WMO Programmes. Hard copies of the guidance materials had been made available as well as electronic versions through the WMO and Commission for Climatology (CCl) websites.

**Observing Requirements and Standards for Climate**

**3.2.4.2** Congress noted with satisfaction the publication in the WCDMP series of the *Guidelines on Climate Observation Networks and Systems* (WCDMP-No. 52, WMO/TD-No. 1185), *Guidelines for Managing Changes in Observation Programmes* (WCDMP-No. 62, WMO/TD-No. 1378), and

*The Role of Climatological Normals in a Changing Climate* (WCDMP-No. 61, WMO/TD-No. 1377). The document "Guidelines for Plant Phenological Observations" and a summary document "Extensible Markup Language (XML): Essentials for Climatologists" were both produced and published on the CCl website. The guidelines aimed to provide Members with essential information on observation networks and systems including their associated change management, as well as to address the scientific and technical requirements for collecting metadata and conducting homogeneity adjustments. The ultimate objective was to ensure that data were adequate for the comprehensive needs of climate services, applications and research.

**3.2.4.3** Congress stressed the important role of WCDMP in ensuring that metadata of observing sites, including instrumentation and observing procedures, were maintained and appreciated, in particular the development of a document by CCl experts on *Guidelines on Climate Metadata and Homogenization* (WCDMP-No. 53, WMO/TD-No. 1186).

**3.2.4.4** Congress noted with appreciation the fruitful collaboration between WCDMP, GCOS and WWW to produce Climate Reporting software (CLIREP) to encode and decode CLIMAT and CLIMAT TEMP messages. It expressed its satisfaction that the collaboration had led to the organization of training seminars on CLIMAT and CLIMAT TEMP for Regions II/VI (Moscow, November 2004), Region I (Morocco, December 2005) and Region III (Buenos Aires, October 2006) and recommended to continue the seminars to cover other Regions.

**3.2.4.5** Congress noted the importance of emerging issues in operating automatic weather stations for climate purposes and noted with satisfaction the efforts made by CCl experts through WCDMP, in particular through the development of a guidelines document on automated versus manual surface meteorological observations – decision factors posted on the CCl website and the establishment of a linkage with the Commission for Basic Systems Expert Team on Automatic Weather Stations. It requested the Secretary-General to continue to support the involvement of WMO in the International Conferences on Automatic Weather Stations, in particular in facilitating the attendance of participants from developing countries.

**3.2.4.6** Congress emphasized the importance of involvement of CCl experts under WCDMP within relevant Commission for Basic Systems activities, in particular those related to metadata and the WMO metadata core-profile, the WMO Information System and the automatic weather stations, and urged CCl and CBS to continue that collaboration.

**Climate Analysis and Monitoring Techniques, including Climate Change Detection and Indices**

**3.2.4.7** Congress was pleased to note that the joint CCl/CLIVAR efforts had made substantial progress in providing international coordination on climate change detection and indices through the joint CCl/CLIVAR Expert Team on Climate Change Detection and Indices, and that several workshops on climate change detection and indices had been organized in various Regions. It extended its gratitude to the US Department of State for its financial support to those workshops and requested the WMO Secretariat and Members to continue supporting the workshops. The workshops had helped developing countries in contributing to the IPCC Fourth Assessment Report and had led to the development of data homogenization and climate change indices software, which was made available during the training and through the Web at http://cccma.seos.uvic.ca/ETCCDMI/software.shtml.

**3.2.4.8** Congress welcomed the expansion of the Expert Team to include membership of JCOMM experts so that ocean and marine indices would be included in its future activities.

**3.2.4.9** Congress stressed that without making climate records available with the necessary quality and quantity those efforts would not be able to continue. Congress therefore reiterated its call for Members to continue providing daily data records from all CLIMAT and CLIMAT TEMP stations, as well as their cooperation in providing historical data sets needed for the calculation of

the indices and the compilation of the World Weather Records Data Sets to complete the World Weather Records Data Sets series for the period 1991–2000.

**Climate System Monitoring and Climate Watches**

**3.2.4.10** Congress noted with satisfaction that, since 2005, the *WMO Statement on the Status of the Global Climate* had been published in all WMO official languages and concurred with the recommendation of the Commission for Climatology at its fourteenth session on the future strategy for replacing the Global Climate System Review by the annual "State of the Climate" article published in the *Bulletin of the American Meteorological Society* (*Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Climatology* (WMO-No. 996), general summary, paragraph 5.5.4).

**3.2.4.11** Congress appreciated the WCDMP efforts, carried out by CCl experts, in developing a guidelines document entitled *Climate Watches* (WCDMP-No. 58, WMO/TD-No.1269, which provided information and assistance on how to organize and implement climate watches. Congress therefore requested the Secretary-General to support the organization of regional seminars on that topic with particular emphasis on developing countries, least developed countries and small island developing States.

**Climate Data Management Systems and Data Rescue Projects**

**3.2.4.12** Congress noted the important progress made by WCDMP in the transition from CLICOM to the modern Climate Data Management Systems (CDMSs) with the installation of new Systems in 74 NMHSs (equipment, installation and training) and the publication of *Guidelines on Climate Data Management* (WCDMP-No. 60, WMO/TD-No. 1376). It thanked the highly appreciated contribution by several Members through the Voluntary Contribution Programme or on a bilateral basis in the process, in particular the continuing support provided by the Met Office, UK, to install CLIMSOFT in various NMHSs in developing and least developed countries with technical support provided by the Meteorological Department of Zimbabwe. Australia was also assisting the Pacific NMHSs in the implementation of CLIMSOFT. Congress was pleased to note that CLIMSOFT was a very successful example of collaboration between Members and praised the proactive role of not only donor countries but of the many developing countries and of the WMO Secretariat involved in the project. Congress noted with appreciation the important development of an e-learning portal through collaboration between the Met Office, UK, the University of Reading and WMO, which included a well-designed CDMS (CLIMSOFT) e-learning web page (http://www.met-elearning.org). Congress also thanked the Czech Republic for continuing its support to install CLIDATA software in various NMHSs in Regions I, IV and VI and for organizing the CLIDATA Forum for the administrators. Congress also noted with satisfaction other existing cooperation between Members on a bilateral basis, such as the installation of the Météo-France CLISYS and the Russian Federation CLIWARE software. Despite those efforts, Congress noted that a need still existed in several NMHSs to acquire new CDMSs as well as to develop and maintain the newly installed Systems. Therefore it requested Members and the Secretariat to continue their support in those activities and continue to monitor the status of migration from CLICOM to the new CDMSs and assist in solving problems that might occur in the migration process. Members also expressed the need to standardize the various CDMSs.

**3.2.4.13** Congress stressed once again the importance of Data Rescue (DARE) projects, especially in developing countries, to ensure that climate records were available for the users and research community and underlined the central role of WCDMP in planning and coordinating DARE projects. It noted with satisfaction the various DARE activities, as well as the publication of the WCDMP *Guidelines on Data Rescue* (WCDMP-No. 55, WMO/TD-No. 1210), which provided information on various methods and practices and recommendations on basic procedures in rescuing and preserving climate records. It noted also with interest the high value of several other efforts by Members such as the US upper-air data rescue project in Africa, the Australian Bureau of Meteorology project in Region V and the SIDS-Caribbean project in Region IV. Congress

encouraged Members to continue those efforts and urged the Secretariat to continue its assistance to those activities including support in rehabilitating the old microfilms produced by the DARE project supported in the past by Belgium in Region I.

**3.2.4.14** Congress adopted Resolution 12 (Cg-XV) – World Climate Data and Monitoring Programme.

### 3.2.5 World Climate Applications and Services Programme, including the CLIPS project *(agenda item 3.2.5)*

**3.2.5.1** Congress noted the revised structure and priorities for the World Climate Applications and Services Programme/Climate Information and Prediction Services (WCASP/CLIPS) identified by the Commission for Climatology at its fourteenth session. Noting its previously stated concerns over resource constraints for CLIPS, Congress recognized that the new priorities and cross-cutting activities would likely require extrabudgetary resources to supplement the programme and budget for 2008–2011.

**Integrating CLIPS with Climate Applications and Services**

**3.2.5.2** Congress adopted Resolution 13 (Cg-XV) — World Climate Applications and Services Programme, including the CLIPS project, which further consolidated CLIPS and applications and services within the Programme.

**Climate and development**

**3.2.5.3** Congress highlighted the importance of Members actively participating in initiatives that linked climate and development. Congress urged the Secretary-General to pursue key partnerships for the Secretariat and Members in climate-related and development-oriented international initiatives including relevant aspects of the five-year Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change of the Subsidiary Body for Scientific and Technological Advice of the United Nations Framework Convention on Climate Change. Congress noted the importance of building stronger partnerships with users for effective application of climate information in adaptation and sustainable development activities.

**WMO Conference on Living with Climate Variability and Change: understanding the uncertainties and managing the risks**

**3.2.5.4** Acting on the request of Fourteen Congress, as contained in the *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), general summary, paragraph 3.2.5.7, the WMO Conference on Living with Climate Variability and Change: understanding the uncertainties and managing the risks was held in Espoo, Finland, from 17 to 21 July 2006. Congress complimented the Secretary-General, the co-sponsors, other contributing agencies and the Scientific and Local Organizing Committees for the success of the event. Congress endorsed the Espoo Statement, noting in particular the need to develop climate services within real-world decision contexts, and that multidisciplinary collaboration and cross-disciplinary exchange of information were required in order to develop all aspects of climate-related risk management. Congress noted further the role and functions of NMHSs as identified in the Espoo Statement and draft Final Report, recognized the importance of developing local capacity within NMHSs in that regard, and the potential utility of similar conferences at the regional scale.

**Technical support and capacity-building**

**3.2.5.5** Congress urged the continuation of the generous support of Members, institutions including the Global Producing Centres of Long-range Forecasts, and experts, and stressed the potential future contributions of Regional Climate Centres, for the modelling, product development,

training and capacity-building facets of WCASP/CLIPS. It further urged that they made available their climate data and products to all NMHSs in a timely and consistent manner.

**3.2.5.6** Congress recognized that training continued to be a major requirement of Members for provision of state-of-the-art climate services. Congress noted that CLIPS training programmes had been implemented in several subregions, in a cyclical fashion. Congress expressed its concern, however, that the needs of Members for updated training sessions could not be met owing to resource constraints and strongly urged Members with the capacity, and relevant institutions to provide the financial and technical support to help accelerate the training cycle. Congress agreed that the current components of the CLIPS Curriculum needed to be further developed into complete, self-contained modules that could be integrated into regular training activities, and recommended that WCASP/CLIPS work with the WMO Education and Training Department for that purpose.

**3.2.5.7** Congress recognized the need for user and public education and outreach programmes. Lessons learned from various capacity-building activities in the past clearly showed that expected benefits of climate products and services had not been fully realized owing to lack of understanding and awareness of users and intermediaries. Congress urged the Secretary-General to foster user-oriented training and awareness-raising in WCASP activities, including through the publication of pamphlets and booklets highlighting the socio-economic benefits of climate services.

**CLIPS Focal Points coordination and reporting**

**3.2.5.8** Congress urged Members to appoint/renew national CLIPS Focal Points within their Services to continue CLIPS activities. Congress endorsed the appointment of Rapporteurs at the regional level and supported the initiative to coordinate the CLIPS and Natural Disaster Prevention and Mitigation Focal Point networks.

**Regional climate outlooks and their sustainability**

**3.2.5.9** Congress recognized that Regional Climate Outlook Forums demonstrated substantial benefits to capacity-building, networking and user and end-user liaison, but noted that the availability of funding for their initiation or continuation was a major issue for many Members, particularly in developing countries. Congress urged Members to work towards increasing support for regional climate outlooks, optimizing resources by adopting cost-effective methods, and demonstrating the value of their products and services to users.

**Research, operational and communication needs in climate prediction**

**3.2.5.10** Congress recognized the importance of regular research inputs into operational climate prediction, and urged the Secretary-General to promote enhanced collaboration of the World Climate Programme and the Commission for Climatology with the World Climate Research Programme. Congress thanked those institutions and experts who had been enthusiastically assisting application of new research and transfer of technology, particularly in developing countries. Congress urged Members to build on those initiatives and further enhance their research capacities.

**3.2.5.11** Congress noted the importance of delivering climate prediction products using common formats and procedures, for example in terms of verification, reference period, probabilistic or deterministic presentation, and urged Members, Global Producing Centres, the Commission for Climatology and the Commission for Basic Systems to work together to define and implement those.

**El Niño and La Niña Updates**

**3.2.5.12** Keeping in view the importance of the El Niño-Southern Oscillation (ENSO) in the climate variability across the world, Members appreciated the WMO publication of global consensus-driven El Niño and La Niña Updates, and urged that those be continued. The Updates principally focused on the El Niño state, while information on associated impacts, if any, was the responsibility of relevant NMHSs. Members agreed to support WMO compilation of information on ENSO-related definitions, events and impacts. Noting the need to enhance linkages between the WMO components of the World Climate Programme (WCDMP and WCASP) and the United Nations Environment Programme (UNEP) component (World Climate Impacts and Responses Programme, WCIRP), Congress requested the Secretary-General to invite UNEP/WCIRP to participate in development of the Updates and the WCP/CCl/DPM project on El Niño and La Niña impacts. In addition, Congress recommended that other large-scale indices having regional impacts, such as the Indian Ocean Dipole, be considered for future Updates.

**Next steps for CLIPS**

**3.2.5.13** Congress noted that the CLIPS Project had been established in 1995 under Resolution 9 (Cg-XII) – Climate Information and Prediction Services (CLIPS). Acknowledging the accomplishments and contributions of CLIPS to the development of climate services around the world and recognizing the outcomes of the Espoo Conference (see paragraph 3.2.5.4), Congress urged the Secretary-General to work with CCl to revisit the goals and objectives of CLIPS in regard to providing climate services that contributed to real-world decision-making within multidisciplinary contexts; to draft an Implementation Plan for future evolution of CLIPS activities; and, within the Implementation Plan, to propose options for a cross-cutting guidance mechanism for CLIPS, to include the World Climate Research Programme, Education and Training Programme, Natural Disaster Prevention and Mitigation Programme, Programme for Least Developed Countries, and other relevant programmes. Congress requested the Secretary-General to present the draft Implementation Plan to the Commission for Climatology at its fifteenth session in 2009 for its review and appropriate recommendations to Sixteenth Congress in 2011.

**Climate Applications and Services for health, energy, tourism and urban sectors**

**3.2.5.14** Congress appreciated the decision of the Technical Conference on Climate as a Resource (Beijing, China, 1–2 November 2005), organized by WMO in collaboration with the China Meteorological Administration, to promote activity in the assessment and utilization of climate resources in key socio-economic sectors, including building, energy, health care and tourism. Congress urged Members to participate in projects associated with assessment of climate resource potential.

**3.2.5.15** Congress appreciated the long-standing partnership with the World Health Organization (WHO), and others in climate applications to health. Congress noted the WMO/WHO Guidelines on Heat-Health Warning Systems and urged the Secretariat to publish and disseminate the Guidelines to all Members as a matter of priority. Congress urged the Secretary-General to promote the WCP/CCl/DPM project on Heat-Health Warning Systems, to facilitate relevant training and implementation of those systems in regions vulnerable to deadly heatwaves, and to take steps to extend AREP/THORPEX and GCOS initiatives in Africa and those of multi-hazard Early Warning Systems with climate and health applications to other vulnerable regions.

**3.2.5.16** Noting the value of climate information for planning, design and operations of sustainable, climate-friendly, renewable and conventional energy industries, Congress urged the Secretary-General to promote effective collaborations between relevant partners including WCASP/CLIPS, the Commission for Climatology, Natural Disaster Prevention and Mitigation Programme, United Nations Environment Programme, the World Bank, academia and the private sector and to develop risk management strategies using climate derivative products.

**3.2.5.17** Recognizing the importance of the tourism sector to the global economy, Congress urged the Secretary-General to facilitate inter-departmental and inter-agency coordination for climate and tourism, between WCASP/CLIPS, the Commission for Climatology, Public Weather Services, Communications and Public Affairs, Natural Disaster Prevention and Mitigation Programme, Programme for Least Developed Countries, the United Nations World Tourism Organization and other relevant agencies including the private sector. Congress noted the recent WMO initiatives to organize a scoping workshop on climate and tourism, and urged the Secretary-General to support that event as a matter of priority within the limits of the available budget.

**3.2.5.18** Congress recognized that the rapid urban population growth would have serious consequences to the health and well-being of an increasing share of the world's population, which would be at risk from the effects of urban climate hazards, and the need to develop building codes for reducing vulnerability in high-risk areas. Congress urged the Secretary-General to promote the WCP/CCl/DPM project on Integrating Hydrometeorological Risk Assessment in Urban Planning and Building Design, and to foster close collaboration between WCASP/CLIPS, the Commission for Climatology, Commission for Hydrology, Education and Training Programme, Natural Disaster Prevention and Mitigation Programme, Atmospheric Research and Environment Programme GAW Urban Research Meteorology and Environment Project, United Nations Human Settlements Programme, World Health Organization, United Nations Environment Programme, the World Bank, academia and the private sector.

### 3.2.6 World Climate Impact Assessment and Response Strategies Programme *(agenda item 3.2.6)*

**3.2.6.1** Congress noted the report on the activities of the World Climate Impact Assessment and Response Strategies Programme as presented by the United Nations Environment Programme (UNEP). It took note of UNEP activities in the area of adaptation to climate change and noted in particular the work on integrating climate impacts assessment and vulnerability risks into adaptation strategies. To that effect, Congress requested the Secretary-General to promote interaction and cooperation with UNEP on regional and national actions on adaptation to climate change and reduction of vulnerability, especially within the frame of the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change of the United Nations Framework Convention on Climate Change. Congress further noted that systematic observation and data collected from National Meteorological and Hydrological Services, including the GCOS network, were vital information that underpinned the assessment activities of UNEP. It requested UNEP to support the efforts of WMO and the Global Climate Observing System to strengthen the infrastructure for systematic observation of the climate system.

**3.2.6.2** Congress urged the Commission for Climatology to explore opportunities for concluding joint projects between the National Meteorological and Hydrological Services and national bodies representing the UNEP community, and further urged WMO and UNEP to involve the Services in in-depth studies on projects as full participants, and not solely as data providers.

**3.2.6.3** Congress noted that the UNEP Risøe Centre on Energy, Climate and Sustainable Development was leading the Development and Climate Project to conduct in-depth country studies on development, energy and climate. As energy activities were linked to mitigation and finance, and were generally developed with broader objectives relating to energy for sustainable development, Congress requested the Secretary-General to encourage strong cooperation between WMO, UNEP and the Group on Earth Observations, particularly on renewable energy. Congress urged that the Commission for Climatology Expert Team on Climate and Energy made every effort as well to strengthen those partnerships in applications of climate as a resource for renewable energies.

**3.2.6.4** Congress was pleased to note that UNEP and WMO continued to strengthen their cooperation in supporting the Intergovernmental Panel on Climate Change, particularly in the management of the IPCC Secretariat and contributing to the IPCC Trust Fund to encourage

participation of experts from developing countries in the planning and writing of the IPCC assessments, special, technical and methodology reports.

### 3.2.7 World Climate Research Programme *(agenda item 3.2.7)*

**3.2.7.1** Congress noted with satisfaction the achievements made by the World Climate Research Programme (WCRP) since Fourteenth Congress. Particular advances under the Programme's two objectives, improving climate prediction and enhancing understanding of human interactions with climate, included: enhancing seasonal prediction skill by robust ensemble techniques, quantitative skill assessments, and applications to outbreaks of tropical diseases, forest fires and floods; reanalysis improvement, specifically the completion of the Japanese 25-year Reanalysis Project in 2006, multiple improvements in European Re-Analysis, initiation of ocean reanalysis, and reprocessing to address precipitation coupling to other components of the climate system; climate change projections input to the Intergovernmental Panel on Climate Change Fourth Assessment Report including the creation of the Coupled Model Intercomparison Project (CMIP3, IPCC Fourth Assessment Report) archive (at the Program for Climate Model Diagnosis and Intercomparison) and user analyses (at the Max Planck Institute); assessment of skill in IPCC Fourth Assessment Report projections, for example uncertainties in sea-level rise and carbon absorption; crucial contribution to the 2006 WMO/UNEP Scientific Assessment of Ozone Depletion especially through model skill evaluation and improvement; and contribution to formulating the International Polar Year 2007–2008 research tasks and establishing its legacy in terms of data and observing systems. Significant contribution to the understanding of the role of air–sea interaction over the North Indian Ocean in the sustenance of the Indian summer monsoon had been achieved through various field campaigns at the national level under the aegis of the Indian Climate Research Programme.

**3.2.7.2** Congress noted the valuable work done in past years by the IAHS/WMO Working Group on WCRP GEWEX and encouraged the climate science community working under WCRP and the hydrological science community of IAHS to cooperate so as to ensure an effective input from the hydrological sciences to the World Climate Research Programme.

**3.2.7.3** Congress was pleased to note that WCRP plans for implementation of its new Strategic Framework included much closer involvement of WMO Members and specific goals designed to better respond to their needs. Congress noted that WCRP planned contribute to WMO expected result 2 and with THORPEX to expected result 1 through evaluating the skill of climate models in seasonal prediction in a focused assessment involving major forecast centres to be held in Barcelona, Spain, in June 2007; with the World Climate Programme creating climate indices through the CLIVAR/CCl/JCOMM Expert Team on Climate Change Detection, Monitoring and Indices; establishing an Internet forum for users of the Climate Prediction Tool and facilitating "train the trainer" activity to enable better use of the Tool; assisting nations in developing adaptation strategies to climate change through a least developed country capacity-building workshop hosted by the International Centre for Theoretical Physics, to be held in Italy in November 2007, and participating in an international conference jointly with the Global Climate Observing System and the International Geosphere-Biosphere Programme on lessons learned from the IPCC Fourth Assessment Report; facilitating the application of re-analysis data through the Third WCRP Reanalysis Conference, to be held in Tokyo, Japan, in January 2008; and establishing a concrete climate focus on provision of the Early Warning of Climatic Extremes with the Natural Disaster Prevention and Mitigation Programme and the World Climate Programme; and many regional activities including the Indian Climate Research Programme's study of the hydrological cycle over the South Asian continent during the monsoon season; studies over oceans near Africa, especially the Indian Ocean, to improve our understanding of African climate variability for support in early warning and agriculture; and increased efforts to address lack of data and improving our understanding of equatorial climate processes. Congress welcomed the prioritization of the Joint Scientific Committee and supported the proposed climate research initiatives for 2008–2011.

**3.2.7.4** Congress noted the brief WCRP report on the main outcomes of the WMO/ICSU/IOC Joint Scientific Committee for the World Climate Research Programme, the twenty-eighth session of which took place in Zanzibar, United Republic of Tanzania, from 26 to 30 March 2007. The Joint Scientific Committee session focused its attention on ways of implementing the WCRP Strategic Framework 2005–2015 and considered proposals on the actions needed to ensure the funding necessary for WCRP future activities. The session confirmed the chief role of WCRP projects in the implementation of its programme. The Joint Scientific Committee considered a proposal from the Scientific Committee of the International Geosphere-Biosphere Programme to establish a joint JSC/IGBP Council working group to consider the common science issues and the best means of pursuing those into the future. Congress expressed its appreciation for the leadership of the WMO/ICSU/IOC Joint Scientific Committee in formulating the overall scientific strategy for the programme. Congress also recognized that changing demands and the increasingly multidisciplinary nature of climate research were likely to be considered in the upcoming review of WCRP by the International Council for Science, which would include WMO participation.

**3.2.7.5** Congress was pleased to note the view expressed by the Joint Scientific Committee at its twenty-eighth session in Zanzibar that WCRP should fully utilize the potential of WMO, WCRP's main sponsor, including its regional programmes with the World Climate Programme as well as START, in addressing the needs, interests and building capacity of developing countries in climate research and applications, and that high priority would be given by WCRP to regional climate predictions and the ability to produce them by developing countries. It noted the high importance of the cross-cutting activities prioritized by the Joint Scientific Committee on the Anthropogenic Climate Change, Atmospheric Chemistry and Climate, Seasonal Prediction, Decadal Predictability, Monsoons, Climate and its Extremes, and the International Polar Year 2007–2008. WCRP would work closely with the International Geosphere-Biosphere Programme to implement Anthropogenic Climate Change as a major joint cross-cutting activity while all other cross-cutting activities would be led by various WCRP projects.

**3.2.7.6** Congress was pleased with the outward-looking approach of WCRP to WMO Members and acknowledged that integration of climate and Earth system science was essential for National Meteorological and Hydrological Services to be able to deliver end-user benefits identified in WMO expected results 2 and 7. WCRP would work with NMHSs to improve climate predictions and their exploitation. WCRP would also deliver improved understanding of human effects on climate to assist Members, for example, in developing strategies related to adaptation to climate change.

**3.2.7.7** The representative of the Intergovernmental Oceanographic Commission of UNESCO recalled to Congress that the IOC had joined WMO and the International Council for Science as a sponsor of the World Climate Research Programme in 1993 and that the IOC Assembly, at its twenty-third session held in June 2005, had "reaffirmed its continued co-sponsorship and its support of the WCRP" at a level of at least US$ 125 000 per year through Regular Programme funds. The IOC saw WCRP as a worldwide community of climate scientists, which represented the best collective knowledge about the physical climate system and its predictability. IOC Member States relied on the World Climate Research Programme for leadership and coordination in climate science, for improved predictions of climate variability and change, and for the strong contributions of WCRP programmes to the Global Ocean Observing System. The inputs of the WCRP CLIVAR and CliC projects continued to be central for that. The IOC believed that the WCRP should maintain its focus on coordinating and promoting the highest-quality research on the predictability of the climate system and the human effect on climate, as it had done so very well in the past. The IOC Member States had also expressed an interest in understanding climate science in its policy context and in understanding the impacts of climate variability and change. The IOC appreciated the initiatives WCRP had taken and would be taking in improving climate services, in exploring avenues for collaboration with the International Geosphere-Biosphere Programme and other international climate research programmes through the Earth System Science Partnership, and in assisting developing countries in understanding regional climate projections in order to develop adaptation strategies. The IOC thanked WMO for its continued major support of the WCRP

secretariat and programme activities, and expressed willingness to continue dialogue on how to best support the activities of the World Climate Research Programme.

**3.2.7.8** Congress noted with appreciation that the Hydrographic Programme Atlas Series of the World Ocean Circulation Experiment had published Volume 1 with the Southern Ocean Atlas in 2005. New sections were added to the comprehensive African Climate Atlas. The WCRP Sea-level Rise Task Team organized the WCRP workshop, Understanding Sea-level Rise and Variability, in Paris, France, in June 2006. The Workshop, which brought together 163 participants from 29 countries, had made recommendations on research and observational requirements needed to address uncertainty in sea-level rise and its variability, which would be published in 2008. Mr John Church, the Chair of the World Climate Research Programme Joint Scientific Committee, delivered the 2006 Roger Revelle Memorial Lecture entitled Global Sea Levels: Past, Present and Future, and received the Roger Revelle medal at the thirty-ninth session of the IOC Executive Council (Paris, 21–28 June 2006).

**3.2.7.9** Congress recognized the importance of the work of the World Climate Research Programme in pursuing implementation of the WCRP Strategic Framework 2005–2015 and appreciated the WCRP role in providing international coordination in facilitating climate research. Congress expressed serious concern about the lack of funding available for WCRP to continue its efforts to coordinate and facilitate fundamental climate research, and, particularly in light of role of WMO as a major sponsor of WCRP, strongly urged Members to find ways to increase support to the World Climate Research Programme.

**3.2.7.10** Congress approved the continuation of the Agreement between WMO, ICSU and IOC for the conduct of WCRP following from Resolution 9 (Cg-XIII) – World Climate Research Programme, and urged WMO to continue its strong support for and guidance to the World Climate Research Programme.

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

### 3.3.1 Atmospheric Research and Environment Programme; the report of the president of CAS *(agenda item 3.3.1)*

**3.3.1.1** Congress thanked the president of the Commission for Atmospheric Sciences (CAS), Mr Michel Béland, for his report highlighting the significant achievements of the research programmes. It acknowledged that the activities of the Commission and the Atmospheric Research and Environment Programme were in accordance with the Sixth WMO Long-term Plan, and the relevant resolutions of Congress and the Executive Council.

**3.3.1.2** The continuing success of the WMO Research Award for Young Scientists administered by AREP reflected the interest of WMO Members who were encouraged to continue to support the Awards.

**3.3.1.3** Congress was pleased with the progress that had been made in AREP programmes. It endorsed the changes in Commission for Atmospheric Sciences documented in the report of the Commission on its fourteenth session, held in Cape Town, South Africa, from 16 to 24 February 2006, and subsequent amendments by the fifty-eighth session of the Executive Council in 2006. It thanked Mr Anton Eliassen, the former president of the Commission, for his long-term leadership that ended at the fourteenth session of the Commission, and those experts worldwide who served as chairpersons and team members. Congress supported the adoption by the Commission at its fourteenth session and the Executive Council at its fifty-eighth session of a new operating system for CAS with two Open Programme Area Groups (OPAGs) supporting the Global Atmosphere Watch (GAW) programme, the World Weather Research Programme (WWRP), which included THORPEX, and other research activities. Congress adopted Resolution 14 (Cg-XV) – Atmospheric Research and Environment Programme.

**3.3.1.4** Congress agreed with the president that the GAW programme under the CAS OPAG for Environmental Pollution and Atmospheric Chemistry (EPAC) was in a mature stage of development with sound management and a growing list of significant services and products. It endorsed the process of implementation through the GAW Strategic Plan approved by the CAS Management Group and monitored by CAS OPAG-EPAC. It noted that the third GAW Strategic Plan: 2008–2015 incorporated the rationale and implementation of the Integrated Global Atmospheric Chemistry Observations strategy, as contained in WMO/TD-No. 1235, and as recommended by the Commission at its fourteenth session and endorsed by the Executive Council at its fifty-eighth session. It endorsed the president's recommendation that the GAW programme and the Commission for Atmospheric Sciences play a pivotal role in developing a WMO Integrated Global Observing System.

**3.3.1.5** As weather forecast research was an essential component of a WMO strategy to reduce risk through disaster mitigation and since WWRP and THORPEX initiatives had much in common, Congress strongly endorsed the decision of the Commission at its fourteenth session and its Management Group to develop and implement under the Open Programme Area Group for WWRP a strategic plan for a new World Weather Research Programme that integrated WMO Member activities in THORPEX, tropical meteorology, mesoscale weather forecasting, nowcasting, verification and societal and economic benefits with those of partners in global forecast research and Earth observations. It agreed that, in such a plan, maintenance and strengthening of the traditional strong links with GAW, the World Climate Research Programme and other WMO Programmes were needed.

**3.3.1.6** Congress expressed its satisfaction that the Commission had responded adequately to the request of its fourteenth session (*Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Atmospheric Sciences* (WMO-No. 1002), general summary, paragraph 8.1.2) to review proposed updates to the WMO Statement on Weather Modification (including an Executive Summary) and the WMO Guidelines for the Planning of Weather Modification Activities. It accepted the proposal of the Commission to present its decision to the Executive Council at the sixtieth session in 2008.

**3.3.1.7** Congress expressed satisfaction with the response of the Commission to the request of Fourteenth Congress (*Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), general summary, paragraph 3.3.5.4) and with the establishment of an ad hoc group to address the effects of aerosol pollution, including biomass burning, on precipitation. It noted that the Commission had designated AREP to lead a joint WMO effort with the International Union of Geodesy and Geophysics (IUGG) that established the WMO/IUGG International Aerosol Precipitation Science Assessment Group and organized a peer-reviewed report entitled Aerosol Pollution Impact on Precipitation: A Scientific Review. It accepted the President's recommendation supported by the IUGG representative that WMO and IUGG proceed to publish the report as a joint publication and consider for the Executive Council at its sixtieth session possible actions resulting from the recommendations. Congress expressed its thanks to IUGG, co-editors Z. Levin and W. Cotton and leader of the peer-review Mr G. Isaac as well as to the many contributors and reviewers.

### 3.3.2 Global Atmosphere Watch Programme, including support to environment-oriented conventions *(agenda item 3.3.2)*

**3.3.2.1** Congress noted the approval by the Commission for Atmospheric Sciences of the Global Atmosphere Watch (GAW) Strategic Plan: 2008–2015. Congress recognized that GAW focused on integration of all types of observations (surface-based, aircraft, satellite) of ozone, UV radiation, greenhouse gases, aerosols and selected reactive gases using atmospheric models and incorporated many elements of the Integrated Global Atmospheric Chemistry Observations strategy. That provided GAW with an appropriate framework for integration of observations and strengthened links to users. In that context, Congress commended the important GAW contribution to the Global Climate Observing System and requested the Commission for Atmospheric Sciences

to continue to guide the AREP contribution to implementation of the atmospheric component of GCOS. Recognizing that the support of countries for the GAW infrastructure was crucial, Members were encouraged to continue their national GAW-related activities to support established trust funds to build capacity in developing regions and to seek possibilities to fill some gaps in those areas still lacking. It noted that gaps in observations existed, particularly in South America, Africa and Asia.

**3.3.2.2** Congress was pleased that GAW had initiated the publication of a WMO *Greenhouse Gas Bulletin* annually. The second Bulletin was very timely for the meeting of the Conference of the Parties to the United Nations Framework Convention on Climate Change in 2006. Congress recommended that other services and products connecting GAW activities to user communities be developed, including analysis and forecasting of short-term and long-term hazards related to air pollution episodes, chemical loading of ecosystems from the atmosphere, UV radiation exposure, and restricted visibility and air quality due to smoke and dust.

**3.3.2.3** With respect to the Vienna Convention for the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer, Congress emphasized the need for Members to support the monitoring of ozone and ozone-depleting substances over the next several decades to ensure the detection of the state of the ozone layer. It encouraged Members to support the Trust Fund for activities on research and systematic observations relevant to the Vienna Convention in support of capacity-building in developing regions. Congress adopted Resolution 15 (Cg-XV) – Stratospheric ozone observations. Congress noted the significant role that the traditional WMO *Antarctic Ozone Bulletin* and the *Arctic Ozone Bulletin* that was initiated in 2006 played in consolidating scientific opinion and as key information.

**3.3.2.4** Congress welcomed the strong partnerships developed by GAW with regional atmospheric chemistry monitoring and modelling programmes. It recommended that the strong collaboration with the United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution continue, particularly as the scope of the Convention's activities expanded to hemispheric. WMO-GAW was co-chairing the Task Force on Measurements and Modelling of the Convention's Cooperative Programme for Monitoring and Evaluation of the Long-range Transmissions of Air Pollutants in Europe and participating in its Task Force on Hemispheric Transport of Air Pollution.

**3.3.2.5** Congress endorsed the priority placed by GAW on addressing the training and education needs of developing countries and acknowledged the support by Germany of the GAW Training and Education Centre and its biannual courses. In addition, it extended its appreciation to Argentina, Australia, Canada, the Czech Republic, Japan, South Africa, Spain, Switzerland and the United States for special efforts in training. Congress urged Members to continue those activities. The development of the GAW Urban Research Meteorology and Environment (GURME) air quality forecasting training course was recognized as important in strengthening the capability of NMHSs to deal with urban air quality problems. Members were encouraged to assist in providing the course in different WMO Regions.

**3.3.2.6** The second quadrennial gathering of leaders and partners of the Global Atmosphere Watch took place in the GAW 2005 Workshop in Geneva. Representatives of all the components of GAW participated, including members of the CAS Open Programme Area Group (formerly working group) on Environmental Pollution and Atmospheric Chemistry; leaders of GAW calibration, quality assurance, data management facilities; station managers; modellers, GAW product users; collaborating partner organizations; and the Secretariat. Congress recommended that that important technical and scientific forum continue.

**3.3.2.7** National Meteorological and Hydrological Services throughout the world were broadening their traditional role of meteorological monitoring and forecasting to include prediction of other environmental phenomena that could substantively affect the health and welfare of their citizens, for example UV radiation, plumes from biomass burning, dust storms and air quality. The

emergence of urban air quality forecasting, a GURME focus, was an illustrative example. Recent developments in atmospheric chemical transport modelling were leading to more effective linkage of air pollution issues on different scales from urban to global. Congress welcomed the continuing implementation of workshops and projects by GAW including GURME and interaction with the World Weather Research Programme.

**3.3.2.8** GURME pilot projects had demonstrated how National Meteorological and Hydrological Services could successfully expand their activities into urban environment issues. Congress agreed that those pilot projects, especially the Shanghai GURME project, could make an important contribution to the development of disaster prevention, management and multi-hazard early warning systems.

### 3.3.3 World Weather Research Programme, including THORPEX and tropical meteorology *(agenda item 3.3.3)*

**3.3.3.1** Congress thanked the many scientists involved in the development of THORPEX and its ongoing activities. It drew particular attention to Canada, China, France, Japan, the Republic of Korea, Norway, the United Kingdom and the United States for their continuing financial support, and to China for its seconded expert at the International Programme Office. Noting pressing budgetary issues, Congress urged those Members who were able to commit increased support to the THORPEX Trust Fund and to help ensure that all Members reaped the benefits derived from that programme.

**3.3.3.2** Congress was particularly pleased with the progress made towards the development of the THORPEX Interactive Grand Global Ensemble (TIGGE), which was a prototype for a multi-model ensemble forecast system that would guide the development of a possible Global Interactive Forecasting System. In its first phase, TIGGE would provide to all WMO Members near-real-time access to ensemble forecast products for research purposes. It also endorsed the THORPEX Pacific Asian Regional Campaign as an important international research activity that would advance understanding of meteorology in the Pacific region and lead to better weather forecasts.

**3.3.3.3** Congress was pleased to note: (a) the regional organization of THORPEX in Regional Associations II, IV and VI and the rapid development of the THORPEX partnership in the Southern hemisphere involving countries in Regional Associations I, III and V; (b) the importance of the emphasis placed by THORPEX on social and economic benefits; (c) the strong developing cooperation between THORPEX, the World Climate Research Programme, the Group on Earth Observations and the International Polar Year 2007–2008; (d) the resounding success of the second THORPEX International Scientific Symposium, held in Landshut, Germany, in 2006, signifying a solid and useful programme; and (e) the initiative of World Weather Research Programme-THORPEX to establish a plan of action to meet the specific needs of countries in Region I. In order to ensure that the full benefits of the programme were realized, Congress emphasized that it would be essential for THORPEX to continue to address science and technology transfer issues, and coordinate its activities with the World Weather Research Programme, GAW, other WMO Programmes and international research and application programmes.

**3.3.3.4** Congress was pleased to note that during the previous four years, the WWRP Sydney 2000 Forecast Demonstration Project, the Mesoscale Alpine Programme, the first phase of the Mediterranean Experiment on Cyclones that Produce High Impact Weather in the Mediterranean and the Aircraft in-Flight Icing Project had been successfully completed. Congress congratulated the relevant WMO Members and all the participants for their valuable contributions and excellent collaboration, which had ensured the success of those WWRP projects.

**3.3.3.5** Congress welcomed the establishment of the Beijing 2008 Forecast Demonstration Project/Research and Development Project, the Mesoscale Alpine Programme's Demonstration of Probabilistic Hydrological and Atmospheric Simulation of flood Events in the Alpine region, the

Sand and Dust Storm Research and Development Project and the Research and Development Project on the Convective and Orographically-induced Precipitation Study, and noted with satisfaction the significant progress in the implementation of those WWRP projects.

**3.3.3.6** Congress endorsed the WWRP and GAW joint activity to create a WMO Sand and Dust Storm Warning System, aimed at coordinating observations and research forecast modelling of sand and dust storms while forging strong links with users including operational forecasters. Congress welcomed the strong support of Spain to host the European/African/Middle East node of the Sand and Dust Storm Warning System and to play a lead role in implementation.

**3.3.3.7** Congress noted the creation of a new category of WWRP research activity called Developing Country Forecast Demonstration Project that would involve scientists of relevant developing countries, a responsible regional meteorological centre and interested developed countries. Congress strongly encouraged more active participation of developing countries, in particular least developed countries, in WWRP activities. Linked with THORPEX demonstration projects, which emphasized forecast applications, those projects had the potential to substantially improve forecast products in developing countries.

**3.3.3.8** Congress noted with satisfaction that a WWRP International Hydrometeorological Testbed for precipitation forecasting, under development by NOAA, USA, would facilitate links between research and forecast demonstration activities and accelerate the transition from research to operations.

**3.3.3.9** Congress agreed with the Commission for Atmospheric Sciences that the four priority research areas, i.e. tropical cyclone track forecasting, quantitative precipitation forecasting, structure/intensity changes and storm surges, were important for improving the early warning systems of tropical cyclones. Congress urged the tropical meteorology research activities of WWRP to continue the development of probabilistic forecasting techniques for tropical cyclones and to quantify the social and economic impacts of tropical cyclones and tropical cyclone forecasts in collaboration with THORPEX, WCRP and the Weather Applications Programme.

**3.3.3.10** Congress highlighted the importance of monsoon studies, some of which could potentially contribute to the improvement of heavy rainfall, flooding and drought forecasting, and urged WWRP to cooperate with the World Climate Research Programme and THORPEX to continue monsoon research project and field experiments.

### 3.3.4 Weather modification activities *(agenda item 3.3.4)*

**3.3.4.1** Congress noted that weather modification activities conducted by a number of Members were aimed at improving the economy, for example, to increase a water supply for agriculture, or reducing the risks associated with high impact weather such as frost, fog and hail. Congress strongly recommended that such activities be supported by research and modelling that provided: (a) a deeper understanding of the effects of cloud modification on cloud/precipitation development and (b) a scientifically accepted evaluation of the weather modification activities. Congress also encouraged Members to take into account economic, social, ecological and legal aspects when weather modification activities were applied.

**3.3.4.2** Congress urged the Secretariat to establish a trust fund for support of the quadrennial WMO Scientific Conference on Weather Modification and the WMO Expert Team on Weather Modification that supported training and guidelines for sound scientific practices in weather modification and operations. Congress urged Members and other parties involved in weather modification to contribute to the trust fund.

## 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 appreciation the successful implementation of the Public Weather Services Programme (PWSP) according to the direction provided by the Sixth WMO Long-term Plan and the decisions of Fourteenth Congress.

**3.4.1.2** Congress emphasized that public weather services were the public face of, and major channel for, the delivery of immense social and economic benefits to the entire community from all the investments that governments made in meteorological infrastructure and technology. It noted that public weather services were at the cutting edge of the contribution made by NMHSs to national goals in relation to the safety of life and livelihood, sustainable development, the quality of life and the preservation of the quality of the environment. Congress recognized that in pursuing those goals, some Members had expanded the scope of their Public Weather Services programmes to areas of service delivery related to climate and water owing to the recognition of the contribution of Public Weather Services to effective dissemination and communication of information in those areas.

**3.4.1.3** Congress stressed that public weather services, as a critical element of NMHSs, performed that role through the delivery and communication of high-quality, useful, relevant and timely, weather and related information on a regular daily basis so as to enable users to make informed decisions. Congress emphasized that a well-run and credible Public Weather Services would help NMHSs secure the long-term trust of the public, which would be critical to the effectiveness of warnings of much less frequent severe weather events. In recognition of the contributions made by the Public Weather Services Programme to achieve that goal, Congress requested that adequate resources be allocated to the Public Weather Services Programme in accordance with Resolution 35 (Cg-XV) – Maximum expenditure for the fifteenth financial period (2008–2011), expected result 7.

**Public Weather Services Strategy**

**3.4.1.4** Congress noted that in order to ensure the alignment of its work with the WMO Strategic Plan, the Programme defined its strategies to help guide its work during the next four years. It noted that the Commission for Basic Systems and the Executive Council had approved the PWSP strategic approach. Congress thus adopted the PWSP Strategy as outlined below and requested the Secretary-General to provide support for its implementation:

(a) Improving early warning services and products and their presentation as an integral part of Public Weather Services;

(b) Engaging in capacity-building and outreach activities;

(c) Improving the reach of NMHS products and services;

(d) Promoting the application of the science of meteorology, climatology, hydrology and related technology to improve products and services; engaging in demonstration projects;

(e) Collaborative activities as appropriate;

(f) Establishing and promoting best practices;

(g) Researching and providing information on social and economic aspects of weather services;

(h) Promulgating the results of the work of PWS expert teams and groups;

(i) Engaging in surveys and assessments;

(j) Promoting and strengthening the brand of WMO.

**3.4.1.5** Congress adopted the definition of core elements of a national PWSP as defined by the Commission for Basic Systems as follows:

(a) Provide basic observations and forecasts in the areas of weather, climate and water to aid citizens in their day-to-day activities; warnings of high impact weather and extremes of climate, and information to other government authorities as appropriate in pursuance of their mission to protect the lives, livelihoods and property of their citizens;

(b) Engage in education, awareness and preparedness activities aimed at helping citizens to make the best use of forecasts and warnings information, understand the potential threats of high impact weather and extremes of climate, and be aware of the appropriate mitigating actions.

**Capacity-building and training**

**3.4.1.6** Noting that Public Weather Services contributed to enhancing the image and credibility of NMHSs and assisted them in gaining the trust of their stakeholders, Congress renewed its request to the Secretary-General to give high priority to assisting Members in strengthening their national PWSP through capacity-building and transfer of technology. It expressed satisfaction that, with limited resources, 11 training events had been conducted since Fourteenth Congress and urged the Secretary-General to increase efforts in a regionally balanced manner in that regard. Congress stressed that training in service delivery formed an important element of the training of personnel of NMHSs and requested that courses on Public Weather Services be added to the curriculum of WMO Regional Training Centres. It also requested the PWSP to continue monitoring and reporting the impact of training activities on the national PWS improvements. Congress expressed appreciation to Members who had hosted and provided facilities for training events. It also thanked the United Kingdom for its continued assistance in media training.

**Social and economic applications of Public Weather Services**

**3.4.1.7** Congress stressed that more cooperation and interaction were needed between providers and users of environmental information to make such information more relevant and useful in decision-making. It fully supported the contribution of Public Weather Services to the social, environmental and economic benefits provided through the work of NMHSs to user sectors. In that regard, Congress welcomed the establishment of a Task Force on Socio-Economic Applications of Public Weather Services. It strongly supported the work of the Task Force to specifically assist Members in the evaluation and demonstration of the social, environmental and economic benefits of their public weather services to user sectors. It requested that the Task Force continue its work on addressing the critical provider-user issues. Congress welcomed the close collaboration between PWSP and the THORPEX Societal and Economic Research and Applications Working Group.

**3.4.1.8** Congress expressed satisfaction with the full participation of the Public Weather Services Programme, the Task Force as well as the assistance of the International Association of Broadcast Meteorology in the organization, by WMO, of the International Conference on Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services (Madrid, March 2007). Noting that an implementation plan based on the Madrid Action Plan was under development, Congress requested the active engagement of the PWSP and the Task Force with the resulting ongoing outcomes of the Conference. Congress requested the Secretary-General to provide assistance and guidance to NMHSs in the evaluation and assessment of the socio-economic benefits of meteorological and hydrological services.

**Public education and outreach**

**3.4.1.9** Congress endorsed the work of Public Weather Services Programme in assisting NMHSs with their public education and outreach. It welcomed the publication of guidelines on

Strategies for Public Education and Outreach, through the work of an expert group set up by PWSP in collaboration with the Education and Training Programme and requested that support be provided to continue that work.

**Media relationships**

**3.4.1.10** Congress supported the continuation of training in media skills through the PWSP similar to the training workshop organized in Geneva in 2006. It welcomed the production and distribution to Members of a DVD entitled "Ten Steps to Broadcast Meteorology" following that workshop to assist NMHSs in their media training programmes. It endorsed the continued beneficial engagement of the Public Weather Services Programme with the International Association of Broadcast Meteorology and requested that the Programme continue to strengthen its relationship with the international media with a particular focus on ensuring proper attribution of NMHSs. It requested the Secretary-General to support networks of professional meteorologists and media practitioners, such as the Network of Climate Journalists for the Greater Horn of Africa, the Climate Broadcasters Network in Europe and the media climate network of Southern Africa, for the purpose of promoting the quality and frequency of reporting on weather, water and climate issues.

**Relations with the private sector**

**3.4.1.11** Previous Congresses had discussed the establishment of mechanisms for dialogue between NMHSs and private sector meteorological service providers as a useful means in promoting mutual understanding of respective roles. Experience with the establishment of productive dialogue and partnership with media organizations had proved successful. Congress noted the important role of the private sector in supporting the mission of the NMHSs in many countries. A number of strong and highly effective public-private sector partnerships had emerged over the past decade, which had demonstrated significant benefits to some Members. Private companies might provide value-added services and product delivery as well as being useful supplementary sources of data, for example lightning detection, dense mesonets, road weather networks, aircraft met data, camera networks. Congress noted that the private sector might also offer some NMHSs innovative, efficient and cost-effective opportunities for expanding the range of their products and services.

**3.4.1.12** Congress requested the Secretary-General to take concrete steps to advance NMHSs–private sector dialogue and suggested that current successful partnerships and best practices could be documented.

**International exchange of public forecasts and warnings through the Internet**

**3.4.1.13** Congress noted with appreciation the continued development and management of the two websites for the international exchange of NMHS official forecasts and warnings by Hong Kong, China. The Severe Weather Information Centre was issuing information on heavy rain and snow and thunderstorms in addition to the tropical cyclone information, which had been issued since its inception in 2001. Congress welcomed the linkage established between the Centre and Meteoalarm, a weather alert website developed through EUMETNET. The project was a good example of NMHSs collaboration in the production of better warning services to the public.

**3.4.1.14** A total of 115 WMO Members supplied official weather forecasts for 1 189 cities and 159 Members provided climatological information for 1 167 cities worldwide to the World Weather Information Service. The website, operated in Arabic, Chinese, English, French, Spanish and Portuguese, was hosted respectively by Oman; China; Hong Kong, China; France; Spain; and Macao, China; however, Portugal would shortly take over the hosting of the Portuguese language version. A user guide developed for the World Weather Information Service and the Severe Weather Information Centre provided valuable information on the use of the websites. Congress commended Hong Kong, China, for continuing to host, develop and manage the websites and

requested the Secretary-General to provide the necessary support for their continued operation. Congress welcomed the offer by the United Kingdom to work with the Public Weather Services Programme and Members to investigate ways to build the capacity of developing countries and least developed countries to participate fully in the World Weather Information Service website. Congress encouraged Members to promote the use of the official information of NMHSs in the media to the greatest extent possible.

**3.4.1.15** Congress supported continuous development in the use of the Internet for the presentation of data and products and also as a tool for communication between NMHSs and the public, state administration and the media at both the national and international levels. Congress encouraged the use of the Internet for the dissemination of warnings and related information.

**Support to natural disaster reduction**

**3.4.1.16** Congress emphasized the authority of NMHSs in providing a single official voice in issuing warnings through the media. The results of surveys conducted by the Public Weather Services Programme had shown that education, especially as delivered through the media, was the key to the success of a warning in changing people's behaviour. Congress stressed that workshops on reaching out to civil protection and emergency bodies, decision makers and the public, in order to enhance their ability to understand and translate warnings into effective actions, were essential. In that regard, it endorsed collaborative efforts between the PWSP and relevant programmes in organizing joint workshops related to severe weather forecasting demonstration projects, where participants learned the importance of proper communication of warnings. Congress encouraged the use of modern technology, particularly in the relay of warnings through the media. Congress urged the Secretary-General to support training events in that area for developing countries and least developed countries.

**3.4.1.17** Congress agreed that, in improving the warnings of severe weather phenomena, nowcasting represented an important decision-support tool. It endorsed the initiative of the application of nowcasting to Public Weather Services and requested the Secretary-General to support building capability of NMHSs in that area.

**3.4.1.18** Congress welcomed the participation of PWSP in the Severe Weather Forecasting Demonstration Project in Southern Africa to assist the participating NMHSs in reaching out to the public, decision makers and disaster management to ensure proper understanding and effective use of warnings. Congress requested the continued and active involvement of the Public Weather Services Programme in future similar projects.

**3.4.1.19** Congress noted with appreciation the RA II project, with the participation of Japan, the Republic of Korea and Hong Kong, China, to provide site-specific forecasts in the medium-range to the developing countries within the Region similar to those provided by ECMWF to some Members in RA I. It encouraged the Secretary-General to explore how that concept might be extended to other Regions and noted that the provision of those site-specific forecasts could be easily measured as deliverables by National Meteorological and Hydrological Services.

**Publications**

**3.4.1.20** Congress endorsed the continued work of the Public Weather Services Programme in publishing guidelines and brochures related to service delivery, which had been found useful by NMHSs. It requested the Secretary-General to continue to provide support to produce and publish further guidelines on topics requested by Members.

**International Symposium on Public Weather Services**

**3.4.1.21** Congress agreed that the dynamic approach adopted by the Public Weather Services Programme had been recognized by Members as vital to realizing the full potential of their national

Public Weather Services programmes and activities. Congress requested the Secretary-General to organize as soon as possible an International Symposium on Public Weather Services with the aim of providing a forum for a thorough review of past achievements and, building on that review, to prepare a road map for a strategic approach over the next decade. Recognizing that in a world of continuous change NMHSs needed to develop the qualities of adaptability and flexibility, Congress highlighted the potential of PWSP in facilitating a quantum change in the delivery of products and services, and requested that the Symposium provide guidance on the optimum manner in which the Programme could support the successful implementation of the WMO strategic goals.

**Public Weather Services, a WMO cross-cutting activity**

**3.4.1.22** Congress noted that the work of the Public Weather Services Programme in training and capacity-building was relevant also within the areas of water and climate. In recognition of that reality, the PWSP continued to actively engage with other programmes and activities and was itself an example of a cross-cutting programme as shown through its collaboration with other WMO Programmes, in particular, the World Weather Watch, World Climate Programme, Tropical Cyclone Programme, Education and Training Programme, Atmospheric Research and Environment Programme, Natural Disaster Prevention and Mitigation Programme and Communications and Public Affairs Office. Congress requested the Secretary-General to continue that approach with a view to cost saving, eliminating duplication, and efficiency in programme delivery.

**Members' priority areas**

**3.4.1.23** Congress agreed with the areas of focus of the Public Weather Services Programme in line with the WMO Strategic Plan and the priority areas of Members identified as the result of Public Weather Services surveys in the previous four years. Congress recognized that priorities (a) and (b) below were the most fundamental and that the other priority areas as listed below would support their realization:

(a) *Service delivery* – Addressing service excellence, user needs, total quality management, continuous improvement;

(b) *Effective formulation and communication of multi-hazard warning messages* – Reaching and influencing the public in safeguarding life and property;

(c) *Dissemination and presentation* – Effective and timely dissemination and presentation of forecasts and warnings so as to enhance the credibility of National Meteorological and Hydrological Services and provide attribution where appropriate;

(d) *Strong media relationships* – Key partnerships with media as an extremely important element in a successful Public Weather Services programme;

(e) *Public education and awareness* – Promoting awareness among the public to respond positively to the NMHS deliverables, particularly warnings, and take appropriate action;

(f) *Coordination and collaboration* – Close coordination and collaboration with all sectors and institutions requiring weather services;

(g) *Enhancing economic and social well-being* – Collaborating with weather-sensitive sectors of society as a direct contribution to national socio-economic sustainable development;

(h) *Regional collaboration* – Working with other Members within regional associations so as to enhance products and services.

**Future directions**

**3.4.1.24** Taking into consideration the priorities of Members, Congress requested that future directions of the Public Weather Services Programme should aim at:

(a) Providing guidance on the application of new technology and scientific research to service delivery;

(b) Capacity-building through training in all aspects of Public Weather Services, and the publication of guidance materials on topics based on the requirements of Members;

(c) Continuing to provide guidance on the social and economic applications of Public Weather Services;

(d) Continuing to provide guidance on user-based service assessment, and product verification and make sample questionnaires available to National Meteorological and Hydrological Services in order to assist them with their national assessments;

(e) Providing guidance on international and regional weather information exchange.

**3.4.1.25** Congress stressed the cross-cutting nature of the Public Weather Services Programme and, in particular, that although the word "weather" was explicitly included in the title of the Programme, that did not limit the provision of services and information to certain time scales and phenomena. Congress further recognized that the Programme provided an overarching framework with the fundamental function of delivering a broad suite of services to the public. Some Members expressed the view that the title of the Programme needed to better reflect its broader scope and content. Congress requested that the matter be kept under review by the Commission for Basic Systems and the Executive Council, and as a first step tasked the proposed International Symposium on PWS with addressing issues concerning the title and structure of the Public Weather Services Programme and preparing a report for consideration by the Executive Council.

**3.4.1.26** Congress adopted Resolution 16 (Cg-XV) – Public Weather Services Programme.

### 3.4.2 Agricultural Meteorology Programme; the report of the president of CAgM *(agenda item 3.4.2)*

**3.4.2.1** Congress noted with appreciation the report of the president of the Commission for Agricultural Meteorology (CAgM) on progress achieved in implementing the Agricultural Meteorology Programme since Fourteenth Congress in 2003, and expressed its satisfaction with the successful implementation of the Programme according to the direction provided by the Sixth WMO Long-term Plan and the decisions of Fourteenth Congress.

**3.4.2.2** Congress recalled that the purpose of the Agricultural Meteorology Programme was to support food and agricultural production and activities as well as animal husbandry, forestry and fisheries. The Programme assisted Members in provision of meteorological and related services to the agricultural community. In the light of the growing concerns with the impacts of climate variability, climate change and natural disasters on agriculture, there was an increasing demand for improved agrometeorological services, especially warnings and advisories, to cope with those impacts and Congress emphasized that development of improved support systems was crucial for the provision of such services.

**3.4.2.3** Congress noted with appreciation the report of the fourteenth session of the Commission for Agricultural Meteorology (*Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Agricultural Meteorology* (WMO-No. 1014)), held in New Delhi, India, from 28 October to 3 November 2006, at the kind invitation of the Government of India. Congress further noted the theme the Commission had

adopted as the focus for its activities during the next intersessional period: “Agricultural products, services and coping strategies to sustain agricultural development for both effective short-term daily operational farming decisions and proactive long-term strategic agricultural planning measures”.

**3.4.2.4** Congress strongly encouraged the Commission to develop a clear Strategic Plan for the Programme supported by a set of Specific Measurable Agreed Realistic Time-Bound (SMART) Performance Targets to link its future work to the WMO Strategic Plan.

**Implementation of the new structure for the Commission**

**3.4.2.5** Congress noted that the Commission at its thirteenth session had adopted a new working structure to improve its efficiency and effectiveness, and that the activities of the Programme were implemented in three Open Programme Area Groups:

(a) Agrometeorological Services for Agricultural Production, focusing on operational and research activities that promoted agricultural production;

(b) Support Systems for Agrometeorological Services, concentrating on network observations, data and information management, and technological developments needed to advance the production of services;

(c) Climate Change/Variability and Natural Disasters in Agriculture, dealing with priority issues affecting agriculture.

**3.4.2.6** Congress noted that meetings of all the nine Expert Teams and the three Implementation/Coordination Teams of the Commission under the new structure had been organized during the intersessional period with the limited resources available and many of the Expert Team reports had already been published. Congress found it remarkable that most of those meetings had been co-sponsored by other organizations and agencies, which allowed the active participation of many experts.

**3.4.2.7** Congress was pleased to note that several pilot projects were recommended for development by the three Open Programme Area Groups, and it encouraged regional implementation of the pilot projects in the next intersessional period.

**Deliverables from the new structure of the Commission**

**3.4.2.8** Congress was pleased to note that the activities implemented under the new structure of the Commission had resulted in several important publications, including special issues of scientific journals such as *Climatic Change (*Vol. 70)*, Climate Research* (Vol. 33), *Agricultural and Forest Meteorology* (Vol. 142), *Meteorological Applications*, and the *Australian Journal of Agricultural Research.* The books entitled *Natural Disasters and Extreme Events in Agriculture* and *Climate Prediction and Agriculture: Advances and Challenges,* published by Springer, from the proceedings of the meeting of the Expert Team on Reduction of the Impact of Natural Disasters and Mitigation of Extreme Events in Agriculture, Forestry and Fisheries and the International Workshop on Climate Prediction and Agriculture: Advances and Challenges, respectively, and the Special Issue of the *Agricultural and Forest Meteorology Journal* on the “Contribution of Agriculture to the State of Climate” from the proceedings of the meeting of the Expert Team on the same topic, were good examples of the effectiveness of the new structure of the Commission.

**3.4.2.9** Congress noted with appreciation that in addition to the above, proceedings of 5 workshops, 2 technical notes, 13 Commission for Agricultural Meteorology reports and 2 brochures were published. Congress in particular noted with appreciation the publication of nine CD-ROMs and one DVD of presentations made at various meetings organized by Agricultural

Meteorology. Congress acknowledged that the new innovation of publishing CD-ROMs and DVDs immediately at the end of the meetings enabled quick access to information by Members.

**3.4.2.10** Congress welcomed the initiative taken by the Secretariat to establish a Task Force for the development of the project on Assessment of Natural Disaster Impacts in Agriculture (ANADIA) with experts from six Regions. Congress endorsed the recommendations of the ANADIA Task Force to initiate case studies on drought, tropical cyclones, floods, wildfires, frosts and local severe storms in different countries. Congress requested that appropriate coordination with the other technical commissions be undertaken in that regard.

**World Agrometeorological Information Service**

**3.4.2.11** Congress noted that the World AgroMeteorological Information Service (WAMIS, www.wamis.org) had products from over 29 countries and provided tools and resources to help countries improve their bulletins and services. Considering the benefits of WAMIS to Members, Congress urged Members to participate and disseminate their products to the global community as those products could also aid in natural disaster assessments by providing bulletins in both real-time and from a historical perspective.

***Guide to Agricultural Meteorological Practices* (WMO-No. 134)**

**3.4.2.12** Congress noted with appreciation the progress made with regard to the revised version of the *Guide to Agricultural Meteorological Practices* (WMO-No. 134). The first draft of the Guide would be available in 2007 and would be posted on the Commission for Agricultural Meteorology and International Society for Agricultural Meteorology websites for comments. Congress agreed with the goal of producing the final publication in 2008.

**Training and Capacity-building**

**3.4.2.13** Congress noted with appreciation the large number of training events conducted by the Agricultural Meteorology Programme, including six training seminars, four international workshops, one interregional workshop, three expert group meetings and two technical meetings on a wide range of topics related to agricultural meteorology. Training courses such as the one on Statistics in Applied Climatology (SIAC) organized at the Kenya Meteorological Department, in collaboration with the University of Reading (UK), were proving to be useful in generating products and services for the user community. Congress recorded its appreciation for the active collaboration with several international, regional and national organizations in those activities. Congress, in particular, was pleased with the initiative taken for the publication and distribution of the proceedings of different workshops.

**3.4.2.14** Congress welcomed the initiative taken to organize two Regional Technical Meetings on Climate Information and Prediction Services (CLIPS) and Agrometeorological Applications in RA III, jointly with the CLIPS project of the World Climate Programme.

**3.4.2.15** Congress expressed its appreciation to WMO and the co-sponsors, including the Asia-Pacific Network for Global Change Research; the Bureau of Meteorology, Australia; the Technical Centre for Agricultural and Rural Cooperation; the Food and Agriculture Organization of the United Nations; Météo-France; the Met Office, UK; and the United States Department of Agriculture, for organizing the International Workshop on Agrometeorological Risk Management: Challenges and Opportunities, in New Delhi, India, from 25 to 27 October 2006, which had permitted increased participation of members from developing countries in the fourteenth session of the Commission that had been organized immediately following the workshop. The workshop provided important input into the fourteenth session of the Commission.

**3.4.2.16** 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 that regard, Congress urged support for Member countries, particularly the developing countries, to establish and develop study programmes on agricultural meteorology. While acknowledging the recent initiative by the Agricultural Meteorology Programme to revise the curriculum in Agricultural Meteorology at the post-graduate level, Congress recommended that implementation of teaching and training programmes in agricultural meteorology in academic institutions in developing countries should receive a high priority. In that connection, Congress supported the request of the Commission to the Secretary-General to consider a significant increase in the existing WMO training fund allocation for training in agricultural meteorology.

**Initiatives to address the locust plague in 2004**

**3.4.2.17** Congress was very appreciative of the efforts undertaken by the Agricultural Meteorology Programme in response to the desert locust plague in 2004, including several proactive steps to improve the role of the NMHSs in effective monitoring and control of the desert locusts and support operations. Congress supported the future efforts of WMO and the Food and Agriculture Organization of the United Nations in preparing and publishing a joint brochure on weather and locusts.

**Cross-cutting issues**

**3.4.2.18** Congress acknowledged the pro-active initiatives taken by the Agricultural Meteorology Programme to address cross-cutting issues with other departments in the WMO Secretariat, especially the Hydrology and Water Resources Department and the Natural Disaster Prevention and Mitigation Office. Congress encouraged the Agricultural Meteorology Programme to pursue high-priority cross-cutting activities in the next intersessional period.

**Linkages with international and regional organizations**

**3.4.2.19** Congress expressed its appreciation for the initiative taken by the Secretariat in establishing collaborative activities with a number of international and regional organizations in implementing the Agricultural Meteorology Programme, such as the Food and Agriculture Organization of the United Nations, the Global Change System for Analysis, Research and Training, COST Action 718 of the European Science Foundation, the Regional Training Centre for Agrometeorology and Operation Hydrology and their Applications, and the African Centre of Meteorological Applications for Development.

**Future plans**

**3.4.2.20** Congress supported the activities proposed by the Commission for implementation during the next intersessional period. The new Expert Teams would focus on important issues such as the content and use of agrometeorological products by farmers and extension services; agrometeorological aspects of sustainable agricultural development; collection and evaluation of operational agrometeorological tools and methodologies; communication of agrometeorological products and services; agrometeorological monitoring and coping strategies for climate risks in vulnerable areas; drought, floods and extreme temperatures; preparedness and management for sustainable agriculture, rangelands, forestry and fisheries. With respect to the topic of drought, Congress noted the need for coordination of activities across all relevant technical commissions including the Commissions for Climatology, for Hydrology and for Basic Systems. Congress suggested that the Commission also examine the issue of biological risks to crop productivity, especially the incidence of diseases.

**3.4.2.21** Congress agreed with the Commission that one of the major issues to be addressed was the current constraints in the delivery of agrometeorological products and advisories.

Congress noted further the emphasis that would be placed on the provision of improved weather and climate information to farmers and improved support systems for agrometeorological services. Congress noted the recent initiative by the Agricultural Meteorology Programme to organize a series of one-day Roving Seminars on Weather, Climate and Farmers in different regions of the world to sensitize farmers about weather and climate information and their application in operational farm management.

**3.4.2.22** Congress concurred with the recommendation of the Commission to develop operational agrometeorological products that made better use of tools such as remote sensing and geographical information systems to overcome traditional limitations, for example data scarcity and low temporal and spatial resolutions, keeping in mind the assumptions and limitations in the use of those analytical tools. Congress also agreed on the importance of increasing the density of agrometeorological station networks to improve the spatial resolution and quality of agrometeorological products.

**3.4.2.23** Congress also supported the recommendation of the Commission to develop and implement coordinated and integrated national agricultural weather policies, to ensure that operational services to agriculture and food security gained institutional support and were fully met. Congress further suggested that the item be considered in depth and acted upon by the Commission during the next intersessional period. Congress stressed that projections of an increased likelihood of extreme events due to climate change necessitated systematic assessment of agroclimatic resources that could be impacted by climate change. In that regard, Congress proposed that the Commission consider the preparation of methodological recommendations to NMHSs to assist them in assessing the consequences of observed and expected climate change on agriculture and food production in the Member States.

**3.4.2.24** Congress pointed out that very sophisticated products, including seasonal forecasts, and climate risk assessment tools, were being produced but that there was limited follow-up work to ensure applications at the farming level. The essential issue remained how those products were developed, disseminated and presented to the users. To that end, Congress acknowledged that more needed to be understood about how farmers went about decision-making, and that probabilistic climate information held much promise for the development of better risk management, noting that it might require complementary education campaigns to realize the full benefits. Overall, more effective approaches to the delivery of weather, climate and water forecasting systems to farmers were needed, and that should be pursued by the Commission, whilst remaining mindful of the great variation in the ability of farmers to assimilate and make use of information, especially in developing countries.

**3.4.2.25** Congress noted that significant progress had been made toward more affordable and sustainable agricultural weather insurance products, as discussed at a special session of the International Workshop on Agrometeorological Risk Management: Challenges and Opportunities, held in New Delhi, India, from 25 to 27 October 2006. Congress urged the Commission to further facilitate the development of weather derivatives and similar financial risk management systems such as multi-risk crop insurance systems. Congress also urged developing country Members to consider developing Government-supported micro-insurance and micro-derivative products to increase the financial resilience of their agricultural sectors.

**3.4.2.26** Noting the growing incidence of dust and sand storms around the world, Congress agreed with the recommendations of the Commission that measurements of aeolian sedimentation loads should be included in the standard agrometeorological stations of NMHSs. It was also essential to include a routine and comprehensive analysis of wind speed and direction data and disseminate that information to the users. Those data should be applied to analyse the impact of sand storms on agriculture. Use of air quality networks to aid in data collection on dust and sand storms might also be examined. Noting the recent initiative of the Commission for Atmospheric Sciences for developing a WMO sand and dust storm warning system, Congress requested the Commission for Agricultural Meteorology to work together with the Commission for Atmospheric

Sciences in that area, including participation in the World Weather Research Programme sand and dust storm regional demonstration projects.

**3.4.2.27** Congress adopted Resolution 17 (Cg-XV) – Agricultural Meteorology Programme, on the implementation of the Programme during the fifteenth financial period.

### 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 the Commission for Aeronautical Meteorology, Mr Carr McLeod. The report highlighted progress made in the implementation of the Sixth WMO Long-term Plan, the new and streamlined structure of the Commission as adopted at its thirteenth session, held in Geneva from 23 to 30 November 2006, and the Operating Plan of the Aeronautical Meteorology Programme for the period 2008–2011. The plan would include realistically achievable targets linked to the WMO Strategic Plan to monitor progress and achievements.

**3.4.3.2** Congress appreciated learning that extra funds provided at its request to compensate for the extremely limited regular budget of the Aeronautical Meteorology Programme were used to hold a series of training events covering quality management systems, cost recovery, and modern methods in aeronautical meteorology and had led to a visible improvement as demonstrated by the results of two consecutive surveys of Members. Congress stressed that continued efforts by the Secretariat in support of the introduction of quality management systems would be needed, in particular for developing countries, for example by supporting the implementation of at least one demonstration project in a suitable Member country. Congress further suggested that results of questionnaires on the implementation of cost recovery would be analysed and communicated to Members as they became available.

**3.4.3.3** Congress further noted that the areas where significant progress had been achieved, such as the establishment of a Training Website (www.caem.wmo.int) and holding of the Technical Conference, were only possible owing to the dedication of Experts who had been given the opportunity to meet as a team and continue their cooperation by correspondence, whereas teams that had never met face-to-face had achieved only limited progress. Congress encouraged the translation of existing and new training material into other WMO languages.

**3.4.3.4** On the issue of cost recovery for aeronautical meteorological service provision, Congress stressed the vital importance of that funding source, in particular for developing countries, and learned that lack of coordination and clear guidance from the relevant government departments for air navigation service and national meteorological service providers for aviation prevented the implementation of cost recovery mechanisms for some Members. Congress thus agreed that in addition to training and guidance material, targeted action in the form of visits and communications by the Secretary-General of WMO might be required to overcome the deadlocks encountered in those countries where revenues from aviation were seen as a key to economic survival for National Meteorological and Hydrological Services.

**3.4.3.5** The introduction of the new two-tier system in the classification of meteorological personnel as described in *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258) and its aeronautical supplement No. 1, *Training and Qualification Requirements for Aeronautical Meteorological Personnel*, still required a significant effort to ensure that aeronautical meteorological personnel fully complied with the new guidelines. Congress noted the information provided by the United Kingdom on the matter. Congress encouraged National and Regional Training Centres to assist in addressing the specialized training needs of aeronautical meteorological staff and also to cooperate closely with universities on the development of appropriate degree courses. Concerns were expressed by the Observer from the International Civil Aviation Organization (ICAO) regarding the very limited scope of training foreseen for the years 2008–2011, as in the aeronautical meteorology field, international civil

aviation was dependent on training provided by WMO, in accordance with the Working Arrangements between ICAO and WMO. That was an issue for many developing and also some developed countries for which Congress anticipated an increasing need for resources.

**3.4.3.6** On the subject of customer focus, Congress was informed that the rapid growth of air traffic in many regions had reinforced its critical dependence on forecasts and warnings of weather phenomena affecting the capacity of aerodromes and busy air routes. Congress thus encouraged the Commission to place strong emphasis on close cooperation with relevant ICAO Planning and Implementation Regional Groups and representatives of air navigation service providers, airlines, pilots and airports in developing new and targeted forecast products for the wider terminal area of aerodromes, entrusted to a new Expert Team. Congress suggested that the remit of the Expert Team should encompass also the study and development of system-wide information management principles currently adopted for aeronautical information provision.

**3.4.3.7** Congress supported establishing a conjoint Expert Team between the Commission for Basic Systems and the Commission for Aeronautical Meteorology with the involvement of ICAO working groups that would address the issues relating to migration of OPMET data to new forms of data representation, whereby table-driven code forms might be limited to the exchange of data within and between NMSs, while aviation user communities were seen to adopt modern web-based formats such as XML or GML.

**3.4.3.8** Congress also noted intensifying pressure from user groups, air traffic management authorities and ICAO to reorganize airspace and Flight Information Regions, and thus the Meteorological Watch Offices responsible for the issuance of SIGMETs and AIRMETs, into larger blocks both for the sake of harmonizing warnings and reducing costs. Congress expressed serious concern about the implications of such tendencies for smaller and developing countries, and requested regional associations together with the Commission to develop strategies for such cooperation amongst neighbouring NMHSs that would ensure continued involvement of all Members in the provision of aeronautical meteorological services. Congress had taken into account those regional aspects also in paragraph 3.8.2.8 of the present report.

**3.4.3.9** In that context, Congress noted with appreciation initiatives taken in several regions, such as the Asian Aviation Meteorology website provided by China for the benefit of mainly developing country Members of the region, who would be able to use up-to-date information from models, satellite and radar data for the improved production of TAFs and SIGMETs. Congress noted the recommendation by the Commission at its thirteenth session on the use of the public Internet in dissemination of products and the State Letter by ICAO from January 2007 on the use of the Internet for the exchange of OPMET and WAFS data, considered the need to define rules and regulations for that use, and requested the Secretary-General to follow up on the question and report to the Executive Council.

**3.4.3.10** Concerning aircraft observations, Congress noted that AMDAR data currently formed an important contribution to the WMO Integrated Observing System. The addition of humidity data would turn those data into a valuable source of information particularly for regional numerical weather prediction, nowcasting and very short-range-weather forecasting including aeronautical forecasting. They had the potential to complement conventional upper-air observations, providing comparable quality, precision and vertical resolution to those for the troposphere. Congress noted the view of the AMDAR Panel that the necessary investment for the widespread introduction of those sensors, once tests of their accuracy and reliability had been successfully completed, could lead to overall savings in the context of an Integrated Global Observing System. In that respect, the migration of the AMDAR programme, once operational, from the Aeronautical Meteorology Programme to the World Weather Watch of WMO, was seen as a logical and necessary development towards a cost-effective integrated observing system.

**3.4.3.11** On the subject of aviation and the environment, Congress noted that although the current contribution of aviation to the greenhouse gas carbon dioxide was only about 2 per cent of

the global emissions**,** the rapid and vigorous growth of air traffic would lead to a significant increase of that contribution by 2050. While the global effects of ozone precursors such as nitric oxides at different levels and the formation of aviation-related contrails and cirrus remained subject to further research, it was anticipated that aviation meteorology would be able to contribute to the mitigation of the climate impact of aviation by helping to improve the efficiency of air transport and to avoid cruising at super-saturated layers conducive to cirrus formation.

**3.4.3.12** Congress further noted that the projected effects of climate change on the severity and frequency of convective phenomena, the position of extra-tropical cyclone tracks, the occurrence of extreme events such as heatwaves, and sand and dust storms would increase the need for timely warnings and forecasts for aviation operations.

**3.4.3.13** After some discussion, Congress adopted Resolution 18 (Cg-XV) – Aeronautical Meteorology Programme.

### 3.4.4 Marine Meteorology and Oceanography Programme; the report of the co-presidents of JCOMM *(agenda Item 3.4.4)*

**3.4.4.1** Congress noted with appreciation the report of the co-presidents of the Joint WMO/ IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM), Messrs P. Dexter and J.-L. Fellous, on the work accomplished by the Commission during the past intersessional period. It congratulated the Commission for the substantial progress made, and new initiatives taken in many areas of major importance to Members. Congress recognized that the establishment of JCOMM, as a jointly sponsored technical commission, had proven to be a great success, particularly by bringing together the marine meteorological and oceanographic communities, both nationally and internationally, and integrating operational marine activities, including in the significant advancement of the global observing system for climate.

**3.4.4.2** Congress emphasized the importance of the Marine Meteorology and Oceanography Programme, including its traditional activities in areas such as maritime safety services, as well as the new priorities in operational oceanography and the implementation of an integrated ocean observing system for climate, including space-based systems as well as surface and subsurface measurements. It approved the integrated programme, including its support for WMO priority cross-cutting activities. Congress urged Members to provide all the resources necessary for its implementation, so that WMO could fully coordinate and facilitate the sustained provision of global and regional coverage data, products and services to address the continued and expanding requirements of the maritime user community for met-ocean services and information. Congress drew attention of Members on the risk of disruption in essential observational data sets and urged Members to develop efforts aimed at ensuring continuity of measurements and timely transfer of research-based systems into operational status.

**3.4.4.3** 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 the International Convention for the Safety of Life at Sea. Therefore, Congress agreed that continued priority should be given to assisting Members in the further implementation of such services. In that context, Congress endorsed the major events being planned under JCOMM over the coming two years, especially the First JCOMM Scientific/ Technical Symposium on Storm Surges (Seoul, Republic of Korea, October 2007), the Third International Workshop on Advances in Marine Climatology (Poland, May 2008), and the International Maritime MetOcean Services Conference (Exeter, United Kingdom, October 2008). Congress noted with appreciation the offer of Morocco to host the upcoming third session of the Commission.

**3.4.4.4** Congress noted with appreciation the substantial achievements of the Commission over the past intersessional period, which contributed directly to realizing the objectives of WMO. Those included:

(a) Preparation of a formal Guide to Storm Surge Forecasting;

(b) Significant support for the International Polar Year 2007–2008, including in ocean observations, marine services, including information and prediction on ice, and preparations for safeguarding the legacy of the International Polar Year 2007–2008;

(c) The development of the Global Maritime Distress and Safety System and the Marine Pollution Emergency Response Support System websites;

(d) Substantial improvements in the implementation of the composite ocean observing system, which was 58 per cent complete in May 2007 when compared with the Global Climate Observing System requirements;

(e) The development of a JCOMM End-to-End Ocean Data Management Pilot Project, which formed a prototype for an ocean WMO Information System Data Collection Product Centre;

(f) Major capacity-building activities, including the series of training workshops on waves, storm surges, data buoy technology and sea-level measurements through the Global Sea-level Observing System.

**3.4.4.5** Congress noted and supported the ongoing priority areas identified by the Commission, including:

(a) The operational implementation of a met-ocean products and services system, including issues such as standardization of formats, protocols and nomenclature;

(b) The full implementation of the ocean observing system and its long-term sustainability, especially critical elements such as Argo and ocean satellites, with the associated development of agreed standards for precision, accuracy, etc.;

(c) The integration of oceanographic data exchange and management into the WMO Information System, ensuring interoperability within the context of a future WMO Integrated Global Observing System;

(d) The support for marine multi-hazard warning systems, within the context of the WMO priority area of disaster prevention and mitigation;

(e) The coordination and integration of Maritime Safety Information and Systems for polar regions to address user requirements, and the establishment of METAREAs for the Arctic region.

**3.4.4.6** Congress recognized that many of those areas could only be implemented through the full and active cooperation between WMO and the Intergovernmental Oceanographic Commission (IOC). In that regard, Congress urged the WMO Secretary-General, IOC Executive Secretary and the co-presidents of the Commission to further strengthen the integration of WMO and IOC activities, in order to provide a more effective and cost-efficient JCOMM workplan. Furthermore, Congress requested the WMO Secretary-General and the co-presidents of the Commission to work with the IOC to develop mechanisms for enhanced coordination of JCOMM with the Intergovernmental Coordination Groups (ICG) of the different tsunami warning and mitigation systems, in order to sustain the systems initiated through the IOC as an integral component of a comprehensive multi-purpose Global Ocean Observing System. That coordination should

commence initially with the IOC-ICG Indian Ocean Tsunami Warning System because needs for long-term maintenance, data management and archiving had been articulated clearly by Members in that region.

**3.4.4.7** Congress further noted and supported other aspects of the work of the Commission, specifically:

(a) The development of a JCOMM Implementation Plan, within the context of, and compatible with, the WMO Strategic Plan. That would serve as the basis for an independent review of the functioning of JCOMM, to be completed for consideration by the Commission at its third session to be held in 2009;

(b) Enhanced engagement by JCOMM with the user community and the private sector, relating to both the long-term maintenance and sustainability of the observing system and associated infrastructure, and also to the development of ocean services and products in line with user requirements.

**3.4.4.8** Congress stressed the importance of the collaboration between WMO and the International Maritime Organization (IMO) and the International Hydrographic Organization (IHO) in the context of the Global Maritime Distress Safety System (GMDSS). Congress noted with appreciation that WMO would propose to IMO a resolution on general guidelines for promulgation of Maritime Safety Information for mariners at sea. Congress also noted with appreciation that a joint WMO/IMO/IHO pilot project to develop the GMDSS website (http://weather.gmdss.org) would be conducted, and requested the Secretary-General to make available online the publications *Manual on Marine Meteorological Services* (WMO-No. 558) and *Guide to Marine Meteorological Services (*WMO-No. 471) that describe the guidelines, rules and procedures to prepare and broadcast Maritime Safety Information to ships at sea. In the context of maritime safety services, Congress emphasized the continuing importance to mariners of radio-facsimile broadcasts of meteorological and related information. It requested the Commission to continue its work in developing alternative methods for transmitting graphical information to marine users.

**3.4.4.9** Congress welcomed the strong support expressed by the International Council of Academies of Engineering and Technological Sciences (CAETS) for JCOMM progress with the implementation of the Global Ocean Observing System and operational oceanography. Congress also welcomed the recent CAETS statement on “Oceans and the World’s Future” and, in particular, its recommendations on investment in ocean monitoring and research, data exchange and the establishment of national oceanographic services organizations.

**3.4.4.10** Congress commended the Commission on its pro-active role in assuming responsibility for the ocean components of the Global Climate Observing System. It looked forward to continuing close WMO-IOC collaboration through JCOMM in the full implementation of ocean observing systems for climate.

**3.4.4.11** Congress noted with appreciation that the Commission for Climatology had extended the terms of reference of two of its Expert Groups to include marine meteorology and oceanography experts: (a) the Joint CCl/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices and (b) the Expert Team on Climate Monitoring, including satellite and marine data and products. That liaison permitted expanding to the maritime domain the diagnostic of the variability and climate change mainly to continental areas. Congress noted with appreciation that the development of new climate indices for the maritime environment was planned.

**3.4.4.12** The IOC/UNESCO representative emphasized the strong and enthusiastic support of the Intergovernmental Oceanographic Commission for the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology. As one of the primary IOC advisory bodies, JCOMM guided IOC Member States as they developed sustained operations for observing the oceans, and societally-beneficial products and services that made use of the increased understanding of the

oceans. The IOC/UNESCO representative pointed out that both the IOC and WMO could learn constructive lessons about cross-sectoral and multidisciplinary cooperation from JCOMM; by definition JCOMM demanded that the oceanographic and meteorological communities work together towards common, as well as mutually reinforcing, goals. One of the priorities for IOC Member States was that JCOMM served as the implementing mechanism for the Global Ocean Observing System. IOC and WMO cooperation through JCOMM was essential for that, and the IOC looked forward to continuing to work with WMO to ensure a strong future for operational oceanography.

**3.4.4.13** Congress adopted Resolution 19 (Cg-XV) – Marine Meteorology and Oceanography Programme.

## 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 Hydrology and Water Resources Programme (HWRP) on the basis of the report presented jointly by the president of the Commission for Hydrology (CHy) and the Secretary-General, which recorded, amongst other things, the action taken by the Commission and the Secretariat in response to Resolutions 17 (Cg-XIV) — Hydrology and Water Resources Programme, 19 (Cg-XII) — Strategy and Action Plan for monitoring and assessing water resources of Africa, 20 (Cg-XII) — World Hydrological Observing System (WHYCOS) and 21 (Cg-XII) — Global Runoff Data Centre (GRDC). Congress adopted Resolution 20 (Cg-XV) — Hydrology and Water Resources Programme.

**Activities of the Commission for Hydrology**

**3.5.0.2** Congress noted that, in an effort to optimize resources, the twelfth session of the Commission, held in Geneva from 20 to 29 October 2004, had established only one Working Group, the Advisory Working Group, composed of nine members with five of them responsible for leading the activities of the Open Panels of CHy Experts. Recognizing that an assessment of the advantages and disadvantages of the new structure would only be undertaken by the Commission at its thirteenth session, scheduled for the second half of 2008, Congress noted that the president of the Commission believed that the new structure placed increased importance on the selection of members of the Advisory Working Group and their capabilities and availability to lead and undertake the work of the Commission. Congress also noted that the use of Open Panel groups, while enabling greater involvement of a wide range of experts, placed an additional communication and management load on both the Advisory Working Group members and the Secretariat. While the continuing issue of members of the Commission for Hydrology having the capacity and time to contribute to the work of the Commission remained, the level of contribution appeared to have increased over recent intersessional periods.

**3.5.0.3** Congress expressed its satisfaction for the work that was being carried out by the Commission in relation to the assessment of the performance of flow measurement instruments and techniques, especially involving new technological equipment, as that would be of great assistance to Members modernizing their hydrological networks. Congress was pleased to learn about the offer of Brazil to host and support an International Conference on Hydrometry in 2008 in the city of Manaus, and noted the interest of the International Association of Hydrological Sciences (IAHS) in participating in its organization.

**3.5.0.4** Congress learned with interest of the efforts made in the update and compilation of relevant guidance material, such as the *Guide to Hydrological Practices* (WMO-No. 168), the *Technical Regulations* (WMO-No. 49), Volume III – Hydrology, the Manuals on Stream Gauging, Flood Forecasting and Warning, Water Resources Assessment, Design Flood Estimation and on

Low-flow Estimation and Prediction. It encouraged the president of the Commission to ensure that the Commission, with the assistance of the Secretariat, finalize the various Manuals for adoption by its thirteenth session in 2008. Congress noted the request of some Members to have hydrological guidance material available in other languages and requested the Commission to investigate possible options.

**3.5.0.5** Congress noted the publication of the *Technical Regulations* (WMO-No. 49), Volume III – Hydrology, in English and considered it an important document in the framework of the WMO Quality Management Framework and recommended that the new version should be translated into all the WMO official languages at the same time to promote the use of a coherent set of technical regulations in particular in transboundary basins.

**3.5.0.6** Congress noted that the Weather, Climate, Water subtitle had placed additional responsibility on the hydrological community within WMO, but at the same time had provided a challenging opportunity. It recognized that since many of the Millennium Development Goals were closely related to the effective management of water resources in countries, the water sector constituted one of the major clients of WMO to fulfil its vision to contribute towards achieving the Goals. It therefore urged Members to ensure that while nominating members to the Commission, wider representation from all the water management sectors should be ensured. Congress also advised the Permanent Representatives that they should appoint Hydrological Advisors who could coordinate with the various institutions involved in the water sector in their countries.

**3.5.0.7** Congress recognized that, given the complexity of the water sector, the Working Groups for Hydrology, established by all the regional associations, formed one of the strong mechanisms to project the specific needs of the Regions. It noted that, over the years, the reduced financial resources they were usually assigned had hampered the functioning of those Working Groups to a great extent. In some of the Regions those Groups were not even able to have a full meeting involving all the countries during an intersessional period. It recognized the need to strengthen that mechanism and allocate reasonable resources for the activities of those Working Groups.

**3.5.0.8** In that respect, Congress was pleased to note that the Commission had taken concrete steps to streamline the regional needs expressed through those Working Groups into the Hydrology and Water Resources Programme by, for example, inviting the chairpersons of the Working Groups for Hydrology to form part of the core team that would develop, along with the Advisory Working Group, the proposed activities and programme for the next financial period. It also supported attempts by the Advisory Working Group to more closely align the activities of those Groups with the Commission.

**3.5.0.9** Congress noted with some concern that, although the requests for Voluntary Cooperation Programme support for projects on Hydrology and Water Resources had increased in the previous intersessional period, only two such projects had actually been undertaken. It encouraged Members to provide greater support to Hydrology and Water Resources projects, especially those aimed at increasing national capacities.

**3.5.0.10** In response to the president of the Commission's call for guidance on the general direction and future priority themes of the Hydrology and Water Resources Programme to be considered at the next session of the Commission in 2008, Congress expressed its satisfaction at the direction given by the Commission to the Programme. Congress stressed the need for the workplan of the Commission to flow from and support the WMO Strategic Plan. In that regard, Congress urged the Commission to adopt a strategic approach in dealing with the future developments in the field of hydrology, including new and emerging technologies, the need for education and training of hydrological personnel and the needs of the Regions.

**3.5.0.11** Congress emphasized the continuing importance of meteorological and hydrological services working closer together. In that regard, it recommended that African Ministers responsible

for water be invited to the planned meeting of African Ministers responsible for meteorological services.

### 3.5.1 Programme on Basic Systems in Hydrology *(agenda item 3.5.1)*

**3.5.1.1** Congress noted that the Commission for Hydrology had been actively involved in the Inter-Commissions Task Team (ICTT) on the WMO Quality Management Framework and that its Advisory Working Group was working on a concept document to be discussed by the Commission at its thirteenth session. It agreed with the approach adopted in principle by the Commission that considered that the Quality Management Framework should concentrate on the activities of the National Hydrological Services and therefore, in addition to the improvement of the administrative and managerial aspects included in a quality management system, emphasis should also be given to the development of standards and recommended practices.

**3.5.1.2** Congress noted that the revised version of the Hydrological Information Referral Service (INFOHYDRO) was currently being compiled and appreciated that the compiled information was available on the WMO website. It urged the Secretariat and the Commission to expedite completion of the update and called upon Members to provide the required information.

**3.5.1.3** Congress noted that during the previous intersessional period a comprehensive report on the World Hydrological Cycle Observing System (WHYCOS) and the status of HYCOS components had been submitted to the fifty-seventh session of the Executive Council in 2005, which had found it satisfactory. It also noted that the WHYCOS guidelines on the development, implementation and governance had been prepared and that a special WHYCOS web page had been developed and launched.

**3.5.1.4** Congress noted that the demand-driven approach manifested in the active involvement of regional partners such as the Niger Basin Authority, the Volta Basin Authority, the Mekong River Commission, the South Pacific Applied Geoscience Commission, and a greater interaction with different technical and financial partners had borne fruit in getting financial resources to the countries of approximately 15 million Euros for Niger-HYCOS, Volta-HYCOS, SADC-HYCOS, Mekong-HYCOS and Pacific-HYCOS components, which were currently under implementation. Through the implementation of those HYCOS components, 42 Members (among them 20 least developed countries) would have their capacities in hydrological observations and information generation enhanced.

**3.5.1.5** Congress appreciated the efforts made by the Secretariat in raising extrabudgetary resources for the implementation of various HYCOS components. It also noted the progress in the development of Carib-HYCOS and Aral-HYCOS and requested the Secretariat to make the necessary financial arrangements, in collaboration with the project partners, for their urgent implementation. It noted the efforts made in raising funds for the implementation of the IGAD-HYCOS and other HYCOS components. Congress also noted the interest expressed by Members in the development of Nile-HYCOS, South-East Asia (SEA-HYCOS) and Amazon-HYCOS. Congress requested Members and regional institutions to collaborate with the Secretariat to secure funds required for the implementation of HYCOS projects.

**3.5.1.6** Congress placed on record its appreciation to the Government of France (through the Agence française de développement), the Government of the Netherlands, the United States Agency for International Development, the European Union and the African Water Facility for financial support to the various HYCOS components. It also appreciated the active involvement of technical and other partners such as the Institut de recherche pour le développement of France, the Niger Basin Authority, the International Institute for Water and Environmental Engineering, the Department of Water Affairs and Forestry of South Africa, the International Institute for Geo-Information Science and Earth Observation of the Netherlands and European Organization for the Exploitation of Meteorological Satellites in implementation of those components.

**3.5.1.7** Congress requested the Secretariat to renew its efforts to secure funding for other HYCOS components and also urged the Members to work closely with the regional institutions to present new regional/basin HYCOS components before the financial partners. Congress decided to keep Resolution 20 (Cg-XII) – World Hydrological Cycle Observing System (WHYCOS) in force.

### 3.5.2 Programme on Forecasting and Applications in Hydrology *(agenda item 3.5.2)*

**3.5.2.1** Congress noted that the activities undertaken in the Flood Forecasting Initiative had the potential to go a long way in fulfilling the objectives of WMO by improving the protection of life and property and by enhancing close cooperation between the National Hydrological Services and National Meteorological Services in countries. It noted that the eight regional workshops organized under it had gathered together meteorologists and hydrologists working in the countries to discuss and address flood forecasting issues jointly. It took note of the Strategy and Action Plan prepared by the Synthesis Conference of the WMO Flood Forecasting Initiative, held in Geneva from 20 to 23 November 2006, and adopted Resolution 21 (Cg-XV) — Strategy for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting.

**3.5.2.2** Congress welcomed the joint proposal by the Commission for Hydrology and the Commission for Basic Systems for the implementation of a Flash Flood Guidance System with global coverage as an excellent example of the demonstration projects envisaged under the above Strategy and Action Plan. Congress appreciated the collaboration with the US National Weather Service, the Hydrologic Research Center and the US Agency for International Development/Office of Foreign Disaster Assistance in the project, building upon the successful experiences of the Central America Flash Flood Guidance System.

**3.5.2.3** Congress also appreciated the financial support provided by the Government of Spain for organizing two regional workshops and supporting the activities of the Ibero-American network for the monitoring and forecasting of hydrometeorological phenomena (PROHIMET). In that respect, Congress was informed on the advance of the two PROHIMET demonstration projects supported by Spain and WMO in Colombia and Uruguay. The latter, which had its focus on improving a flooding early warning system for the city of Durazno, had assumed special relevance, because a major flooding event had occurred during the session of Congress. Congress recognized the importance of that type of cooperation and the need that it be maintained and extended to other regions. It also appreciated the financial support provided by NOAA and the Government of Canada in organizing the International Workshop on Flash Flood Forecasting, held in San José, Costa Rica, from 13 to 17 March 2006.

**3.5.2.4** Congress appreciated the activities under the Associated Programme on Flood Management, which had helped achieve the objective of disaster risk reduction and provided technical support to countries in flood management policy formulation. It welcomed the establishment of the Help Desk services as a tool for providing support on flood management policy issues in collaboration with other partners. Congress appreciated the financial support provided by the Governments of Japan and the Netherlands for the implementation of the programme.

**3.5.2.5** Congress noted that through the Flood Forecasting Initiative, the Associated Programme on Flood Management and other regular activities, WMO was providing excellent input to the International Flood Initiative developed jointly with UNESCO, the United Nations University, the International Strategy for Disaster Reduction, the International Association of Hydrological Sciences, the International Association of Hydraulic Engineering and Research and other interested organizations.

**3.5.2.6** Congress was pleased to note that WCP-Water activities were helping to bridge the gap between the climate prediction community and the water managers. Congress also noted that the activities of WCP-Water had been more closely aligned to those of the Commission for Hydrology

and that one of the Commission Advisory Working Group members had been assigned to liaise with WCP-Water and its activities. It urged the Secretariat, the Commission for Hydrology and the Commission for Climatology to ensure cooperation with relevant programmes and organizations addressing in particular impacts of climate variability and change on water resources and hydrological extremes including droughts.

**3.5.2.7** Congress noted the close collaboration between the Integrated Global Water Cycle Observations theme of the Integrated Global Observing System and the Global Terrestrial Network – Hydrology, which were contributing to the Group on Earth Observations activities in the Water Task. It also noted the development of the International Groundwater Resources Assessment Centre, the continued activities of the Global Runoff Data Centre, and appreciated the continued support of the Governments of the Netherlands and Germany. It decided to keep Resolution 21 (Cg-XII) – Global Runoff Data Centre in force.

**3.5.2.8** Congress welcomed the establishment of the International Data Centre on the Hydrology of Lakes and Reservoirs hosted by ROSHYDROMET and noted the establishment of the International Steering Committee, which was scheduled to meet in June 2007.

### 3.5.3 Programme on Sustainable Development of Water Resources *(agenda item 3.5.3)*

Congress noted that, in the framework of the simplification of the structure of the Hydrology and Water Resources Programme in the next financial period, the Commission had proposed to suppress the programme and redistribute its activities to other subprogrammes of the Hydrology and Water Resources Programme.

### 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 active implementation of the WMO Strategy on Education and Training in Hydrology and Water Resources, in particular the efforts made at responding to the actual demands of the National Hydrological Services, and encouraged the Commission to continue looking for innovative methods to ensure the optimization of the resources available for those activities. In particular, it recommended pursuing the exploration of possibilities offered by computer-aided distance learning, roving seminars and the “train the trainers” approach.

**3.5.4.2** Congress appreciated the offers made by Egypt, Indonesia and Poland to establish WMO Regional Training Centres with a special emphasis in hydrology and water resources in their countries. Those Centres would cater for short training courses and higher education needs of, respectively, countries of RA I, RA V and RA VI, although they were prepared to consider also supporting other Regions. Congress welcomed the offer from Poland to co-finance participation of students from developing countries in their courses.

**3.5.4.3** Congress also appreciated the general approach that, without forgetting the core business of National Hydrological Services (courses on maintenance of automatic stations, rating curves, hydrometry and topography), tried to encompass more general topics (management techniques described in the Guidelines on the Role, Operation and Management of National Hydrological Services, courses on Integrated Flood Management, Integrated Water Resources Management and Water Affairs) to respond to the new responsibilities assigned to NMHSs in recent times by their governments.

**3.5.4.4** Congress encouraged the Commission for Hydrology and the Secretariat to continue with that approach and requested Members to offer all their support to the fundamental sub-programme. More specific recommendations were contained in Resolution 20 (Cg-XV) – Hydrology and Water Resources Programme.

### 3.5.5 Programme on Water-related Issues *(agenda item 3.5.5)*

**3.5.5.1** Congress noted the close cooperation WMO had established through the Hydrology and Water Resources Programme with UN-Water and various other international governmental and non-governmental agencies and encouraged the Secretary-General to develop it further and urged improved coordination between the WMO HWRP and the UNESCO International Hydrology Programme. It requested the president of the Commission to seek improved working mechanisms and include an assessment of the level of coordination in his annual report to the Executive Council.

**3.5.5.2** In order to consolidate the significant results achieved during the previous intersessional period in support of the New Partnership for Africa's Development and the African Ministers' Council on Water, Congress decided to replace Resolution 19 (Cg-XII) – Strategy and action plan for monitoring and assessing water resources in Africa by Resolution 22 (Cg-XV) – Support to the African Initiatives on Water.

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

### 3.6.0 Overview *(agenda item 3.6.0)*

**3.6.0.1** Congress was informed that during the intersessional period, the Education and Training Programme (ETRP) continued to assist WMO Members by providing guidance and advisory services on the training and qualification requirements for personnel of National Meteorological and Hydrological Services; organizing short-term training events in specialized subjects; awarding and implementing long- and short-term fellowships for basic and specialized training; facilitating communication and exchange of information and training materials between Members; promoting computer-aided distance learning, and school and popular education in weather, climate and water subjects.

**3.6.0.2** Congress took note of the reforming process undertaken by the Education and Training Programme during the previous two to three years in order to enhance its efficiency and effectiveness. Specific actions included the following:

(a) Establishment of a Fellowships Committee aimed to ensure fairness and full transparency in the selection of candidates, and to improve the monitoring and evaluation of fellows;

(b) Establishment of a Training Management Team for the cross-programmes coordination of all training activities organized or co-sponsored by WMO;

(c) Review and updating of the Executive Council Criteria for the Award of WMO fellowships, and for the Recognition of WMO Regional Training Centres (fifty-eighth session of the Executive Council, June 2006);

(d) Preparation and publication of a manual on policies and procedures for WMO fellowships;

(e) Publication of updated WMO guidance and curricula recommendations for the training and qualification of aeronautical meteorological personnel in line with International Civil Aviation Organization requirements;

(f) Institution of a worldwide network of more than 100 national focal points for education and training, to improve the operational communication with training institutions and experts.

**3.6.0.3** Congress welcomed those actions and requested WMO Members to fully contribute to the actual implementation of the ongoing Education and Training Programme reform. It underlined the catalyst role to be played by the Education and Training Programme, in particular by the Training Management Team, in the identification and prioritization of Members' training requirements and opportunities, aiming at the most cost-effective training arrangements through reduced duplication of efforts and expansion of links with other organizations.

**3.6.0.4** Congress noted the concerns of Members surrounding the delayed implementation of the new two-tier classification of meteorological personnel as described in the fourth edition of the *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* (WMO-No. 258). It requested the Executive Council to task the Executive Council Panel of Experts on Education and Training to define an implementation plan to ensure that all Members were able to implement the changes on a clearly defined timescale. That should be done in liaison with the Commission for Aeronautical Meteorology to ensure that international aeronautical requirements were met. Congress urged WMO Regional Training Centres, as well as national meteorological training centres, to associate with relevant universities and to organize joint training programmes to accelerate the implementation of the new classification.

**3.6.0.5** Congress reviewed the Programme activities proposed along the WMO Strategic Plan, and agreed that during the fifteenth financial period the Education and Training Programme should continue to be given high priority by the Organization, in order to pursue its support to Member countries in human resources development of their National Meteorological and Hydrological Services.

**3.6.0.6** Congress endorsed the views of the Executive Council Panel of Experts on Education and Training that particular emphasis should be placed on the following cross-cutting activities:

(a) Providing increased assistance to least developed countries in planning and implementing human resources development activities in their National Meteorological and Hydrological Services;

(b) Promoting a greater level of international cooperation in order to exploit more efficiently the wealth of training resources available worldwide; and supporting computer-aided distance learning activities in meteorology and hydrology;

(c) Providing increased support to training of trainers, human resources development planners and managers; and encouraging quality education by stimulating national/international accreditation of training institutions and programmes, and professional certification of NMHS personnel. Congress urged that more attention should be given to support education and training for both users and intermediaries;

(d) Supporting school and popular education in meteorology and hydrology, and contributing to the increase of public awareness on climate change and other environmental issues and on disaster risk-reduction, prevention and mitigation: improving curricula for the higher education in meteorology and hydrology to accommodate the new developments in forecasting methods/techniques, various emerging climate change issues, and the new developments in observing system facilities.

**3.6.0.7** Congress adopted Resolution 23 (Cg-XV) – Education and Training Programme.

### 3.6.1 Human resources development *(agenda item 3.6.1)*

**3.6.1.1** Congress was briefed on the ETRP collaboration with the WMO Programmes that undertook training activities in specialized subjects, with the WMO Regional Training Centres and with various educational institutions that delivered basic and/or specialized training in meteorology

and hydrology, as well as with the recently established network of more than 100 national focal points for education and training. Congress, noting the ongoing collaboration of the Education and Training Programme with training programmes of other international organizations, such as the African Centre of Meteorological Application for Development, Agency for Air Navigation Safety in Africa and Madagascar; Permanent Inter-State Committee on Drought Control in the Sahel; Cooperative Programme for Monitoring and Evaluation of the Long-range Transmissions of Air Pollutants in Europe; Food and Agriculture Organization of the United Nations; International Civil Aviation Organization; International Centre for Theoretical Physics; United Nations Educational, Scientific and Cultural Organization; United Nations Environment Programme; United Nations Development Programme; and the high level of cooperation with the Cooperative Program for Operational Meteorology, Education and Training; European Centre for Medium-Range Weather Forecasts; European Meteorological Computer Assisted Learning; European Organization for the Exploitation of Meteorological Satellites; and Global Learning and Observations to Benefit the Environment Programme, recommended that such collaboration should be continued and expanded.

**3.6.1.2** Congress was informed that the results of the WMO Survey-2006 on Members' training requirements, opportunities and capabilities, corroborated with ongoing fellowship requests received from developing countries, showed that several Members, particularly least developed countries, still needed assistance for basic education and training in meteorology and hydrology, and for staff training. Other Members envisaged an extension in the subjects' coverage and an increase in the amount of specialized training to be provided to their NMHS staff. Accordingly, Congress agreed that during the fifteenth financial period it would be necessary to attract more financial resources in order to enable effective meeting of the identified training needs.

**3.6.1.3** Congress, noting that the value and relevance of the Survey information depended, to a large extent, on the number and quality of responses received from countries, strongly urged all WMO Members to respond fully to the questionnaire for the future Survey-2010.

**3.6.1.4** Congress agreed on the need to give continued attention to training in special areas such as project, quality and institution management; marketing of meteorological services; human resources development planning; school and popular education in weather, climate and water subjects; media training for weather broadcasting; and training of users of meteorological and hydrological products. It noted with satisfaction the work of the Public Weather Services/Education and Training Expert Group on Public Education and Outreach that prepared a *Strategy for Developing Public Education and Outreach* (WMO/TD-No. 1354), targeting mainly schools and academic institutions, as well as users of Public Weather Services. Congress requested the Secretary-General to continue his support to the public education and outreach activities in collaboration with Members, programmes, academic institutions and meteorological societies.

**3.6.1.5** Congress noted the initiative within Regional Association IV to offer an online Master of Science degree in Operational Meteorology, organized by the Online Learning Foundation for Meteorology and Hydrology. The degree used blended learning to teach both science and management courses and targeted future leaders in NMHSs and their national partner agencies. The development of the online degree programme had been supported by the United States as part of its contribution to the WMO Voluntary Cooperation Programme. The WMO Regional Training Centres in the Region and other education institutions were participating in the delivery of courses for the programme, which would begin in December 2007. Congress recognized that the innovative approach to training had potential global application.

### 3.6.2 Training activities *(agenda item 3.6.2)*

**3.6.2.1** During the period 2004–2006 WMO had organized or co-sponsored over 130 training seminars, courses and workshops addressing specialized technical subjects such as weather forecasting, aeronautical meteorology, the use of numerical weather prediction products, marine meteorology, instruments, metrology, automated weather observing systems, satellite and radar

meteorology, climate variability and change, climate prediction, agricultural meteorology, hydrology and water resources, drought preparedness, and disaster prevention and mitigation.

**3.6.2.2** In addition to specialized training, the Education and Training Programme had also organized training aimed at improving the efficiency and effectiveness of the instructional process itself. Particular attention was given to the training of trainers in curriculum development; application of modern pedagogical methods in training design and delivery; updating trainers' science base; and promoting distance learning.

**3.6.2.3** Congress expressed its gratitude to all those Members who had made available their training facilities and/or experts in order to implement those training events, where most of the participants declared their satisfaction with respect to the training suitability for their work upon their return home. Congress thanked in particular Members hosting the network of WMO Regional Training Centres, some of which provided very cost-effective training, including the provision of discount or even a wavier on tuition fees for WMO fellows.

**3.6.2.4** Congress acknowledged the approval by the Executive Council at its fifty-eighth session in June 2006 of the reviewed criteria for the recognition of WMO Regional Training Centres, which updated the previous criteria approved by the Executive Council at its thirty-fourth session in 1982, in order to highlight some additional qualities expected of a modern well-run training centre. Congress also acknowledged the request of the Executive Council at its fifty-eighth session that the revised criteria be strictly applied both in the continuous monitoring of the existing centres, and when establishing any new WMO Regional Training Centres. In that respect, Congress noted the proposals to establish new WMO Regional Training Centres in Regions II, V and VI for training in hydrology.

**3.6.2.5** Congress was informed that the Executive Council Panel of Experts on Education and Training, as well as the Coordinating Committee of the Standing Conference of the Heads of Training Institutions of National Meteorological Services, strongly encouraged the application of computer-aided distance learning and sharing of training resources among relevant institutions and user groups. Congress, noting that the development of a specific website for the promotion of e-learning activities was under way, encouraged Members possessing relevant expertise to further assist the Education and Training Programme with additional resources in order to facilitate online access to worldwide training materials.

**3.6.2.6** Congress expressed its appreciation to Members that volunteered to support the activities of the Standing Conference of the Heads of Training Institutions of National Meteorological Services, and to organizations, particularly the Cooperative Program for Operational Meteorology, Education and Training and the European Organization for the Exploitation of Meteorological Satellites, that offered freely their training modules for use by WMO Regional Training Centres and other educational institutions.

**3.6.2.7** Congress was informed that the theme of the Tenth WMO Symposium on Education and Training was meteorological and hydrological education and training for disaster prevention and mitigation. The participants in the Symposium highlighted the need for specific training targeted at both those who delivered and those who used meteorological and hydrological information and products for early warning and disaster preparedness. Congress agreed that another WMO Symposium on Education and Training be organized during the fifteenth financial period.

### 3.6.3 Education and training fellowships *(agenda item 3.6.3)*

**3.6.3.1** Congress was informed about the measures taken in the Secretariat to enhance the fellowships sub-programme and to improve its effectiveness and transparency. Ongoing reform measures included increased communication with Members, fellows and training institutions; more timely processing of requests for fellowships; monitoring and evaluation of fellows during and after

the completion of studies; and reviewing the policies and procedures for the WMO fellowships. Congress noted that since its establishment in January 2004, the Fellowships Committee had held 12 formal meetings, and in between those meetings, ad hoc consultations had also been undertaken in order to address urgent requests.

**3.6.3.2** Congress was pleased to note the satisfactory collaboration of the training institutions in the monitoring and evaluation of the fellows studying in those institutions, but expressed concern about the relatively low level of response from some beneficiary countries in providing feedback on the fellows' performance upon their return home. The Congress endorsed the decision taken by the Executive Council at its fifty-eighth session in June 2006 that no further fellowship awards would be considered for the Members until the Permanent Representatives provided the required post-fellowship reports, except for those countries that had Trust Fund agreements.

**3.6.3.3** Congress took note that the revised criteria for the Award of WMO Fellowships approved by the Executive Council at its fifty-eighth session stressed the requirement that the Permanent Representatives nominating candidates for long-term fellowship establish a clear connection between the human resources development plan of the National Meteorological and Hydrological Service concerned and the intended outcomes of the requested fellowship.

**3.6.3.4** Congress welcomed the recent publication of the *Manual on Policies and Procedures for WMO Fellowships* (ETR-No. 18, WMO/TD-No. 1356), which was meant to serve as a tool for the management, internal control and coordination of fellowships implementation. It urged Members to use the Manual as a guide in their request for fellowships, group training, and familiarization visits by newly appointed directors of National Meteorological and Hydrological Services.

**3.6.3.5** Congress expressed the need for additional funding for the fellowships programme to meet the increasing demand. It noted with appreciation the generous contributions of the Voluntary Cooperation Programme donor countries that continued to provide support for fellowships, and appealed to those traditional donor Members to possibly increase their contributions. It also solicited other Members who had not contributed to the Voluntary Cooperation Programme fellowships fund to do so.

**3.6.4 Support to training events under other WMO major programmes** *(agenda item 3.6.4)*

**3.6.4.1** Congress was informed that more than 4 000 persons from developing countries and countries with economies in transition had been assisted to participate in short-term specialized training events organized or co-sponsored by WMO during the period 2004–2006.

**3.6.4.2** Congress noted with appreciation the support provided by many Members (over 60) to those training events and considered it to be of high value for the meteorological and hydrological communities worldwide. It urged Members to pursue further development of their national training activities and to continue their assistance in the organization, implementation and evaluation of the WMO-assisted training events.

**3.6.4.3** Congress was informed that a standing Training Management Team for the cross-programmes coordination of all WMO-assisted training events had recently been established in the Secretariat within the framework of matrix management. The main objective of the Team was to ensure that human and financial resources were used effectively, maximizing the ability of educational organizations worldwide to deliver high-quality specialized training in weather, climate and water subjects.

**3.6.4.4** Congress advised Members to intensify their cooperation in education and training activities, at the regional and international levels, aiming in particular at a wider and more efficient use of training resources already available in the concerned region and elsewhere.

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

### Overview

**3.7.1** Congress reviewed the progress made in the implementation of the Technical Cooperation Programme during the fourteenth financial period, as well as the actions taken by the Secretary-General as follow-up to its decisions and those of the Executive Council and regional associations related to the Programme. It recognized that Members continued to benefit from the activities carried out under the Technical Cooperation Programme, which covered several areas such as project and programme development, resource mobilization and capacity-building. Those activities were implemented within the framework of various funding sources, such as the WMO Voluntary Cooperation Programme (VCP), WMO regular budget, the United Nations Development Programme, trust funds from Governments, the Global Environment Facility, the World Bank and regional development banks, the European Commission and other sources. Congress further recognized that the total delivery for technical assistance to Members averaged, per year, approximately US$ 21.5 million, and had slightly increased in comparison with the thirteenth financial period, although the technical assistance under the United Nations Development Programme had decreased.

**3.7.2** Congress reiterated that the Technical Cooperation Programme was an essential and high-priority activity of the Organization for the implementation of the scientific and technical programmes of WMO. In that connection, Congress noted with satisfaction that several Members had benefited from the activities carried out under the Programme for, among others, the assessment and evaluation of the status of the National Meteorological and Hydrological Services, the identification of requirements, the preparation of national meteorological development plans, the formulation of project proposals, as well as the mobilization of the related resources.

**3.7.3** Congress welcomed and strongly supported various measures taken by the Secretary-General to strengthen the provision of the technical assistance and better services to Members, in particular the reorganization of the Development Cooperation and Regional Activities Department for enhanced resource mobilization and project implementation with more active involvement of Regional Offices and WMO Offices in the Region (see agenda item 3.8).

### Voluntary Cooperation Programme

**3.7.4** Noting with satisfaction the progress achieved through the Voluntary Cooperation Programme (VCP), in particular the increase in the contributions to the Programme and in the number of participating donor Members in 2003–2006, Congress expressed its appreciation to VCP donors for the valuable efforts in supporting the Programme and for the willingness of donor Members to continue or enhance the support to the Programme, as indicated at the Informal Planning Meetings (IPM) on the Voluntary Cooperation Programme and related technical cooperation programmes. Noting further the continued and increased needs of Members for the implementation of WMO Programmes and initiatives, Congress encouraged Members to further contribute to and participate more actively in the Programme.

**3.7.5** Congress noted that the IPM members were working together to improve links among themselves in joint funding of projects and sharing information, in approaches to other bodies and within the WMO community. Opportunities for resource mobilization continually changed, and the IPM members provided a useful linkage between the specialist needs of meteorology and hydrology, and their national development agencies and non-governmental organizations. The IPM members intended to build and implement e-learning materials on management skills training as suggested by the WMO Programme for the Least Developed Countries.

**3.7.6** Congress expressed its appreciation for the Voluntary Cooperation Programme activities carried out during the fourteenth financial period and recognized that the Programme had played a major role in the Technical Cooperation Programme for the implementation of the World

Weather Watch Programme as well as other WMO scientific and technical programmes and in the training of personnel through the provision of fellowships. Congress was pleased to note that the Internet home pages of the Voluntary Cooperation and Technical Cooperation Programmes were regularly updated and substantially enhanced for publicity and resource mobilization, and for the speedy distribution of the relevant information to Members. In that regard, Congress encouraged the Secretary-General to continue to increase the availability of online information to facilitate the implementation of VCP projects.

**3.7.7** Noting with satisfaction that, from the sixth evaluation of the projects carried out in 2005–2006, successful results of the Voluntary Cooperation Programme had been achieved with improvement in the availability of services, Congress invited Members to continue to participate in that valuable activity to improve the effectiveness of the Programme.

**3.7.8** Congress recognized that during the period 2003–2006, substantial emergency assistance had been provided to Members affected by disasters, including war, for the restoration of meteorological and hydrological networks. That assistance was provided within the framework of the existing WMO mechanism through the WMO Disaster Assistance Fund for Meteorological and Hydrological Services (Emergency Assistance Fund), the Voluntary Cooperation Programme and the Emergency Assistance Response Team. Congress expressed satisfaction with the successful achievement by quick response to natural disasters, including the Indian Ocean tsunami and the Pakistan earthquakes, and requested the Secretary-General to continue and enhance the provision of timely and coordinated assistance to Members affected by disasters. In that connection, Congress was pleased to note that a WMO fact-finding mission to Timor-Leste had been carried out by a team of representatives and experts from WMO; Australia; Indonesia; Macao, China; Portugal; and two collaborating United Nations agencies, IOC/UNESCO and the International Strategy for Disaster Reduction in January 2007. Congress further expressed its appreciation to Members for their contributions in cash and in kind for emergency assistance activities. It encouraged Members affected by natural disasters and those emerging from conflicts to utilize the mechanism for the rehabilitation of their services and urged Members to further participate in that initiative.

**3.7.9** Congress took note that the World Weather Watch Implementation Support Revolving Fund of the Voluntary Cooperation Programme had permitted the provision of urgent assistance to WMO Members for the operation and maintenance of World Weather Watch facilities through loans for the purchase of spare parts and consumables, and encouraged Members to make use of the Fund. Noting with pleasure that three outstanding loans had been reimbursed by the governments and with the VCP support of Australia, Congress urged Members that had not yet reimbursed their loans at the end of the 24-month repayment period to take the necessary measures to ensure timely reimbursement.

**3.7.10** Congress decided that the programme of assistance under the Voluntary Cooperation Programme should be continued during the fifteenth financial period and noted that the rules and procedures for the implementation of the Voluntary Cooperation Programme established during the fourteenth financial period were still relevant and valid. It reaffirmed that the Programme was an appropriate mechanism for the promotion and support of Technical Cooperation among Developing Countries. In that connection, Congress adopted Resolution 24 (Cg-XV) – The WMO Voluntary Cooperation Programme.

**Regular Budget cooperation activities**

***Programme development activities***

**3.7.11** Congress noted with satisfaction that several project proposals had been developed for consideration of potential donors, in particular for the Intergovernmental Authority on Development Climate Prediction and Applications Centre, the Southern African Development Community Drought Monitoring Centre, Burkina Faso, Bolivia, Mexico, SIDS-Pacific, and Asia-Eastern Europe.

**3.7.12** Congress was pleased to note the World Bank initiative for a study on the current status and problems with hydrometeorological service delivery of 19 National Meteorological and Hydrological Services in the European and Central Asian region. The study aimed at the capacity-building of the NMHSs on weather and climate forecasts to meet the requirements for the sustainable development of those countries. At present, the study had been completed for seven countries (Albania, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan and Serbia) with the assessment of economic benefits as a result of investments in the modernization of National Meteorological and Hydrological Services. Congress urged the Secretary-General to work closely with the World Bank to expand such a study to the developing countries in other regions, which would allow the submission of the modernization projects for NMHSs to their Governments and potential donors.

**3.7.13** Recognizing the increased needs of Members for assistance and advice in the formulation and development of project and programme proposals, and the limited resources, Congress encouraged Members to contribute to the WMO Trust Fund for programme development activities.

***Resource mobilization***

**3.7.14** Congress recalled that various WMO programme activities, especially technical cooperation activities, were being implemented with extrabudgetary resources. It requested the Secretary-General to continue and enhance the current practice in resource mobilization for technical cooperation activities and to define an appropriate approach for other extrabudgetary resources made available to the Organization for other programme activities.

**3.7.15** Congress welcomed the further development of innovative approaches for the mobilization of resources with the creation of the Resource Mobilization Office within the Development Cooperation and Regional Activities Department and more integration of Regional Offices and WMO Offices in the Region into the resource mobilization and advocacy processes of the whole WMO. In that respect, Congress requested the Secretary-General to continue efforts to ensure the implementation of innovative approaches for resource mobilization and the strengthened strategic partnerships and alliances with NMHSs of donor countries, funding institutions, the United Nations system, and regional and international organizations.

**3.7.16** With a view to promoting the role of WMO and the benefits of National Meteorological and Hydrological Services to socio-economic development activities in the countries, and to enhancing partnerships with funding agencies, Congress agreed that an international conference on technical cooperation be organized during the fifteenth financial period conjointly with another related WMO activity, with modest funding from the Regular Budget.

**3.7.17** Congress noted with appreciation the outcome of the first WMO Symposium on Strengthening Cooperation among NMHSs and WMO (Beijing, September 2006), which was co-sponsored by WMO and the China Meteorological Administration. The Symposium had been attended mainly by advisers to Permanent Representatives on external relations as well as by Permanent Representatives themselves. In view of the positive outcome of the Symposium, it had been strongly recommended to organize similar symposiums in the future. It was also recommended that a global network of advisers or focal points on international cooperation and external relations be developed and maintained. The Secretary-General was requested to take further action on the matter.

***Mechanism for reviewing and advising on the WMO technical cooperation activities***

**3.7.18** Congress recalled that, as requested, the Executive Council at its fifty-fifth session in 2003 had re-established through its Resolution 1 (EC-LV) an Advisory Group of Experts on Technical Cooperation for the fourteenth financial period to better address the challenges in technical cooperation activities, especially those in support of the WMO Programme for the Least

Developed Countries. It recognized with satisfaction that in 2004 and 2006 the fifth and sixth meetings of the Advisory Group had reviewed the progress made in the implementation of the Technical Cooperation Programme and had made a number of recommendations to enhance the performance of technical cooperation activities including the Voluntary Cooperation Programme and the WMO Programme for the Least Developed Countries. Congress expressed its appreciation to the chairperson, Mr T. Sutherland, and to the members of the Advisory Group for the excellent work carried out.

**3.7.19** In that regard, in view of the need for addressing new WMO initiatives related to development cooperation, including socio-economic benefit studies, resource mobilization and strategic partnerships with external stakeholders, Congress requested the Executive Council to re-establish such a Group or Panel of Experts for the fifteenth financial period, with an expanded scope and appropriate terms of reference and composition, including external expertise to address the future challenges in development cooperation activities, to be carried out within the framework of the Technical Cooperation Programme, the WMO Programme for the Least Developed Countries and the Regional Programme.

***Budget for Secretariat support to the Technical Cooperation Programme***

**3.7.20** Congress noted that the Technical Cooperation Programme had been implemented during the fourteenth financial period with certain core functions funded by the Regular Budget under Programme 3.7 as decided by Fourteenth Congress, especially resource mobilization and programme coordination, while other activities in support of the Programme were funded with the revenues generated through the implementation of projects and credited to the WMO Technical Cooperation Fund.

**3.7.21** Congress noted that support cost rates for sources outside the United Nations system could be negotiated on a case-by-case basis depending on the nature of the project, administrative and technical work needed and other factors, and recalled that the Executive Council at its fifty-eighth session in 2006 had agreed on the need to review and revise the WMO support costs policy, which it had established at its fifty-sixth session in 2004, in particular the level of overhead charges, with a view to the establishment of a WMO direct cost recovery policy. In that connection, Congress agreed that the support cost revenues generated through the project implementation be used for the project development and resource mobilization activities. Congress requested the Secretary-General to establish a mechanism to ensure the implementation of the above activities.

**3.7.22** In that regard, Congress welcomed the involvement of the Regional Offices in the technical cooperation activities in connection with the reorganization of the Development Cooperation and Regional Activities Department, which enabled the regular budget funding for programme managers in that Department, and agreed that WMO Offices as well as partners in the Regions could assist in the implementation of technical cooperation projects.

**Other components of the Programme**

**3.7.23** Congress was pleased to note that six national and regional projects were being implemented with funding of the United Nations Development Programme during the period, despite the reduced level of contribution, in Bahrain, the Libyan Arab Jamahiriya, Maldives, the United Arab Emirates and Zambia, and that in support of capacity-building for observing systems for climate change, funded under the United Nations Development Programme/Global Environmental Facility. Those projects had contributed, through the provision of expert/consultant services, equipment and human resources development, to the enhancement of National Meteorological and Hydrological Services.

**3.7.24** Congress also recognized with satisfaction the continued effort to develop and implement several Trust Fund projects covering a wide range of activities for, among others, the Drought Monitoring Centre Harare and ICPAC-Nairobi; the Permanent Inter-State Committee on

Drought Control in the Sahel countries; Chad; Mali; the Islamic Republic of Iran; Oman; the Association of South-East Asian Nations Member countries; Brazil; the International Research Centre on El Niño in Ecuador; Mexico; SIDS-Caribbean; Bosnia and Herzegovina; Latvia; and Serbia and Montenegro.[1] The objectives of those projects were to enhance the operational capabilities of NMHSs through capacity-building and human resources development, strengthening and maintenance of the basic meteorological infrastructure, and supporting priority areas such as natural disaster mitigation and prevention, food security, climate monitoring and prediction, flood forecasting as well as water resources assessment and management.

**3.7.25** Congress further recognized that the delivery of technical assistance during 2003–2006 averaged, per year, US$ 1.35 million under the United Nations Development Programme and US$ 9.56 million under Trust Fund arrangements. Noting the considerable contributions of Trust Fund projects to the technical assistance delivery to enhance the capacity of National Meteorological and Hydrological Services, Congress encouraged Members to continue and further their efforts to provide support under Trust Fund arrangements.

## 3.8 REGIONAL PROGRAMME *(agenda item 3.8)*

### 3.8.1 REPORTS OF THE PRESIDENTS OF REGIONAL ASSOCIATIONS *(agenda item 3.8.1)*

**Report by the president of Regional Association I**

**3.8.1.1** Congress noted with appreciation the report of the president of RA I, which provided an overall review and assessment of the major activities of the Association since Fourteenth Congress, and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

**3.8.1.2** Congress commended the former president of RA I, Mr M.S. Mhita (United Republic of Tanzania), for the actions taken to implement the relevant decisions and recommendations and for his effective representation of the Association at sessions of Congress, the Executive Council and other regional and interregional meetings.

**3.8.1.3** Congress congratulated the president and vice-president elected during the fourteenth session of the Association, Mr Lamine Bah (Guinea) and Mr Amos Makarau (Zimbabwe), respectively, and thanked them for their contribution to the work of the Association, and expressed its appreciation to the chairpersons and members of working groups and rapporteurs, who had actively collaborated in carrying out the activities of the Association in the Region.

**3.8.1.4** Congress noted the most important activities in the Region, which included three workshops on the Evaluation of Social and Economic Benefits of Meteorological and Related Services to Society held in Mali, Kenya and the United Republic of Tanzania in 2006; the International workshop on climate and land degradation held in the United Republic of Tanzania in December 2006; the meeting of the RA I Working Group on Agricultural Meteorology and the WMO Regional Training Seminar for National Trainers, both held in Tripoli, Libyan Arab Jamahiriya, in August 2006 and March 2007, respectively, and the 7th EUMETSAT User Forum in Africa, held in Maputo, Mozambique, in October 2006 which recommended that the African Monitoring of the Environment for Sustainable Development project should ensure the sustainability of the Preparation for the Use of Meteosat Second Generation in Africa (PUMA) installations.

1 On 3 June 2006, the National Assembly of Montenegro adopted a declaration of its independence. The President of the Republic of Serbia notified the Secretary-General of the United Nations that the membership of the state union Serbia and Montenegro in the United Nations, including all organs and organizations of the United Nations system, is continued by the Republic of Serbia. The United Nations confirmed the membership on 6 June 2006. The Republic of Montenegro became a Member of the United Nations on 28 June 2006 and of WMO on 5 January 2007.

**3.8.1.5** Congress took note of the main challenges of RA I emphasized by the president, which included the following:

(a) The development of the RA I strategic plan in alignment with the WMO Strategic Plan and WMO Operating Plan;

(b) The possibility of establishing meteorological offices within the regional economic commissions in collaboration with WMO, to deal with the development policy and strategy concerns of the African National Meteorological and Hydrological Services;

(c) The establishment of a special instructor-training programme for the Centres in the Region so as to enable them to meet the increasing requirements of the NMHSs in the Region, not only on technical and operational aspects but also on management;

(d) The problem of human resources still concerned the Region. In view of the insufficient number of trained staff in the NMHSs, WMO was invited to increase the amount of fellowships, in particular long-term fellowships, awarded to Members of the Region;

(e) The highest priority should be given to the development and maintenance of the basic systems of meteorological observations, telecommunications and data-processing facilities in the Region. Among the objectives of RA I, priority should be given to the implementation of the strategy of maintenance of equipment following the PUMA project;

(f) It should be pointed out that the established RA I working groups should have the necessary resources to meet at least once during the intersessional period;

(g) The institutional support of the decision makers was essential for the effective participation of African NMHSs in the development of their respective countries and for their visibility. For that purpose, Congress strongly supported the organization of a conference of the Ministers in charge of the NMHSs in Africa scheduled for 2008;

(h) Congress considered that the WMO Programme for the Least Developed Countries was of major importance for the development of the NMHSs of RA I and constituted a major concern for the Region as well as all initiatives related to climate change and to the management of natural disasters.

**3.8.1.6** Congress gave its support to the WMO scientific and technical programmes that focused on specific needs and requirements of the Region and new priority areas such as natural disaster prevention and mitigation, climate change, operational hydrology and related environmental issues and training. It requested the Secretary-General to take into consideration the regional needs related to the future Strategic Plan of RA I.

**3.8.1.7** Congress noted with great sadness the death of Professor G.O.P. Obasi, former Secretary-General and Secretary-General Emeritus of WMO, and recommended that his memory be honoured for the eminent services he had rendered to the Organization and for having dedicated his life to the development of meteorology.

**3.8.1.8** Congress extended its appreciation to Members of the Region for strengthening regional cooperation.

**Report by the president of Regional Association II**

**3.8.1.9** Congress noted with appreciation the report of the president of RA II, which provided an overall review and assessment of the major activities of the Association since Fourteenth Congress, and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

**3.8.1.10** Congress commended the president of RA II, Mr A. Majeed H. Isa (Bahrain), and vice-president Mr C.Y. Lam (Hong Kong, China), for their contribution to the work of the Association, and expressed its appreciation to the chairpersons and members of the working groups and rapporteurs, who had actively collaborated in carrying out the activities of the Association in the Region.

**3.8.1.11** Congress recognized that after the disastrous tsunami of 26 December 2004, the setting up of an effective and sustainable tsunami warning system had become an important task for riparian countries around the Indian Ocean. In most of those countries, National Meteorological and Hydrological Services were the designated authorities for issuing tsunami warnings. In that regard, Congress requested the Secretary-General to assist Members in establishing multi-hazard early warning systems.

**3.8.1.12** Congress noted with satisfaction the successful implementation of the RA II pilot projects on the provision of city-specific numerical weather prediction products to developing countries via the Internet and on support for the developing countries in the Aeronautical Meteorology Programme. It recognized that those projects would raise the profile of NMHSs of developing countries, especially the least developed countries, with their own governments, which in turn would encourage those governments to maintain or increase the support to those Services. Therefore, Congress requested the Secretary-General to continue to support the implementation of those projects and to explore the possibility of launching similar projects in other Regions.

**3.8.1.13** Congress noted that most of the Global Telecommunication System (GTS) circuits in the Region were operating at medium or high speed, but there were still a number of low-speed connections. The Regional Meteorological Telecommunication Network in the Region, particularly in its eastern and southern parts, was being improved by the continued implementation of better data communication services, including Frame Relay services, complemented by satellite-based distribution systems (PCVSAT operated by China, TV-Inform-Meteo by the Russian Federation) and the use of the Internet, EUMETCast and SADIS, as part of the ICAO World Area Forecast System. About 60 per cent of the current GTS circuits had been migrated to TCP/IP. The plan for an improved Regional Meteorological Telecommunication Network was nearly implemented. Noting the progress in the improvement of GTS connection at several National Meteorological Centres, in particular as part of the WMO contribution to the regional tsunami early warning system, Congress recognized that there were still a number of National Meteorological Centres that did not have adequate GTS links with Regional Centres, or with low-speed GTS circuits. Congress therefore requested the Secretary-General and Members to give high priority to the modernization and upgrading of the GTS in the Region, as appropriate. Attention should be given to assisting those NMHSs without websites, as meteorological information and data were becoming increasingly important in communities.

**3.8.1.14** As cost recovery, commercialization of products and services and certification/quality management continued to be of great interest to the Members, Congress requested the Secretary-General and Members to give the highest priority to those subjects in order to be able to address future challenges of the Region.

**3.8.1.15** Congress recognized that there was a need to improve the capabilities of National Meteorological and Hydrological Services to access sophisticated products in the preparation and dissemination of adequate weather services and timely warning for severe weather and climate extremes.

**3.8.1.16** Congress noted that a new Center of Excellence in satellite meteorology had been commissioned in Oman in February 2006 to make a significant contribution to efforts to strengthen preparedness in dealing with potential weather-related natural disasters. It urged Members to make use of the various WMO regional centres and to modernize the facilities of some of those centres to meet the needs of the National Meteorological and Hydrological Services.

**3.8.1.17** Congress noted the leadership of the president of RA II in materializing a Regional Climate Centre network in the Region with multifunctional and specialized centres, and requested the Secretary-General to take necessary actions towards the establishment of a Regional Climate Centre network in RA II in coordination with relevant technical commissions.

**3.8.1.18** Congress realized the importance of the continuation of holding regional seminars on socio-economic benefits and welcomed the willingness of the Republic of Korea to host a workshop in RA II.

**3.8.1.19** Congress welcomed the inauguration of the WMO Office for West Asia in Bahrain on 12 March 2007, with the duties and responsibilities, among others, of identification of requirements for the development of NMHSs; participation in the development and formulation of project proposals/documents; initiation of and follow-up on actions related to the mobilization of resources; and close coordination with United Nations organizations and regional organizations. Congress requested the Secretary-General to provide necessary funding and human resources support for the enhancement of the WMO Office for West Asia.

**Report by the president of Regional Association III**

**3.8.1.20** Congress noted with appreciation the report of the president of RA III, which provided an overall review and assessment of the major activities of the Association since Fourteenth Congress and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

**3.8.1.21** Congress commended the former president, Mr Raul Michelini (Uruguay), for his efficiency in conducting the affairs of the Association, thus contributing to the development of meteorology and hydrology in the Region. Congress also commended the elected president during the fourteenth session of Regional Association III, Mr Ramon Viñas García (Venezuela), for his contribution to the work of the Association, and expressed its appreciation to the chairpersons and members of the working groups and rapporteurs, who had actively collaborated in carrying out the activities of the Association in the Region.

**3.8.1.22** Congress noted the most important activities in RA III, which included the creation of the Conference of Directors of Ibero-American NMHSs and the establishment of a Cooperation Programme for meteorology and hydrology for NMHSs of Ibero-American countries, which was shared by RA III, RA IV and RA VI (Portugal and Spain); the successful implementation of the National Meteorological Institute of Brazil project in Brazil and the signing of a memorandum of understanding between WMO and the Government of Brazil for the establishment of a project office in Brasilia in 2006; the organization of the Regional Technical Conference on Social and Economic Benefits of Weather, Climate and Water Services jointly for RA III and RA IV in Brasilia; a Technical Seminar on Disaster Prevention and Mitigation, with the participation of NMHSs, civil protection agencies and development and funding agencies in the Region, in Peru; and the Conference on Climate Change and Natural Disasters with participation of NMHSs, civil protection agencies and climate change offices of Ibero-American countries in Guayaquil, Ecuador, all in 2006.

**3.8.1.23** Congress took note of the main challenges of RA III emphasized by the president, which included the following:

(a) The emphasis on the importance of meteorological information which was increasing, and the fact that end-users such as the public and private sectors were asking NMHSs to provide a larger amount and better quality of data and products. However, those requirements were not fully met because of the limitations in human and material resources experienced by some National Meteorological and Hydrological Services;

(b) The lack of well-trained human resources was still a subject of concern in the Region; in spite of the efforts made, the results obtained were yet to be improved. In order to enhance the capabilities of NMHSs, there was a need to reinforce the collaboration with education and training programmes, with the aim of developing self-reliant training capabilities in individual countries of the Region. It was also necessary to continue the efforts to organize training seminars for those countries that had not benefited from such events in the past;

(c) The highest priority should be given to the development and maintenance of the basic systems of meteorological observations, telecommunications and data-processing facilities in the Region;

(d) An important challenge in the Region was how to establish strategy on more effective involvement of NMHSs in the framework of sustainable development activities. More efforts should be made to take into account socio-economic issues in the provision of various meteorological and hydrological services;

(e) It should be pointed out that all RA III working groups and the rapporteurs should have the necessary resources to meet at least once during the intersessional period;

(f) Climate change and related environmental issues were subjects of concern to NMHSs and the governments in the Region;

(g) The reduction and mitigation of the effects caused by natural disasters was a prior activity that should be integrated in a rational and urgent manner in the Region;

(h) Study the possibility of purchasing consumables for several countries jointly, in order to obtain more favourable prices.

**3.8.1.24** Congress gave its full support to the priorities and in particular those related to the WMO scientific and technical programmes that focused on specific needs and requirements of the Region and new priority areas such as natural disaster prevention and mitigation, climate change, operational hydrology and related environmental issues and training. It requested the Secretary-General to take into consideration the regional needs related to the future strategic development plan of RA III.

**3.8.1.25** Congress extended its appreciation to the Members of the Region and also to the Government of Spain supporting the development of the NMHSs of the Ibero-American Region, and to the Unites States of America for its support to the Region, in particular moving the satellite GOES-10 for the continuous use by the countries of the Region.

**3.8.1.26** Congress recognized the contributions made to the Region by the International Research Centre on El Niño, called on Members to continue providing support to the Centre, and commended the Governments of Ecuador and Spain for their support, allowing the Centre to meet its objectives.

**3.8.1.27** Noting the Declaration of the Fifteenth Summit of Heads of State and Government of the Ibero-American Conference in Spain in October 2005 concerning the implementation of a coordination mechanism to facilitate the effective response to natural disasters in the Region, Congress requested the Secretary-General to explore the possibility of establishing a partnership between WMO and the Ibero-American Secretariat in that respect.

**Report by the president of Regional Association IV**

**3.8.1.28** Congress noted with appreciation the report of the president of RA IV, which provided an overall review and assessment of the major activities of the Association since Fourteenth

Congress and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

**3.8.1.29** Congress commended its former president, Mr Arthur Dania (Netherlands Antilles and Aruba), for his efficiency in conducting the affairs of the Association, thus contributing to the development of meteorology and hydrology in the Region. Congress also commended the elected president during the fourteenth session of Regional Association IV, Mr Carlos Fuller (Belize) for his contribution to the work of the Association, and expressed its appreciation to the chairpersons and members of the working groups and rapporteurs, who had actively collaborated in carrying out the activities of the Association in the Region.

**3.8.1.30** Congress noted that the Region had developed its Regional Strategic Plan for the period 2006 to 2011 with goals, objectives and milestones. Its Members were working to achieve the milestones in the plan.

**3.8.1.31** Congress noted the most important activities in the Region, which included the SIDS-Caribbean project, funded by Finland, which concluded its implementation in September 2004; the creation of the Conference of Directors of Ibero-American NMHSs and the establishment of a Cooperation Programme for meteorology and hydrology for NMHSs of Ibero-American countries, which was shared by Regions III and IV; replacement and update of the old Regional Meteorological Telecommunication Network system in Region IV; the support received for the organization of the Hurricane Committee's annual meetings; the natural disaster prevention and mitigation activities in the Region supported by WMO; the initiatives for the establishment of a Regional Climate Centre for RA IV; and the successful implementation of the water resources management project (PROMMA) in Mexico and the completion of a new agreement of cooperation between WMO and the Government of Mexico, which included the establishment of a project office in 2006.

**3.8.1.32** Congress took note of the exceptional support provided by the United States and Finland to update the old VSAT/STAR-IV system of the Regional Meteorological Telecommunication Network. Actions were taken to replace all STAR-IV workstations in the Region with workstations, which were compatible with the new technologies in telecommunications and data processing. The United States also provided support to the regional maintenance project, which in its turn had successfully supported the regional upper-air network.

**3.8.1.33** Congress expressed its appreciation to Mr Max Mayfield for his many years of dedicated services at the WMO Regional Specialized Meteorological Centre in Miami, as Director of the National Hurricane Center and chairperson of the WMO RA IV Hurricane Committee. In particular, Congress recognized his outstanding contribution to RA IV in safeguarding human lives and property, as well as the training of professionals through the tropical regions of the world.

**3.8.1.34** Congress expressed its appreciation to the United States for its strong support to the upper-air network in RA IV, the development of websites of NMHSs in RA IV and the related training of the corresponding webmasters, and in the development of an MSc in meteorology, mainly through e-learning, with support from experts from Costa Rica, the Netherlands and the Netherlands Antilles. Congress noted that the issue had been discussed at a 2007 RA IV Management meeting and, while the Region appreciated the creation of that e-learning Masters degree in Meteorology, there was presently a greater need in the southern part of RA IV for an e-learning Bachelors degree in Meteorology.

**3.8.1.35** Congress took note of the main challenges of RA IV emphasized by the president, which included the following:

(a) The reduction and mitigation of the effects caused by severe weather was a prior activity that should be integrated and coordinated in the Region. The support for the organization of the Hurricane Committee's annual meetings should be given priority, as

a mechanism to coordinate hurricane tracking, monitoring, forecasting and warning in the Region as a means to support natural disaster preparedness and mitigation efforts;

(b) Climate change and related environmental issues were subjects of concern to National Meteorological and Hydrological Services and the governments in the Region;

(c) The lack of adequate human resources still concerned the Region. In spite of the efforts made to overcome that challenge, the results were still unsatisfactory. The shortage of trained personnel would hamper the development of the countries in the Region. The international community was urged to provide more focused support to address the issue. In particular, long-term fellowships were urgently needed;

(d) Maintenance and further development of the existing basic observing networks, meteorological telecommunications and data-processing facilities in the Region should be given the highest priority.

**3.8.1.36** Congress requested the Secretary-General to explore the possibility for France, through its National Meteorological Service, to provide Haiti with daily weather forecasts, in particular those required for the protection of lives and property of the country's population, especially during the hurricane season. It further requested the Secretary-General to explore ways and means to assist the Government of Haiti to develop its National Meteorological and Hydrological Service and be able to provide information and services to the population.

**3.8.1.37** Congress gave its full support to the priorities and in particular those related to the WMO scientific and technical programmes that focused on specific needs and requirements of the Region and new priority areas such as natural disaster prevention and mitigation, climate change and related environmental issues. It also highlighted the problem of adequate human resources in the NMHSs that remained in spite of the efforts made; maintenance and further development of the existing basic observing networks, meteorological telecommunications and data-processing facilities in the Region; and developing of future climate change scenarios in a regional context and on a short time scale by National Meteorological and Hydrological Services, in order to enable Members to provide relevant advice to their government policymakers. It requested the Secretary-General to take into consideration the regional needs related to the implementation of the strategic plan of RA IV.

**3.8.1.38** Congress extended its appreciation to the Members of the Region for strengthening regional cooperation.

**Report by the president of Regional Association V**

**3.8.1.39** Congress noted with appreciation the report of the president of RA V, which provided an overall review and assessment of the major activities of the Association since Fourteenth Congress and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

**3.8.1.40** Congress commended the former president, Mr Woon Shih Lai (Singapore), for his efficiency in conducting the affairs of the Association. Congress also commended the elected president during the fourteenth session of RA V, Mr Arona Ngari (Cook Islands) and the vice-president, Ms Sri Woro B. Harijono (Indonesia) for their contributions to the work of the Association. It expressed its appreciation to the chairpersons and members of the working groups and rapporteurs for their collaboration in carrying out the activities of the Association in the Region.

**3.8.1.41** Congress noted the activities in the Region, which included the annual meeting of Regional Meteorological Service Directors in the Pacific region, serving as a forum to facilitate information exchange on the development of meteorological services, and to identify regional priorities for Pacific small island developing States.

**3.8.1.42** Congress noted the support provided by Members, in particular Australia, China, France, Japan, New Zealand, the United Kingdom, the United States and the European Union for the development of meteorological and hydrological infrastructure and services requirements in the Region.

**3.8.1.43** Congress took note of the challenges, which were reflected in regional priorities of RA V. It supported the priorities, in particular those related to the WMO scientific and technical programmes, which focused on specific needs of the Region. It also recognized the increasing need for human resources development in the National Meteorological and Hydrological Services, which remained in spite of the efforts made.

**3.8.1.44** In that regard, Congress noted the progress on the development of the RA V Strategic Plan made through the Regional Seminar on Enhancing Service Delivery by National Meteorological and Hydrological Services (NMHSs) in Regional Association V (South-West Pacific) held in Malaysia in April 2007, incorporating action plans on areas such as capacity-building and enhanced links and standard operating plans of NMHSs and National Disaster Management Offices. Congress requested the Secretary-General to consider supporting and securing adequate resources to address regional needs related to the implementation of the RA V Strategic Plan.

**3.8.1.45** Congress welcomed the launch of the Pacific-HYCOS project, funded by the European Union, focusing upon strengthening the National Meteorological and Hydrological Services of 14 Pacific island countries and the development of a new project “South-East Asian HYCOS”.

**3.8.1.46** Congress expressed a serious concern on the operational status of RSMC Nadi, which was experiencing an acute shortage of professional forecasting staff that might soon have an impact on the provision of vital services. In that regard, Congress requested the Secretary-General to urgently consider possible support for that issue in cooperation with RA V Members to avoid interruption of tropical cyclone warning services in the Pacific as well as general services, especially aviation weather services, currently provided by RSMC Nadi, which was also a designated ICAO Tropical Cyclone Advisory Centre. Congress noted that New Zealand remained committed, under the terms of the Tropical Cyclone Plan, to providing emergency backup for RSMC Nadi’s tropical cyclone warnings responsibilities.

**Report by the president of Regional Association VI**

**3.8.1.47** Congress noted with appreciation the report of the president of RA VI, which provided an overall review and assessment of the major activities of the Association since Fourteenth Congress and expressed satisfaction at the effective manner in which the activities of the Association were being undertaken.

**3.8.1.48** Congress commended the former president, Mr Petras Korkutis (Lithuania), for his contribution to the development of meteorology and hydrology in the Region. Congress also commended the elected president during the fourteenth session of RA VI, Mr Daniel K. Keuerleber-Burk (Switzerland), for his contribution to the work of the Association, and expressed its appreciation to the chairpersons and members of the working groups, the task team and rapporteurs, who had actively collaborated in carrying out the activities of the Association in the Region.

**3.8.1.49** Congress noted the most important activities in RA VI, which included the decision to develop the Regional Strategic Plan. The goal of the RA VI Strategic Plan was to strengthen the capabilities of all National Meteorological and Hydrological Services in the Region by providing appropriate meteorological, hydrological and related services in the prevention and mitigation of natural disasters, protection of life and property, safeguarding of the environment and contributing to sustainable development. The RA VI Strategic Plan would be linked to the WMO Strategic Plan and be valid for the same time period. That would require the final draft of the RA VI Strategic Plan

to be presented to the president of RA VI and the Management Group during the side event of Fifteenth Congress.

**3.8.1.50** Congress took note of the main challenges of RA VI emphasized by the president, which included the following:

(a) Improvement and optimization of the global systems for observing, recording and reporting on the weather, water resources, ocean, climate and related natural environment in the most effective and efficient manner, including the standardization of techniques for observing data and planning networks on a regional basis, with the emphasis on:

  (i) Operational implementation of the Regional Basic Synoptic Network plan and the Hydrological Cycle Observing System;

  (ii) Promotion of the introduction and performance assessment of appropriate observing technology, taking into account the new systems and their suitability;

  (iii) Full implementation of the Regional Meteorological Data Communication Network to provide a high level of service throughout the Region;

  (iv) Development and implementation of end-to-end real-time monitoring of the operation and performance of the World Weather Watch and, in particular, of availability and quality of data;

  (v) Development and implementation of hydrological observing systems for real-time flood forecasting applications and water resource assessments;

  (vi) Implementation of transition from traditional character data representation and exchange to binary data representation and exchange;

  (vii) Implementation, where appropriate, of the concepts of joint operation, joint funding and burden-sharing in the context of the World Weather Watch to assist Members in achieving the most effective and efficient implementation and sustainable operation of World Weather Watch system components;

  (viii) Continuation of the RA VI Virtual Global Information System Centre project as part of the WMO Information System with the goal of providing operational services already by 2008. The project was supported by Germany, France and the United Kingdom, as well as the European Centre for Medium-Range Weather Forecasts and the European Organization for the Exploitation of Meteorological Satellites;

(b) Improvement of the accuracy and reliability of the analysis, forecasts, warnings and risk assessments of natural hazards such as floods, strong winds, droughts, forest fires, severe storms, avalanches, pollution events, and periods of intense relative heat and cold. That should include improving seasonal and longer-term predictions of changes in the timing, severity or frequency of such severe events;

(c) Enhancement of capacity-building, especially for developing countries and those with economies in transition, in order to overcome the current imbalance. In that connection:

  (i) Capacity-building should particularly address the required basic meteorological and supporting infrastructure and equipment, especially in the areas of telecommunication and upper-air sounding, as well as the education and training of staff;

(ii) Technical cooperation should ensure optimal benefits and take into account the overall situation of countries to be assisted;

(iii) Sustainable capacity-building should be aimed for, and not just ad hoc palliative measures;

(iv) To realize capacity-building, areas of strategic cooperation, including regional/subregional collaboration, should be explored.

**3.8.1.51** Congress gave its full support to the priorities and in particular those related to the WMO scientific and technical programmes that focused on specific needs and requirements of the Region and new priority areas such as natural disaster prevention and mitigation, climate change, operational hydrology and related environmental issues and training. It requested the Secretary-General to take into consideration the regional needs related to the future strategic development plan of the RA VI.

**3.8.1.52** Congress supported the reinforcement of the Regional Office for Europe owing to its importance for the RA VI Members, as it would have to play a key role in the monitoring and implementation of the Regional Strategic Plan in addition to its already indispensable support for the management of RA VI and its services for the Members. It recognized that the Regional Office for Europe with only one professional staff was understaffed and not in balance with other Regional Offices.

**3.8.1.53** Congress extended its appreciation to the Members of the Region for strengthening regional cooperation.

**3.8.2 Regional activities** *(agenda item 3.8.2)*

**3.8.2.1** Congress noted that a series of important regional support and capacity-building activities were successfully carried out or sponsored by WMO in all Regions in order to strengthen the National Meteorological and Hydrological Services for meeting the needs and requirements of Members. Congress agreed that the organization of activities such as regional technical conferences, regional seminars and workshops in various fields of relevance to regional priorities and other specific events for Directors of NMHSs in regional economic communities should be given high priority during the fifteenth financial period.

**3.8.2.2** Congress acknowledged that the Secretary-General had developed a new strategy and vision for development cooperation and regional activities in order to provide improved services to Members through enhanced resource mobilization for development activities, better delivery of services, better support to National Meteorological and Hydrological Services at the national and regional levels, a more active role of the Regional Offices and WMO Offices in the Regions, improved usefulness of meetings, promotion of regional cooperation and a more systematic approach to collecting information on the NMHSs worldwide. In that connection, Congress requested the Secretary-General to pursue his efforts to strengthen the respective WMO Offices so that they could play a key role as information centres in their respective Regions and to establish and enhance close relationships with cooperating partners and other relevant regional institutions.

**3.8.2.3** Congress noted that the Regional Offices for Africa, for Asia and the South-West Pacific, for the Americas and for Europe were located in Geneva and that the WMO Offices in the Regions continued to fulfil their functions and responsibilities as an integral part of the Secretariat. Congress underscored the effective support the Regional Offices and the WMO Offices provided to the regional associations, their presidents and vice-presidents and their subsidiary bodies as well as to Members in implementing the various scientific and technical programmes in their respective Regions.

**3.8.2.4** Congress noted that the WMO Office for West Asia, in Manama, Bahrain, became operational in March 2007, and expressed its deep appreciation to the Governments of Bahrain, Costa Rica, Kenya, Nigeria, Paraguay and Samoa for hosting WMO Offices in their countries, and the Governments of Brazil and Mexico for hosting WMO Project Offices.

**3.8.2.5** Congress recognized that the WMO Offices in the Regions should be provided with the necessary tools to discharge efficiently their responsibilities in a timely manner, in particular the development and implementation of technical projects, the support to NMHSs in priority areas such as natural disaster prevention and mitigation and climate change and related environmental issues, and the liaison with partners.

**3.8.2.6** Recognizing the need to better serve the Regions, Congress requested the Secretary-General to strengthen those Offices, in particular by providing them with adequate human and financial resources within the available budget.

**3.8.2.7** Congress stressed that the WMO Regional Offices should promote the priorities as defined in the respective regional association strategic plan. It also encouraged the Secretary-General to facilitate substantive discussions with National Meteorological and Hydrological Services at the regional and subregional levels in order to explore cost-effective approaches to procurement and maintenance of observing systems.

**3.8.2.8** Congress noted that, in several regions of the world, the technical and economic context of the provision of meteorological services to air navigation was undergoing various significant developments, depending on the region. It therefore recommended that the regional associations concerned devote particular attention to those issues, so as to give their Members any necessary support under regional activities, within the limits of available resources, and to ensure proper coordination between the WMO Regional Programme and the Aeronautical Meteorology Programme. Congress also requested the Executive Council to follow up such matters in order to advise on any appropriate measures to facilitate interregional coordination with regard to those developments.

**3.8.2.9** Congress warmly welcomed the initiative to establish a WMO country profile database to enhance the ability of the whole WMO Secretariat to follow the status of and development needs of the Members. Congress urged the Secretary-General to take immediate action to operationalize such a database and gather there all of the information collected by individual WMO Programmes/Departments. The WMO Country profile database would optimize the number of questionnaires sent to the Members.

**3.8.2.10** Congress considered the status of implementation of other aspects of the regional activities under the reports of the presidents of the regional associations and other relevant agenda items.

### 3.9 NATURAL DISASTER PREVENTION AND MITIGATION PROGRAMME *(agenda item 3.9)*

**Review of activities during the fourteenth intersessional period**

**3.9.1** Congress recalled its decision to establish the major WMO cross-cutting Natural Disaster Prevention and Mitigation (DPM) Programme, through Resolution 29 (Cg-XIV), and requested the Executive Council to provide the overall guidance and framework for its implementation with the assistance of the technical commissions. Congress reviewed actions undertaken during the fourteenth intersessional period according to the Sixth WMO Long-term Plan and directions provided by Fourteenth Congress.

**3.9.2** Congress emphasized that WMO and the National Meteorological and Hydrological Services contributed to all components of disaster risk reduction, including prevention and mitigation, preparedness, response, recovery and reconstruction. Congress highlighted the need

for strengthening partnerships with the users in that sector with the goal to better understand their requirements for meteorological, hydrological and climate services in support of different components of disaster risk reduction. Congress stressed that the central focus of the Programme was to enhance contributions of NMHSs towards the protection of lives, livelihoods and property through strengthening their capacities and cooperation in disaster risk reduction at the national to international levels. Congress urged National Meteorological and Hydrological Services to take proactive action to further strengthen their collaboration with civil protection and disaster risk management authorities and agencies.

**3.9.3** Congress noted with appreciation the progress made for the development of the Programme, such as:

(a) Establishment of DPM focal points within all programmes, Commissions and working groups of regional associations and their active engagement in the implementation of the Programme;

(b) Identification of potential partners and concrete areas of joint activity, and convening the multi-agency Symposium on Multi-hazard Early Warning Systems for Integrated Disaster Risk Management held in Geneva on 23 and 24 May 2006, to foster partnerships;

(c) WMO contributions to the Second World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan from 18 to 22 January 2005, Third International Conference on Early Warning, held in Bonn, Germany, from 27 to 29 March 2006, and the Global Survey of Early Warning Systems requested by the United Nations Secretary-General.

**3.9.4** Congress also acknowledged with satisfaction the Secretariat initiatives, following the tragic 2004 Indian Ocean tsunami, in cooperation with the Intergovernmental Oceanographic Commission of UNESCO and other partners and generous support from several Members and substantive funds raised through the International Strategy for Disaster Reduction Flash Appeal, to coordinate assessments and implementation of Global Telecommunication System upgrades, including related training, in eight countries, where such needs were identified. Congress expressed its appreciation to the Governments of the United States of America and Japan for providing interim tsunami warning services to all the Indian Ocean rim countries, through the Pacific Tsunami Warning Center and the Japan Meteorological Agency, respectively. Congress noted that internationally, the WMO Global Telecommunication System was recognized as the backbone for information exchange in support of multi-hazard early warning systems and requested the Secretary-General, in collaboration with the Intergovernmental Oceanographic Commission, to support strengthening of tsunami early warning systems, through similar efforts in other regions at risk. Congress urged its partners to address the need for enhanced ocean observations for improved tsunami detection and warning.

**Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters, and emerging opportunities for WMO and National Meteorological and Hydrological Services in Disaster Risk Reduction**

**3.9.5** Congress acknowledged with satisfaction the participation of WMO and NMHSs in the World Conference on Disaster Reduction, and recognized that the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters underpinned the WMO framework for implementation of disaster risk reduction at the national to international levels. Congress further noted that the Hyogo Framework for Action 2005–2015 shifted the traditional focus of post-disaster humanitarian response to a more comprehensive approach involving prevention and preparedness measures.

**3.9.6** Congress noted that the Secretary-General contributed to the restructuring of the International Strategy for Disaster Reduction System and agreed to the participation of WMO in the

ISDR System and advancements of the Hyogo Framework for Action 2005–2015. Congress noted that participation in the ISDR Platforms and strengthening of linkages with United Nations Resident Coordinators were effective mechanisms for NMHS cooperation with other agencies in that field and urged the National Meteorological and Hydrological Services to proactively participate in the national Committees and Platforms for disaster risk reduction. Congress requested the Secretary-General to continue his actions with the ISDR System in those forums and processes.

**Assessment of Members' and regional capacities, requirements and priorities**

**3.9.7** Congress noted with satisfaction that major fact-finding surveys, completed at the national and regional scales, analysed systematically Members' capacities, requirements and priorities in disaster risk reduction. Congress expressed its appreciation to the Members for their participation in those WMO initiatives. Those assessments identified common challenges and opportunities among the Members related to governance, organizational, technical and training aspects. Congress agreed that those assessments constituted the basis for the development of WMO integrated capacity development action plans, with particular focus on the developing and least developed countries and small island developing States. Congress suggested future surveys could be used by the Programme to monitor progress towards achieving the expected results.

**Natural Disaster Prevision and Mitigation Programme vision, priorities and implementation directions**

**3.9.8** Congress welcomed that the Executive Council, through its Advisory Group on Natural Disaster Prevention and Mitigation, had progressed key issues such as: (i) vision for the Programme; (ii) DPM strategic goals, (iii) governance; (iv) budget-related aspects; (v) regional and national cross-cutting projects and related implementation aspects; and (vi) naming of the Programme to better reflect its scope. Congress requested the Executive Council to consider those issues for adoption and/or implementation as appropriate.

**3.9.9** Congress considered the following DPM strategic goals, derived from the Hyogo Framework for Action 2005–2015. The decision of Congress regarding inclusion of those goals in the WMO Strategic Plan was taken under agenda item 6.2.

(a) **Strategic Goal 1**: Development, improvement and sustainability of early warning systems, in particular related to scientific and technical infrastructures, systems and capabilities for research, observing, detecting, forecasting and warnings of weather-, water- and climate-related hazards;

(b) **Strategic Goal 2**: Development, improvement and sustainability of systems, methods, tools and applications of modern technologies, such as geographical information systems for recording, analysing and providing hazard information for risk assessment, sectoral planning and other informed decision-making;

(c) **Strategic Goal 3:** Development and delivery of warnings, specialized forecasts and other products and services that were timely, understandable to those at risk and driven by requirements of disaster risk reduction decision processes and operations;

(d) **Strategic Goal 4**: Stimulate a culture of disaster preparedness through strengthening of capacities for better integration of NMHSs' products and services in disaster risk reduction, and continued public education and outreach campaigns;

(e) **Strategic Goal 5:** Strengthening cooperation and partnerships of WMO and National Meteorological and Hydrological Services in national, regional and international mechanisms and structures for implementation of disaster risk reduction;

**3.9.10** Congress was informed that on the basis of assessments and surveys, the Natural Disaster Prevention and Mitigation Programme would lead a sustainable integrated capacity development action plan, which would be built upon some or all of the following major thrusts: (i) modernization of National Meteorological and Hydrological Services and observing networks; (ii) implementation of national operational multi-hazard early warning systems; (iii) strengthening of hazard analysis and hydrometeorological risk assessment tools; (iv) strengthening NMHSs' cooperation with civil protection and disaster risk management agencies; and (v) coordinated training and public outreach programmes. Congress agreed that the action plan should focus on priority areas in line with the WMO Strategic Plan and should be implemented through concrete regional and national projects involving relevant Programmes, technical commissions, regional associations and external partner organizations. In that connection, Congress learned with satisfaction that the Secretary-General had already embarked on the implementation of several national and regional cross-cutting projects.

**3.9.11** Congress requested the Secretary-General to strengthen resource mobilization for sustainability of national and regional disaster risk reduction capacities.

**3.9.12** Recalling the potential increase in hydrometeorological disasters associated with climate variability and change, Congress requested the Secretary-General to ensure effective coordination among WMO climate-related Programmes and the Disaster Prevention and Mitigation Programme, which would be reflected through concrete national and regional projects.

**3.9.13** Congress recalled WMO obligations as specified in Article X, Statistical Services, of the agreement between the United Nations and WMO on the "… collection, analysis, publication, standardization, improvement and dissemination of statistics in the field of meteorology and its applications, and for the supply of such statistics to other specialized agencies…" (*Agreements and Working Arrangements with other international organizations* (WMO-No. 60)). Congress requested the Secretary-General to coordinate the collection and dissemination of information on meteorological, hydrological and climate-related hazards and their impacts, when possible and available.

**3.9.14** Congress encouraged WMO and its Members to leverage their capacities, in cooperation with other agencies, to support multi-hazard early warning systems to enhance benefits to the Members.

**Coordination with other international organizations related to disaster risk reduction of seismic-related hazards**

**3.9.15** Congress recalled its request to the Executive Council to further address a potential facilitation role of WMO regarding international coordination in the field of seismology. Congress further recalled that the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization operated an advanced global seismological observation network, which had the potential to contribute significantly to the detection of a tsunami threat. Based on consultations with UNESCO, Congress noted that that there was no formal intergovernmental framework for coordination in the field of seismology. In the light of the above, Congress requested the Secretary-General to continue collaboration with the Preparatory Commission.

**3.9.16** Congress adopted Resolution 25 (Cg-XV) – Natural Disaster Prevention and Mitigation Programme.

### 3.10 WMO SPACE PROGRAMME *(agenda item 3.10)*

**3.10.1** Congress recalled that at Fourteenth Congress it had decided to initiate the WMO Space Programme as a major cross-cutting programme to increase the effectiveness and contributions from satellite systems to WMO Programmes. Congress reviewed the main accomplishments of the WMO Space Programme during 2004–2007 regarding improvement of the

space-based Global Observing System, enhanced access to its data and products and promotion of Members' capability to use those data through education and training. Congress also reviewed key initiatives contained within the WMO Space Programme Implementation Plan for 2008–2011, including support to global optimization of mission planning, and agreed that they would represent significant improvements and increased capabilities for WMO Members. Congress also noted the key contributions of the Programme to the Global Earth Observation System of Systems.

**3.10.2** Congress also expressed its deep appreciation to those WMO Members and the European Organization for the Exploitation of Meteorological Satellite (EUMETSAT) and the European Space Agency for their contributions to the space-based component of the Global Observing System, which was a backbone of meteorological operations and served a wide range of other application areas. In particular, Congress noted the robustness of the space-based component of the GOS, with the recent launches of the following geostationary satellites: MTSAT-1R, MTSAT-2, Meteosat-9, GOES-13, INSAT-3A, FY-2C and FY-2D. It recalled that GOES-O, Elektro-L1, INSAT-3D and COMS-1 were planned for launch in the near future. Concerning polar-orbiting satellites, it noted the launch of NOAA-18, the recent launch of MetOp-A with an advanced sounding instrument, as well as China's plans to launch FY-3A at the end of 2007 and plans of the Russian Federation to launch a METEOR-M No. 1 satellite in 2008. Several new research and development satellites were potential contributors to the Global Observing System, such as ALOS, CloudSat and Calipso, Resurs-DK. Radio-occultation sounding data from the COSMIC constellation were also available. Congress was informed of the latest update on the contributions to the Global Observing System as agreed with operational and research and development agencies. Congress welcomed the relocation by the United States of GOES-10 to 60°W and noted that it provided additional coverage of South America and was used by WMO Members in RA III to derive and exchange valuable products. Congress was informed of plans for COMS-1, including direct broadcast and user preparedness activities. It was informed of the status of EUMETSAT satellites in geostationary orbit, Meteosat-9 and -8 at 0° and Meteosat-7 and -6 over the Indian Ocean, as well as of the polar-orbiting MetOp-A providing high-quality data for numerical weather prediction and climate applications. Congress also noted the importance of high-resolution satellite imagery for vegetation and environmental monitoring applications in support of sustainable development.

**3.10.3** Congress stressed the importance of maintaining full geostationary coverage around the globe and highlighted the need for ensuring continuity of satellite data from the Indian Ocean region, especially to those Members in that region whose territories were prone to tropical cyclones. Furthermore, Congress recognized the role played by those satellites for the operation of automatic Data Collection Platforms, in particular in support of the Indian Ocean Tsunami Warning System. Congress recalled that, for the previous nine years, Indian Ocean geostationary coverage had been provided by Meteosat satellites (initially Meteosat-5 and later Meteosat-7) operated by EUMETSAT through its Indian Ocean Data Coverage (IODC) service. IODC provided essential support to WMO Members in that region and was also widely appreciated by numerical weather prediction centres worldwide.

**3.10.4** EUMETSAT reminded Congress that IODC was not part of its core mission and was supported on a "best efforts" basis. EUMETSAT further stressed that its Member States had to face heavy investments to implement the core missions and, whilst willing to support observation over the Indian Ocean, it was necessary to seek external funding for the continuation of that mission. EUMETSAT indicated that it had initiated the process but, without a significant financial contribution from interested WMO Members in the Indian Ocean area, there would be a high risk that the IODC mission could not be continued beyond 2008.

**3.10.5** Congress thanked EUMETSAT for the provision of the IODC service over the previous nine years and expressed a serious concern that data coverage in that area could be interrupted at the end of 2008 unless other satellite operators could guarantee continuous data availability. A data gap would have a detrimental impact on WMO Members' operations for the protection of life and property.

**3.10.6** Congress acknowledged that the WMO Space Programme was effective in facilitating coordination among operational and research and development agencies towards enhancing the space-based component of the Global Observing System. It supported the initiation of a review and update of the baseline of the space-based component of the Global Observing System to include sustained observations for climate monitoring and other applications. Congress noted the particular relevance of global coordination under the auspices of the WMO Space Programme as regards the optimization of global mission planning, the setting up of a Global Space-based Inter-calibration System, and the issue of transitioning relevant research and development missions to operational status. It encouraged the Programme to develop a clear delineation of activities in that respect to ensure they were complementary to initiatives of other international bodies. Congress expected that the Programme would help in identifying an operational follow-on to the current experimental radio-occultation sounding constellation (COSMIC). Congress was also informed on progress of the International Geostationary Laboratory (IGeoLab) as a framework to develop partnerships for demonstration missions of new instruments in geostationary orbit. It supported the recent initiative to address, in the IGeoLab framework, the cooperation on a possible mission in Highly Elliptical Orbit (Molniya orbit) based on the Russian Federation Arctica project, taking into account the outcome of the IGeoLab task force on the matter.

**3.10.7** Congress noted with appreciation the progress within the Integrated Global Data Dissemination Service (IGDDS) project, through the implementation of satellite-based Digital Video Broadcast services that had the potential to provide cost-effective access to satellite data and products from multiple sources. It also welcomed the availability of MTSAT data over the Internet as a contribution from the Japan Meteorological Agency to IGDDS. The value of the global Regional ATOVS Retransmission Service (RARS) network was recalled with the expectation that its coverage would be soon extended to Africa.

**3.10.8** Congress recalled with gratitude the PUMA project, funded primarily by the European Union and implemented under EUMETSAT management, through which satellite-receiving equipment had been installed in more than 50 African countries over the past few years. Congress did, however, express its concerns as regards the continued operation of the supplied equipment, noting that already 25 per cent of the installations were suffering from maintenance problems. In expressing that concern, Congress noted that the African Monitoring of the Environment for Sustainable Development (AMESD) initiative provided an opportunity for the establishment of a maintenance strategy for the reception systems that would ensure a longer-term viability commensurate with the timeframe of the AMESD initiative.

**3.10.9** Congress commended WMO for the support provided by the Space Programme for training in satellite meteorology. In particular, Congress recognized the huge positive impact of the innovative High Profile Training Event (HPTE) that took place in 2006, based on the Virtual Laboratory for Education and Training in Satellite Meteorology. It noted with satisfaction that the HPTE had, over a period of several days, delivered effective training to over 2 000 participants from more than 120 WMO Members. That training had helped to equip WMO Members with the necessary knowledge and skills to maximize their exploitation of satellite data. Congress recommended that training in satellite meteorology retained its position as a key component of the activities of the WMO Space Programme and that further initiatives along the lines of the HPTE be undertaken during the next intersessional period, subject to available resources.

**3.10.10** Congress also expressed its appreciation for the support of the WMO Space Programme, along with EUMETSAT and the Secretariat of the Global Climate Observing System, to the EUMETSAT/WMO Workshop on the Use of Satellite Data for Climate Applications, held in Zagreb, Croatia, in 2006, as part of the GCOS Regional Action Plan. Congress noted that the event was attended by staff from 22 European National Meteorological and Hydrological Services and that two more such events were planned in the coming two years.

**3.10.11** Congress encouraged the WMO Space Programme to consider activities in the area of space weather, as it had a direct impact on meteorological satellite operations, and to pay

particular attention to the protection of the electromagnetic frequency spectrum in order to secure the sustainability of passive remote-sensing and of satellite operations.

**3.10.12** Congress was pleased to note the active involvement of WMO in the Coordination Group for Meteorological Satellites (CGMS) and expressed its deep appreciation for the technical coordination role of the Group and its commitment to seek to fulfil the requirements of the WMO Global Observing System. It also acknowledged the coordination role played by the Committee on Earth Observation Satellites (CEOS) for Earth Observation in a wider sense. Congress noted that the WMO Space Programme had been instrumental in preparing a CGMS response to Global Climate Observing System requirements for satellite data and products while cooperating with CEOS to ensure optimum coordination of efforts. Congress encouraged the Programme to continue its close collaboration with CGMS as well as with CEOS and its working groups.

**3.10.13** In view of the progress in achieving the goals stated in the WMO Space Programme Implementation Plan 2004–2007, Congress agreed that much had been accomplished to the direct benefit of WMO Members. It encouraged all stakeholders to continue and enhance their efforts to fully implement the goals. In particular, Congress urged Members to ensure that appropriate mechanisms be established and maintained to facilitate full access to data and products from the space-based component of the Global Observing System. It reaffirmed the value of the regular Consultative Meetings on High-level Policy on Satellite Matters and expected that the eighth session would meet early in 2008 to address the outcome of Fifteenth Congress.

## 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 fifteenth financial period (2008–2011). Additional information provided by delegations at Fifteenth Congress permitted the establishment of a provisional programme of sessions of those bodies (see Annex II to the present 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 fifteenth financial period. In that context, Congress decided that, with the exception of Congress and the Executive Council, no more than two sessions of constituent bodies should be held in any period of three consecutive months; if available offers to host a session of any constituent body did not conform to that rule, the session would be held at WMO Headquarters by default.

**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 fifteenth financial period were discussed under agenda item 8.

**4.1.5** Congress considered that there was still room for further improvements in the efficiency of constituent body meetings, for example by reducing the length of Congress and by arranging for sessions of technical commissions to be held conjointly. The presidents of technical commissions

and the Secretary-General were requested to consider possible such improvements and to report their findings to the Executive Council for its consideration.

## 4.2 LANGUAGES AND PUBLICATIONS *(agenda item 4.2)*

### Languages

**4.2.1** Congress noted with appreciation that the Secretariat continued its efforts to ensure the timely production of documents in all languages. That was done through the introduction of new technologies, such as web distribution of documents and public information material. It urged that efforts be continued towards equal treatment of all official WMO languages.

**4.2.2** The introduction of new electronic referencing and translation tools enabled the Secretariat to raise the quality, standardization of terminology and timeliness of translation services. Congress noted with satisfaction the development of Meteoterm, a glossary of specialized terms in Arabic, English, French, Russian and Spanish, intended not only for translation professionals, but also for a wide audience, which was available on the WMO website. It encouraged the Secretary-General to continue expanding the glossary to include the Chinese language. It also pointed out the importance of updating the *International Meteorological Vocabulary* (WMO-No. 182) and including in the new edition both Arabic and Chinese languages. By establishing standardized terminology and definitions, the *International Meteorological Vocabulary* greatly facilitated international cooperation.

**4.2.3** Congress noted the fact that the new computer-assisted translation tools supported all official WMO languages, thus providing relevant support to all languages on an equal footing.

**4.2.4** Congress noted that the Secretary-General, through the Linguistic Services and Publications Department, would also provide full linguistic support for regular updates of the WMO website in all working languages. Satisfying the increased demand for efficient and timely provision of multilingual services would be made possible through further development and upgrading of computer-aided translation tools. Those had demonstrated their efficiency in terms of time-saving and improving quality. However, Congress emphasized that the emerging activity of the WMO website should not jeopardize the provision of documentation for constituent body sessions or the production of publications. It recommended a more even distribution of sessions of constituent bodies during the fifteenth financial period as one of the measures aimed at efficiently distributing and coping with the high translation workload.

### Publications Programme

**4.2.5** Congress noted that mandatory and programme-supporting publications were produced in the required languages using the most suitable and cost-effective methodology, and expressed its appreciation of the steps being taken to expand their distribution. Congress recognized the importance of producing publications, if possible, in all WMO official languages during the fifteenth financial period, which would help to increase the visibility of WMO. Congress also appreciated the new format of WMO correspondence (stationery) and publications, using new corporate identity guidelines. In order to further enhance the visibility of WMO, and to maintain a consistent approach to the presentation and layout of all WMO printed and electronic publications, branding and more attractive designs should continue to be used and developed.

**4.2.6** Congress noted that, in response to the request of Fourteenth Congress to increase the production of electronic publications, in particular on CD-ROM and via the Internet, the Secretary-General had taken further steps towards modernization of WMO publications and their distribution via various electronic media. WMO branding had been used consistently and had thus become widely recognizable. Since the fifty-eighth session of the Executive Council in 2006, abridged final reports of constituent body sessions had been issued on CD-ROM only.

**4.2.7** Congress confirmed that the primary function of the Organization's Publications Programme was the widest possible distribution of information needed to attain its objectives, including support to its Global Communication Strategy, which was aimed at promoting the role and visibility of WMO and the National Meteorological and Hydrological Services in their key roles in weather-, climate- and water-related activities. It requested the Secretary-General to encourage the development of informative and attractive publications in as many official WMO languages as possible that would support that prime function. Congress also confirmed that reproduction by the Services of WMO-copyrighted material should be encouraged and facilitated by the Secretariat.

**4.2.8** Congress took note of the Report of the 2007 Meeting of Presidents of Technical Commissions, which encouraged the development and management of WMO publications according to quality-management principles. The Report recommended that, instead of issuing supplements to publications, WMO issue updated versions of those publications electronically, provided the solution was cost-effective.

**4.2.9** Congress encouraged the Secretary-General to pursue the expansion of electronic publishing to further the objectives of the Organization and its Members and encouraged the following:

(a) The Publications Programme should be adapted to take advantage of the opportunities offered by the rapid development of emerging electronic publishing technologies, in order to further support its primary function;

(b) The Secretary-General should develop publications sales and distribution policies, including pricing, in line with that adaptation, within the framework established by Congress and taking into account the guidance given by the Executive Council and the views of WMO Members;

(c) To the extent possible, free distribution of WMO publications, as determined by the Executive Council from time to time, would be effected by electronic means. Any requests for hard copies within that free distribution would be met only in the case of least developed country Members, using the most cost-effective way, for example by providing a printout of the electronic files;

(d) Certain public information material, such as the *WMO Bulletin*, annual report, information brochures and kits produced for special events, would continue to be distributed both in hard-copy format and electronically (CD-ROM and Web).

***Publications***

**4.2.10** Taking into account the needs of Members voiced during Fourteenth Congress, Executive Council sessions held during the fourteenth financial period, meetings of technical commissions and the Inter-commission Task Team on Quality Management Framework, Fifteenth Congress adopted the revised list of WMO mandatory publications proposed by the Secretary-General.

**4.2.11** Congress adopted Resolution 26 (Cg-XV) – Publications Programme for the fifteenth financial period, defining the broad policies in connection with the WMO Publications Programme during that financial period. The annex to that resolution contained the list of WMO mandatory publications and languages in which they should be issued.

**4.3 OFFICE AUTOMATION AND INFORMATION TECHNOLOGY SUPPORT** *(agenda item 4.3)*

**4.3.1** Congress took note of the new Information Technology and Information Management strategy to enhance the Secretariat's effectiveness and efficiency by increasing its use of technology and acquisition of the skills required to cope with evolving needs. It noted the framework for integrating the management of skills/people, information and systems based on best

practices, value assessment and risk management, as well as the established benchmarks: speed, flexibility, accountability, responsibility, transparency, reduced administrative costs, quality, business continuity and risk reduction.

**4.3.2** Congress acknowledged the off-the-shelf implementation of the Oracle e-business suite in support of the Secretary-General's decentralization process to better monitor accountability for resources and to promote a culture of transparency.

**4.3.3** Congress noted the increased outsourcing of infrastructure support – non-WMO specific activities – to the United Nations International Computing Centre to ensure higher availability and disaster recovery.

**4.3.4** Congress noted the more dynamic and attractive WMO website.

## 5. INFORMATION AND PUBLIC AFFAIRS PROGRAMME (*agenda item 5*)

### Global Communication Strategy and Activities

**5.1** Congress noted with appreciation actions taken during the fourteenth financial period to enhance the WMO Information and Public Affairs (IPA) Programme and its increasing productive promotional and constituency-building activities in support of the scientific and technical programmes and for the benefit of National Meteorological and Hydrological Services. A more focused outreach policy, closer interaction between the WMO Secretariat, NMHSs and the United Nations system had increased public awareness of the importance of weather, climate and water services and products provided by NMHSs, and of international cooperation in those fields.

**5.2** Congress was satisfied with the numerous activities and products implemented under the WMO Global Communication Strategy. Congress recalled that objectives of the Strategy were projecting a unified and consolidated image of WMO and National Meteorological and Hydrological Services; strengthening constituencies both at the national and regional levels; spreading key messages giving a local voice to a global undertaking and vision; fostering strategic alliances with the media; and promoting a communication culture throughout WMO. Congress urged Members and the Secretary-General to further implement the Strategy with the aim to position WMO and NMHSs in a manner that played to their unique strengths and raised the Organization's visibility as a key player in international cooperation and in contributing to sustainable development of Members. In that regard, Congress requested Members to enhance their own information and public affairs activities and to provide support to the Information and Public Affairs Programme, in particular through close interaction among national IPA focal points and the Secretariat. It further requested Regional and Subregional Offices to play a more active role regarding public information activities.

**5.3** Congress called for a greater involvement of National Meteorological and Hydrological Services in developing strategic alliances with national media for the purpose of disseminating key messages and providing greater visibility for all activities of the Services. It further called on the Services for a closer interaction with United Nations offices in the field in order to increase recognition of NMHSs' contribution to disaster prevention and mitigation and other areas.

**5.4** Congress appreciated the successfully implemented capacity-building initiatives and reiterated its support for further building the capacities of National Meteorological and Hydrological Services, 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. Weather broadcasts in African countries had significantly improved following training and support by WMO and Members, notably by the United Kingdom. Congress encouraged close collaboration between the Information and Public Affairs Programme and the Public Weather Services Programme in organizing workshops on weather reports in the media. Congress

recognized the importance for the National Meteorological and Hydrological Services of presenting a credible image to the public. Such credibility should be based not only on excellent technical training but also on adequate communication skills to present their products and reports. In order to promote the latter, Congress requested the Secretary-General, in collaboration with interested partners, to endeavour to conduct more training activities in the field of communication for NMHS personnel, primarily, but not exclusively, those in contact with the mass media and website networks, as well as directors.

**5.5** Congress noted with satisfaction the significant increase in media coverage of WMO, achieved through the enhanced WMO online News Centre, including the attractive and informative *News* section, wider and targeted dissemination of public information material and numerous press releases and Info Notes issued on specific WMO topics, proactive media campaigns organized on major themes, such as in relation to El Niño occurrences, ozone layer depletion, the annual launch of the Status of the Global Climate, and the release of the *Greenhouse Gas Bulletin*. Congress requested the Secretary-General to pursue his efforts in keeping the press fully briefed on major issues involving WMO and the National Meteorological and Hydrological Services. In that regard, in order to allow for timely outreach to the public, Congress underlined the importance of the timely transmission of WMO information materials to NMHSs, if needed under embargo, and whenever possible in electronic format as soon as they were available. It further urged Members to promptly communicate newsworthy information to the Secretariat, which served as a depository and a clearinghouse for all WMO public information materials.

**5.6** Congress expressed great satisfaction with the revamped *WMO Bulletin* and with *MeteoWorld*, a magazine with concise and attractive articles of interest to the general public. Congress requested that the *Bulletin*, currently available on CD-ROM attached to the printed version, be made available electronically both on CD-ROM for free distribution at relevant events and online in html and/or pdf format in order to fully exploit its potential as a public information tool.

**5.7** Congress expressed high appreciation to Members who had translated and distributed WMO public information products, such as World Meteorological Day information kits, *WMO at a glance* and a cartoon book entitled *We care for our climate* (WMO-No. 975). It requested Members to make further copies of those publications with the addition of their own logo, and to promote their dissemination at the national level. *We care for our climate,* initially published in English, French and Spanish, was later translated by WMO Members into 16 languages (Arabic, Chinese, Croatian, Dutch, Finnish, Greek, Lithuanian, Nepalese, Portuguese, Romanian, Urdu, Swedish, Swahili, Turkish, Russian and Uzbek).

**5.8** Congress further called for wider activities, when appropriate, under public-private partnerships that had made possible sponsored production of greetings cards, a WMO 2007 calendar and a book entitled *Elements for Life* (WMO-No. 1021). Congress also stressed the importance of involving inputs from developing countries where relevant in drafting such publications.

**5.9** Congress expressed high appreciation to the Secretariat for assisting the National Meteorological and Hydrological Services in the celebration of World Meteorological Day as a significant instrument for increasing their visibility.

**5.10** Congress agreed on the great benefit in WMO Public Service Announcements aired by CNN International at the initiative of WMO, WMO films made in the six official WMO languages, as well as other video material, such as newsfeeds, video news releases and B-rolls, drawing on World Meteorological Day film materials, for use by television networks at various occasions.

**5.11** Congress expressed high appreciation for the revamped website enhancing WMO communications and urged further development in that regard. It called on all Members to establish a link to the WMO website, to identify themselves as an integral part of the WMO system and to make full use thereof. The creation of, and WMO link to, the Afrimet portal was expected to

enhance the visibility of the respective region. Congress was pleased with the concept of featuring a WMO front-page link to the NMHS of an area struck by natural disaster to create more awareness and provide relief organizations with critical meteorological data. In that context, it invited Members to provide the Secretariat with timely notifications of extreme weather events and other newsworthy activities for attracting the attention of the international media and the public.

**5.12** Congress requested the Secretary-General to continue to explore ways and means of nurturing public support for IPA activities. It encouraged the availability in electronic form of high-resolution photo and of other public information material produced under the Information and Public Affairs Programme for reproduction and use by National Meteorological and Hydrological Services, enhancement of the IPA photo library, video archives, editing facilities and the development of state-of-the-art educational products for the general public, including specific materials for children and youth. Congress also recommended the creation of Meteoland, an online game park for educating youth about hydrometeorological topics and the vital contribution of NMHSs to their lives. It called on Members to assist the Secretariat in setting up and maintaining Meteoland.

**5.13** Congress urged the Secretary-General to continue to take advantage of major international events, international fairs and exhibitions to promote the image of WMO and NMHSs and to enhance cooperation with other United Nations agencies, in particular within the framework of the United Nations Communications Group. Congress requested the active participation of WMO in the World Expo 2010 to be held in Shanghai, China. It also urged Members to highlight the role of WMO and National Meteorological and Hydrological Services at relevant regional and global conferences.

**5.14** Congress invited the President and Officers of the Organization, in collaboration with the Secretary-General and the National Meteorological and Hydrological Services, to contribute further to the promotion of the role and activities of WMO and NMHSs in the various global and regional forums to which they had access. Congress encouraged the Officers of the constituent bodies and all individual WMO Members to contribute, within their various capacities, to the total effort of promoting WMO and its key roles in weather, climate and water.

**5.15** Congress stressed the need for increased support of the Information and Public Affairs Programme and called on Members to provide in-kind support and additional extrabudgetary resources, notably through the IPA trust fund.

**Branding of the Organization**

**5.16** Congress appreciated the progress made in the “branding” of the Organization and the fact that the subtitle “Weather, Climate, Water” featured prominently on all official documentation, correspondence and publications as requested by Fourteenth Congress. It expressed its satisfaction for the modernization of WMO publications and called for the further development of an editorial policy. In that context, it noted that the gold colour applied to the windrose in the WMO logo featuring on non-official information products had strengthened the visual identity of the Organization. It endorsed such an initiative, which was in line with a proposal made by the Executive Council in its Resolution 20 (EC-LVII) – WMO emblem and flag.

## 6. LONG-TERM PLANNING *(agenda item 6)*

### 6.1 REPORT ON THE MONITORING OF THE IMPLEMENTATION OF THE SIXTH WMO LONG-TERM PLAN *(agenda item 6.1)*

**6.1.1** Congress recalled that the Executive Council had agreed that the monitoring and evaluation of the implementation of the Sixth WMO Long-term Plan 2004–2011 should be based on the first biennium (2004–2005) and the first year of the second biennium (2006) of the fourteenth

financial period (2004–2007). The evaluation should be against the nine WMO strategies and the corresponding nine key performance indicators to measure the Secretariat's performance in programme and budget implementation. Congress received with appreciation the Report on the Monitoring of the Implementation of the Sixth WMO Long-term Plan (6LTP).[2]

**6.1.2** The fourteenth financial period was marked by the transition towards that goal of a fully result-based strategic planning and budget process for the fifteenth financial period. Congress noted that it had been difficult, for several reasons, to perform an effective and meaningful evaluation process and that it was not always possible to measure the accomplishments in a satisfactory manner. In particular, Congress noted that further improvements were required in: (i) how the performance indicators were identified and formulated; (ii) the consistency in the definitions and use of terminology; (iii) monitoring of and reporting on the indicators identified; and (v) the ability to audit and verify the results.

**6.1.3** In summary, Congress took note that a total of 997 outputs/services had been programmed to be funded from the Regular Budget for implementation by the Secretariat for delivery over the period 2004–2006, of which about 613 had been implemented. Also implemented had been 610 additional outputs during the same period, which put the overall total at 1 223 outputs/services, a number significantly exceeding the total initially programmed. When activities funded from extrabudgetary sources were taken into account, the totality of outputs/services implemented had risen to 1 814, i.e. almost double of those initially programmed. Almost all major Programmes reflected a level of implementation in excess of that initially programmed. A great number of the added activities addressed the major cross-cutting programmes[3] but were implemented under the various scientific/technical programmes. Those scientific/technical programmes, when combined, accounted for 478 outputs added under the regular budget, and for 236 outputs of those added and funded from extrabudgetary resources.

**6.1.4** Notwithstanding the above limitations of the evaluation process, Congress concluded that the implementation of the programmes during the period under consideration had largely been very positive. Congress recognized the resourcefulness and ability of the Secretariat to cope with unforeseen circumstances and emerging needs. As was demonstrated in the aftermath of the 2004 Indian Ocean tsunami, the Secretariat proved capable of mobilizing resources and efficiently attaining higher programme delivery. The report also highlighted the dependence of some programmes on extrabudgetary funding and their determinant role in achieving the expected results. Congress stressed that fundraising would have to be intensified if the Organization was expected to continue addressing emerging issues successfully.

**6.1.5** In terms of achievements, convincing results of the Secretariat's activities were demonstrated in areas ranging from assisting in enhancing national and regional capacities in areas such as data acquisition, communications, research, product and service development and delivery. The achievements also contributed significantly to facilitating the reinforcement of Members' preparedness measures for disaster prevention, notably tropical cyclones and flooding, and to achieving Members' sustainable development goals. Furthermore, the use of communication and outreach techniques and practices left a positive imprint on the Secretariat's accomplishments by making them readily available to interested parties, contributing further to enhancing its visibility.

**6.1.6** Congress was satisfied that all the Secretariat's work and achievements during the period under consideration were consistent with the strategies, associated goals and the long-term objectives. The linkage between the results reported and the respective nine strategies was clearly observable. However, in the absence of adequate performance indicators at the strategic level and the limited measurability of the existing indicators, it had not been possible to assess the extent to

2 The Annex to the Report*, Objectives, Strategies, Results Achieved and Key Performance Indicators by Major Programme and Component of the Programme of the Sixth Long-term Plan (6LTP) for the Period 2004–2006,* was published as WMO/TD-No. 1375 in printed and electronic form.

3 The Programme for the Least Developed Countries was established under the Technical Cooperation Programme, the Natural Disaster Prevention and Mitigation Programme and the WMO Space Programme.

which the results achieved were effective in addressing adequately the strategic goals. The Secretariat was encouraged to further improve in that area.

**6.1.7** Congress concluded that an effective system of performance measurement required that staff understood the concepts and requirements of results-based management. To meet that end, training on results-based budgeting and performance measurement were essential prerequisites. Equally important was the setting up of procedures and methods for monitoring performance in terms of results and for the systematic collection of data and information needed for measuring the degree of achievement. Congress recognized that the Secretariat Operating Plan already contained useful elements and it requested the Secretariat to further develop and improve those practices in order to achieve an effective programme implementation monitoring and evaluation.

**6.1.8** Congress recognized that the effective implementation of the results-based budget concept was a long-term proposition, which would evolve over time as a result of the cumulative experience gained in the process. It stressed the need for continued improvement in the results-based budgeting process, particularly as it related to refining and ensuring the uniformity of the definitions of objectives, expected results, activities and outputs, the development of adequate and measurable performance indicators at the strategic and programme levels and the introduction of an effective system for monitoring programme performance and assessing the results achieved. Congress requested that adequate training, within available resources, on all aspects of results-based budgeting be provided to all programme managers and other staff involved in programme budget formulation.

## 6.2 WMO STRATEGIC PLAN 2008–2011 AND BEYOND *(agenda item 6.2)*

**6.2.1** Congress recalled that the Executive Council, at its fifty-eighth session in June 2006, had recognized the need to focus WMO long-term planning on strategies to achieve the desired outcomes of the Organization. It agreed with the Executive Council that the Seventh Long-term Plan should be changed and decided it should be referred to as the WMO Strategic Plan, which would be a statement of strategic intent for the Organization for the period 2008–2011, corresponding with the fifteenth financial period. Congress further agreed that the vision and concepts included should be permitted to extend beyond the next financial period as appropriate, but that the end results referred to objectives of the fifteenth financial period.

**6.2.2** Congress noted with appreciation the work accomplished by the Executive Council Working Group on Long-term Planning in finalizing the Strategic Plan and the support provided by the Secretariat. Congress further noted that the Strategic Plan constituted a long-term planning process, which included three components: the WMO Strategic Plan, the WMO Secretariat Operating Plan, and the WMO Results-based Budget.

**6.2.3** Congress agreed that the WMO Strategic Plan set the direction for WMO and established the Organization's 11 expected results and key performance indicators. It further agreed that the WMO Secretariat Operating Plan clearly defined Programme activities and services and established key performance targets. Finally, Congress agreed that the Results-based Budget identified specific activities, which needed to be completed to achieve the established key performance targets and the required resources.

**6.2.4** Congress noted international emphasis on the climate change question and its importance as a strategic consideration for WMO. It agreed to add the following text to the Strategic Plan, after the first sentence of paragraph 2.2:

> "Risks associated with climate variability and extreme environmental events create societal and economic stresses that require new meteorological, hydrological and climate services in order to assure the safety and security of populations and the development of adaptive economic strategies. Responding to these risks is especially critical given population growth in environmentally vulnerable regions, such as continental coastlines

and lowlands, and, in recent years, an apparent increase in the intensity and frequency of extreme events."

**6.2.5** Congress noted the importance of WMO data, products and services to disaster prevention, mitigation and risk reduction. It further noted the Organization's national and international partnerships supporting multi-hazard early warning had broadened the responsibilities of National Meteorological and Hydrological Services. Consequently, it requested the following changes to the Strategic Plan to emphasize that point, as follows:

(a) In Chapter 1, paragraph 1.1, add a sixth bullet that reads:

"Mitigation of natural disasters."

(b) In Chapter 2, paragraph 2.7, add a bullet that reads:

"Enhance the capabilities and capacities with respect to disaster risk reduction in the weather, water and climate domains, and strengthen appropriate mechanisms at the national and international levels. In partnership with other international organizations, improve the effectiveness of multi-hazard early warning by improving capabilities and capacities to deliver warnings for a broader range of environmental hazards, including tsunamis, accidental nuclear releases, volcanic eruptions, and other environmental events. Key international partners include UNESCO/IOC, IAEA, ICAO, among others;"

**6.2.6** Congress noted the importance of identifying priority areas to focus programmes and activities. In that regard, it agreed to add the following text to Chapter 2 of the WMO Strategic Plan after the section entitled Efficient Management and Good Governance:

"**Concluding remarks:**
Within the framework of three Top-level Objectives and five Strategic Thrusts, which are described in this chapter, WMO will give special attention to needed improvements in disaster prevention and mitigation, capacity-building and other important ongoing activities related to data and product quality, service delivery, and organizational efficiency. These priority needs are described in Chapter 3 as End Results."

**6.2.7** Congress requested the Secretary-General to incorporate at the final editing and publishing phase of the Strategic Plan the amendments and supplements approved by Fifteenth Congress under the various agenda items for inclusion in the Plan as appropriate.

**6.2.8** Congress endorsed the new approach to the WMO strategic planning and adopted Resolution 27 (Cg-XV) – WMO Strategic Plan.

**Alignments, performance report and evaluation**

**6.2.9** Congress noted the endorsement by the Executive Council of the alignment of the WMO programme structure as well as the programme and budget with the Strategic Plan. Congress agreed that common alignment of the WMO Programmes with the WMO Strategic Plan should commence soon after its fifteenth session. Congress requested the Executive Council to take a lead role in that process and assign the presidents of technical commissions with the task of monitoring and reporting on the progress with that alignment on an annual basis.

**6.2.10** Congress noted that an annual performance report provided an assessment of progress toward the top-level objectives of the Strategic Plan. It requested Members, regional associations, technical commissions and the Secretariat to make specific, coordinated contributions to the process. Congress further requested the Secretary-General to present the above progress reports to sessions of the Executive Council.

**6.2.11** Congress welcomed the improvements in the new Strategic and Secretariat Operating Plans and encouraged continued efforts to improve the linkage between expected results in the Strategic Plan and deliverables and activities described in the Secretariat Operating Plan and Results-based Budget request.

**Measuring the success of WMO**

**6.2.12** Congress noted the complex challenge associated with establishing key performance indicators for WMO and complimented the Executive Council for those contained in the draft plan. Congress further reviewed the indicators, considering the need to have indicators that would clearly demonstrate the success of WMO, i.e. indicators that were specific, measurable and meaningful to Members, and lead themselves to the setting of achievable targets. Congress noted a revised set of key performance indicators, which were developed following the submission of the Strategic Plan, and agreed those offered a good basis for the further development of the indicators. Therefore, Congress requested the Executive Council to:

(a) Further refine and finalize the key performance indicators, and to recommend appropriate methods of measurement;

(b) Update the WMO Strategic Plan with the final set of key performance indicators;

with the aim of having the key performance indicators finalized for the beginning of the fifteenth financial period.

**WMO Secretariat Operating Plan 2008–2011**

**6.2.13** Congress recalled the decision of the Executive Council at its fifty-eighth session in June 2006 to engage in an organization-wide strategic, operational and budget planning process. The process resulted in three fundamental documents:

(a) **WMO Strategic Plan**, which provided a high-level statement of future strategic directions and priorities of WMO in the form of the top-level objectives and expected results;

(b) **WMO Operating Plan,** which converted the strategic directions into specific, measurable deliverables and related summary of activities of the WMO Major Programmes and activities and the corresponding timelines and key performance targets;

(c) **WMO Budget,** which connected deliverables, or end results, to resources.

**Structure and purpose of the Operating Plan**

**6.2.14** The Operating Plan described how the WMO Programmes and other major activities, for example Programme Support Services, would contribute towards accomplishing the Organization's mission and achieving the top-level objectives and the 11 expected results put forth in the WMO Strategic Plan. The Operating Plan used the WMO Programmes as main building blocks and each of their deliverables was attributed to a specific expected result to which it contributed. A timeline indicated the period of realization of each deliverable. The corresponding financial resources were given in the WMO Budget.

**6.2.15** Congress noted that in the initial phase, the development of the WMO Operating Plan focused on the Secretariat programme implementation plans and associated activities, and therefore represented the WMO Secretariat Operating Plan. Congress agreed with the Executive Council to expand the Secretariat Operating Plan, in the subsequent phase, into an organization-wide and comprehensive WMO Operating Plan, which would incorporate the contributions of the

regional associations and technical commissions as well as of the scientific steering committees of the WMO Joint Programmes. The experiences and results to be gleaned from the first performance evaluation review of the Secretariat Operating Plan in 2009 should be taken into account (see paragraph 6.2.17 below).

**Cross-cutting activities**

**6.2.16** Congress welcomed that the importance of cross-cutting issues and activities was well reflected in the Secretariat Operating Plan. It was noted that for the forthcoming financial period, the Secretariat planned, in addition to the two established major cross-cutting programmes, the WMO Space Programme and the WMO Natural Disaster Prevention and Mitigation Programme, additional cross-cutting activities. Those included WMO collaboration with the Group on Earth Observations, the development of the WMO Integrated Global Observing System, the implementation of the WMO Information System, as well as climate and hydrology issues. Furthermore, flexible management structures in the Secretariat would ensure that newly emerging cross-cutting projects and requirements and the relationships and dependencies between Programmes would be effectively addressed. That approach should ensure that all activities related to key societal benefits were properly integrated.

**Programme performance monitoring and evaluation**

**6.2.17** Congress underlined that monitoring and evaluation of programme performance must be a continuous process. To that end, Congress recognized that each deliverable given in the Secretariat Operating Plan was associated with one or several realistic, achievable and unambiguous key performance targets, which, at the initial stage, mainly related to activities rather than outcomes. It agreed that the Secretariat Operating Plan should be evaluated at the mid-term (2009) and at the end of the financial period (2011). Additional evaluation milestones might be required depending on the nature of a specific Programme. Congress noted that each Programme had defined the methodologies and mechanisms for collecting data and information necessary for the evaluation of the Programme. Congress requested the Executive Council to address the mid-term programme evaluation and, based on the findings and conclusions, give guidance and directives for the programme implementation in the second biennium.

**6.2.18** Finally, Congress requested the Secretary-General to incorporate in the Secretariat Operating Plan adjustments and corrections according to relevant conclusions and decisions adopted. It requested the Secretary-General to publish the Plan before the end of 2007 in printed form and on the WMO website in the WMO working languages. Congress agreed that future decisions of the Executive Council that would modify the implementation of programmes or programme support services of the Secretariat should be reflected in the Secretariat Operating Plan or the future WMO Operating Plan, respectively, and corresponding amendments should be issued as appropriate.

## 6.3 PREPARATION OF THE WMO STRATEGIC PLAN FOR 2012–2015 *(agenda item 6.3)*

**6.3.1** Congress reiterated the importance of the strategic planning process and the WMO Strategic Plan for the appropriate and coordinated implementation of the WMO Programmes in the forthcoming financial period. It saw the need to put in motion a mechanism for the preparation of the WMO Strategic Plan for the sixteenth financial period.

**6.3.2** Congress agreed that the next WMO Strategic Plan should:

(a) Take into account the evolution of the societal needs of the Members;

(b) Build on programme and management related experiences gained in the implementation of the current Strategic Plan;

(c) Improve the alignment of the programmes and the budget with the future strategic goals of the Organization and thus provide the platform for developing the future WMO Operating Plans;

(d) Improve the key performance indicators so that the cumulative impact of the Organization's performance can be measured.

**6.3.3** As Congress appreciated the lucid, comprehensive and focused nature of the WMO strategic planning process, it agreed to seek a similar approach to preparing the next Strategic Plan. However, care should be taken to ensure that adequate lessons were learned from the experience gained in course of the implementation of the Strategic Plan for 2008–2011 and from the strategic planning process as a whole. It requested that the task of preparing a draft Strategic Plan for Sixteenth Congress begin soon after the current Congress. That Strategic Plan should identify WMO expected results for the sixteenth financial period (2012–2015). Further, Congress requested that the draft be completed by the end of 2008 and that it be used as a basis for developing a draft WMO Operating Plan for the same time period.

**WMO Operating Plan for the period 2012–2015**

**6.3.4** Congress requested the Secretary-General to build on experience of the Operating Plan developed for the WMO Strategic Plan for 2008–2011 and prepare an appropriate Strategic Plan for 2012–2015. To that end, it was important to advance development of the Strategic Plan in a timely manner so that the Operating Plan and the Budget could be properly aligned with the goals and priorities of the Strategic Plan. Congress requested that the draft Operating Plan (2012–2015) be completed by the end of 2009 and that it be used as a basis for the WMO Results-based Budget prepared for that sixteenth financial period.

**6.3.5** Congress urged regional associations, technical commissions and the Secretary-General to improve necessary cross-linkages and coordination in developing the two plans and the Results-based Budget for review and approval by Sixteenth Congress.

**6.3.6** In the light of the above, Congress adopted Resolution 28 (Cg-XV) – Preparation of the WMO Strategic Plan for 2012–2015.

## 7. SPECIFIC CHALLENGES FACING WMO *(agenda item 7)*

### 7.1 MILLENNIUM DEVELOPMENT GOALS *(agenda item 7.1)*

**7.1.1** Congress recalled that the internationally agreed development goals, including those within the Millennium Declaration, provided countries around the world with a framework for development. It recognized that the Goals were of direct concern to WMO, which fully supported them, as evidenced in the expression of the Organization's Vision and Strategic Plan.

**7.1.2** Considering that WMO activities had direct bearing on the Millennium Development Goals relating to the eradication of poverty and hunger, the promotion of gender equality, ensuring environmental sustainability, combating malaria and other diseases, and developing a global partnership for development, Congress acknowledged that a huge effort was still required from WMO and National Meteorological and Hydrological Services in order that the impact of their activities on the implementation of relevant Goals was felt in a tangible way.

**7.1.3** In that regard, Congress noted the lack of knowledge and recognition of WMO and NMHS activities as oriented towards development issues and stressed the need for WMO and the National Meteorological and Hydrological Services to move to a more proactive role in not only informing but also advising governments on issues that had an impact on the development policies

and strategies, encompassing the whole range of weather-, climate- and water-related services, including current climate and natural disaster-related issues.

**7.1.4** Congress agreed with the Executive Council that National Meteorological and Hydrological Services should be in a position to act as a relay between the Major Programmes of WMO and relevant Ministries at the national level and should have the capacity and ability to communicate with decision makers, the general public and specific users, and create awareness of the relevance of weather-, climate- and water-related services to the achievement of the Millennium Development Goals. Congress further recognized that transforming key scientific information and knowledge of great importance at the global level into useful and applicable messages at the local level required considerable expertise.

**7.1.5** In that connection, Congress noted that the Secretary-General had taken steps to prepare a streamlined information package in the form of guidelines that National Meteorological and Hydrological Services would use for their consultations with government officials, funding agencies and other stakeholders to shape their contribution towards achieving the Goals, development strategies and daily political and social realities at the national level. In that connection, Congress encouraged National Meteorological and Hydrological Services to take steps at the national, regional and global levels to ensure that weather-, climate- and water-related information and services were mainstreamed into economic and political decision-making processes.

**7.1.6** Congress encouraged the Secretary-General to continue to package WMO activities and projects relevant to the Millennium Development Goals under thematic approaches, such as the Programme for the Least Developed Countries (and for the small island developing States), the Natural Disaster Prevention and Mitigation Programme and the Education and Training Programme, in order to address the question of resource mobilization with national authorities, donors and financial institutions. It recognized the particular opportunity provided to National Meteorological and Hydrological Services in Africa to strengthen their climate services in support of the Goals through the emerging programme on Climate for Development in Africa (ClimDev Africa) recently endorsed by the African Union Commission and the African Heads of States and Governments.

**7.1.7** Congress noted the constraints of the National Meteorological and Hydrological Services in dealing with the United Nations country team under the United Nations Resident Coordinator leading to less briefing on important issues such as the implementation of the Millennium Development Goals and less involvement of the National Meteorological and Hydrological Services concerned in development issues they should be engaged in. Congress therefore requested the Executive Council to consider ways of improving the advice available to the United Nations country team on weather, water and climate in each developing country.

## 7.2 FOLLOW-UP TO THE WORLD SUMMIT ON SUSTAINABLE DEVELOPMENT *(agenda item 7.2)*

### Implementation of the outcomes of World Summit on Sustainable Development

**7.2.1** Congress reiterated the commitment of WMO to the Johannesburg Declaration on Sustainable Development and the Plan of Implementation of the World Summit on Sustainable Development, held in Johannesburg, South Africa, from 26 August to 4 September 2002.

**7.2.2** Congress noted that the WMO strategy for the follow-up to the World Summit on Sustainable Development had focused on activities relating to United Nations Inter-agency Coordination, the work of the Commission on Sustainable Development and support to Members in their efforts to implement the outcomes of the Summit, in particular those related to the goals and targets contained in the United Nations Millennium Declaration, the Programme of Action for the Least Developed Countries, the Programme of Action for the Sustainable Development of Small

Island Developing States and the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters.

**7.2.3** Congress acknowledged the active role of WMO in inter-agency coordination mechanisms within the United Nations system for the implementation of the Johannesburg Plan of Implementation and other internationally agreed development goals and time-bound targets, such as UN-Water, UN-Oceans and the International Strategy for Disaster Reduction. It encouraged the Secretary-General to pursue his efforts in that regard.

**7.2.4** Considering that the thematic clusters and cross-cutting issues of the multi-year programme of work of the Commission on Sustainable Development were of high relevance to the WMO mandate and programmes, Congress requested the Secretary-General to continue to participate actively in the implementation process.

**7.2.5** Congress requested the Secretary-General to assist the National Meteorological and Hydrological Services of developing countries to contribute to the formulation and implementation of National Sustainable Development Strategies, as appropriate. In that regard, there was a need to establish partnerships with other governmental bodies, civil society and civil defence agencies, and to develop a long-term training programme for young generations.

**Follow-up to and implementation of the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States**

**7.2.6** Congress expressed its appreciation for the active participation of WMO in the International Meeting to Review the Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States, held in Mauritius from 10 to 14 January 2005, including the organization of WMO-sponsored events.

**7.2.7** Congress noted that the Secretary-General had initiated the development of a Strategic Action Plan for Small Island Developing States with the objective of enabling their National Meteorological and Hydrological Services to become active players in the sustainable development of the respective countries, especially in coping with the environmental vulnerabilities and challenges they faced.

**7.2.8** Congress further noted that WMO, through its scientific and technical Programmes and partnerships, provided advisory services and technical assistance to the National Meteorological and Hydrological Services of small island developing States, including the full implementation of the SIDS-Caribbean Project for improving Meteorological Services in the Caribbean region funded by Finland and the formulation in 2006 of a SIDS-Pacific Project on Preparedness to Climate Variability, Natural Hazards and Global Change in Small Island Developing States in the Pacific Region.

**7.2.9** Congress renewed the WMO commitment to the Mauritius Declaration and the Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States and requested Members and the Secretary-General to develop and operationalize concrete projects and programmes accordingly. In that regard, Congress urged the Secretary-General to finalize and implement the Strategic Action Plan.

**7.2.10** Congress noted with interest that, in response to requests of the United Nations General Assembly and the Executive Council, the Secretary-General had established a focal point for matters related to small island developing States within the Secretariat.

## 7.3 WMO PROGRAMME FOR THE LEAST DEVELOPED COUNTRIES *(agenda item 7.3)*

**7.3.1** Congress recalled that, in the Millennium Declaration, Heads of State pledged to address the special needs of the least developed countries and that such countries were characterized by extreme poverty that was pervasive throughout society, long-term impediments to adequate economic growth, low levels of human resources development and weak institutional capacity. That category of countries, defined on the basis of criteria established by the United Nations system, constituted the weakest segment of the international community and their economic and social development represented a major challenge for themselves as well as for the rest of the international community.

**7.3.2** Congress further recalled that in order to contribute to the implementation of the Brussels Programme of Action for the Least Developed Countries for the Decade 2001–2010, Fourteenth Congress in May 2003 had established the WMO Programme for the Least Developed Countries with the main objective of enhancing and strengthening the capacities of National Meteorological and Hydrological Services to contribute effectively and in a timely manner to the sustainable development of those countries.

**7.3.3** Congress was informed that the WMO Trust Fund for the National Meteorological and Hydrological Services of the least developed countries had been established and thanked the Members that had contributed cash and in kind. Considering that additional resources were required to enhance the capacities of the NMHSs to participate actively in the development agenda of the least developed countries, especially the Brussels Programme of Action, Congress called upon Members, bilateral and multilateral funding agencies, including the World Bank, regional development banks, non-governmental organizations and the private sector to contribute to the special WMO Trust Fund for the least developed countries.

**7.3.4** Congress acknowledged, with the Executive Council, the cross-cutting nature of the WMO Programme for the Least Developed Countries and stressed the need to adopt an integrated but country-specific strategic approach when implementing it, in particular when addressing the special needs and requirements of the National Meteorological and Hydrological Services for recognition of their contribution to poverty reduction and sustained economic growth in the respective countries.

**7.3.5** Congress noted that a Strategic Action Plan was developed for the Programme and a number of activities were carried out to provide assistance to the National Meteorological and Hydrological Services of most of the 50 least developed countries. Congress further noted that, as requested by the Executive Council and in response to a call on the United Nations system organizations, the Secretary-General had established an appropriate structure within the Secretariat as focal point for the Brussels Programme of Action for the Least Developed Countries and that WMO participated actively in regional and global meetings related to the least developed countries. It recognized that such activities would further enhance the image and increase the visibility of the Organization and contribute to raise awareness of other United Nations system agencies, governments and cooperating partners on WMO's mandate and related support to the least developed countries.

**7.3.6** Congress recalled that the Heads of State and Government adopted the Declaration of the high-level meeting of the sixty-first session of the General Assembly on the midterm comprehensive global review of the implementation of the Programme of Action for the Least Developed Countries for the Decade 2001–2010, in which they recommitted themselves to meeting the special needs of the those countries as set out in the Programme of Action and called upon the United Nations system and its agencies to continue to assist in its implementation taking into account the conclusions of the midterm comprehensive global review.

**7.3.7** Congress stressed that additional efforts were required to enhance the effectiveness of the WMO Programme for the Least Developed Countries through the implementation of specific

value-added and dedicated actions, in addition to the special attention which should continue to be given to the those countries by various scientific and technical programmes. In that regard, it referred to the implementation of the Strategic Action Plan developed in 2005 and innovative ways of mobilizing resources to address critical issues facing the National Meteorological and Hydrological Services of those countries to be of utmost importance.

**7.3.8** Congress underscored that additional resources, including the Voluntary Cooperation Programme and other extrabudgetary resources, would be required to ensure the successful implementation of the WMO Programme for the Least Developed Countries. In that connection, Congress urged Members and the Secretary-General to assist National Meteorological and Hydrological Services concerned in the following:

(a) Enhancing development and modernization plans of National Meteorological and Hydrological Services of least developed countries, including projects that were of relevance to and consistent with national development strategies and programmes and of high impact value to the relevant commitments enshrined in the Programme of Action for the Least Developed Countries for the Decade 2001–2010 and the United Nations Millennium Declaration;

(b) Demonstrating to governments, cooperating partners and various user sectors how meteorological and hydrological and related environmental information, products and services contribute to the sustainable development of the least developed countries, and the value of the relating socio-economic benefits to society, especially in the areas of poverty alleviation, disaster risk reduction, environmental protection, food security, health, energy and water resources management, and empowering women, among others;

(c) Establishing links and strategic partnerships in order to benefit from funding opportunities with regional and subregional organizations and economic groupings, United Nations country teams, cooperating partners, national development and aid funding agencies, World Bank and regional development banks, bilateral and multilateral funds, including the Least Developed Countries Fund and the Adaptation Fund under the United Nations Framework Convention on Climate Change, the Global Climate Observing System Regional Action Plans and the private sector as appropriate;

(d) Organizing innovative capacity-building activities for senior and middle level staff of National Meteorological and Hydrological Services of least developed countries, including in management, strategic planning, resource mobilization, marketing and communication;

(e) Human resources development;

(f) Project development and mobilization of internal and external resources to enhance value added service delivery.

**7.3.9** Congress further requested Members and the Secretary-General to provide, as appropriate, integrated assistance to least developed countries in the formulation and implementation of demonstration and pilot projects based on, among others, best practices and success stories in the provision and beneficial use of weather, climate and water products and services to support national and community efforts towards strengthening productive capacities, reducing vulnerability to natural disasters, protecting the environment and adaptation to climate change, as such activities would help to enhance the profile and visibility of National Meteorological and Hydrological Services of least developed countries in the development arena and attract additional political support and funding.

**7.3.10** Congress noted that the Secretary-General had successfully organized a WMO special event on Weather, Climate and Water Services for Development and Disaster Mitigation in Least

Developed Countries at United Nations Headquarters, as part of the midterm comprehensive global review of the implementation of the Programme of Action for the Least Developed Countries. It requested the Secretary-General, as appropriate, to organize similar events at the national and regional levels to assist National Meteorological and Hydrological Services of least developed countries to raise awareness among relevant stakeholders on the need to improve and sustain the delivery of weather, climate and water services, including timely advice and early warnings, to development programmes of concern to the respective countries.

**7.3.11** Congress recognized, with the Executive Council, that the WMO Programme for the Least Developed Countries offered opportunities to better position the Organization and enhance its image and role in addressing the internationally agreed development goals, including those within the Millennium Declaration. In that connection, Congress requested the Secretary-General to ensure that WMO fully participated in the activities related to the implementation and review of the Programme of Action for the Least Developed Countries at all levels, in collaboration and coordination with other United Nations system-wide agencies and cooperating partners as appropriate.

**7.3.12** Noting that the Secretary-General had taken steps towards the creation of a new consolidated WMO Country Profile Database, Congress urged Members, especially the least developed countries and small island developing States, to contribute efficiently to the implementation of the project.

**7.3.13** Congress reiterated the importance of the WMO Programme for the Least Developed Countries and emphasized the need to allocate adequate resources for its effective implementation.

## 7.4 EVOLUTION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES AND WMO *(agenda item 7.4)*

### General considerations

**7.4.1** Congress recognized that governments, the general public and in particular the different user sectors had a continuing need for specialized services and advice to understand and assess the wide ranging socio-economic effects of weather, climate and water resources. The contributions of the National Meteorological and Hydrological Services in the form of effective weather-, climate- and water-related information and services helped the users of meteorological and hydrological products in meeting up to growing and changing needs of societies. Congress emphasized the need for continuing and effective efforts to draw attention of the user communities to the unique competencies and capabilities, which existed in the National Meteorological and Hydrological Services and WMO, to provide services and information, which would enhance benefits and sustainability of those socio-economic activities impacted upon by weather, climate and water resources.

**7.4.2** With a view to sustaining and enhancing the desired relevance and responsiveness of the Organization to societal needs, Congress saw the need for keeping the role and evolution of National Meteorological and Hydrological Services and WMO under continuous review. That should result in an augmentation of their recognition and effectiveness, as important players in the overall scheme of challenges facing human society.

**7.4.3** Congress noted the broad range of important topics covered by the agenda item, and requested the Executive Council to consider separating and regrouping the issues addressed so as to carry out its work in the most effective manner.

## Role and operation of National Meteorological and Hydrological Services

### *Statements on the Role and Operation of National Meteorological and Hydrological Services for Decision Makers and for Directors*

**7.4.4** Congress welcomed the Statement on the Role and Operation of NMHSs for Decision Makers, which was developed and adopted by the Executive Council at its fifty-seventh session in 2005. It encouraged Members to continue promoting the use of that statement in support of policy development and implementation. To ensure consistency and effectiveness, it emphasized the need to ensure that other outreach materials were not at variance with the content and philosophy of that statement. Congress urged the Secretary-General to proceed with development and publication of a complementary statement on the role and operation of National Meteorological and Hydrological Services for Directors, which was expected to be particularly helpful for the Directors of National Meteorological and Hydrological Services in working with government agencies and the user sectors. Congress agreed that the approach taken by the Executive Council at its fifty-eighth session in 2006 for the development of the Council statement for Directors could also be used as a basis for further discussions with decision makers, and requested the Council to further pursue the matter. In furtherance of the promotion of the role and operation of National Meteorological and Hydrological Services at the policy level, Congress requested the Executive Council to look into the possibility of organizing regional conferences of ministers responsible for meteorology.

### *Questionnaires relating to the role and operation of National Meteorological and Hydrological Services*

**7.4.5** Congress noted that the Secretary-General was developing a questionnaire on the status and trends of the role and operation of National Meteorological and Hydrological Services to be addressed to them, and a complementary one to be addressed through them to users of meteorological and hydrological services and information. It advised that the questionnaires should be designed to help improve the development of the strategic goals of the Organization and assist National Meteorological and Hydrological Services in enhancing weather-, water- and climate-related services and activities in support of the various user sectors.

### *National Hydrological Services*

**7.4.6** Congress reiterated that there was a need to further enhance the role of National Hydrological Services in the framework of WMO. That should include, inter alia, facilitating closer cooperation between National Meteorological Services and National Hydrological Services in countries where the services were separated (about 90 per cent of the cases).

**7.4.7** Congress recognized that there were a number of similarities and common methodologies in the activities undertaken by both Services. It recommended that those similarities should be highlighted and used as a basis for developing activities that would enhance closer working relationship between the Services for delivering better services. Congress noted that such a close collaboration was, for example, recognized and supported in some countries through the Strategy and Action Plan for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting.

**7.4.8** Congress noted that Integrated Water Resources Management at the national level and across international river basins would take advantage of fostering closer collaboration between Hydrological and Meteorological Services as both Services were involved in Integrated Water Resources Management. At the national level, it was important for the National Meteorological Services to develop partnerships with the user groups such as water, agriculture, development, transport and disasters. Hence, Congress encouraged regular interaction with water sector users and to advise them on water and hydrologic issues.

**7.4.9** Congress recommended that the various guidelines being published by WMO should include encouragement for the Meteorological and Hydrological Services to work in closer collaboration. The guidance should also include further explanation on the role of Permanent Representatives with WMO and Hydrological Advisers in connection with the activities of NMSs and NHSs (referring to Regulation 6 of the WMO General Regulations, for instance).

**7.4.10** In the light of its consideration of the wide range of issues associated with the role and operation of National Meteorological and Hydrological Services and its conclusion that those should be further pursued as a matter of great importance by the Executive Council, Congress adopted Resolution 29 (Cg-XV) – Evolution of National Meteorological and Hydrological Services and WMO.

**Towards Enhanced Integration between the WMO Observing Systems**

***Introduction***

**7.4.11** Congress recalled that one of the objectives of the WMO Space Programme as adopted in the Sixth WMO Long-term Plan was to review the space-based components of the various observation systems throughout WMO and WMO-supported programmes with a view towards the development of an integrated WMO global observation system that would encompass all existing WMO observation systems. Congress also recalled that the Executive Council had concluded that the enhanced integration between the WMO observation systems should be pursued as a strategic objective of WMO and proposed it as one of the 11 major expected results for the fifteenth financial period (2008–2011) as reflected in the WMO Strategic Plan, WMO Secretariat Operating Plan and the Results-based Budget. Congress noted that by its Resolution 13 (EC-LVIII), the Executive Council at its fifty-eighth session in 2006 had established the Executive Council Task Team on the Integration of WMO Observation Systems[4] and charged it with developing a report to the present session of Congress on the subject. That report should facilitate decision-making by Congress on the range and depth of the integration and how it should be pursued, and should take full account of the technical characteristics, policy and governance aspects of all relevant observation systems.

**7.4.12** Congress received with appreciation the report by the chairperson of the Task Team, Mr M. Capaldo (Italy). Congress was pleased to note that the Task Team acknowledged the outstanding contributions provided by all WMO Members, operating at times under very difficult circumstances, in implementing and maintaining the many observing systems that supported the WMO scientific and technical programmes and that were the fundamental backbone of the wide range of services and scientific research carried out by Members and the international community.

***Integration***

**7.4.13** Congress agreed that integration in the context of WMO global observing systems should be defined as establishment of a comprehensive, coordinated and sustainable system of observing systems, ensuring interoperability between its component systems, and aiming to:

(a) Address in the most cost-effective way all of the WMO Programme requirements with a view to reducing the financial load on Members and maximizing administrative and operational efficiencies;

(b) Ensure the availability of the required information produced within the various WMO observing systems, for example the Global Observing System and the Global

4 The Task Team was comprised of two members of the Executive Council and the presidents of the WMO technical commissions including the Joint WMO/IOC Commission for Oceanography and Marine Meteorology; it included also representatives from the Steering Committees for the Global Climate Observing System and the Global Ocean Observing System, the Joint Scientific Committee of the World Climate Research Programme, and space agencies of China and the United States, who attended as invited participants.

Atmosphere Watch, and the WMO components of co-sponsored systems, for example the Global Climate Observing System and the Global Ocean Observing System, with particular emphasis on information generated by satellite, radar, wind profilers, aircraft systems, Array for Real-time Geostrophic Oceanography (ARGO), and other new technology systems;

(c) Facilitate the access, in real/quasi-real time, to observations required for WMO and WMO co-sponsored programmes and relevant international conventions, but which were generated by systems implemented and managed by cooperating agencies, organizations and programmes;

(d) Ensure required data quality standards were met and sustained for all programme requirements;

(e) Facilitate archiving and technological innovation.

**7.4.14** Congress envisaged that the integration process should encompass four broad objectives, as follows:

(a) Improving management and governance (use of resources, planning, institutional and programme structures, and monitoring);

(b) Increasing interoperability between the various systems with particular attention given to the complementarity between the space-based and in situ components of the systems;

(c) Addressing the domains (atmospheric, oceanic and terrestrial including hydrological) as a comprehensive total system;

(d) Ensuring that broader governance frameworks, for example inter-agency co-sponsorship of systems, and relationships with other international initiatives, for example the Group on Earth Observations, were respected, sustained and strengthened.

***General considerations and recommendations***

**7.4.15** Congress emphasized that working towards enhancing integration between the WMO global observing systems should proceed in parallel with the planning and implementation of the WMO Information System. The combination of both efforts would allow for an integrated WMO end-to-end system of systems designed to improve the capability of Members to effectively provide a widening range of services and to better serve research programme requirements. Congress noted that the parallel development would have an impact on the structure and functions of WMO, including aspects of the following:

(a) WMO Technical Regulations;

(b) Data policy;

(c) The roles, terms of reference and working arrangements of the technical commissions;

(d) The WMO programme structure;

(e) The WMO Secretariat.

**7.4.16** Congress further noted that the networks and subsystems that comprised the World Weather Watch Global Observing System and that focused primarily on the observations required

to support the provision of weather services would naturally be a major component of the future integration. In addition, there were many observing systems that had developed over the years, often initially as research stations or arrays of sensors supporting broader environmental and/or research applications, but which had matured beyond the experimental stage and had reached a more operational status in response to a scientific or service requirement. The integration process should ensure the continued partnership and participation of the bodies responsible for those observing systems, including the World Data Centres, as they became part of an integrated system of systems with sustained sense of ownership.

**7.4.17** Congress appreciated that integration would offer the opportunity for including hydrological networks in that process, thus allowing WMO to more effectively respond to climatological requirements as expressed, for example, through the Global Climate Observing System implementation plan, and to contribute to the broader environmental concerns regarding global freshwater resources.

**7.4.18** Congress emphasized that the integration should be undertaken to accommodate the diversity among Members with respect to their capabilities and needs. An objective of the integration initiative should be to plan for adequate guidance material, training programmes and focused technical assistance projects to ensure that all Members benefited from the effort.

**7.4.19** Congress noted that the growing multidisciplinary applications of observations from the various individual component systems often placed more stringent requirements on the accuracy and resolution of the instruments and sensors, and often required adjustments in the operation of the networks and arrays and the sharing of information. The integration process would allow those data quality issues to be addressed in a comprehensive coordinated way.

**7.4.20** The increasing reliance on space-based observations in virtually all application areas placed a growing emphasis on the long-term quality, continuity and homogeneity of the data from multiple satellite operators. Research or experimental satellite-borne sensors often provided crucial data for applications and services; that was especially the case for ocean observations. Therefore, Congress expected that the integration of the WMO observing systems would provide a mechanism for assembling, and continually updating, a coherent and integrated set of requirements for the satellite operators and fostering more effective integration of satellite and in situ observations.

**7.4.21** Congress emphasized the crucially important role played by the WMO regional associations in the implementation of observing systems. While the integration might have a positive impact on them through the consolidation of individual systems into a single observational focus, thereby reducing the complexity of global programme support structures and activities, the important regional implementation role of the regional associations would be mandated and strengthened.

***Benefits and challenges***

**7.4.22** Congress noted that potential benefits of the integration to the Organization and to Members themselves would fall into four categories, as follows:

(a) Improved services;

(b) Increased quality and access to observations;

(c) More efficient use of resources;

(d) Better preparedness to incorporate new observing systems and to interface with non-WMO systems.

**7.4.23** Congress also identified potential risks and challenges associated with embarking upon enhancing the integration between the WMO observing systems, which included the following:

(a) The cross-cutting nature of the overall project would require unprecedented cooperation and coordination efforts by all concerned;

(b) Time would be a critical risk factor. The development of a detailed, comprehensive Implementation Plan and the elaboration of meaningful Pilot Projects needed to be addressed early in the period;

(c) Effective and constructive coordination and collaboration with co-sponsoring and cooperating Organizations was a sensitive issue that must be carefully undertaken to avoid misunderstandings.

***Policy and governance***

**7.4.24** Congress joined the view of the Executive Council in assessing the integration as a complex undertaking, which would comprise policy as well as technical issues, stretch over several years, and would require the full support of all Members to be successful. The integration would actively involve and eventually depend on the consensus inputs from the technical commissions, regional associations and the Steering Committees of the Global Climate Observing System, Global Ocean Observing System, Global Terrestrial Observing System and the Joint Scientific Committee of the World Climate Research Programme. It would require the approval of the Council, and eventually of Congress, for major phases.

**7.4.25** Congress agreed to invite the Council to establish an overview mechanism to steer and monitor the activity and to achieve the broadest possible collaboration and cooperation. It proposed the establishment of an Executive Council working group or similar body with membership comprising representatives of the principal bodies concerned and also the participation, as appropriate, of technical experts and representatives of agencies undertaking co-sponsored observing initiatives. That body should ensure that the planning for the complex undertaking was meeting its objectives and stayed on target. That mechanism should be closely coupled with the institutional arrangements for planning and overseeing the WMO Information System.

**7.4.26** Congress stressed the significance of cross-cutting coordination and collaboration among the technical commissions and regional associations, and agreed that steps be taken to ensure that the programme-wide nature of integration initiative would be accommodated in the work programmes.

***Roadmap***

**7.4.27** Congress agreed that planning and implementation of the integration process should proceed in phases defined by the annual meetings of the Executive Council in order to assure oversight, review and direction. The process foreseen was one where planning and implementation of an integrated WMO observing system and of the WMO Information System would culminate with the adoption by Sixteenth Congress in 2011 of improvements towards strengthening the WMO programme structure and the system of technical commissions, which would be positioned to extend the benefits of the integration into the service and application components of the overall WMO Programmes at both the national and international levels.

**7.4.28** Congress agreed further that the integration process would centre initially upon the preparation of an over-arching Development and Implementation Plan. The plan should be kept up to date through a “rolling review” mechanism. It should also serve as the source of information on the integration initiative for all Members and in particular the developing countries. Several “pilot projects”, as proposed by the Executive Council Task Team, should be designed to test concepts,

identify problem areas and to help in elaborating the Plan. Possible candidate pilot projects included the following:

(a) Integration of the World Weather Watch Global Observing System and the Global Atmosphere Watch;

(b) Initiation of a Global Hydrologic network addressing a Global Climate Observing System requirement;

(c) Elaborating the underpinning/cross-cutting role and responsibilities of the Instruments and Methods of Observation Programme;

(d) Integration of aircraft meteorological data relay into the WMO global observing systems;

(e) Integration of marine meteorological and other appropriate oceanic observations into the WMO global observing systems.

**7.4.29** In conclusion, Congress stressed that enhanced integration between the WMO observing systems was expected to generate important benefits for Members, their National Meteorological and Hydrological Services and for the Organization as a whole. It would also be an important element in the efforts towards a cross-cutting approach on topics of interest to the Organization. With reference to expected results 4 (Integration of WMO observing systems) and 5 (Development and implementation of the new WMO Information System) given in the WMO Strategic Plan, Congress agreed to refer to that initiative by the acronym WIGOS (WMO Integrated Global Observing System). It placed a high priority on the endeavour and adopted Resolution 30 (Cg-XV) – Towards enhanced integration between WMO observing systems.

**WMO Quality Management Framework**

**7.4.30** Congress appreciated that a number of guidance documents addressing quality management and the implementation of quality management systems had been developed and made available to Members. Congress expressed its thanks to the Members, who had provided material for those guidance documents and shared expertise with others. It encouraged Members who were planning to, or in the process of implementing, a quality management system (QMS) to make best use of those documents to reduce their development costs and to benefit from the expertise gained by other Members. In that regard, Congress encouraged Members to collaborate with one another and share expertise. Congress recognized the need for further training on quality management, in particular for least developed countries and possibly using the Voluntary Cooperation Programme. Congress also noted the need for additional information material addressing other aspects of the implementation of QMSs in National Meteorological and Hydrological Services. Congress encouraged Members who had completed the implementation of a QMS to host and/or give lectures at training seminars and to invite quality management trainees into their Services to better understand how successful QMS were implemented. Congress welcomed the offer by several Members to provide support for training activities.

**7.4.31** Congress recognized the benefit that could be gained by the implementation of quality management systems by National Meteorological and Hydrological Services, including the use of approaches such as knowledge management and a balanced scorecard, and therefore encouraged the Services to implement quality management systems. However, Congress also recognized that NMHSs had to face a number of national and regional regulations and that the implementation of a QMS was customer-driven and country-specific. Congress recognized that NMHSs might choose to pursue full or partial certification of activities covered by their QMS and could opt for a statement of conformity, although it would not offer the full international recognition that was only achievable through authorized third party certification. In order to reflect its view on the matter, Congress adopted Resolution 31 (Cg-XV) – Implementation of quality management systems by National Meteorological and Hydrological Services.

**7.4.32** Congress supported the view of the Executive Council that the WMO Quality Management Framework should not only address the implementation of quality management systems by its Members, but also provide an overall strategy for WMO, which should cover all relevant WMO technical programme activities related to the delivery of products, data and services.

**7.4.33** Congress noted with appreciation the increased quality management approach of the WMO Secretariat with regard to information technology support and requested that in future key indicators of service quality such as availability of services and response time to users be published in accordance with quality management procedures.

**7.4.34** Based on the recommendation of the Executive Council at its fifty-eighth session in 2006 that quality management needed to be put at the highest level of the WMO technical publications, the Congress agreed that a dedicated volume of the Technical Regulations (Volume IV, "Quality Management") needed to be developed. That volume should be generic and describe the WMO Quality Management Framework as a coordinated approach to the delivery of meteorological, climatological, hydrological, marine and related environmental data, products and services and could include, among other items, the WMO quality policy, the quality management principles, the roles of the WMO constituent bodies, harmonized approaches to quality management among the technical commissions and capacity-building. Congress noted that appropriate financial resources would be necessary for the development of Volume IV and that there was a need to designate an accountable authority that would be responsible to keep it up to date.

**7.4.35** Congress greatly appreciated the work that had been carried out by the Inter-Commission Task Team on Quality Management Framework in view of developing the overall WMO QMF and agreed with the recommendation of the Task Team and of the presidents of technical commissions that a coordination mechanism similar to the Task Team needed to be kept in place to ensure harmonized developments across the technical commissions and, in particular, to develop Volume IV of the Technical Regulations.

**7.4.36** Congress noted that activities toward the establishment of a working arrangement with the International Organization for Standardization had taken place, including several consultations between representatives of the ISO and WMO secretariats, consultation of the presidents of technical commissions on the publication policy for the joint standards and drafting of the arrangement. It expressed concern that the development of the arrangement could not be completed for presentation to Fifteenth Congress, as had been requested by the Executive Council at its fifty-eighth session. Congress requested the Secretariat to complete the development of the arrangement as a matter of urgency and recorded its view on the approval procedure of the arrangement under agenda item 9.1.

**7.4.37** Congress highlighted the importance of strengthening the international recognition of WMO standards, including WMO regulatory documents, as it was of utmost importance that they were widely recognized and used as reference standards, for example, in the context of the required certification of providers of air navigation services under the Single European Sky and elsewhere in the world.

**7.4.38** In the light of the above, Congress decided to adopt Resolution 32 (Cg-XV) – WMO Quality Management Framework.

**Social and Economic Benefits of National Meteorological and Hydrological Services**

**7.4.39** Congress emphasized the importance of addressing the social and economic benefits resulting from the provision of meteorological, hydrological and related services. Congress recalled that in response to its request, the Executive Council had decided that WMO should organize a conference on social and economic benefits of meteorological and hydrological services. In that connection, it expressed its satisfaction that the conference, entitled Secure and Sustainable

Living: Social and Economic Benefits of Weather, Climate and Water Services, held in Madrid, Spain, from 19 to 22 March 2007, had been organized with significant support from the Ministry of Environment and the collaboration and assistance from the National Meteorological Institute of Spain. It had been held under the gracious patronage of Her Majesty Queen Sofía. Congress expressed its appreciation to the Government of Spain for the important support provided and the generous hosting of the landmark event.

**7.4.40** The purpose of the Conference was to contribute to secure and sustainable living for all the peoples of the world by evaluating and demonstrating, and thence ultimately enhancing, the social and economic benefits of weather, climate and water services. Congress observed that, in that regard, the Conference, inter alia, sought to assemble authoritative feedback from the users of those services.

**7.4.41** The Conference reviewed a range of sector-specific decision-making techniques and case studies of increased use of weather, climate and water information and services leading to improved decisions and outcomes in the key socio-economic sectoral groupings. Congress agreed with the conclusion of the Conference that it was necessary to further develop and strengthen techniques and methods to increase the utility and the socio-economic benefits of services provided by National Meteorological and Hydrological Services in all user sectors.

**7.4.42** Recognizing the essence of partnership in ensuring improved decision-making and delivery of social and economic benefits, Congress stressed the need for much closer dialogue, partnerships and multidisciplinary understanding between providers and users of weather, climate and water services. In that connection, Congress noted that the National Meteorological and Hydrological Services provided the information and advisory services in many countries in partnership with academic and private sector service providers.

**7.4.43** Congress stressed that the main role of National Meteorological and Hydrological Services continued to be the provision of information and services, which enabled governments and other stakeholders to minimize the losses caused by natural disasters, protect and strengthen the weather-, climate- and water-sensitive sectors of the economy, and contribute to the health, welfare and quality of life of their citizens. The successful fulfilment of that role depended largely on the operation of the national meteorological and hydrological observation, telecommunication and data-processing infrastructure.

**7.4.44** Congress noted that the need for modernization of the infrastructure used by the National Meteorological and Hydrological Services would be better shared by governments and donors if it were demonstrated how improved infrastructure would lead to improved services, which in turn reduced the risk from natural disasters. In that context, Congress recommended that for the implementation of relevant aspects of the Madrid Action Plan suitable indicators be developed. Such indicators might include the following:

- Weather and climate-related hazard mapping;
- Indicators of frequency and severity of extreme weather and climate-related events and associated risks;
- National economic and social indicators connected with climate change.

**7.4.45** In underscoring the necessity of ensuring successful follow-up actions, Congress encouraged National Meteorological and Hydrological Services to take the initiative at the national level, through outreach workshops and in other ways, to establish improved consultation and partnership arrangements with their major user community groups and other stakeholders. With reference to Resolution 29 (Cg-XV) – Evolution of National Meteorological and Hydrological Services and WMO, and in order to ensure the necessary sustained follow-up action to the Conference, Congress noted the content of the Madrid Action Plan and requested the Secretary-General to use it (see Annex III to the present report) as a basis for developing a follow-up implementation plan to the Conference, taking into consideration other regional initiatives.

Congress further requested the Executive Council to provide directives and advice on the implementation of the Plan. Congress noted that the Secretariat has already taken action towards developing the implementation plan of the Madrid Action Plan, thereby commencing activities. Congress requested the Secretary-General to allocate adequate resources for implementing the Madrid Action Plan, within the approved budget for the fifteenth financial period, as well as from extrabudgetary sources.

**7.4.46** Congress further requested the Executive Council to put in place an appropriate mechanism for ensuring effective follow-up of the outcomes and recommendations arising from the conference. That would ensure that in carrying out the activities arising from those recommendations, adequate effort was made to ensure the involvement of wide-ranging partners at the international and national levels.

**Evolution of WMO**

***Role and contribution of WMO in support of governance***

**7.4.47** Progress in improving the quality, timeliness and utility of weather, climate, water and related environmental predictions and assessments had been made possible by the cooperation of all nations. However, the advancing socio-economic progress had made societies increasingly sensitive and vulnerable to weather, climate and hydrological phenomena. In recognition, governments had responded by aligning national development targets with national recurrent and development needs, in particular, those related to internationally agreed development goals. In that regard, Congress reaffirmed the necessity for WMO to do more in terms of assisting governments to cope with current and future challenges. It would therefore be necessary to reposition WMO so that it could further strengthen the capabilities of the National Meteorological and Hydrological Services as part of a consortium of essential arms of their respective government institutions tasked with the responsibility of advancing socio-economic and development challenges at the national and international levels.

**7.4.48** WMO had indeed been contributing to development initiatives in the United Nations system, especially through collaboration with partner organizations in specific development-related undertakings. In that connection, Congress noted with satisfaction that WMO was recognized as an important player in the system with respect to development-related activities. To sustain and improve its status in that respect, WMO should intensify efforts through continued and timely deployment of its resources in support of multilateral initiatives. It would also be necessary to ensure that the situation continued at the national level through participation by National Meteorological and Hydrological Services in the United Nations country team efforts and in appropriate multilateral initiatives.

**7.4.49** Congress realized that, in order to be fully effective in those efforts, WMO must intensify and broaden collaboration with social scientists, development planners, user sectors and the media so as to enhance the understanding and appreciation of the weather-, climate- and water-related information provided by the National Meteorological and Hydrological Services.

***Partnerships***

**7.4.50** Congress noted that in the light of the diversity of the work of WMO, it was important to enhance and focus cooperation with strategic partners, according to WMO strategic goals relating to the Organization's visibility, development and sustainability of National Meteorological and Hydrological Services and resource mobilization. Enhancement of the level of partnership was seen as crucial, especially with respect to efforts for bridging the gap between the level of services provided by National Meteorological and Hydrological Services in developed and developing countries alike. Congress further noted the need to take into account the wide range of circumstances of Members, and in particular the capabilities of their National Meteorological and Hydrological Services. That would especially be relevant with respect to further promotion of

partnerships between multilateral financial institutions, regional development banks, as well as intergovernmental groupings and economic integration communities. It would also be necessary to promote partnerships between countries, to optimize international assistance, as well as pooling of human and material resources to enhance capabilities of National Meteorological and Hydrological Services.

**7.4.51** Congress requested the Secretary-General to analyse in-depth experiences, best practices and lessons learned so far by WMO and National Meteorological and Hydrological Services, and develop proposals on specific further targets, workplans and activities that should be undertaken. That could include selecting successful examples of partnerships and using them as demonstration and showcases to promote and enhance cooperation and collaboration at the national and international levels.

***Communication and advocacy***

**7.4.52** Communication and advocacy were seen as crucial in enhancing the role and recognition of WMO, as they were in promoting more effective uses of services provided by National Meteorological and Hydrological Services. The effectiveness of those important efforts should be augmented by focusing efforts on generating stronger support at the political level, as well as from the general public. Congress noted that a clear strategy on communication and advocacy was an essential part of an overall strategy for the Organization.

**7.4.53** Congress expressed a continuing need for WMO to work on enhancing the capability of National Meteorological and Hydrological Services in the areas of communication and advocacy. Areas deserving attention included public outreach campaigns, raising awareness about new and emerging issues, disseminating of user-focused information materials, capacity-building in the form of training of weather presenters, and coordinated cooperation among National Meteorological and Hydrological Services with regard to public outreach.

**Functioning and linkage of WMO constituent bodies**

**7.4.54** Congress stressed the need to ensure that the structure and mode of operation of the Organization, including the functioning of and linkage between the constituent bodies, were well coordinated, effective and efficient in support of the Strategic Plan of the Organization. It referred in that connection to possible impacts the development and implementation of the integration of the WMO observing systems and the WMO Information System might have on the role and work programmes of the constituent bodies.

***WMO Bureau***

**7.4.55** Congress recalled the practice since Second Congress (1955) of an informal arrangement whereby a short meeting was convened by the President, initially before each session of the Executive Council, and later, between sessions of the Council, to organize and coordinate its work, review the progress in implementation of decisions and to consider any development calling for prompt attention. Those informal meetings were identified as meetings of the “Bureau”, which comprised the President, the Vice-Presidents and the Secretary-General. Congress also recalled that Ninth Congress (1983) decided not to institutionalize the Bureau and that the role and composition of the Bureau should continue in a similar fashion, with the function of organization and coordination of the work of Congress and the Executive Council. Congress further recalled that Fourteenth Congress (2003) authorized the President to make use of the Bureau during the fourteenth financial period in line with the decisions of Ninth Congress, and requested the Executive Council to take into account its views on the role, composition and operation of the Bureau in a comprehensive review of the structure and operation of the Organization.

**7.4.56** Congress acknowledged that the Bureau, having addressed in detail the organizational aspects, decisions and guidance of the Executive Council, had facilitated the more efficient preparation and conduct of the sessions of Congress and the Executive Council. Congress took into account the recommendation of the Executive Council in 2006 at its fifty-eighth session of the and agreed that the Bureau should continue as an informal consultative mechanism with primary, though not exclusive, focus on the preparation of sessions of the Executive Council and Congress. It should function in a highly transparent manner and its deliberations should be communicated to Members. In that connection, Congress endorsed the terms of reference of the Bureau as provided in Annex IV to the present report.

***Subsidiary bodies of the Executive Council***

**7.4.57** Congress reaffirmed that members of the Executive Council should become actively involved and participate in the work of the Council through its subsidiary bodies. It recommended the greater use of Council Task Teams charged with specific tasks over a more limited time frame, in place of, or at least complementary to, the Council "standing" working or advisory groups. It further agreed that Council subsidiary bodies could avail themselves of expertise from outside the Council.

**7.4.58** Congress requested the Council to address urgently the matter of replacement of Council members, in the Council itself and its subsidiary bodies. In particular, the Council should ensure that the time needed to have replacements should be shortened so as to enhance its effectiveness.

***Volunteerism in the work of technical commissions and regional associations***

**7.4.59** Congress agreed with the fifty-eighth session of the Executive Council that in seeking nomination for membership in technical commission and regional association subsidiary bodies (rapporteurs, working groups, Open Programme Area Groups, expert teams), especially prior to a constituent body session, the procedure should ensure that the commitment of the Permanent Representatives with WMO and the proposed experts were confirmed, as well as the availability of the professional profile, through a brief curriculum vitae, of the latter, to help ascertain their specific expertise. That would also ensure that the particular expert was aware of the nomination and had expressed his or her commitment to serve, if so selected. The identification of such national experts need not be limited to National Meteorological and Hydrological Services only.

**7.4.60** Congress further agreed that the presidents of technical commissions and regional associations be invited to provide their recommendations on how the situation on the increasing difficulty in obtaining appropriate national experts could be improved, including proposals for recognizing the valuable contribution of those national experts. In that connection, they were also encouraged to analyse the situation with respect to the performance of their subsidiary bodies as a way of identifying areas of concern on which recommendations might be proposed.

**Increased transparency and involvement of Members in governance issues of WMO between Congresses**

**7.4.61** Congress noted with appreciation the proposal for greater transparency and involvement of Members in governance issues of WMO between Congresses made by Angola, Australia, Austria, Belgium, Canada, Costa Rica, the Czech Republic, Egypt, El Salvador, Finland, Iceland, Italy, Latvia, Lithuania, Mexico, Norway, Poland, the Republic of Korea, Slovakia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and Uruguay.

**7.4.62** Congress considered all aspects relating to the proposal and approved Resolution 33 (Cg-XV) — Increased transparency and involvement of Members in governance issues of WMO between Congresses.

## 7.5 EQUAL OPPORTUNITIES FOR THE PARTICIPATION OF WOMEN IN METEOROLOGY AND HYDROLOGY *(agenda item 7.5)*

### Gender Mainstreaming

**7.5.1** During Fourteenth Congress (2003) Members reviewed the progress made in promoting equal opportunities for women in meteorology and hydrology through two international conferences, in 1997 and 2003, and two global surveys. Members proposed a number of positive actions that would improve the opportunities for and careers of women throughout WMO and noted an urgent need for implementation of gender mainstreaming analysis and measures, for continued monitoring of progress, and for a third conference to review progress.

**7.5.2** In view of substantial analyses and recommendations achieved at the two earlier conferences, it was decided to organize a third event with a limited number of experts from all regions to develop a policy on gender mainstreaming and an implementation plan.

**7.5.3** Congress noted with satisfaction that the Expert Meeting on Gender Mainstreaming had been held successfully at WMO Headquarters in Geneva from 26 to 29 March 2007. Congress expressed its gratitude to the 43 participants, the majority of whom had been designated as gender focal points by National Meteorological and Hydrological Services, regional associations or technical commissions for drafting the WMO Policy on Gender Mainstreaming for approval by Congress, as well as an outline of an implementation plan. It noted that the policy would be vital to WMO in the development of tools for use by National Meteorological and Hydrological Services in their gender mainstreaming efforts. Congress expressed appreciation to the United States for the generous contribution towards financing the Meeting. The meeting benefited from the advice provided by the gender mainstreaming experts from the International Labour Organization, the World Intellectual Property Organization, the International Organization for Migration and the Office of the United Nations High Commissioner for Human Rights.

**7.5.4** Congress noted that the WMO Policy on Gender Mainstreaming had proposed the adoption of a mechanism to implement gender mainstreaming at all levels in WMO. In that regard, Congress reiterated to the Executive Council its desire for the establishment of an Advisory Panel of experts on gender mainstreaming and also requested the Secretary-General to establish, within the approved budget, a gender mainstreaming expert position within the Secretariat to assist with the implementation of the gender mainstreaming policy within the Secretariat and by Members, technical commissions and regional associations and monitor and evaluate progress. In that connection, Congress urged Members to second qualified experts from their Services to the WMO Secretariat to further assist in the implementation of the gender mainstreaming policy.

**7.5.5** Congress reiterated its strong support to the appeal by the Secretary-General to governments and Directors of National Meteorological and Hydrological Services to take urgent and positive action to improve gender mainstreaming in their national Services. Noting that gender issues had underlying implications in all strategic activities of Members, Congress advised that equal opportunities in recruitment, retention and promotion at all levels of the national Services and in delivery of environmental services would benefit the science, NMHSs and society in general, and that encouraging girls and young women to study scientific and technical subjects at the secondary and tertiary levels could help greatly to redress the current imbalance.

**7.5.6** Noting that the Secretariat had dedicated a website to gender mainstreaming, Congress reaffirmed its call for NMHSs to likewise dedicate a part of their websites to gender mainstreaming, promoting networking and highlighting the contributions of staff in order to promote meteorology and hydrology as attractive careers. Furthermore, Congress called on the Heads of National Meteorological and Hydrological Services to support the activities of national gender focal points.

**7.5.7** Congress encouraged Members to provide equal opportunities in the selection of candidates as members, experts and rapporteurs in WMO constituent bodies and also for training and educational opportunities.

**7.5.8** Congress further discussed and approved the WMO Policy on Gender Mainstreaming. In that connection, Congress adopted Resolution 34 (Cg-XV) – Gender mainstreaming.

## 8. PROGRAMME AND BUDGET *(agenda item 8)*

### Budget proposal for the fifteenth financial period (2008–2011)

**8.1** Congress considered the budget proposal from the Secretary-General for the fifteenth financial period (2008–2011). Congress noted that the budgetary proposals for the fifteenth financial period were derived from the draft WMO Strategic Plan in accordance with the guidance provided by the Executive Council at its fifty-eighth session in 2006. Members expressed appreciation for the new results-based budget format and the integrated resource presentation covering assessed contributions, other regular resources and voluntary resources. Many Members expressed their concern about the negative impact on all areas of WMO activities that would be caused by a budget below the zero real growth level for assessed contributions. Others noted that WMO had been able to carry out the requested activities under budget for the previous two financial periods.

**8.2** After discussion, Congress approved a budget of CHF 269 800 000, of which CHF 249 800 000 would be from the assessed contributions and the balance of CHF 20 000 000 from other regular resources and adopted Resolution 35 (Cg-XV) – Maximum expenditure for the fifteenth financial period (2008–2011). Under the present agenda item, Congress decided on the broad expenditure levels for various expected results. 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.

**8.3** Congress decided that the starting point for the assessed contributions budget level for the sixteenth financial period would be CHF 249 800 000.

**8.4** Congress agreed to suspend Financial Regulation 9.1 during the fifteenth financial period only, with respect to the distribution of surplus up to CHF 12 000 000 that might result from the fourteenth financial period, and requested members of the Executive Council to allocate such surplus to additional initiatives, shown in Annex 3 to Resolution 35 (Cg-XV) as guidance, which would be completed within the fifteenth financial period in the most cost-effective and efficient manner.

## 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 noted with appreciation that the Organization had participated in the preparations and deliberations of a number of international summits and conferences convened by the United Nations, in particular the World Summit (New York, 2005), the World Summit on the Information Society (Geneva, 2003; Tunis, 2005), the second World Conference on Disaster Reduction (Kobe, 2005) and its outcome Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters, the Third International Conference on Early Warning (Bonn, 2006), the Fourth World Water Forum (Mexico, 2006), the high-level meeting on the midterm comprehensive global review of the implementation of the Programme of Action for the Least Developed Countries for the Decade 2001–2010 (New York, 2006), as well as the

regular sessions of the United Nations General Assembly, the Commission on Sustainable Development, the United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification. In that connection, Congress noted the arrangements made for follow-up actions to the above events. Congress welcomed WMO involvement in such activities and requested the Secretary-General to contribute, as far as possible, to the implementation of the programmes for action and to the relevant resolutions or decisions adopted by such summits and conferences of relevance to the work of the Organization.

**9.1.2** Congress also noted that WMO had participated actively in the activities associated with the inter-agency coordination of programmes through the United Nations Chief Executives Board for Coordination. It agreed that the Organization should continue to be deeply involved in the work of the Board and its subsidiary machinery.

**9.1.3** Congress noted that the cooperation with the International Civil Aviation Organization was addressed under agenda item 3.4.3 related to the Aeronautical Meteorology Programme.

**Resolutions addressed to specialized agencies by the United Nations**

**9.1.4** Congress took note of the action taken by WMO in response to the resolutions and recommendations of the United Nations General Assembly directly related to the WMO Programmes. The Secretary-General was requested to continue cooperating in those areas with the United Nations. Congress also took note of those other resolutions and 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.

**9.1.5** Congress took note of the following resolutions addressed to the specialized agencies, including WMO, by the sixty-first session of the United Nations General Assembly:

1, 2, 3, 6, 16, 29, 54, 63, 109, 110, 111, 131, 132, 138, 141, 145, 186, 192, 193, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 207, 208, 211, 213, 222

**9.1.6** Congress requested Members and the Secretary-General to ensure appropriate follow-up to those resolutions. In that context, Congress noted with appreciation the circular letters sent by the Secretary-General to Members informing them of the major outcomes of the United Nations General Assembly that were of direct relevance to WMO. Congress encouraged the Secretary-General to inform Members of any additional information that might facilitate mainstreaming of the activities of National Meteorological and Hydrological Services in the relevant national implementation action plans.

**Follow-up to the 2005 World Summit**

**9.1.7** Congress noted that the principal decisions on climate change, natural disasters and other important issues contained in the 2005 World Summit Outcome were closely related to the mandate of the Organization. Congress also noted that in order to maximize contributions to the implementation of the Summit Outcome in areas falling under the responsibility of WMO and National Meteorological and Hydrological Services, relevant WMO programme activities and action plans should be reflected appropriately in the Summit Outcome for ease of tracking and follow-up.

**9.1.8** Congress recognized that advances in the implementation of the Summit Outcome would require coordination of the positions that countries took in the United Nations system's governing bodies. While that was largely in the hands of Member States, the Secretary-General was invited to support the process through continuous active participation in inter-agency activities, by raising the awareness on WMO expertise and sharing knowledge across the system.

**9.1.9** Congress invited the Members to participate actively in relevant follow-up to the 2005 World Summit Outcome in order to enhance the contribution of WMO as well as National Meteorological and Hydrological Services to the sustainable development of Members and to the implementation of the internationally agreed development goals.

**United Nations inter-agency cooperation**

**9.1.10** Congress noted with appreciation the proactive and fruitful work of the Organization in the area of environment, coordinated through the United Nations Environment Management Group, which had resulted in substantial input to the thirteenth, fourteenth and fifteenth sessions of the Commission on Sustainable Development. The sessions focused on water, energy, industrial development, air pollution/atmosphere and climate change for sustainable development. Congress also noted with satisfaction the WMO contributions to the development of the Web-based United Nations Atlas of the Oceans and the activities aimed at maintaining the regular process for global reporting and assessment of the state of marine environment.

**9.1.11** Congress noted that WMO had become a member of the United Nations Development Group and agreed that WMO should be more actively involved in United Nations multilateral coordination on development through the appropriate arrangements that would maximize the United Nations system support for the actions of WMO and for country-led development policies and strategies. With regard to the establishment of United Nations joint country Offices lead by United Nations Resident Coordinators and comprised of the representatives of United Nations specialized agencies and programmes, Congress requested Permanent Representatives of Members subject to the approval of their respective governments, to maintain contact with United Nations joint Offices located in their countries on matters concerning the work of WMO to facilitate due consideration of WMO priority needs in United Nations country programmes. The Secretary-General was invited to take necessary action.

**9.1.12** Congress appreciated the active participation of WMO in the World Summit on the Information Society and its contributions to follow-up actions. It noted the establishment in April 2006 of the United Nations Group on the Information Society and agreed that WMO should participate in the Group, through which it would advocate for free and unrestricted access to environmental information in support of disaster management and other societal and economic decisions for development consistent with WMO policy. Congress also encouraged the Secretary-General to promote cooperation with the United Nations on the exchange of relevant statistical data.

**9.1.13** Congress urged the Secretary-General to continue his efforts in ensuring that WMO played a lead role in areas falling within its mandate, particularly in disaster risk reduction, as well as in productive engagement in the International Strategy for Disaster Reduction and related issues. Congress noted the United Nations system reform process and the recommendations of the High-level Panel on United Nations System-wide Coherence in the areas of development, humanitarian assistance and the environment, and the General Assembly informal consultative process on the institutional framework for the United Nations environmental activities. Congress especially welcomed reform and better coordination supporting WMO's own efforts in delivering its mandate and requested the Executive Council to provide further guidance to the Secretary-General with respect to United Nations reform.

**Cooperation with other organizations**

**9.1.14** Congress noted with satisfaction the actions taken by the Executive Council and the Secretary-General regarding the establishment of the working arrangement with the Permanent Inter-State Committee on Drought Control in the Sahel and a number of memorandums of understanding or relevant cooperation documents with other organizations. All initiatives taken in the context of establishing and implementing those cooperation documents contributed to supporting the WMO Programmes and activities. Congress therefore encouraged Members to

participate actively in the activities of relevant regional and international organizations, including non-governmental organizations. Congress also noted the efforts made to strengthen cooperation with national meteorological and hydrological professional societies, and encouraged the Secretary-General to take further measures to support and cooperate with them.

**9.1.15** Congress reviewed the existing relations with other international organizations including United Nations specialized agencies, intergovernmental organizations, non-governmental organizations and noted with satisfaction the action taken by the Executive Council in further strengthening cooperation with other international organizations as well as the granting of consultative status. It welcomed the offers of continuing collaboration expressed by the representatives of the International Council of Academies of Engineering and Technological Sciences and the International Union of Geodesy and Geophysics. It authorized the Executive Council to consider, when appropriate, the advisability of concluding formal working arrangements and consultative status, as might be necessary, with other international organizations, subject to the provisions of Article 26 of the Convention of the World Meteorological Organization.

**9.1.16** Congress welcomed the growing collaboration with other international organizations, such as the World Bank, the United Nations World Tourism Organization and the World Conservation Union, noting, particularly, the importance of ongoing cooperation between the World Bank and NMHSs in Eastern and South-Eastern Europe on the realization of projects on the modernization of National Meteorological and Hydrological Services and on the estimation of their role in the development of the national economy. Congress encouraged the Secretary-General as well as the Officers of the Organization to continue high-level dialogue with other international organizations so as to strengthen cooperation in order to further benefit WMO and National Meteorological and Hydrological Services.

**9.1.17** Congress was informed of the achievements made by the Executive Council to enhance and re-establish cooperation with those organizations with which cooperation had been dormant for several years. It requested the Secretary-General to continue enhancing and strengthening their implementation to the benefit of WMO and of National Meteorological and Hydrological Services. Congress noted with appreciation the work entailed to review the status of all cooperation agreements and encouraged the Secretary-General to continue re-establishing cooperation during the fifteenth financial period with those organizations whose cooperation remained dormant.

**9.1.18** Congress noted with satisfaction that the visibility of WMO and awareness on its work as well as that of NMHSs had improved through representation at sessions of other international organizations. Congress invited Members to continue their efforts in ensuring representation of WMO and National Meteorological and Hydrological Services, where possible, in events of relevance to the development of meteorology and hydrology and to their application to sustainable development. Congress urged the Secretary-General to continue efforts in ensuring that WMO played a leading role in areas falling within its mandate and in developing relevant projects with specialized agencies, intergovernmental organizations and non-governmental organizations in the implementation of the Millennium Development Goals and the 2005 World Summit Outcome as well as other relevant regional and global strategies and plans of action.

**9.1.19** Congress considered the view of the Executive Council that it would benefit WMO and its Members to develop a working arrangement with the International Organization for Standardization (ISO) in which WMO would be recognized by ISO as an international standardizing body. The arrangement would be aimed at developing joint ISO/WMO technical standards based on WMO Technical Regulations, Manuals and Guides, that would clarify the authority of WMO documents and enhance their international recognition and dissemination. Congress requested the Secretary-General to finalize the working arrangement with ISO and submit it for consideration to the Executive Council.

**9.1.20** Congress requested the Secretary-General to further strengthen and support the external relations activities within the approved maximum expenditure for the fifteenth financial period, so as to strengthen cooperation with other international organizations, including regional and national meteorological/hydrological professional societies.

**Reports of the Joint Inspection Unit**

**9.1.21** Congress requested the Secretary-General to take measures as appropriate for the implementation of recommendations of Joint Inspection Unit (JIU) reports, which were related to the activities of the Organization, in accordance with the WMO procedures. Those actions taken were reported under relevant agenda items. Congress noted with satisfaction that the pilot scheme on WMO procedures of follow-up on JIU reports, approved by the Executive Council at its fifty-fourth session in 2002, was under implementation. Congress also encouraged the Council, through the Secretary-General, to continue to provide maximum assistance to the Joint Inspection Unit within the limits of resources available, in particular on those of its activities related to WMO.

**9.1.22** Congress also took note of the recommendations issued in the JIU Report on the Review of the Working Capital Fund in the World Meteorological Organization requested by the Executive Council at its fifty-eighth session in 2006. The recommendations were discussed under agenda item 10.2.

## 9.2 WMO'S ROLE IN THE GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS *(agenda item 9.2)*

**9.2.1** Congress was informed of the development of a comprehensive, coordinated and sustained Global Earth Observation System of Systems (GEOSS) amongst governments and the international community to understand and address global environmental and economic challenges. Congress noted that GEOSS activities had started after Fourteenth Congress and that a new intergovernmental Group on Earth Observations (GEO) had been established with a Secretariat hosted by WMO in the WMO Building. Congress was informed that a GEOSS 10-Year Implementation Plan had been developed. GEO workplans for 2006 through 2009 had been approved and work was in progress towards satisfying the short-, middle- and long-term goals outlined in the GEOSS 10-Year Implementation Plan. Congress was pleased to note the strong participation in GEOSS activities by some WMO Members and the WMO Secretariat.

**9.2.2** Congress was informed that the WMO Executive Council had maintained an overview of GEO activities and WMO participation. Congress agreed that GEOSS was a significant opportunity to provide key benefits in many societal and economic areas worldwide and make data and services available to a broad range of user communities through improved observational and communication systems. Congress also agreed that GEOSS was a very important and key initiative that would enable WMO to address the challenges of the coming decades. Congress emphasized that relevant WMO components should be GEOSS components and that they would be significant contributors to a sustainable GEOSS. Those components would include unique WMO systems, such as the World Weather Watch Global Observing System and Global Data-processing and Forecasting System, Global Atmosphere Watch, Global Telecommunication System, World Hydrological Cycle Observing System, Global Terrestrial Network for Hydrology, WMO Information System, and co-sponsored systems such as the Global Climate Observing System, Global Ocean Observing System and Global Terrestrial Observing System.

**9.2.3** Congress encouraged all WMO Members to become Members of the Group on Earth Observations, noting particularly the low number of developing countries currently involved in GEO. Congress was informed that the process to become a Member of GEO required a formal letter from the government, at cabinet level, to be sent to the GEO Secretariat expressing its intention to join the Group on Earth Observations and an indication of that government's willingness to support the implementation of the GEOSS 10-Year Implementation Plan. As capacity-building was one of the key objectives of GEO, membership would offer National Meteorological and Hydrological

Services enhanced access to a broader range of environmental data. Congress stressed the importance of active involvement by NMHSs in GEO noting that, in some cases, national delegations to GEO did not include representatives from National Meteorological and Hydrological Services. Representatives of NMHSs in national delegations would provide enhanced scientific and technical expertise to GEO as well as increased national visibility for the National Meteorological and Hydrological Services. Congress noted that a number of GEO Members had established national GEO committees comprised of representatives of several Ministries, in order to develop a multidisciplinary approach to their participation in GEO. National GEO Committees would serve as a catalyst for domestic action to better coordinate and/or sustain national observation systems.

**9.2.4** Congress stressed that the participation of WMO in the Group on Earth Observations had to be on a basis of mutual benefit that maximized synergies while minimizing duplication. Participation in GEO would provide an opportunity to improve global observing systems, especially in areas beyond national jurisdictions. That would also facilitate the full and open exchange of data, metadata and products shared within GEOSS, while recognizing relevant international instruments and national policies and legislation. Congress was informed that a recent example of synergies between WMO and GEO was the relocation of the United States GOES-10 satellite for enhanced coverage in South America.

**9.2.5** Congress reaffirmed the Executive Council decisions: to endorse GEOSS and its 10-Year Implementation Plan; to provide full support for the GEO process and resulting GEOSS; to support its implementation to the maximum extent possible within the WMO mandate; and to make available all essential data as defined in WMO Resolution 40 (Cg-XII) – WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities, through the GEO interoperable arrangements to serve the needs of the global community. In doing so, WMO Members would have access to other GEO data and products available through the GEO interoperable arrangements.

### 9.3 INTERNATIONAL POLAR YEAR 2007–2008 *(agenda item 9.3)*

**9.3.1** Congress recognized that the fundamental concept of International Polar Year 2007–2008 (IPY) was an intensive burst of internationally coordinated, interdisciplinary, scientific research and observations in the Earth's polar regions. It was pleased to note that WMO and the International Council for Science (ICSU) as sponsors of the Year had made significant progress in IPY preparation based on the memorandum of understanding, including the establishment of the ICSU/WMO Joint Committee to oversee IPY preparation and implementation, setting up the IPY International Programme Office, publishing of the IPY Framework document and the *Scope of Science for the International Polar Year 2007–2008* (WMO/TD-No. 1364) that provided scientific basis and organizational structure for IPY, and development of a Policy for IPY data management. Congress also noted with satisfaction that the WMO Inter-commission Task Group on International Polar Year 2007–2008 (chairperson Mr Qin Dahe, China) had provided substantial contribution to the IPY preparation and that technical commissions had developed a number of constructive actions towards IPY implementation. Recognizing that a number of technical commissions were already directly and actively involved in supporting the International Polar Year 2007–2008, in observations, data management and services, Congress requested technical commissions to concentrate their efforts during IPY implementation on further development and extension of observing networks in polar regions, provision of standardization of the observations and the instrument traceability and facilitation of easy access to data obtained, using interfaces developed within the WMO Information System implementation project.

**9.3.2** Congress noted with satisfaction that among 170 scientific projects endorsed by the Joint Committee, over 100 projects were focused on comprehensive studies of the atmosphere, ocean, cryosphere and hydrological cycle, ecosystems in Polar Regions as well as on the study of climate change impact on socio-economic conditions of the local population. It was pleased to learn that a large number of National Meteorological and Hydrological Services had played an

active role in the preparation of those projects and planned to be actively involved in their implementation. Congress expressed the view that the IPY projects when implemented would provide a great opportunity for the integrated observations of the polar environment, and in that context International Polar Year 2007–2008 should contribute to a suitable pilot project to the integration of WMO observing systems and linked to one of the main expected results of the WMO Strategic Plan.

**9.3.3** Concerning the legacy of observing systems established during the International Polar Year 2007–2008, Congress stressed the need to establish a mechanism for early assessment of benefits acquired from new observations in order to prepare for supporting the long-term reinforcement of networks in polar regions. That mechanism should consist of representatives from the main partners involved in International Polar Year 2007–2008 as well as representatives of the Group on Earth Observations, Global Climate Observing System, Global Ocean Observing System, World Climate Research Programme, the Arctic Council and Antarctic Treaty Consultative Meeting. Congress supported the organization of an IPY legacy workshop in 2008 when detailed information on the implementation of the IPY projects in the field during the first IPY year would be available. In that context, Congress also noted with interest the developing plans for an Integrated Arctic Ocean Observing System and a Southern Ocean Observing System as an IPY legacy. It supported the direct involvement of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology in that activity, in view of the important enhancements in the oceanographic and marine meteorological observing networks in the Arctic and Southern Oceans that were likely to be developed.

**9.3.4** Congress welcomed the proposal of Canada that WMO would create a Global Cryosphere Watch, which would be an important component of the IPY legacy. Congress requested the WMO Inter-commission Task Group on International Polar Year 2007–2008 to establish an ad hoc expert group to explore the possibility of the creation of such a global system and prepare recommendations for its development.

**9.3.5** Recognizing that International Polar Year 2007–2008 aimed to exploit the intellectual resources and science assets of nations worldwide to make major advances in polar knowledge and understanding of the role of polar regions in the global climate system, Congress stressed that one of the most important legacies would be a new generation of polar scientists and engineers, as well as an exceptional level of interest and participation from polar residents, schoolchildren, the general public and decision makers worldwide. In that connection Congress encouraged the active involvement of students and young scientists in the IPY process as well as the development of wide public awareness on the IPY implementation. Congress felt that successful implementation of International Polar Year 2007–2008 would be a good example for future international research and observations campaigns focused on natural zones located in other geographical areas.

**9.3.6** Congress noted that the IPY Trust Fund had been jointly established by WMO and ICSU for voluntary contributions from WMO Members, ICSU Members, grants and donations to support activities on the IPY planning and implementation including the activities of IPY Joint Committee and its subcommittees. Congress expressed its deep appreciation to the Governments of Canada, China, Norway, Sweden, Switzerland, the Netherlands, the United Kingdom and the United States for financial contributions to the IPY Fund or for providing a secondment to the IPY International Programme Office, and to China, Germany, Norway and the Russian Federation for hosting of IPY meetings.

**9.3.7** Congress adopted Resolution 36 (Cg-XV) – International Polar Year 2007–2008.

## 10. ADMINISTRATIVE AND FINANCIAL QUESTIONS (*agenda item 10*)

### 10.1 FINANCIAL MATTERS (*agenda item 10.1*)

**10.1.1** Congress considered the report of the fifty-eighth session of the Executive Council on the Revisions to the Financial Regulations of the World Meteorological Organization and the report of the Secretary-General. Congress approved the proposed revisions to the Financial Regulations and adopted Resolution 37 (Cg-XV) – Revisions to the Financial Regulations of the World Meteorological Organization.

**Financial Report of the Secretary-General in accordance with General Regulation 135 (11)**

**10.1.2** Congress examined the financial situation of the Organization for the fourteenth financial period (2004–2007). In particular, Congress noted the financial situation with regard to assessment, outstanding contributions, status of budgetary appropriation, revenue and surplus. In addition, Congress noted information on programme support cost arrangements, WMO Technical Cooperation Fund, United Nations Development Programme, Trust Funds Administrative Costs Pool Account, Publications Fund, Working Capital Fund, Trust Funds, Joint WMO/ICSU/IOC Climate Research Fund, WMO/UNEP Intergovernmental Panel on Climate Change Trust Fund, WMO Special Trust Fund for Climate and Atmospheric Environment Activities, Global Climate Observing System and the Staff Compensation Plan Reserve Fund.

**10.1.3** Congress was satisfied that the Secretary-General was taking all necessary 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 Fourteenth Congress and the Executive Council.

**10.1.4** Congress also noted that the financial situation was regularly reviewed on an annual basis by the Executive Council and the Financial Advisory Committee.

**10.1.5** 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 programmes.

**10.1.6** Congress further noted that, in line with the guidance provided by the Executive Council at its fifty-seventh and fifty-eighth sessions with regard to the performance evaluation in the results-based budget process, measurement of programme and budget performance for the 2006–2007 biennium was carried out on the basis of the approved budget and performance baseline data for the 2006–2007 biennium.

**Adoption of International Public Sector Accounting Standards**

**10.1.7** Congress considered the report of the fifty-eighth session of the Executive Council on the adoption of the International Public Sector Accounting Standards (IPSAS) and the report of the Secretary-General.

**10.1.8** Congress considered that the adoption of IPSAS would improve the quality of the financial reporting of WMO with consequential benefits to governance, accountability and transparency. On the basis of the information, Congress approved the adoption of IPSAS with a project envelope of up to CHF 4.0 million for the fifteenth financial period. In addition, Congress delegated to the Executive Council during the fifteenth financial period the authority to approve the necessary revisions to the relevant Financial Regulations to ensure compliance with IPSAS and requested the Executive Council to report to Sixteenth Congress on the actions taken.

**Report of the Audit Committee**

**10.1.9** Congress noted with appreciation the establishment of an Audit Committee by the Executive Council at its fifty-sixth session in June 2004. It commended the excellent work done by the Audit Committee in reviewing the reports of the External Auditors and the Internal Auditor, in monitoring the responses of the Secretary-General to the recommendations of the External Auditors and Internal Auditor, in making recommendations to the Executive Council and in reporting to members of the Executive Council and the Financial Advisory Committee periodically.

**10.1.10** Congress took note of the comprehensive reports presented to the Executive Council at its fifty-seventh and fifty-eight sessions by the chairperson of the Audit Committee, including the recommendations of the Audit Committee and its revised terms of reference and membership. Congress noted the action taken by the Executive Council in considering those recommendations when making decisions under the various agenda items.

**10.1.11** Congress endorsed the mandate and value of the Audit Committee. It encouraged the Executive Council to continue providing support and reviewing the work of the Audit Committee. In that respect, it adopted Resolution 38 (Cg-XV) – Audit Committee.

**10.1.12** Congress noted with appreciation the monitoring of the fraud investigation by the Audit Committee. Congress took note of the recent meeting between the Audit Committee and the judge responsible for the case. The Swiss judge confirmed the investigation was ongoing and, according to Swiss legislation, could remain open for 10 years. The judge's presentation of the facts of the case was consistent with information provided by the Secretary-General. He confirmed that WMO had been cooperative with his investigations and that the Secretary-General waived the immunity of WMO staff whenever requested to do so. The Committee expressed deep appreciation on behalf of the 188 Members of WMO to the Swiss judicial authorities for the recovery of US$ 300 000 and for their overall efforts.

**Financial Advisory Committee**

**10.1.13** Congress considered the report of the fifty-eighth session of the Executive Council on the views of the Members and on the recommendations concerning the Financial Advisory Committee.

**10.1.14** Congress agreed to revise the purpose, functions and composition of the Financial Advisory Committee and adopted Resolution 39 (Cg-XV) – Financial Advisory Committee.

**10.1.15** Congress agreed that the Financial Advisory Committee would be open to all WMO Members.

**Internal Oversight Office Reports – Annual Accountability Report – 2006**

**10.1.16** Congress noted the accountability report of the Director of the Internal Oversight Office for 2006 submitted by the Secretary-General as well as the comments of the Secretary-General thereupon. Congress also noted the view of the Audit Committee that the annual accountability report should be made available unchanged by the Secretary-General and, with his comments, to the Executive Council and to Congress the years it was in session. Congress considered the summary of oversight findings, recommendations and actions taken in response, as well as the status report on the internal control environment of the Organization. It also acknowledged the substantive progress achieved on internal audit during 2006 and actions taken to fill the vacant positions in order to meet the objectives of the plan of work of the Internal Oversight Office.

**Internal Oversight Office – Plans and Reports – Comprehensive Needs Assessment**

**10.1.17** Congress noted the report of the Secretariat on the Comprehensive Needs Assessment conducted by the Director of the Internal Oversight Office at the request of the Executive Council. It

also noted the resolution of the fifty-eighth session of the Executive Council included in the report. Congress noted the view of the Audit Committee that "the functions of the Internal Oversight Office should not normally be outsourced", but "there could be circumstances where some activities could be outsourced." Congress was of the opinion that given the significance of the Internal Oversight Office services to the WMO governance process, notably through its internal audit activity, any recommendation to totally outsource, or outsource a significant portion of, such activities should require specific approval of the Executive Council.

**10.1.18** Congress noted and supported the actions taken by the Secretary-General to strengthen the internal oversight function. In order to provide reasonable assurance that management practices and internal controls at WMO were adequate and working as intended, the internal oversight function demanded sufficient resources, flexibility to reallocate and deploy resources as needs arose, adherence to professional standards, and substantive coordination with other oversight services in the United Nations system. Internal oversight work, through properly planned and professionally implemented audits, inspections, evaluations and/or investigations, would provide the necessary independent assurance to the Secretary-General, the Audit Committee, the External Auditors, the Council and other key stakeholders of WMO concerning the integrity of internal controls.

## 10.2 PROPORTIONAL CONTRIBUTIONS OF MEMBERS (*agenda item 10.2*)

### Scale of Assessment

**10.2.1** Congress recalled its decision under Resolution 36 (Cg-XIV) — Assessment of proportional contributions of Members for the fourteenth financial period, that the latest United Nations scales approved by the United Nations General Assembly should be adopted as the basis for the calculation of the WMO scales of assessments, duly adjusted for difference in memberships.

**10.2.2** Congress noted that the United Nations scales of assessments had been approved by the United Nations General Assembly at its sixty-first session in December 2006 for the years 2007 to 2009 and would be approved at its sixty-fourth session (anticipated in December 2009) for the years 2010 to 2012. It was recognized that the WMO scales of assessments for the year 2010 would only be available in January of that year.

**10.2.3** Congress decided that the minimum rate of assessment of 0.02 per cent, as adopted for the fourteenth financial period, be retained as the minimum for the fifteenth financial period.

**10.2.4** Congress authorized the Executive Council to adjust the WMO scales of assessments for the year 2011 so that the changes in the United Nations scales of assessments to be adopted by the United Nations General Assembly at its sixty-fourth session anticipated in December 2009 could be taken into account. Corrections should be made to ensure that no Member's rate of assessment would increase to a level that would exceed 200 per cent of the WMO scale for 2010.

**10.2.5** Congress adopted Resolution 40 (Cg-XV) – Assessment of proportional contributions of Members for the fifteenth financial period.

### Settlement of long-outstanding contributions

**10.2.6** Congress noted the information provided by Armenia about the contributions assessed for Armenia during the eleventh and twelve financial periods, which had an impact on the arrears situation. Congress requested the Executive Council to review the issue on the basis of information to be provided by Armenia and to report to Sixteenth Congress.

**10.2.7** Congress considered Resolution 12 (EC-LVIII) – Settlement of long-outstanding contributions, and the related report of the Secretary-General. Congress adopted Resolution 41 (Cg-XV) – Settlement of long-outstanding contributions, as proposed by the Executive Council.

**Working Capital Fund**

**10.2.8** Congress recalled its decision under Resolution 37 (Cg-XIV) – Review of the Working Capital Fund.

**10.2.9** Congress decided to continue maintaining the Working Capital Fund to finance budgetary appropriations pending receipt of contributions and to advance such sums as might be necessary to cover unforeseen and extraordinary expenses that could not be met from current budgetary provisions.

**10.2.10** Congress took note of the report of the Joint Inspection Unit (JIU/REP/2007/3) as presented and expressed its appreciation for the excellent work done.

**10.2.11** Congress adopted Resolution 42 (Cg-XV) – Working Capital Fund.

**10.2.12** Furthermore, Congress decided to keep in force the following resolutions during the fifteenth financial period in order to overcome cash flow problems arising from non-payment and delayed payment of assessed contributions of Members:

(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.

**10.3 STAFF MATTERS** *(agenda item 10.3)*

**10.3.1** On the recommendation of the fifty-eighth session of the Executive Council, Congress decided to adopt the following amendment to Article 1.10 of the Staff Regulations of the World Meteorological Organization resulting from the introduction of a Code of Ethics in WMO. The oath or declaration contained in Article 1.10 should read:

> "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, not to seek or accept instructions in regard to the performance of my duties from any government or other authority external to the Organization, and at all times to observe the Standards of Conduct for the International Civil Service and the WMO Code of Ethics for staff."

**Report of the Staff Committee on the Conditions of Service of Staff**

***Internal matters of the Secretariat***

**10.3.2** In the report to Congress on the conditions of service of staff, the president of the Staff Association expressed appreciation for having the opportunity to address Congress on behalf of all WMO staff.

**10.3.3** Congress expressed its appreciation to the staff of the WMO Secretariat for their sustained efforts in supporting the operation of the Organization with dedication and professionalism especially in the light of significant changes in the past few years.

**10.3.4** Congress noted with satisfaction the continued improvement in collaboration between the Administration and the staff in matters of mutual concern. The Secretary-General was encouraged to continue to pursue the active participation and involvement of the Staff Association, in particular in the development of human resource management policies, workflow processes as a result of

operating changes in the Secretariat and the resulting necessary restructuring of supervisory structures and task responsibilities at all working levels.

**10.3.5** Congress noted that the growing trend of outsourcing of certain task areas continued to be an area of major concern to staff, in terms of both job security and career development. The Secretary-General was encouraged to ensure that outsourcing decisions take into consideration the impact on staff and the working conditions of staff and not only in view of perceived lower operating costs.

**10.3.6** Congress also noted the concern of staff that the number of serious work-related stress incidents increased far above average levels of previous years. There was a growing consensus amongst staff that new policies, initiatives and changed workflow processes recently implemented in the Secretariat had increased the workload and responsibilities given to the technical and support departments. The resulting burden was absorbed by staff working progressively longer hours with consequent impacts on stress levels and resulting overall loss of work efficiency. Congress urged the Secretary-General to pay special attention to the issue and create awareness among the managers and supervisors on the various aspects of Human Resource Management in the Secretariat for the general welfare, good health and morale-boosting of staff with a view to encourage them to help the Organization attain its strategic goals.

**10.3.7** Congress recognized that during periods of significant changes it would be essential to manage the morale and well-being of staff. It recommended that the Secretary-General conduct a staff survey that could be used to identify any issues that might have to be addressed. Congress also recognized the need to ensure effective communication of changes between the management and staff.

## 10.4 SECRETARY-GENERAL'S CONTRACT *(agenda item 10.4)*

**10.4.1** Congress decided that, with retroactive effect from 1 January 2007, the net annual salary of the Secretary-General should be US$ 151 064, 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 that might become necessary if, during the fifteenth financial period, changes in the salary of comparable United Nations staff should occur.

**10.4.2** Congress further decided that during the fifteenth financial period the representation allowance for the Secretary-General should be established in Swiss francs at a level of CHF 29 000 per year.

**10.4.3** In that connection, Congress adopted Resolution 43 (Cg-XV) – Secretary-General's contract, to which the contract to be signed by the President of the Organization and the Secretary-General for the fifteenth financial period was attached. Congress noted that the signing of the contract would be executed in conformity with established practice.

### Salaries and allowances of other ungraded officials

**10.4.4** With retroactive effect from 1 January 2007, Congress set the net annual salaries of the Deputy Secretary-General and the Assistant Secretary-General at US$ 138 663 and US$ 127 389, respectively. Those were the levels that applied to Deputy and Assistant Executive Heads of comparable specialized agencies of the United Nations. Congress further decided that during the fifteenth financial period, the representation allowances for the Deputy Secretary-General and the Assistant Secretary-General should be established at CHF 14 500 per annum. In that connection, Congress decided to authorize the Executive Council to carry out any adjustment of salary that might become necessary if, during the fifteenth financial period, an increase in the salaries of comparable United Nations staff should occur.

**Pensionable remuneration of ungraded officials**

**10.4.5** Congress further noted that, in accordance with the provisions of Article 54 (b) of the Regulations of the United Nations Joint Staff Pension Fund, the scale of remuneration for the Professional and higher categories must be adjusted with the same effective date and by the same percentage as the net remuneration increase. Congress noted that the International Civil Service Commission had promulgated the consequent revised scale of pensionable remuneration applicable to those categories of staff and that comparable United Nations agencies, such as the International Telecommunication Union and the Universal Postal Union, had consequently adjusted the pensionable remuneration of their ungraded officials. Congress therefore decided also to apply with retroactive effect from 1 September 2006 the following levels of annual pensionable remuneration:

| | |
|---|---|
| Secretary-General | US$ 292 652 |
| Deputy Secretary-General | US$ 270 468 |
| Assistant Secretary-General | US$ 250 301 |

## 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 and that the awarding ceremony being held in the country of the winner was an excellent opportunity for the Member concerned to publicize meteorology and hydrology as well as to improve the visibility of National Meteorological and Hydrological Services and WMO.

### 11.2 QUESTIONS CONCERNING THE CONVENTION OF THE WORLD METEOROLOGICAL ORGANIZATION *(agenda item 11.2)*

**Possible changes to the Convention of the World Meteorological Organization**

**11.2.1** Congress considered the proposal submitted by Germany in the light of Resolution 40 (Cg-XIV) – Questions concerning the WMO Convention, and the discussions held thereafter at the sessions of the Executive Council. Congress also noted with satisfaction that Members had been involved in the discussion, the Secretary-General having sent out the proposal to all Members in October 2005 asking for their comments. Furthermore, the matter was on the agenda of the sessions of regional associations and Members were able to give their input to the further refinement of the proposal.

**11.2.2** Congress was convinced of the necessity of having adequate wording in the Convention and regarded the proposal to change the preamble as appropriate, as the proposed text followed closely the Geneva Declaration, which Congress had adopted unanimously in 1999.

**11.2.3** Congress was convinced that the proposal did not contain new commitments for the Members and that the amendment could therefore be adopted according to Article 28 (c) of the Convention.

**11.2.4** Congress recalled that the Executive Council Task Team was requested to study and analyse the possible use of protocols. Congress was informed that legal experts had drawn the attention of the Council to the fact that Congress currently had the possibility to adopt protocols, even without a respective Article in the Convention. Congress noted that interested Members had the possibility to develop respective proposals for discussion by the Executive Council and eventual consecutive submission to Congress.

**11.2.5** Congress agreed with the proposed changes to the Preamble of the Convention and accordingly adopted Resolution 44 (Cg-XV) – Amendment to the Preamble of the Convention of the World Meteorological Organization.

**The WMO emblem and flag**

**11.2.6** On the recommendation of the Executive Council at its fifty-seventh session in 2005, Congress considered a proposal to review the WMO emblem. The proposal aimed at changing the colour of the wind rose to gold, and at adding the acronym of the Organization below the emblem in the official language concerned (English, French, Russian and Spanish), or the full name of the Organization in the two other official languages (Arabic and Chinese) in which no abbreviations were used. That proposal was intended to symbolize the seniority of the Organization after its fiftieth anniversary in 2000, and to enhance the visibility and distinctiveness of the Organization's logotype. In addition to WMO stationary, publications and the website, the new emblem was to be used in the WMO flag.

**11.2.7** Having regard to the increasing demand for the use of the WMO emblem, Congress also considered the need to enhance the protection against possible misuse or abuse of the Organization's name, emblem and image. As requested by Resolution 2 (EC-X) – Legal protection of the name and the emblem of the World Meteorological Organization, such protection was mainly to be ensured at the national level under article 6*ter* – Marks: Prohibitions concerning State Emblems, Official Hallmarks, and Emblems of Intergovernmental Organizations, of the Paris Convention for the Protection of Industrial Property. Therefore, in addition to reiterating the call on all Members, including those that were not a party to the Paris Convention, to ensure appropriate protection to the name and emblem of the Organization, Congress considered the need for precise guidelines on the use of the name and logo, similar to the Flag Code and regulations adopted by the Secretary-General in 1968.

**11.2.8** Congress agreed with the proposed changes to the emblem and accordingly adopted Resolution 45 (Cg-XV) – Emblem and flag of the World Meteorological Organization. By that resolution, in addition to the adoption of a new emblem, Congress requested the Secretary-General to keep in force mutatis mutandis the WMO Flag Code and Regulations and to develop detailed guidelines concerning the use and protection of the WMO emblem. In order to minimize the financial implications of the introduction of the new emblem, Congress also decided that the emblem would continue to be reproduced in black and white in non-coloured documents and publications, such as the working documents for WMO constituent bodies and WMO technical documents.

## 11.3 REVISION OF THE GENERAL REGULATIONS *(agenda item 11.3)*

**Period for conducting elections by correspondence of certain offices of constituent bodies**

**11.3.1** On the recommendation of the Executive Council at its fifty-eighth session in 2006, Congress reviewed the practice concerning the period required for conducting an election by correspondence of certain vacant officer positions, namely the Third Vice-President of the Organization and the president or vice-president of a regional association or technical commission. Such a period was set at 225 days since Twelfth Congress with a view, in particular, to permitting Members in arrears to settle their financial obligations prior to the call for nomination of candidates. To that effect, whenever a vacancy occurred, the Secretary-General informed Members in arrears at least 45 days before sending the invitation for the nomination of candidates. Congress noted, however, that in the 11 years in which the practice had been in force, there had been no case where a Member in arrears had paid its dues in that context. Congress accordingly agreed to suppress that stage in the process for elections by correspondence, thus gaining 45 days in the overall time required to conduct the elections.

**11.3.2** In the same spirit of efficiency, Congress also considered possible reductions in the minimum time foreseen for subsequent steps in the electoral procedure by correspondence, in particular for the nomination of candidates (45 days), the determination of eligibility of candidates and their willingness (30 days), as well as the actual voting (90 days), set out respectively in General Regulations 91, 92 and 71. Congress was of the view that such periods could be shortened by taking advantage of modern communication facilities to 30, 20 and 60 days respectively.

**11.3.3** As a result, Congress decided that the overall minimum period for conducting an election by correspondence should be brought from 225 days to 130 days and accordingly adopted Resolution 46 (Cg-XV) – Amendments to General Regulations 15, 16, 71, 91 and 92. In endorsing those amendments, Congress also noted that the Executive Council at its fifty-eighth session in 2006 had adopted Resolution 17 (EC-LVIII) – Amendments to the Rules of Procedure of the Executive Council, amending its own Rules of Procedure in line with the amendments to the General Regulations, and that such amendments would enter into force upon Congress adopting the corresponding amendments to the General Regulations.

**Terms of reference of the technical commissions**

**11.3.4** Congress had before it two sets of proposed changes to the terms of reference of the technical commissions: one concerning the Commission for Atmospheric Sciences proposed by the Executive Council at its fifty-eighth session in 2006 on the recommendation of the fourteenth session of that Commission, and the other relating to the Commission for Climatology as adopted at its fourteenth session. Recognizing the need to respond to recent developments in the fields of responsibility of those Commissions, Congress adopted Resolution 47 (Cg-XV) – Terms of reference of technical commissions, containing revised terms of reference for the two Commissions to be included in Annex III to the General Regulations.

**11.3.5** Congress also noted an inconsistency between the various linguistic versions of the terms of reference of the Commission for Hydrology, as amended by Thirteenth Congress in 1999. It agreed to bring all versions in line by removing the word “operational” in paragraph (d) of the terms of reference of the Commission contained in Annex III to the General Regulations when applicable.

**Establishment of a Subcommittee on Hydrology**

**11.3.6** Congress considered the request made by the Commission for Hydrology at its twelfth session to amend General Regulation 29 (b). Under that provision, introduced by Tenth Congress in 1987, at each session Congress had to establish a Subcommittee on Hydrology composed of the Hydrological Advisers of Permanent Representatives and other representatives of hydrological services included in the delegations of Members. The Commission felt that the automatic establishment of a Subcommittee on Hydrology was not conducive to close interaction between hydrological and meteorological services. The Commission therefore recommended to provide for the optional establishment of the subcommittee based on its views as to the need and the agenda for such a subcommittee. Congress endorsed the proposal of the Commission for Hydrology and adopted Resolution 48 (Cg-XV) – Amendments to General Regulation 29 (b).

**11.4 REVIEW OF PREVIOUS RESOLUTIONS OF CONGRESS** *(agenda item 11.4)*

In accordance with General Regulation 135 (17), 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 49 (Cg-XV) – Review of previous Congress resolutions.

### 11.5 REQUESTS FOR MEMBERSHIP IN THE ORGANIZATION *(agenda item 11.5)*

**11.5.1** Congress noted that as from 6 June 2006, the Republic of Serbia had continued the membership in WMO of the former Republic of Serbia and Montenegro following Montenegro's declaration of independence.

**11.5.2** Congress also noted with appreciation that the Republic of Montenegro, which became a member of the United Nations on 28 June 2006, had deposited an instrument of accession to the Convention of the World Meteorological Organization with the Government of the United States of America on 6 December 2006 in accordance with Articles 3 (b) and 33 of the Convention of the World Meteorological Organization. In accordance with Article 35 of the Convention, the Republic of Montenegro became a Member of the Organization on 5 January 2007.

**11.5.3** Congress congratulated and warmly welcomed the Republic of Montenegro as a new Member of the Organization, bringing the total Membership of WMO to 188, comprising 182 Member States and 6 Member Territories. The delegations of the Republic of Serbia and the Republic of Montenegro looked forward to benefiting from and contributing actively to the Programmes and activities of the Organization.

## 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 re-elected Mr Alexander I. Bedritsky, Head of the Federal Service for Hydrometeorology and Environmental Monitoring, Russian Federation, as President of the Organization.

**12.1.2** Congress unanimously re-elected Mr Ali-Mohammad Noorian, Vice-Minister of Roads and Transportation and General Administrator of the Islamic Republic of Iran Meteorological Organization, as First Vice-President.

**12.1.3** Congress unanimously re-elected Mr Tyrone W. Sutherland, Coordinating Director of the Caribbean Meteorological Organization, as Second Vice-President.

**12.1.4** Congress elected Mr Antonio Divino Moura, Director of the National Institute of Meteorology of Brazil, as 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 of the World Meteorological Organization:

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|---|---|
| Magdy Ahmed ABBAS | Egypt |
| Ould Mohamed Laghdaf BECHIR | Mauritania |
| Ramesh Chander BHATIA | India |
| Pierre-Étienne BISCH | France |
| Sameer Abdullelah BUKHARI | Saudi Arabia |
| Yadowsun BOODHOO | Mauritius |
| Francisco CADARSO GONZÁLEZ | Spain |
| Massimo CAPALDO | Italy |
| Héctor Horacio CIAPPESONI | Argentina |
| Wilar GAMARRA MOLINA | Peru |
| David GRIMES | Canada |
| Sri Woro B. HARIJONO (Ms) | Indonesia |

| | |
|---|---|
| Tetsu HIRAKI | Japan |
| John J. KELLY, Jr. | United States of America |
| Wolfgang KUSCH | Germany |
| Man-Ki LEE | Republic of Korea |
| Geoff B. LOVE | Australia |
| Linda MAKULENI (Ms) | South Africa |
| John MITCHELL | United Kingdom of Great Britain and Northern Ireland |
| Joseph Romanus MUKABANA | Kenya |
| Didace MUSONI | Rwanda |
| Mieczyslaw OSTOJSKI | Poland |
| Pekka PLATHAN | Finland |
| Moisés Michel ROSENGAUS MOSHINSKY | Mexico |
| Franz UIRAB | Namibia |
| YAP Kok Seng | Malaysia |
| ZHENG Guoguang | China |

**12.3 APPOINTMENT OF THE SECRETARY-GENERAL** *(agenda item 12.3)*

Congress unanimously appointed Mr Michel Jarraud as the Secretary-General of the Organization for the fifteenth financial period.

## 13. SCIENTIFIC LECTURES AND DISCUSSIONS *(agenda item 13)*

### IMO Lecture

**13.1** The eleventh IMO Lecture was delivered at Fifteenth Congress by Mr Peter Lemke (Germany) on the subject of “Polar Regions and Climate”. It was noted that the study undertaken by Mr Lemke 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 Sixteenth Congress and requested the Executive Council to make the necessary arrangements, including the selection of the lecturer and the theme for the twelfth IMO Lecture.

### Scientific lectures

**13.3** Two scientific lectures were presented in accordance with the decisions of Fourteenth Congress, as follows:

(a) Disaster Risk Reduction Under Current and Changing Climate Conditions: Important Roles for the NMHSs (Ms Heather Auld, Canada);

(b) The Comprehensive Global Observing System: The Scientific Vision and Future Operational Requirements (Mr Zhang Wenjian, China).

**13.4** Congress expressed its appreciation to all lecturers for their excellent and informative presentations.

**13.5** 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.

**13.6** Congress also decided that a programme for scientific discussions should be arranged for Sixteenth Congress and requested the Executive Council to select themes for that purpose and to make the necessary arrangements.

## 14. DATE AND PLACE OF SIXTEENTH CONGRESS *(agenda item 14)*

**14.1** Congress decided that Sixteenth Congress should be held in Geneva from Monday, 16 May to Friday, 3 June 2011, subject to any change which might be decided by the Executive Council.

**14.2** Congress noted the benefits from new technologies, working methods and document review process in conducting its session. Congress requested the Executive Council to take into account those methods with a view to further improve the use of the electronic voting system, and to shortening of the meeting period of Sixteenth Congress.

## 15. CLOSURE OF THE SESSION *(agenda item 15)*

Fifteenth Congress closed at 11.57 a.m. on 25 May 2007.

# RESOLUTIONS ADOPTED BY THE SESSION

## Resolution 1 (Cg-XV)

## TECHNICAL REGULATIONS OF THE WORLD METEOROLOGICAL ORGANIZATION

THE CONGRESS,

**Noting:**

(1) Articles 8 (d) and 14 (c) of the Convention of the World Meteorological Organization,

(2) Resolution 1 (Cg-XIV) – Technical Regulations of the World Meteorological Organization,

(3) Resolution 8 (EC-LV) – Report of the extraordinary session (2002) of the Commission for Basic Systems,

(4) Resolution 2 (EC-LVII) – Report of the thirteenth session of the Commission for Basic Systems,

(5) Resolution 4 (EC-LVII) – Report of the twelfth session of the Commission for Hydrology,

(6) Resolution 2 (EC-LVIII) – Amendments to the *Manual on the Global Observing System* (WMO-No. 544), Volume I – Global Aspects,

(7) Resolution 6 (EC-LVIII) – Report of the second session of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology,

**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;

**Requests** the Secretary-General to arrange for the amendments approved by the Executive Council to be included in the Technical Regulations and to ensure the editorial consistency of the relevant documents.

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**Note:** This resolution replaces Resolution 1 (Cg-XIV), which is no longer in force.

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## Resolution 2 (Cg-XV)

## WORLD WEATHER WATCH PROGRAMME FOR 2008–2011

THE CONGRESS,

**Recalling:**

(1) Resolution 2 (Cg-XIV) – World Weather Watch Programme for 2004–2007,

(2) Resolution 3 (Cg-XIV) – Radio frequencies for meteorological and related environmental activities,

(3) Resolution 3234 (XXIX) of the United Nations General Assembly – International co-operation in the peaceful uses of outer space,

(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,

**Noting:**

(1) The *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), general summary, agenda item 3.1,

(2) The *Abridged Final Report with Resolutions and Recommendations of the Thirteenth Session of the Commission for Basic Syst*ems (WMO-No. 985),

(3) The *Abridged Final Report with Resolutions and Recommendations of the 2006 Extraordinary Session of the Commission for Basic Systems* (WMO-No. 1017),

(4) Resolution 27 (Cg-XV) – WMO Strategic Plan,

**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 2004–2007, through:

(a) A generally stable and increasing global output of the surface and upper-air observation networks, a significant increase of observational data from platforms such as aircraft, ships and buoys, an overall strengthening of the Global Observing System through the inclusion of the research and development satellites in the space-based subsystem of the Global Observing System and an increase in the number of operational geostationary and polar-orbiting satellites and ground receiving stations;

(b) A positive impact of new observing systems and technologies on numerical weather prediction;

(c) An increased involvement in supporting the Global Earth Observation System of Systems (GEOSS);

(d) Improved coordination and performance of the contribution of the Global Observing System to the Global Climate Observing System;

(e) An improved capacity of the Global Telecommunication System and further implementation of advanced telecommunication and data-management techniques and services;

(f) The design and development of technological solutions and prototypes for the components of the overarching WMO Information System;

(g) Quick response to emerging requirements regarding amendments to codes and data representation forms, and spreading use of WMO table-driven code forms;

(h) Successful protection of radio frequencies allocated to meteorological systems, including radiosondes, radars, satellites and passive remote sensing;

(i) Significant improvement of the accuracy of numerical weather prediction products including increased production and availability of Ensemble Prediction System products, their better use by more National Meteorological and Hydrological Services, wider availability of routine products for day-to-day forecasting, and visible progress in emerging Global Data-processing and Forecasting Centres in developing countries;

(j) The effective functioning of Regional Specialized Meteorological Centres with activity and/or geographical specialization, and designation of a Lead Centre for Ensemble Prediction Systems Verification, Global Producing Centres for Long-range Forecasts and a Lead Centre for Standard Verification of Long-range Forecasts;

(k) Progress in the arrangements for the generation, distribution and verification of long-range and seasonal-to-interannual forecasts, and defined global products to be made available by global-scale producing centres;

(l) Improvement and broadening of emergency response activities and related arrangements through cooperative relations with relevant international organizations, including the International Atomic Energy Agency, International Civil Aviation Organization, United Nations Office for the Coordination of Humanitarian Affairs, Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization and World Health Organization;

(m) Improved WWW operational information services and modernized formats and practices related to *Weather Reporting* (WMO-No. 9), Volumes A and C, including e-formats, Web use and online access by Members;

(n) Improved quality and quantitative monitoring procedures;

(2) Its concern that deficiencies remain in the implementation of the WWW components at the national and regional levels resulting in data gaps over certain areas;

(3) The need for intensified and coordinated activities in support of the implementation, operation and maintenance of the World Weather Watch and related cross-cutting activities to meet the objectives of the WMO Strategic Plan and maximize the benefits available to all Members;

**Confirms:**

(1) That the World Weather Watch has the highest priority as the basic WMO Programme on which nearly all other programmes of the Organization depend and provides the basis for the operations of National Meteorological and Hydrological Services;

(2) That the World Weather Watch Global Observing System provides an essential basis for the development, implementation and operation of the global observing systems, including the Global Climate Observing System and Global Atmosphere Watch, and other concepts involving integration of observations;

(3) That the World Weather Watch Global Telecommunication System, including Data Management, provides an essential basis for the development, implementation and operation of the WMO Information System for the collection and sharing of information for all WMO and related international programmes;

(4) That the World Weather Watch continues to provide an effective mechanism for the application of science and technology in operations;

(5) That the World Weather Watch 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 Convention of the World Meteorological Organization;

**Considering:**

(1) The absolute importance of meteorological observations for determining and forecasting the state of the atmosphere, warning and forecasting weather and water events, and monitoring the climate,

(2) The need for developing and strengthening the surface-based and space-based Global Observing System in the framework of an integrated observing system strategy to close data gaps that still exist, particularly in the tropical belt, over the oceans and in remote land areas, and to achieve a cost-effective and flexible system of systems that can meet in an optimal way the requirements of all WMO Programmes, in particular for natural disaster prediction and mitigation,

(3) The continuing need for developing, upgrading and strengthening the Global Telecommunication System as the core component of the WMO Information System to overcome existing implementation shortcomings and to meet increasing requirements for the collection, exchange and distribution of weather, water, climate and related observational data and products, including an efficient support to integrated observing systems,

(4) That modern data-processing and forecasting systems and techniques need to be further developed to provide increasingly reliable and longer lead-time weather prediction guidance for day-to-day forecasting, severe weather forecasting, long-range forecasts and climate predictions, in particular with a view to enabling the National Meteorological and Hydrological Services, particularly in developing countries, to prepare for, mitigate and respond to natural disasters and environmental emergencies,

(5) The need to maximize cooperation and coordination among all stakeholders for the optimum implementation and operation of the World Weather Watch and the WMO Information System in meeting the increasing requirements for meteorological and related environmental monitoring,

(6) That the potential benefits of the Global Earth Observing System of Systems will accrue only if there is close collaboration between Commission for Basic Systems experts and GEOSS to ensure that the WWW Global Observing System and the WMO Information System are recognized and duly strengthened as core systems within GEOSS,

(7) That advanced technology for improving the WWW system and the WMO Information System calls for special efforts in the provision of technical guidance, specialized training and capacity-building,

**Decides:**

(1) That the substance of the World Weather Watch Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

1. Enhanced capabilities of Members to produce better weather forecasts and warnings;
4. Integration of WMO observing systems;
5. Development and implementation of the new WMO Information System;
6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

(2) That the World Weather Watch System Support Activities should continue to be carried out as integral parts of each of the World Weather Watch Programme components, with priority being given to:

(a) Assisting developing countries in strengthening their operational capabilities to meet national needs through their participation in the World Weather Watch;

(b) Increasing the level of implementation, especially in developing countries, and operational efficiency of key WWW components and facilities;

(c) Introducing new techniques and equipment along with the provision of the corresponding training, technical advice and capacity-building, as necessary and appropriate;

**Stresses** the role to be played by regional associations in coordinating the implementation of the World Weather Watch Programme, identifying deficiencies, specifying requirements, and planning system support projects, on a regional scale;

**Invites** the regional associations to promote the coordinated implementation of the World Weather Watch Programme and the WMO Information System in the Regions and to keep under continuous review related regional requirements;

**Requests** the Executive Council:

(1) To ensure that the further development and implementation of the World Weather Watch Programme is carried out with the highest priority and in accordance with the WMO Strategic Plan;

(2) To coordinate and promote the development and use of integrated observing systems, with specific attention to the role and contributions of the surface-based and space-based Global Observing System, to achieve a cost-effective and flexible system of systems that can meet in an optimal way the requirements of all WMO Programmes;

(3) To coordinate and promote the development, implementation and use of the WMO Information System for the collection and sharing of observational data, products and related information for all WMO and related international programmes, with specific attention to meeting the requirements stemming from the development of an integrated observing systems strategy;

(4) To coordinate and promote further improvements and use of the Global Data-processing and Forecasting System in the development and implementation of early warning systems;

(5) To adjust the World Weather Watch Programme as necessary, particularly in the light of the recommendations made by the Commission for Basic Systems and the regional associations;

(6) To explore possible ways to assist Members in meeting their respective responsibilities within the World Weather Watch Programme;

(7) To ensure that adequate resources are earmarked to addressing the deficiencies that remain in the implementation of the World Weather Watch in some areas;

(8) To promote the establishment of cooperative arrangements for the implementation, operation and maintenance of WWW system components, as appropriate;

(9) To consider the financial, policy and strategic aspects of the use of new technology in the World Weather Watch and the WMO Information System;

**Requests** the Commission for Basic Systems:

(1) To pursue the technical planning and development of the World Weather Watch Programme and to coordinate its implementation, in accordance with the WMO Strategic Plan, taking into account any adjustments and directives from the Executive Council;

(2) To pursue its leading role in the technical planning and development of the WMO Space Programme in support of all WMO Programmes;

(3) To continue to take a leading role for WMO in the Global Earth Observing System of Systems and, in particular, to collaborate with GEOSS to ensure that the surface-based and space-based components of the WWW Global Observing System and the WMO Information System are recognized and strengthened as core systems within GEOSS;

(4) To take a leading role in the technical development and planning of integrated observing systems with a view to a cost-effective and flexible system of systems that can meet in an optimal way the requirements of all WMO Programmes;

(5) To pursue its leading role in the technical planning and development of the WMO Information System for the collection and sharing of information for all WMO and related international programmes;

(6) To maintain close liaison with the other technical commissions, the regional associations, other relevant international organizations, and international programmes, in particular the Global Climate Observing System, with its Surface Network and Upper-Air Network components, and the Global Atmosphere Watch, with a view to ensuring that their relevant requirements and recommendations are taken into consideration in the planning and implementation of the World Weather Watch, and in the technical planning and development of the WMO Information System;

(7) To ensure that the relevant technical regulations and annexes, as well as technical guides, which provide recommended practices and procedures and guidance to National Meteorological and Hydrological Services for the implementation of their operational activities, are kept up to date and further developed as necessary, and to facilitate the formal recognition of these documents by the International Organization for Standardization (ISO) as joint ISO/WMO technical standards; this process would enable National Meteorological and Hydrological Services to make progress in their implementation of quality management, in support to the required continued improvement of the actual quality of their overall products and services to the users;

(8) To identify appropriate initiatives, which might be pursued by Members and/or groups of Members to maximize the performance of the World Weather Watch and the benefits to be gained from it;

**Urges** all Members, especially donor countries, individually and through appropriate multinational arrangements, to cooperate actively in the implementation and operation of the World Weather Watch, and in particular:

(1) To continue, to the best of their ability, to implement, further develop, operate and maintain the surface-based and space-based subsystems of the Global Observing System, especially in the data-sparse areas of the globe, and to ensure the required quality and regularity of observations;

(2) To implement, upgrade, operate and maintain the Global Telecommunication System as a core component of the WMO Information System, including space-based and other modern data communication capabilities, in order to ensure the timely, reliable and cost-effective collection, distribution and transfer of time-critical and operational-critical data, products and other relevant information;

(3) To implement, operate and maintain the WMO Information System, including enhancement of information systems and services by further implementing modern data communication and management techniques and practices;

(4) To operate and enhance the capabilities of the Global Data-processing and Forecasting System for generation of higher quality and new types of numerical weather prediction products and their provision and use for operational and severe weather forecasting, natural disaster prevention and mitigation and seasonal to inter-annual predictions, using the present Regional Specialized Meteorological Centres and, where appropriate, new Centres with appropriate activity specialization;

(5) 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 World Weather Watch activities as far as possible;

(6) To participate in the deployment and use of new systems and techniques, including appropriate capacity-building activities and, individually or collectively, to evaluate their effectiveness and their integration in the World Weather Watch;

(7) To keep the Secretary-General informed about their plans and activities regarding the implementation of the World Weather Watch,

**Requests** the Secretary-General:

(1) To keep the Members informed of progress and developments in the planning and implementation of the World Weather Watch Programme;

(2) To continue to improve the monitoring of the operation of the World Weather Watch and the publication of results;

(3) To assist Members, as necessary, in overcoming difficulties that may arise in the implementation of the World Weather Watch Programme during the fifteenth financial period;

(4) To assist regional associations and the Commission for Basic Systems in developing strategies, projects and priorities for the consolidation and further implementation of key

WWW facilities and the WMO Information System, including facilitating regional and subregional mechanisms for the procurement and maintenance of observation and telecommunication systems;

(5) To coordinate the requirements of other WMO Programmes for systems support that could be provided by the World Weather Watch;

(6) To assist the Executive Council, the regional associations and the Commission for Basic Systems in the implementation of this resolution;

(7) To bring this resolution to the attention of all concerned;

(8) To submit a report to Sixteenth Congress on the implementation of the plan during the fifteenth financial period together with proposals for the continuation and further development of the World Weather Watch.

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**Note:** This resolution replaces Resolution 2 (Cg-XIV), which is no longer in force.

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**Resolution 3 (Cg-XV)**

**GLOBAL OBSERVING SYSTEM**

THE CONGRESS,

**Noting:**

(1) Article 2 of the Convention of the World Meteorological Organization,

(2) Resolution 27 (Cg-XV) ─ WMO Strategic Plan,

(3) Resolution 2 (Cg-XV) ─ World Weather Watch Programme for 2008–2011,

(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,

**Considering:**

(1) That the Global Observing System is a unique international observing system, consisting of surface-based and space-based components owned and operated by Members, that provides unique and sustainable observational data and information on the state of the Earth and its atmosphere to meet evolving requirements of various users,

(2) That the Global Observing System is a backbone for the implementation of other WMO observational programmes and projects,

(3) That investments of Members to the development of the Global Observing System have ensured a provision of operational data for weather analysis, forecasts and warnings at the national, regional and global levels,

(4) That forecasts, warnings and risk assessments of dangerous meteorological phenomena would be more accurate on the basis of Global Observing System data of better quality,

(5) That the Global Observing System ensures a continuous acquisition of Essential Climate Variables for the monitoring and forecasts of climate changes and also can meet the observational requirements of other international initiatives, including the Group on Earth Observations,

**Reaffirms**:

(1) That sustainable operation of the Global Observing System has a vital role and highest priority for WMO in providing observational data to meet the requirements of weather forecasts and warnings, climate monitoring and other strategic tasks of the Organization;

(2) The need for strengthening the Global Observing System to meet the evolving requirements of various users and, in particular, provision of a timely and reliable information for natural disaster prevention and mitigation;

(3) That the Global Observing System, through the coordinated efforts of Members, should continue its fundamental mission in providing timely, reliable and consistent meteorological data to meet the requirements of various users worldwide and ensure its essential role in the planning and implementation of an integrated WMO global observation system concept;

**Urges** Members:

(1) To give all possible support to the implementation of national observational programmes contributing to the Global Observing System;

(2) To ensure sustainable operation of the Global Observing System and encourage activities with respect to the optimization of observing elements and development and deployment of the advanced composite system; the highest priority should be given to:

(a) Maintaining the Regional Basic Synoptic Network and the Regional Basic Climatological Network, with a special emphasis on Global Climate Observing System Surface Network and Upper-air Network stations which, in accordance with Global Climate Observing System requirements, should provide full and timely data sets to the relevant Global Data Centres;

(b) Rehabilitating observing sites in critical locations, with a special attention to the least developed countries and countries unable to keep the pace with the rapid development of technology;

(c) Maintaining and, where possible, expanding contributions to the Voluntary Observing Ships scheme;

(3) To follow guidelines and recommendations contained in the *Implementation Plan for Evolution of Space and Surface-based Sub-systems of the GOS*, published as WMO/TD-No. 1267, and nominate a national point of contact responsible for reporting progress and plans in his or her country related to the Implementation Plan;

**Encourages** Members:

(1) To keep supporting the studies of observation targeting strategies based on the results of the African Monsoon Multidisciplinary Analyses, International Polar Year 2007–2008 and The Observing System Research and Predictability EXperiment;

(2) To communicate historical data and metadata from their Global Climate Observing System network stations to newly established Commission for Basic Systems Lead Centres for Global Climate Observing System;

(3) Based on the guidance given in the Implementation Plan for Evolution of Space and Surface-based Sub-systems of the GOS, to pursue, especially in developing countries, a wider use of observing systems (satellite, aircraft meteorological data relay and automatic weather stations) that are less dependent on infrastructure, expertise and funding;

(4) To increase the use of automatic weather observing systems that enable cost-effective real-time measurements, compatible with data from conventional systems, of quality and reliability suitable to all climate conditions;

**Invites** the regional associations to promote the coordinated implementation of the Global Observing System in the Regions through sustainable functioning of the Regional Basic Synoptic Network and the Regional Basic Climatological Network and to keep under continuous review related regional requirements;

**Requests** the Executive Council to continue its review and constructive guidance in the development of the Global Observing System for the benefit of all Members;

**Requests** the Commission for Basic Systems to pursue its leading role in the technical planning and development of the Global Observing System in close collaboration with the Commission for Instruments and Methods of Observation in support of all WMO and related international programmes;

**Requests** the Secretary-General:

(1) To assist Members, within the budgetary resources available, in the implementation of the Global Observing System Programme during the fifteenth financial period;

(2) To keep the Members informed of progress and developments in the planning and implementation of the Global Observing System;

(3) To promote, in collaboration with Members and private industry, a development of software aimed at the improvement of data quality from automatic observing systems;

(4) To submit a report to Sixteenth Congress on the implementation and development of the Global Observing System with proposals for future activities.

## Resolution 4 (Cg-XV)

## RADIO FREQUENCIES FOR METEOROLOGICAL AND RELATED ENVIRONMENTAL ACTIVITIES

THE CONGRESS,

**Noting:**

(1) The WMO Strategic Plan and the United Nations Millennium Development Goals,

(2) Resolution 3 (Cg-XIV) – Radio frequencies for meteorological and related environmental activities,

(3) The current radio-frequency allocations and regulatory provisions related to the meteorological aids, meteorological satellite, Earth exploration satellite and radiolocation (weather and wind profiler radars) services in the Radio Regulations of the International Telecommunication Union (ITU),

(4) The outcomes of the ITU World Radiocommunication Conferences (WRC), especially WRC-2000 and WRC-03,

(5) The agenda of the forthcoming ITU World Radiocommunication Conference 2007 (WRC-07) and related WMO positions submitted during the ITU preparatory process,

**Considering:**

(1) The prime importance of the specific radiocommunication services for meteorological and related environmental activities required for the prevention, detection, early warning and mitigation of natural and technological (human-made) disasters, the safety of life and property, the protection of the environment, climate change studies and scientific research,

(2) The importance of information provided by the Earth exploration systems, including meteorological systems for a wide range of economic activities such as agriculture, transportation, construction and tourism,

(3) 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,

(4) The crucial importance of the allocation of suitable radio-frequency bands for the operation of meteorological and research and development satellites, including remote sensing, data collection and data distribution links,

**Stressing** that some radio-frequency bands are a unique natural resource owing to their special characteristics and natural radiation enabling space-borne passive sensing of the atmosphere and the Earth surface, that deserve adequate allocation to the Earth exploration satellite service (passive) and absolute protection from interference,

**Expresses** its serious concern at the continuing threat to several frequency bands allocated to the meteorological aids, meteorological satellite, Earth exploration satellite and radiolocation (weather and wind profiler radars) services posed by the development of other radiocommunication services;

**Requests** the Commission for Basic Systems to pursue the continuous review of regulatory and technical matters related to radio frequencies for operational and research meteorological and related environmental activities, and preparation of guidance and information for National Meteorological and Hydrological Services, in coordination with other technical commissions, especially the Commission for Instruments and Methods of Observation, and in liaison with other relevant international bodies, in particular the Coordination Group for Meteorological Satellites;

**Urges** all Members to do their utmost to ensure the availability and protection of suitable radio-frequency bands required for meteorological and related environmental operations and research, and in particular:

(1) To ensure that their national radiocommunication administrations are fully aware of the importance of and requirements for radio frequencies for meteorological and related activities, and to seek their support in the ITU World Radiocommunication Conferences and Radiocommunication Sector (ITU-R) activities;

(2) To participate actively in the national, regional and international activities on relevant radiocommunication regulatory issues and, in particular, to involve experts from their Services in the work of relevant regional radiocommunication organizations and of ITU-R, especially ITU-R Study Group 7 on Science Services;

(3) To register adequately with their national radiocommunication administrations all radiocommunication stations and radio frequencies used for meteorological and related environmental operations and research;

**Appeals** to the International Telecommunication Union and its Member Administrations:

(1) To ensure the availability and absolute protection of the radio-frequency bands which, due to their special physical characteristics, are a unique natural resource for space-borne passive sensing of the atmosphere and the Earth surface; in this regard, the exclusive 23.6–24 GHz passive band that is associated with a water vapour absorption line is of crucial importance for weather, water and climate research and operations;

(2) To give due consideration to the WMO requirements for radio-frequency allocations and regulatory provisions for meteorological and related environmental operations and research;

(3) To pay special attention to the WMO positions related to the WRC-07 agenda, in the light of **Appeals** (1) and (2) above;

**Requests** the Secretary-General:

(1) To bring this resolution to the attention of all concerned, including the International Telecommunication Union;

(2) To pursue as a matter of high priority the coordination role of the Secretariat in radio-frequency matters, especially with ITU-R, including participation of WMO in ITU-R Study Groups, conference preparatory meetings and World Radiocommunication Conferences;

(3) To facilitate the coordination between National Meteorological and Hydrological Services and their national radiocommunication administrations, particularly in preparing the ITU World Radiocommunication Conferences, by providing appropriate information and documentation;

(4) To assist the Commission for Basic Systems in the implementation of this resolution.

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**Note:** This resolution replaces Resolution 3 (Cg-XIV), which is no longer in force.

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## Resolution 5 (Cg-XV)

## INSTRUMENTS AND METHODS OF OBSERVATION PROGRAMME

THE CONGRESS,

**Considering:**

(1) The continued need for the provision of high-quality, compatible and homogeneous meteorological data that are of the utmost importance for operational and research activities of WMO Members,

(2) The need for continuous standardization of instruments and observing methods and worldwide traceability of measurements to International System of Units (SI) standards,

(3) The need for manufacturing of more robust instruments capable of withstanding severe weather events and measuring associated extreme meteorological, hydrological and related variables, and the need for continuous improvement of meteorological, related geophysical and environmental measurement technologies and methodologies,

(4) The importance of applying new technology for the cost-effective generation of measurements and acquisition of observational data,

(5) The need to ensure interoperability among observing technologies and systems with a view to evolving into an integrated global observing system,

(6) The continuing need for training of instrument specialists and technicians for the operation, maintenance and calibration of observing technology, especially from developing countries,

(7) The need to continue to carry out intercomparisons of instruments and observing systems,

(8) The need for continuing close collaboration of the Commission for Instruments and Methods of Observation with the other technical commissions, especially with the Commission for Basic Systems and the Commission for Hydrology, and WMO Programmes, for meeting their requirements for measurements and observations,

(9) The role of the Regional Instrument and Regional Radiation Centres in progressing instrument calibration, training and capacity-building,

**Reaffirms** that WMO, in further developing and implementing its Instruments and Methods of Observation Programme, should continue its collaboration with international bodies such as the International Organization for Standardization, International Bureau of Weights and Measures, European Cooperation in the Field of Scientific and Technical Research, and Association of Hydro-Meteorological Equipment Industry;

**Requests** the Executive Council, with the assistance of the Commission for Instruments and Methods of Observation and other relevant technical commissions, to promote, guide and assist in the implementation of the WMO Instruments and Methods of Observation Programme;

**Invites** the regional associations:

(1) To continue providing active support for regional aspects of the Instruments and Methods of Observation Programme, especially as regards capacity-building;

(2) To assess, together with the Commission for Instruments and Methods of Observation or a relevant national/international agency, at least every five years, existing Regional Instrument and Regional Radiation Centres to verify their capabilities and performance;

(3) To organize regular Regional Pyrheliometer Comparisons in one of the Regional Radiation Centres and inter-laboratory calibration tests among existing Regional Instrument Centres;

**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 the Commission for Instruments and Methods of Observation;

**Urges** Members:

(1) To collaborate actively in, and to give all possible support to, the implementation of the Instruments and Methods of Observation Programme;

(2) To continue and, if possible, increase their activities for the development of new observing instruments and systems with the emphasis on interoperability cost-effectiveness;

(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 in their observing networks;

(4) To support development of new standards, such as those for automation of manual, visual and subjective observations;

(5) To promote the development of basic procedures for quality management of observations, instrument maintenance, calibration and operational practices, and collaborate with countries, as needed, in the development and implementation of their own plans;

(6) To promote metrology and to ensure traceability of their measurements to SI standards;

(7) To ensure the training of instrument specialists and technicians through national and regional training programmes, as required, and to ensure, with the assistance of the Commission for Instruments and Methods of Observation, a development of regional training programmes especially for developing and least developed countries;

**Requests** the Secretary-General:

(1) To take necessary actions to assist WMO bodies, including the Commission for Instruments and Methods of Observation, in the coordination and implementation of the Instruments and Methods of Observation Programme;

(2) To take steps towards the partial funding of the instrument intercomparisons within the regular WMO budget;

(3) To assist Members, as necessary, in overcoming difficulties that may arise in the implementation of the Instruments and Methods of Observation Programme;

(4) To assist the Executive Council, the regional associations and the Commission for Instruments and Methods of Observation in the implementation of this resolution;

(5) To report to Sixteenth Congress on the progress achieved and to submit proposals for future activities.

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**Note:** This resolution replaces Resolution 4 (Cg-XIV), which is no longer in force.

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## Resolution 6 (Cg-XV)

## TROPICAL CYCLONE PROGRAMME

THE CONGRESS,

**Noting:**

(1) The thirtieth, thirty-first and thirty-second annual status reports on the implementation of the WMO Tropical Cyclone Programme issued in 2004, 2005 and 2006,

(2) Actions taken particularly in relation to the International Strategy for Disaster Reduction,

**Expresses** its appreciation for the contributions of Members to the activities conducted under the general and regional components of the Tropical Cyclone Programme and for the invaluable assistance provided to developing countries to support the implementation of the regional component through the WMO Voluntary Cooperation Programme, the European Union, donor Members and bilateral arrangements;

**Further expresses** its appreciation for the progress achieved so far in implementing the Tropical Cyclone Programme, particularly with regard to the improvements to the operational system resulting from the comprehensive regional cooperation 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 and landslides in many areas of the world and the resulting human suffering, economic losses, setback to social and economic development and destruction of the environment;

**Recognizing** that, while the measures already taken under the Tropical Cyclone Programme have helped many Members to improve their protective systems, continuing and furthermore vigorous action to address the adverse effects of tropical cyclones is a high-priority requirement, and that an effective warning system that addresses meteorological forecasts and non-meteorological factors can help to reduce deaths and the social-economic impacts,

**Further recognizing** that the direct contribution to effective warning systems through research into tropical cyclones encourages Members to support further research activities to improve predictions of intensity, movement and landfalling impacts such as storm surge and flooding,

**Considering** that the Tropical Cyclone Programme has much to contribute to the reduction of risks of disasters caused by tropical cyclones and related hazards, and hence to the active involvement in the activities of the WMO Natural Disaster Prevention and Mitigation Programme and the International Strategy for Disaster Reduction, and to helping Members achieve sustainable development,

**Decides:**

(1) That the WMO Tropical Cyclone Programme shall be further strengthened;

(2) That the activities of the Tropical Cyclone Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

1. Enhanced capabilities of Members to produce better weather forecasts and warnings;
3. Enhanced capabilities of Members to provide better hydrological forecasts and assessments;
6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness;
8. Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

**Urges** Members to ensure that their Meteorological, Hydrological and Disaster Risk Reduction Services take whatever steps are within their competence and coordinate with the appropriate authorities:

(1) To promote awareness of the risks associated with tropical cyclones and related hazards;

(2) To continue to strengthen their forecasting and warning capabilities and ensure wide dissemination, understanding and utilization of their products, particularly at the community and local levels;

(3) To ensure that the measures necessary to save human lives and reduce damage are carried out at all levels, including the community level, as a consequence of tropical cyclone forecasts and warnings;

(4) To continue to work regionally through the sharing of knowledge, skills, experience and resources to save human lives and reduce damaging impacts;

**Calls** for the continuation of the fruitful and close cooperation with other international organizations, especially the United Nations Economic and Social Commission for Asia and the Pacific, the United Nations International Strategy for Disaster Reduction System partners, the International Civil Aviation Organization, and regional disaster mitigation and preparedness agencies, and with other WMO Programmes and technical commissions, such as the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, to promote a multidisciplinary approach towards the attainment of the humanitarian goals of the Programme;

**Appeals** to the Voluntary Cooperation Programme donor Members, the United Nations Development Programme, development banks and other international organizations and funding agencies concerned with the goals of the WMO Tropical Cyclone Programme to give the maximum possible support to those activities by contributing 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 of developments in the planning and implementation of the Programme;

(3) To assist Members in their efforts to safeguard life and property from tropical cyclones and related hazards 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.

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**Note:** This resolution replaces Resolution 7 (Cg-XIV), which is no longer in force.

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## Resolution 7 (Cg-XV)

## WMO ANTARCTIC ACTIVITIES

THE CONGRESS,

**Noting:**

(1) Resolution 6 (Cg-XII) ─ WMO Antarctic Activities,

(2) Resolution 10 (EC-LI) ─ Executive Council Working Group on Antarctic Meteorology,

(3) The WMO Strategic Plan,

**Considering:**

(1) That there is a continuing need for meteorological and other environmental data from the Antarctic for the implementation of the World Weather Watch and for monitoring climate change and the ozone layer over the Antarctic,

(2) That there is a continuing need to coordinate meteorological programmes in the Antarctic,

(3) The important contribution of Antarctic observing networks to the objectives of the Global Climate Observing System of WMO/Intergovernmental Oceanographic Commission/United Nations Environment Programme/International Council for Science,

**Invites** Members, particularly those that are Parties to the Antarctic Treaty:

(1) To continue and expand their meteorological programmes in the Antarctic and, in particular, link to the activities of International Polar Year 2007–2008 and ensure subsequent continuity of activities;

(2) To participate in the deployment of new observing and telecommunication systems in the Antarctic;

(3) To provide additional observations in the Antarctic by using automatic weather stations and geophysical observatories on land, by recruiting additional voluntary observing ships, by equipping aircraft with appropriate instrumentation and by deploying drifting buoys at sea and on the ice;

(4) To consider the possibility of cooperating with other Members in sharing the costs of reopening and operating previously functioning stations;

**Requests** the Executive Council to promote the coordination of meteorological activities in the Antarctic:

(1) By maintaining a Working Group on Antarctic Meteorology;

(2) By arranging that recommendations of the working group be transmitted to Members that are Parties to the Antarctic Treaty for information and comments;

(3) By maintaining close collaboration with other international organizations concerned such as the Antarctic Treaty Consultative Meeting, the Scientific Committee on Antarctic Research, the Council of Managers of National Antarctic Programmes, and the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization;

(4) By ensuring that WMO Antarctic Activities are consistent with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

1. Enhanced capabilities of Members to produce better weather forecasts and warnings;
2. Enhanced capabilities of Members to produce better climate predictions and assessments;
4. Integration of WMO observing systems;

**Requests** the Secretary-General to maintain close liaison with the Antarctic Treaty Consultative Meeting and ensure, within the available resources, representation of the Working Group on Antarctic Meteorology at the Antarctic Treaty Consultative Meeting and other related international meetings.

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**Note:** This resolution replaces Resolution 6 (Cg-XII), which is no longer in force.

## Resolution 8 (Cg-XV)

## WORLD CLIMATE PROGRAMME AND ITS COORDINATION

THE CONGRESS,

**Recalling** Resolutions 12 (Cg-XI) and 7 (Cg-XII) ─ World Climate Programme and its coordination**,** and the *Abridged Final Report with Resolutions of the Fourteenth Wold Meteorological Congress* (WMO-No. 960), general summary, paragraph 3.2.1, on the coordination activities within the Climate Agenda,

**Noting:**

(1) The relevant resolutions and decisions of the WMO Executive Council,

(2) The Meeting Statement and Report of the Intergovernmental Meeting on the World Climate Programme (Geneva, 14–16 April 1993),

(3) The United Nations Framework Convention on Climate Change and the United Nations Convention to Combat Desertification and the outcome of their sessions of the Conference of the Parties,

(4) The work of the Intergovernmental Panel on Climate Change and its assessment reports,

(5) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Climatology* (WMO-No. 996),

(6) The WMO Strategic Plan,

**Recognizing:**

(1) The fundamental role of the World Climate Programme in the provision of authoritative assessments of climate science and climate impacts, in the further development of climate applications and services, in improving systematic observations of climate and climate monitoring,

(2) The continuing importance of the World Climate Programme and its associated activities to make an effective contribution to the implementation of Agenda 21, the Intergovernmental Panel on Climate Change, United Nations Framework Convention on Climate Change, United Nations Convention to Combat Desertification and the work of the United Nations Commission on Sustainable Development and the International Strategy for Disaster Reduction, as well as to the socio-economic development of nations,

**Recognizing further** that:

(1) The Climate Agenda continues to be a feasible step in a process for more effective and efficient integration and management of the international climate-related programmes in order to meet stakeholders' requirements,

(2) Work is needed to:

(a) Redefine and update the description of benefits expected from the implementation of the Climate Agenda and the identification of priorities, deliverables and resource requirements,

(b) Identify areas of overlaps and gaps among programmes,

(c) Continue to engage relevant international organizations and stakeholders in the Climate Agenda,

(d) Strengthen national climate activities, in particular through the implementation of national climate programmes,

**Recognizing with appreciation:**

(1) The existing interaction and contribution of the international organizations such as the United Nations Environment Programme (UNEP), World Health Organization (WHO), International Council for Science (ICSU), Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC of UNESCO) and Food and Agriculture Organization of the United Nations (FAO) to the Climate Agenda and the World Climate Programme,

(2) That Fourteenth Congress had requested more simplified responsibilities and clarified strategy along the lines of the four identified thrusts of the World Climate Programme,

**Decides:**

(1) That steps should be taken to review and coordinate activities within the Climate Agenda and to monitor its implementation, including the identification of priorities and coordinating mechanism;

(2) That the substance of the World Climate Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

2. Enhanced capabilities of Members to provide better climate predictions and assessments;
3. Enhanced capabilities of Members to provide better hydrological forecasts and assessments;
5. Development and implementation of the new WMO Information System;
6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness;
7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services;
8. Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

**Invites:**

(1) International organizations carrying out the climate related programmes or activities, especially UNEP, IOC of UNESCO, FAO, WHO and ICSU, to continue and enhance their

partnership with WMO in the future development of coordinated international climate-related programmes, including the World Climate Programme, within the Climate Agenda;

(2) The United Nations Environment Programme to continue assuming responsibility for the World Climate Impact Assessment and Response Strategies Programme as an essential component of the World Climate Programme and propose interaction with the three other components of the Programme in WMO;

**Requests** the Executive Council:

(1) To promote, with the assistance of the Commission for Climatology and other WMO technical commissions concerned, in particular the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, Commission for Basic Systems, Commission for Atmospheric Sciences and Commission for Hydrology, the Joint Scientific Committee for the World Climate Research Programme and the Steering Committee for the Global Climate Observing System, the implementation of the World Climate Programme and Global Climate Observing System;

(2) To conduct an annual review of the planning and implementation of the World Climate Programme taking into account its major role within an overall framework of international climate-related programmes;

(3) To review the development of the Climate Agenda and update it to include relevant actions plans;

(4) To re-establish, with updated terms of reference, an Executive Council Advisory Group on Climate and Environment;

**Requests:**

(1) The technical commissions to accord high priority to the implementation of World Climate Programme activities that fall within the area of their competence and responsibility and support scientific capacity-building, most especially among developing countries and least developed countries;

(2) The regional associations to promote regional activities related to the World Climate Programme and support implementation of Regional Climate Centres;

**Requests** the Secretary-General:

(1) To take, within available budgetary resources, necessary actions to assist WMO bodies, including the Commission for Climatology, involved in the World Climate Programme and other climate-related activities;

(2) To continue cooperation and collaboration with the Executive Heads of relevant international organizations, as well as the incoming president of the Conference of the Parties to the United Nations Framework Convention on Climate Change, to ensure further enhancement of coordination of international climate-related programmes;

(3) To support the establishment of a capacity-building programme for National Meteorological and Hydrological Services to produce and interpret future climate scenarios, at the regional and national scales, in order to better support communities, national decision makers and coordination with relevant agencies;

(4) To ensure that the climate activities of WMO are recognized and supported by the United Nations and the international organizations;

(5) To report to Sixteenth Congress on progress made;

**Urges** Members:

(1) To spare no effort to improve coordination and increase support to national climate-related activities;

(2) To continue to build scientific and technical capacity, particularly in the least developed countries, developing countries and countries with economies in transition.

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**Resolution 9 (Cg-XV)**

**WORLD CLIMATE PROGRAMME – WORLD CLIMATE CONFERENCE-3**

THE CONGRESS,

**Noting** that:

(1) WMO in cooperation with other United Nations agencies, such as the United Nations Environment Programme, Food and Agriculture Organization of the United Nations, Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization, and the International Council for Science organized the First World Climate Conference in 1979,

(2) The First World Climate Conference influenced the establishment of a number of scientific activities, such as the Intergovernmental Panel on Climate Change, World Climate Programme and World Climate Research Programme,

(3) WMO organized the Second World Climate Conference in 1990, which called for the establishment of a climate convention, which resulted in the development of the United Nations Framework Convention on Climate Change in 1992, and the organizing of a Global Climate Observing System,

(4) Over the last decade major scientific advances have occurred in the understanding of and in predicting climate variability and climate change,

(5) These scientific advances have been motivated by an ever-increasing demand for climate predictions in decision-making and applications of climate information to climate risk management and adaptation,

**Noting further** that:

(1) Adapting to climate variability and change and the potential impacts poses challenges and offers opportunities for the management of resources and for national and local infrastructures and economies,

(2) Many developing and, in particular, least developed countries are highly susceptible to setbacks from climate extremes and dependent on improving their use of climate information for achieving their economic and societal goals,

(3) Improvements in climate and Earth observations from satellite, ground-based and in situ platforms can be synthesized into useful data products and indicators for decision makers,

**Recognizing** that:

(1) The Ad Hoc Exploratory Committee on World Climate Conference-3 (WCC-3) established by WMO, met in Geneva on 28 and 29 April 2005, and concluded that there are sufficient scientific issues to justify the holding of a WCC-3 and recommended its development on the basis of scientific advances in seasonal to inter-annual, and possibly decadal forecasting as an overarching theme for the Conference,

(2) The Executive Council, at its fifty-seventh session, recommended the establishment of a Provisional Organizing Committee and confirmed the proposal of an Ad Hoc Exploratory Committee,

(3) The Provisional Organizing Committee, at its first and second meetings in October 2005 and March 2006 proposed structure and themes for a science conference and high-level segment,

(4) The Executive Council at its fifty-seventh confirmed the report of the Ad Hoc Exploratory Committee and at its fifty-eighth sessions endorsed the reports of the Provisional Organizing Committee sessions and agreed on the importance of communicating widely on the scientific advances in seasonal to inter-annual and possibly decadal prediction through a World Climate Conference-3,

(5) The Provisional Organizing Committee held its third session, in November 2006, jointly with representatives of other United Nations agencies, and refined all aspects of a meeting plan for a WCC-3, including expectations for a high-level segment,

**Considering** that:

(1) WCC-3 should result in practical outcomes of direct relevance to policymakers, the private sector and the public, and should strengthen linkages among the scientific and user communities,

(2) WCC-3 has the potential to contribute to significant and immediate socio-economic benefits, including the prevention and mitigation of the impacts of natural disasters,

(3) WCC-3, by advancing the science and application of climate prediction, would provide valuable input to the growing number of activities and programmes focused on adapting to and managing risks posed by climate variability and change, particularly for developing countries,

(4) WCC-3 would enhance coordination across WMO Programmes and those in United Nations and international scientific organizations,

**Endorses**, in general, the scope, content and recommendations made in the report of the third meeting of the Provisional Organizing Committee;

**Decides:**

(1) To make arrangements for the convening of a World Climate Conference-3 towards the end of 2009 with the overall theme of climate prediction for decision-making focusing on seasonal to inter-annual timescales taking into account multi-decadal prediction;

(2) That WCC-3 will be comprised of two segments: a science conference and a high-level segment;

(3) That WCC-3 must be funded from extrabudgetary resources;

**Invites** the WMO Secretariat, its technical commissions, particularly the Commission for Climatology, international organizations carrying out the climate-related programmes or activities, especially the United Nations Environment Programme, Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization, Food and Agriculture Organization of the United Nations, International Council for Science, United Nations Framework Convention on Climate Change, United Nations Convention to Combat Desertification, United Nations Convention on Biological Diversity, United Nations Development Programme and International Strategy for Disaster Reduction in cooperation with the European Commission, World Bank, Intergovernmental Panel on Climate Change, Global Climate Observing System, World Climate Research Programme, World Health Organization, Group on Earth Observations, United Nations World Tourism Organization, the private sector, non-governmental organizations and the International Geosphere-Biosphere Programme to continue preparations for organizing a World Climate Conference-3;

**Urges** Members to spare no effort to support this initiative through national and international activities;

**Requests** the Secretary-General:

(1) To make provisions, as necessary, for establishing a WCC-3 International Organizing Committee funded with extrabudgetary resources provided for the conference; to this end, Congress authorizes the Secretary-General to establish a special Trust Fund for this purpose;

(2) To continue coordination of all facets of a WCC-3 in order to ensure the successful organization of both the high-level segment and the science conference;

(3) To continue consultation and coordination with United Nations bodies, non-governmental organizations, relevant businesses and WMO Members;

(4) To arrange for further planning for the science conference and the development of cost estimates, and to develop a strategy and explore the potential for mobilizing resources to move forward on organizing a WCC-3;

(5) To report at least annually to the Executive Council on the progress and future activities for preparation of a WCC-3;

(6) To provide updates to WMO Members at regular intervals as appropriate on the organization of the WCC-3;

**Requests** the Executive Council:

(1) To provide guidance to the Secretary-General about the composition and terms of reference of the WCC-3 International Organizing Committee;

(2) To review annually the WCC-3 International Organizing Committee's preparations for a World Climate Conference-3, with the aim of ensuring that the conference produces outcomes of comparable significance to those of the prior world climate conferences.

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**Resolution 10 (Cg-XV)**

**INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE**

THE CONGRESS,

**Recalling:**

(1) Resolution 8 (Cg-XIV) – Intergovernmental Panel on Climate Change, and the *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), general summary, paragraphs 3.2.2.1 to 3.2.2.6, on the Intergovernmental Panel on Climate Change (IPCC),

(2) Resolution 1 (EC-LVIII) – Intergovernmental Panel on Climate Change,

**Recognizing** the key role of the Intergovernmental Panel on Climate Change in preparing and disseminating scientific, technical and socio-economic assessments to underpin international policy formulation on the climate change issue,

**Congratulates** the Panel for:

(1) The highly successful completion of the contributions of Working Groups I, II and III to the IPCC Fourth Assessment Report;

(2) The completion of the Special Reports on "Safeguarding the Ozone Layer and the Global Climate System" and "Carbon Dioxide Capture and Storage";

(3) The completion of the "2006 IPCC Guidelines for National Greenhouse Gas Inventories";

**Expresses:**

(1) Its sincere appreciation and gratitude to Mr R.K. Pachauri for the efficient and wise leadership of the activities of the Panel, and to the Co-chairs of the IPCC Working Groups and of the Task Force Bureau on National Greenhouse Gas Inventories for successfully guiding the activities of their Working Groups and Task Force;

(2) Its thanks to all experts who have actively contributed to the writing and review of IPCC reports, in particular the coordinating lead authors, lead authors and review editors;

(3) Its gratitude to governments, institutions and organizations who have generously contributed to the work of the Panel and the WMO/United Nations Environment Programme IPCC Trust Fund;

(4) Its gratitude to the Governments of the United States, the United Kingdom, the Netherlands and Japan for hosting Technical Support Units for IPCC Working Groups and the Task Force;

(5) Its appreciation to the United Nations Environment Programme for its continued co-sponsorship of the Panel;

**Noting:**

(1) That the preparation of a Synthesis Report for the Fourth Assessment Report is well advanced and progressing according to schedule,

(2) That substantial benefits flow to National Meteorological and Hydrological Services and the Intergovernmental Panel on Climate Change through the active involvement of the Services in the work of the Panel,

**Recognizing** that the IPCC terms of reference are comprised of decisions by Congress, the United Nations Environment Programme Governing Council and the Intergovernmental Panel on Climate Change itself, and have served the Panel well in performing its activities,

**Decides:**

(1) To encourage the Intergovernmental Panel on Climate Change to continue its activities under its existing terms of reference subject to any further requests from WMO and the United Nations Environment Programme;

(2) To encourage the Panel to continue to work closely with the United Nations Framework Convention on Climate Change and respond to the needs of the Convention for scientific, technical and socio-economic assessments, including through assessment reports, special reports, methodology reports and technical papers;

**Requests** the Secretary-General, jointly with the Executive Director of the United Nations Environment Programme, to maintain financial and organizational support to the IPCC Secretariat, and to assist with publication and dissemination of IPCC Reports;

**Urges** Members:

(1) To actively participate in the work of the Intergovernmental Panel on Climate Change;

(2) To promote the outcomes of the activities of the Intergovernmental Panel on Climate Change;

(3) And maintain, and where possible to increase, their financial support for IPCC activities through contributions to the WMO/United Nations Environment Programme IPCC Trust Fund.

## Resolution 11 (Cg-XV)

## GLOBAL CLIMATE OBSERVING SYSTEM

THE CONGRESS,

**Noting:**

(1) The 1998 Memorandum of Understanding between WMO, the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC of UNESCO), the United Nations Environment Programme (UNEP) and the International Council for Science (ICSU) concerning the Global Climate Observing System (GCOS),

(2) The Terms of Reference for GCOS National Coordinators (Annex XII of the *Summary Report of the Eleventh Session of the WMO-IOC-UNEP-ICSU Steering Committee for GCOS*, GCOS-87, WMO/TD-No. 1189),

(3) Resolution 9 (Cg-XIV) ─ GCOS Climate Monitoring Principles,

(4) Resolution 10 (Cg-XIV) ─ Global Climate Observing System,

(5) Decisions 11/CP.9 ─ Global observing systems for climate, and 5/CP.10 ─ Implementation of the global observing system for climate, of the ninth and tenth sessions, respectively, of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC),

(6) The *Implementation Plan for the Global Observing System for Climate in Support of the UNFCCC (*GCOS-92, WMO/TD-No. 1219),

(7) *Systematic Observation Requirements for Satellite-based Products for Climate* (GCOS-107, WMO/TD-No. 1338)*,*

(8) *Climate Information for Development Needs: An Action Plan for Africa — Report and Implementation Strategy* (ClimDev Africa, GCOS-108, WMO/TD-No. 1358),

(9) The Decision on Climate Change and Development in Africa, Assembly of the African Union, Assembly/AU/Dec.134 (VIII), January 2007,

**Considering:**

(1) The increasing needs of Members and international organizations for comprehensive, continuous, reliable climate and climate-related data and information in support of:

   (a) Climate system monitoring,

   (b) Climate change detection and attribution,

   (c) Research to improve understanding, modelling and prediction of the climate system,

   (d) Operational climate prediction on seasonal-to-interannual timescales,

   (e) Assessment of the impacts of, and vulnerability and adaptation to, natural climate variability and human-induced climate change,

(f) Applications and services for sustainable economic development,

(g) Requirements of the United Nations Framework Convention on Climate Change and other international conventions and agreements,

(2) The specific observational needs of the World Climate Research Programme, the International Geosphere-Biosphere Programme, the International Human Dimensions Programme on Global Environmental Change and DIVERSITAS; the requirements for comprehensive observations in support of the assessment processes of the Intergovernmental Panel on Climate Change,

(3) The objectives of the Global Climate Observing System as identified in the Memorandum of Understanding to support all aspects of the World Climate Programme and relevant aspects of other climate-related global programmes, and its essential role in underpinning the full range of climate applications and services provided by the National Meteorological and Hydrological Services and other organizations,

(4) The deficiencies, and in many parts of the world the decline, in the number and availability of systematic observations of climate,

(5) The need to implement and, as necessary, to update the Regional Action Plans developed through the GCOS Regional Workshop Programme,

(6) The need to incorporate climate information into social and economic decision-making, particularly in support of the United Nations Millennium Development Goals in developing countries, with a special focus on Africa,

**Recognizing:**

(1) The importance of efficient coordination and interoperability across the various component observing systems of the Global Climate Observing System and effective integration of in situ and space-based observations in meeting user needs,

(2) The unique opportunities for coordinated national and international observation of Essential Climate Variables across the atmospheric, oceanic and terrestrial domains provided through the joint sponsorship of the Global Climate Observing System by WMO, IOC, UNEP and ICSU,

(3) The new opportunities for increased international support, enhanced interoperability and improved integration opened up by the prospect of embedding the GCOS system of systems within the emerging operational structure of the Global Earth Observation System of Systems,

**Recognizing with appreciation:**

(1) The important contribution of the GCOS Steering Committee and its Panels in providing scientific and technical guidance to WMO and other sponsoring and participating organizations for the planning, implementation and further development of the Global Climate Observing System,

(2) The critical role of the Executive Council, technical commissions and regional associations in coordinating the implementation of the WMO component systems of the Global Climate Observing System,

(3) The substantial achievements of Members in implementing their climate observing systems in support of both national needs and the international objectives of the Global Climate Observing System,

(4) The close collaboration among the co-sponsors of the Global Climate Observing System and with the Steering Committees and Secretariats of their other jointly-sponsored observing systems, the Global Ocean Observing System and the Global Terrestrial Observing System,

(5) The support provided by a range of other national and international organizations for GCOS planning and implementation and, in particular, the support of the African Union, the United Nations Economic Commission for Africa, the United Kingdom Department for International Development, the African Development Bank, and the G-8 nations for the ClimDev Africa Programme,

**Reaffirms** the continuing strong commitment of WMO to the objectives of the Global Climate Observing System and support for its implementation in order to meet the full range of user needs;

**Decides** to maintain the Global Climate Observing System as a priority programme of the Organization, in partnership with IOC, UNEP and ICSU and such other international sponsors as might be agreed by the Executive Council;

**Urges** Members:

(1) To strengthen their national atmospheric, hydrological and related oceanic and terrestrial climate observing networks and systems within the framework of the Global Climate Observing System and in support of user needs;

(2) To assist developing country Members to strengthen their observing networks, to improve their capacity to acquire climate-relevant data, and to enhance their provision of climate services by implementing projects in the 10 GCOS Regional Action Plans, and by contributing to the implementation of the ClimDev Africa Programme and to similar initiatives in other regions;

(3) To submit, if they have not already done so, historical daily data from all GCOS Surface Network stations to the Network archive, in digital form where possible;

(4) To ensure, to the extent possible, the long-term continuity of the critical space-based components of the Global Climate Observing System, including the generation and dissemination of the satellite-based climate data and products based on the Essential Climate Variables that are required to meet the needs of the United Nations Framework Convention on Climate Change;

(5) To establish GCOS National Committees and to identify GCOS National Coordinators in order to facilitate coordinated national action on observing systems for climate, taking into account the joint international sponsorship of the Global Climate Observing System and the evolving international arrangements for the Global Earth Observation System of Systems;

(6) To ensure that their delegations to sessions of the Conference of the Parties to the United Nations Framework Convention on Climate Change and its subsidiary bodies are properly informed of the key role played by National Meteorological and Hydrological Services in implementing and operating observing systems necessary to meet national obligations under the Convention, for example through the inclusion of representatives of National Meteorological and Hydrological Services in national delegations;

(7) To encourage their National Meteorological and Hydrological Services to provide effective leadership in the preparation of national reports to the United Nations Framework Convention on Climate Change on their activities with regard to systematic observation of the global climate system, including the identification of gaps, using revised UNFCCC reporting guidelines on global climate observing systems that reflect the priorities of the 2004 Implementation Plan and which incorporate reporting on the Essential Climate Variables identified therein;

(8) To enhance their support to the GCOS Secretariat, through secondment of experts and/or contributions to the Climate Observing System Fund or to specific planning and implementation mechanisms, so as to enable the Secretariat to support the full range of implementation agents in their efforts to establish an effectively-operating Global Climate Observing System;

**Requests** the Executive Council:

(1) To keep the progress of the Global Climate Observing System under regular review and to provide support and guidance on its further development and implementation;

(2) To advise and assist Members, sponsoring bodies, and other international organizations in the implementation of global observing systems for climate;

**Requests** the technical commissions:

(1) To lead the development and implementation of the networks for which they are responsible in the light of advice and guidance from the GCOS Steering Committee;

(2) To contribute to the five-year Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change of the United Nations Framework Convention on Climate Change, in particular to the elements of the programme related to data and observations;

**Requests** the regional associations:

(1) To foster effective, coordinated implementation of the Global Climate Observing System at the regional level, in close consultation with the regional counterparts of the other international sponsors of GCOS;

(2) To undertake efforts to assist Members in providing effective leadership in the preparation of national reports to the United Nations Framework Convention on Climate Change on their activities with regard to systematic observation of the global climate system;

**Requests** the GCOS Steering Committee to continue to provide broadly-based strategic advice and guidance to all relevant WMO bodies on the implementation and further development of the Global Climate Observing System;

**Requests** in particular the GCOS Steering Committee and the technical commissions to continue their interaction and cooperation in the further development and implementation of the Global Climate Observing System;

**Requests** the Secretary-General, as appropriate and within the programme and budget approved by Congress, and using whatever access might be possible to additional external funding mechanisms:

(1) To support the further planning, development and implementation of the Global Climate Observing System, including the actions in response to the needs of the Conference of the

Parties to the United Nations Framework Convention on Climate Change and the recommendations of the 2004 Implementation Plan;

(2) To encourage and assist Permanent Representatives of Members to take the lead in the establishment of GCOS National Committees and the designation of GCOS National Coordinators;

(3) To articulate, at all appropriate forums, the need for broad support by nations of the observational and resource requirements for implementing the Global Climate Observing System;

(4) To provide all support possible for the work of the GCOS Steering Committee and its Panels and Secretariat.

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**Resolution 12 (Cg-XV)**

**WORLD CLIMATE DATA AND MONITORING PROGRAMME**

THE CONGRESS,

**Noting:**

(1) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Climatology* (WMO-No. 996),

(2) The *Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007),

(3) The *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), agenda item 3.2,

(4) The *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902), agenda item 3.2,

(5) Resolution 7 (Cg-XIII) ─ Global Climate Observing System,

(6) Resolution 11 (Cg-XIV) ─ Services of the World Climate Programme (covering the World Climate Data and Monitoring Programme and the World Climate Applications and Services Programme),

(7) The Sixth WMO Long-term Plan, and the WMO Strategic Plan,

(8) The reports of the Intergovernmental Panel on Climate Change,

**Further noting:**

(1) The continued cooperation between the Commission for Climatology and other WMO technical commissions, particularly the Commission for Basic Systems and the Commission for Instruments and Methods of Observation, and WMO-sponsored programmes relevant to climate data and monitoring, in particular the Global Climate Observing System and the

World Climate Research Programme, the establishment of linkages and collaboration between the Commission for Climatology and cross-cutting programmes such as the WMO Space Programme and the WMO Natural Disaster Prevention and Mitigation Programme,

(2) That progress has been made by the World Climate Data and Monitoring Programme during the period 2003–2007, in particular in:

(a) Providing Members with assistance and capacity-building to migrate from Climate Computing (CLICOM) to modern and robust Climate Data Management Systems,

(b) Helping Members in safeguarding invaluable climate records at risk of degradation, such as those records kept on paper or in obsolete electronic media, and coordinating several data rescue projects,

(c) The publication of annual press releases, global climate statements and reviews,

(d) The organization of training seminars on climate monitoring systems and climate change indices to help National Meteorological and Hydrological Services develop useful input to their national reports for the United Nations Framework Convention on Climate Change,

(e) Developing guidelines and material on best practices in observing requirements and standards for climate, data management, metadata and homogenization, data rescue and climate watches,

**Considering:**

(1) That monitoring, assessing and predicting the climate system at various space- and time-scales is becoming one of the highest priorities of Members at different levels of decision-making,

(2) The importance of high-quality climatological observations and data sets for understanding and monitoring climate variability and change, and for implementing climate applications and prediction services,

(3) That the accessibility and use of climate data is as important as its collection and archiving,

(4) That there is a need to encourage Members to provide CLIMAT and CLIMAT TEMP reports to the international community,

(5) That there is a pressing need to continue the migration from CLICOM to Climate Data Management Systems to meet the requirements of all Members in a cost-effective way, as well as emerging needs in upgrading and maintaining the newly installed Systems and preserving and safeguarding data records from being lost through Data Rescue projects,

**Expresses:**

(1) Its satisfaction that progress has been made in the World Climate Data and Monitoring Programme through:

(a) Well-coordinated climate system monitoring at the global and regional scales;

(b) Closer links with the climate modelling community on the development and use of climate variability and change indices;

(c) Completion of *WMO Statements on the Status of the Global Climate* in all WMO languages;

(d) Improved climate data management in developing and least developed countries;

(e) Data rescue seminars and projects to increase the number of observations in the databases of Members and global centres;

(f) The publication of the World Weather Records 1981–1990 and 1991–2000 in collaboration with the United States National Climatic Data Center;

(g) The collaboration with the Global Climate Observing System and the World Weather Watch in the organization of CLIMAT and CLIMAT TEMP reports seminars;

(2) Its concern that climate system monitoring including climate change detection is still being hindered by the non-availability of sufficient and accessible data as well as by the continuous lack of capacity within many developing and least developed countries;

**Decides** that the implementation of the World Climate Data and Monitoring Programme should continue to be carried out, with priority being given to:

(a) Improving climate databases through the implementation of Climate Data Management Systems and improving access and expanding use of the databases;

(b) Pursuing data rescue projects and expanding the focus on other data media storage to be rescued;

(c) Continuing climate system monitoring through routinely published reports, and promote the use of the Web-based climate system monitoring within National Meteorological and Hydrological Services, as well as the use of remote sensing data and products in a more efficient manner;

(d) Transforming the content of the various published guidelines into knowledge through capacity-building training workshops, seminars and conferences as well as the development of e-learning capabilities as it deems appropriate;

(e) The implementation of climate watches particularly in developing countries in collaboration with other WMO Programmes including the World Weather Watch and the World Climate Applications and Services Programme;

**Urges** all Members, especially donor countries individually and through appropriate multinational arrangements, to cooperate actively and enthusiastically in the implementation and operation of the World Climate Data and Monitoring Programme and, in particular:

(1) To continue as far as possible to implement, maintain and enhance climate observation networks, for national, regional and global climate analysis;

(2) To implement, upgrade, maintain and enhance access to national digital climate archives;

(3) To enhance climate monitoring capabilities for the generation of higher quality and new types of products and services;

(4) To participate in the deployment and use of new climate data management systems and techniques;

(5) To improve data exchange among Members and improve the capacity of Members through a continued collaboration with the Global Climate Observing System and the World Weather Watch in their joint efforts in organizing relevant seminars such as CLIMAT and CLIMAT TEMP reports seminars;

**Requests** the Secretary-General:

(1) To assist Members, as necessary, in overcoming difficulties that may arise in the implementation of World Climate Data and Monitoring Programme activities, particularly climate watch systems, climate data rescue and data management;

(2) To assist the Executive Council, the regional associations and the Commission for Climatology in the implementation of this resolution;

(3) To bring this resolution to the attention of all concerned.

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## Resolution 13 (Cg-XV)

## WORLD CLIMATE APPLICATIONS AND SERVICES PROGRAMME, INCLUDING THE CLIPS PROJECT

THE CONGRESS,

**Noting:**

(1) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Climatology* (WMO-No. 996),

(2) The *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), agenda item 3.2 and Resolution 11 (Cg-XIV) ─ Services of the World Climate Programme (covering the World Climate Data and Monitoring Programme and the World Climate Applications and Services Programme),

(3) The *Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902), agenda item 3.2 and Resolution 8 (Cg-XIII) ─ Climate Information and Prediction Services project,

(4) The draft final report of the WMO Conference on Living with Climate Variability and Change: understanding the uncertainties and managing the risks (Espoo, Finland, 17–21 July 2006),

(5) The Sixth WMO Long-term Plan and the WMO Strategic Plan,

(6) The five-year Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change of the Subsidiary Body for Scientific and Technological Advice of the United Nations Framework Convention on Climate Change,

(7) The concern expressed by Fourteenth Congress over the resource constraints under which the Climate Information and Prediction Services (CLIPS) project is being implemented,

(8) The assessment reports of the Intergovernmental Panel on Climate Change,

**Further noting:**

(1) The continued cooperation between the Commission for Climatology, other WMO technical commissions and WMO Programmes on cross-cutting issues relevant to climate services,

(2) That progress has been made in the World Climate Applications and Services Programme (WCASP)/Climate Information and Prediction Services during the period 2003–2007, through enhanced partnerships, expanded Regional Climate Outlook Forum activities, CLIPS focal point networking and training workshops including the development of CLIPS curriculum,

(3) That the new structure of the Commission for Climatology helps to identify climate-related risk management strategies for key application sectors,

**Considering:**

(1) That climate information and predictions are vital to socio-economic decision-making and sustainable development,

(2) That effective climate services must address the needs and requirements of relevant decision sectors, developed within real-world decision contexts,

(3) That Members need to provide reliable, operational climate predictions exploiting research progress and new technological advances,

(4) That regional cooperation for capacity-building and infrastructure development within National Meteorological and Hydrological Services strengthens the provision of climate monitoring services for seasonal to inter-annual climate predictions,

(5) That climate experts within National Meteorological and Hydrological Services require training, up-to-date curricula and access to the latest scientific information,

(6) That effective national and regional climate services will enhance the capacity of National Meteorological and Hydrological Services to contribute to the Subsidiary Body for Scientific and Technological Advice of the United Nations Framework Convention on Climate Change and its five-year Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change,

**Endorses** the new structure for Open Programme Area Groups 3 and 4 adopted by the Commission for Climatology at its fourteenth session and the priorities outlined therein;

**Decides:**

(1) That implementation, operation and maintenance of WCASP/CLIPS initiatives are essential to meeting the objectives of the WMO Strategic Plan and strengthening climate services within the National Meteorological and Hydrological Services;

(2) That the implementation of WCASP/CLIPS should therefore continue, with priority given to:

   (a) Supporting the work of Commission for Climatology Open Programme Area Groups on CLIPS and on Applications and Services for:

      (i) Facilitating access to, and operationalization of, the latest advances in climate prediction research and identification of further research needs for climate

prediction, in close collaboration with the World Climate Research Programme;

(ii) Facilitating linkages with the World Climate Data and Monitoring Programme, Global Climate Observing System, World Weather Watch Global Observing System and with Open Programme Area Groups 1 and 2 of the Commission for Climatology on data requirements for climate applications and services;

(iii) Identification of best practices for the development of climate services and products including verification methods, and effective user liaison,

(iv) Development of consensus approaches for El Niño and La Niña assessment;

(v) Facilitating applications for key socio-economic sectors;

(b) Promotion of Regional Climate Outlook Forums, the CLIPS focal point networking and coordination and climate services within Regional Climate Centres;

(c) Development of inter-agency and interdisciplinary partnerships at the global, regional and national levels;

(d) Coordination of global consensus on El Niño and La Niña, through regular Updates;

(e) Capacity-building through training, development of the CLIPS training curricula, in collaboration with the Education and Training Department;

(f) Fostering publication of the results of the Commission for Climatology Expert Teams and development, with partners, of outreach materials;

(3) That an Implementation Plan be developed, in collaboration with the Commission for Climatology, to guide the future evolution of CLIPS and to initiate a cross-cutting guidance mechanism for CLIPS, to include all relevant WMO Programmes;

**Stresses** that in all WCASP/CLIPS efforts, special priority will be given to:

(1) The needs of least developed countries;

(2) The needs of all Members with respect to climate aspects of natural disaster prevention and mitigation;

(3) Promotion of the role of climate services of National Meteorological and Hydrological Services in supporting the five-year Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change;

**Urges** all Members and regional associations, individually and through appropriate multinational and inter-agency arrangements, to:

(1) Promote and participate in the development of sustainable funding mechanisms for Regional Climate Centres, Regional Climate Outlook Forums, training, user liaison and outreach;

(2) Establish mechanisms for sustained, up-to-date, high-quality climate information and prediction services within National Meteorological and Hydrological Services;

(3) Integrate the CLIPS curricula in their national and regional training initiatives;

(4) Supplement, through extrabudgetary contributions to WMO, the resources required for the further development and implementation of the WCASP/CLIPS initiatives on a global scale;

(5) Keep the Secretary-General informed about their CLIPS-related plans and activities;

**Requests** the Secretary-General:

(1) To support, using whatever financial flexibility might exist within the programme and budget for 2008–2011 agreed by Fifteenth Congress, the planning, development and implementation of WCASP/CLIPS initiatives, particularly those targeted at reducing vulnerability to climate-related hazards, climate risk management, sustainable Regional Climate Outlook Forums, training, and the five-year Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change;

(2) To facilitate the support of the Development Cooperation and Regional Activities Department and Voluntary Cooperation Programme for WCASP/CLIPS activities, particularly for least developed countries and for capacity-building and training;

(3) To make use of extrabudgetary resources such as the Climate and Atmospheric Environment Activities Trust Fund, to support the implementation of WCASP/CLIPS activities;

(4) To ensure the close cooperation and coordination of WCASP/CLIPS activities with other relevant WMO Programmes, particularly the World Climate Data and Monitoring Programme, World Weather Watch, Hydrology and Water Resources Programme, Agricultural Meteorology Programme, Public Weather Services Programme, Atmospheric Research and Environment Programme/THORPEX, World Climate Impact Assessment and Response Strategies Programme, Regional Programme, Education and Training Programme, Natural Disaster Prevention and Mitigation Programme, Global Climate Observing System and World Climate Research Programme;

(5) To ensure that the outcomes of the WMO Conference on Living with Climate Variability and Change: Understanding the Uncertainties and Managing the Risks are brought to the attention of Members and all relevant international organizations, and further to ensure cooperation in cross-cutting and multidisciplinary issues concerning climate variability and change;

(6) To present the draft Implementation Plan on the Climate Information and Prediction Services to the fifteenth session of the Commission for Climatology, to be held in 2009, for review and appropriate recommendations to Sixteenth Congress, to be held in 2011;

(7) To bring this resolution to the attention of all concerned.

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**Note:** This resolution replaces Resolution 8 (Cg-XIII) and, in part, Resolution 11 (Cg-XIV), which are no longer in force.

## Resolution 14 (Cg-XV)

## ATMOSPHERIC RESEARCH AND ENVIRONMENT PROGRAMME

THE CONGRESS,

**Noting:**

(1) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Atmospheric Sciences* (WMO-No. 1002),

(2) Resolution 10 (Cg-XIII) ─ Atmospheric Research and Environment Programme, and related actions taken by Fourteenth Congress and the Executive Council,

(3) Resolution 12 (Cg-XIV) ─ THORPEX: A Global Atmospheric Research Programme,

(4) The WMO Strategic Plan,

(5) That the skilful prediction of high-impact weather is one of the greatest scientific and societal challenges of the twenty-first century,

(6) The Vienna Convention for the Protection of the Ozone Layer, the Montreal Protocol on Substances that Deplete the Ozone Layer and its subsequent amendments, the United Nations Framework Convention on Climate Change, the Convention on Long-range Transboundary Air Pollution of the United Nations Economic Commission for Europe and other environment-oriented conventions,

**Considering:**

(1) The heightened public awareness and concerns for global, regional and local climate, weather and environmental issues in general,

(2) That a major task of National Meteorological and Hydrological Services is weather prediction and, in particular, forecasting events with high societal and economic impacts,

(3) The responsibility of WMO within the United Nations system to provide the authoritative scientific voice on the state and behaviour of the atmosphere, weather and climate of our planet,

(4) The central role played by the atmosphere in environmental issues, which has been foremost among societal concerns during the past years and will continue well into this century, such as the global increase of greenhouse gases and effect of aerosols on weather and climate, stratospheric ozone depletion and related increase in ultraviolet radiation, long-range pollutant transport, air quality and impacts of pollutant deposition,

(5) The increasing demand by numerical weather prediction research and operations for support in adding aerosols, ozone and their gaseous precursors to improve forecasting accuracy as well as enhance products and services,

(6) The increasing need to move towards environmental predictions, using as a core driver the traditional numerical weather prediction systems, coupled with other modelling subsystems, with a consideration of the socio-economic impacts, as distinct from strictly traditional weather-only predictions,

(7) The implementation of the WMO Global Atmosphere Watch (GAW) Programme with the mission of taking into account the Integrated Global Atmospheric Chemistry Observations (IGACO) strategy to: reduce environmental risks to society and meet the requirements of environmental conventions; strengthen capabilities to predict climate, weather and air quality; and contribute to scientific assessments in support of environmental policy; through maintaining and applying global, long-term observations of the chemical composition and selected physical characteristics of the atmosphere; emphasizing quality assurance and quality control; and delivering integrated products and services of relevance to user needs,

(8) The focus of the GAW integrated atmospheric chemistry observations is primarily on greenhouse gases, ozone, ultraviolet radiation, aerosols, selected reactive gases and precipitation chemistry with additional support for other IGACO variables,

(9) The potential of the National Meteorological and Hydrological Services to contribute substantially to integrated observations via their extensive monitoring system infrastructures and specific scientific expertise in areas such as numerical modelling with four-dimensional data assimilation techniques and real-time data delivery,

(10) That greenhouse gases, aerosols and ozone are designated Essential Climate Variables in the Global Climate Observing System *Second Report on the Adequacy of the Global Observing Systems for Climate in Support of the UNFCCC* (GCOS-82, WMO/TD-No. 1143) and that the GAW Global $CO_2$ and $CH_4$ Monitoring Network is a comprehensive network of the Global Climate Observing System,

(11) 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) and partner organizations in the resolution of sustainable environmental development issues,

(12) That Thirteenth Congress and the fourteenth session of the Commission for Atmospheric Sciences concurred with the need for the GAW Urban Research Meteorology and Environment activities aimed at improving air quality forecasting, expansion of GAW measurements and strengthening partnerships of National Meteorological and Hydrological Services with key sectors including health,

(13) That despite the substantial increase in the forecast skill achieved by improvements in atmospheric observing technology, data-assimilation methods, new numerical model formulations and the use of ensemble techniques, the ability to forecast high-impact weather events still falls below that required by society,

(14) The decision of the fourteenth session of the Commission for Atmospheric Sciences (CAS) and its Management Group to develop and implement, under the CAS Open Programme Area Group on World Weather Research Programme (WWRP), a strategic plan for a new World Weather Research Programme that integrates WMO Member activities in The Observing System Research and Predictability EXperiment (THORPEX), tropical meteorology, mesoscale weather forecasting, nowcasting, verification and societal and economic benefits with those of partners in global forecast research and Earth observations,

(15) The need of National Meteorological and Hydrological Services for support in practicing sound weather modification research,

**Decides:**

(1) That the substance of the Atmospheric Research and Environment Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

1. Enhanced capabilities of Members to produce better weather forecasts and warnings;
2. Enhanced capabilities of Members to provide better climate predictions and assessments;
3. Enhanced capabilities of Members to provide better hydrological forecasts and assessments;
4. Integration of WMO observing systems;
6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness;
7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services;
8. Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

(2) That the Atmospheric Research and Environment Programme should focus on: World Weather Research Programme including THORPEX; the Global Atmosphere Watch including IGACO implementation; and the related transfer of appropriate technology and proven methodologies among Members as indicated in the WMO Strategic Plan;

(3) That education and training aspects be included in all components of the Atmospheric Research and Environment Programme;

(4) That, in the implementation of the Atmospheric Research and Environment Programme, WMO should continue to cooperate, as appropriate, with the United Nations Environment Programme, World Health Organization, United Nations Development Programme and other relevant agencies;

**Requests** Members:

(1) To give all possible support to the implementation of the Atmospheric Research and Environment Programme, with high priority to the Global Atmosphere Watch and the World Weather Research Programme including THORPEX, for example through contributions to the appropriate trust fund such as the THORPEX trust fund;

(2) To support the central role of the Global Atmosphere Watch in the development of a WMO Integrated Global Observing System;

**Requests** the president of the Commission for Atmospheric Sciences:

(1) To arrange for the development and implementation of WMO activities in the Global Atmosphere Watch and the World Weather Research Programme including THORPEX using technical strategic plans;

(2) To encourage Members of the Commission to participate in and contribute to THORPEX, and its trust fund, and to facilitate the activities of the International Core Steering Committee for THORPEX;

(3) To coordinate activities in the implementation of the Atmospheric Research and Environment Programme with other relevant WMO Programmes, in particular the World Climate Research Programme and international organizations;

(4) To ensure that the Commission for Atmospheric Sciences continues to assist Members through its Expert Team on Weather Modification in practicing sound weather modification research;

(5) To arrange provision of assistance and advice with respect to the Education and Training Programme;

(6) To stimulate and coordinate socio-economic research and development activities and studies to increase the value of environmental prediction outputs for the benefit of WMO Members;

**Requests** the Executive Council:

(1) To take, within available budgetary resources, all necessary actions towards the fullest possible implementation of the Atmospheric Research and Environment Programme, in accordance with the WMO Strategic Plan;

(2) To support the work of the Commission for Atmospheric Sciences, and other bodies concerned, in the development of component programmes of the Atmospheric Research and Environment Programme;

(3) To continue its coordinating role regarding the Global Atmosphere Watch and the World Weather Research Programme with other relevant WMO activities through the CAS Open Programme Area Groups on Environmental Pollution and Atmospheric Chemistry and on the World Weather Research Programme;

**Requests** the Secretary-General:

(1) To take all necessary action, within available budgetary resources, for the implementation of the Programme;

(2) To support the THORPEX international programme office, to assist WMO Members in the international coordination of THORPEX, and to assist Members from developing nations in their utilization of THORPEX-related forecast products;

(3) To devote particular attention to the education and training aspects of the Atmospheric Research and Environment Programme;

(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 of WMO through the Atmospheric Research and Environment Programme with agencies, groups and institutions such as the Group on Earth Observations, International Council for Science, United Nations Environment Programme and United Nations Development Programme, which can contribute to the further development and implementation of the research-based programmes of the Atmospheric Research and Environment Programme and to seek further financial support from such agencies and other national and international institutions and from Members.

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**Note:** This resolution replaces Resolution 10 (Cg-XIII), which is no longer in force.

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**Resolution 15 (Cg-XV)**

**STRATOSPHERIC OZONE OBSERVATIONS**

THE CONGRESS,

**Noting:**

(1) The Vienna Convention for the Protection of the Ozone Layer and its associated protocols,

(2) The *Abridged Final Report with Resolutions of the Seventh World Meteorological Congress* (WMO-No. 416), general summary, paragraph 3.2.1.3,

(3) The *Abridged Final Report with Resolutions of the Twenty-seventh Session of the Executive Committee* (WMO-No. 417), general summary, paragraph 3.3.7.3,

**Considering:**

(1) That WMO is the international organization having scientific competence and experience to coordinate atmospheric ozone studies, especially those relevant to the implementation and verification of the Vienna Convention for the Protection of the Ozone Layer,

(2) The extent to which human activities may affect long-term ozone changes, the need to discriminate such changes from those occurring naturally and the need to assess the consequences of ozone change,

(3) That quadrennial scientific assessments of ozone depletion assume special importance in the context of the Vienna Convention and its Montreal Protocol on Substances that Deplete the Ozone Layer,

(4) The need for a comprehensive atmospheric ozone observational system providing data on total ozone and its vertical distribution, and the value of such data in studies of the general circulation and other meteorological phenomena on various space-scales and timescales,

(5) That the Global Atmosphere Watch global network of surface-based total ozone and vertical profile observing stations requires careful interregional and intraregional comparisons of ozone instruments and standard operating procedures,

(6) That reliable detection of trends, ozone turnaround and ozone recovery as well as satellite validation rely critically upon long-term total ozone observations of high quality,

(7) That the continuation for the next several decades of the current Global Atmosphere Watch global ozone network and the filling of major gaps in the network are critical to the verification of the effectiveness of halocarbon emission controls enacted under the Montreal Protocol,

**Requests** Members:

(1) To establish, upgrade or reactivate, and maintain ozone observations, including observations in the Arctic and the Antarctic, using surface instruments, balloon sondes, aircraft and satellites. The observing programmes should be continued for sufficiently long periods to allow climatological investigations;

(2) To maintain consistency in global ozone measurements coordinated by the Global Atmosphere Watch through linking observations to WMO World Reference Standards, following measurements guidelines, undertaking regular international calibrations of their total ozone instruments, and to provide support to developing countries so that they can participate in such calibrations;

(3) To improve data retrieval by conducting supporting observations, for example temperature and aerosol extinction, and related studies, such as better algorithms, as required;

(4) To undertake measurements of atmospheric trace gases relevant to ozone chemistry;

(5) To contribute to research efforts so that the understanding of the physical, chemical, dynamical, radiative, biospheric and human factors controlling ozone distribution and change can be improved;

(6) To initiate or continue routine programmes for carefully made "Umkehr" observations at stations operating sensitive and well-kept ozone spectrophotometers in suitable climates;

(7) To establish additional total-ozone measuring stations in data-sparse areas identified as necessary to complete the global network, and for this purpose to loan or donate any unused Dobson or Brewer ozone spectrophotometer in their possession, including associated documentation and appropriate training, to another Member;

(8) To cooperate in data storage and a more rapid exchange of total ozone data, particularly by sending data to the WMO Global Atmosphere Watch World Ozone and Ultraviolet Radiation Data Centre in Toronto, Canada, and by sending data in near-real-time to the Global Telecommunication System/WMO Information System;

(9) To make every effort to continue total ozone monitoring with ozone spectrophotometers, at least at stations with long-term records of high-quality data, and to ensure adequate overlap when switching from one type of instrument to another in order to avoid breaks and inhomogeneities in the data sets;

(10) To contribute to observations, analysis and research supporting the WMO Ozone Bulletins and the quadrennial WMO/United Nations Environment Programme Scientific Assessment of Ozone Depletion;

(11) To participate in the triennial meetings of the Ozone Research Managers of the Parties to the Vienna Convention for the Protection of the Ozone Layer and contribute with recommendations for improvements of the Global Atmosphere Watch ozone observing system;

(12) To contribute to the Trust Fund for the Vienna Convention for the Protection of the Ozone Layer on research and systematic observations;

**Urges** Members operating satellites to include atmospheric ozone sensors of proven capability aboard future spacecraft, and to maintain continuous ozone measurements for as long as possible,

making a selection of vertical ozone profiles and total ozone values available to all interested users;

**Requests** regional associations to designate and maintain at least one of their total ozone measuring instruments as regional standard for atmospheric ozone observations, and ensure that the observing station concerned is suitably equipped for that purpose;

**Requests** the president of the Commission for Atmospheric Sciences to keep under continuous review the programme of atmospheric ozone measurements and research and to propose further recommendations as and when necessary for its improvement;

**Requests** the Secretary-General:

(1) To take the actions necessary to support these activities;

(2) To bring this resolution to the attention of all concerned and to provide assistance within the limits of available resources in implementing it.

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**Note:** This resolution complements Resolution 14 (Cg-XV) – Atmospheric Research and Environment Programme, and replaces Resolution 7 (EC-XXXIX), and Resolution 3 (EC-LVI), which are no longer in force.

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## Resolution 16 (Cg-XV)

## PUBLIC WEATHER SERVICES PROGRAMME

THE CONGRESS,

**Noting:**

(1) Resolution 13 (Cg-XIV) – Public Weather Services Programme,

(2) Resolution 28 (Cg-XIV) – Role and Operation of National Meteorological and Hydrological Services,

(3) The *Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007),

(4) The *Abridged Final Report with Resolutions and Recommendations of the Extraordinary Session (2006) of the Commission for Basic Systems* (WMO-No. 1017),

**Considering:**

(1) That the provision of Public Weather Services is one of the most fundamental functions of National Meteorological and Hydrological Services and an important channel through which national communities can benefit from the work of the National Meteorological and Hydrological Services,

(2) That there is an increasing demand on National Meteorological and Hydrological Services for accurate, timely and understandable warnings and forecasts for the safety of life and protection of property and for contribution to sustainable development,

(3) That there is continuing need to strengthen the capability of Members to deliver high-quality services,

(4) That the ability of decision makers to understand and translate warnings into effective actions is an essential component for the achievement of disaster risk reduction,

**Decides** that the substance of the Public Weather Services Programme be as indicated in the WMO Strategic Plan adopted under Resolution 27 (Cg-XV);

**Urges** Members:

(1) To continue to collaborate and support the implementation of the Public Weather Services Programme and take all possible steps to strengthen their national Public Weather Services through ensuring effective service delivery and raising the level of public awareness of, and response to, these services;

(2) To improve coordination and communication with user communities and stakeholders;

(3) To measure the contribution of Public Weather Services to the social and economic benefits provided to users through the work of National Meteorological and Hydrological Services, and demonstrate such benefits to governments with the aim of securing due support for National Meteorological and Hydrological Services;

**Requests** the Secretary-General:

(1) To continue to assist Members in their efforts to implement Public Weather Services activities at the national level and in particular to give high priority to training requirements;

(2) To ensure the further development and implementation of the Public Weather Services Programme, and that the Programme is enabled to contribute fully to the realization of the WMO strategic goals across the areas of weather, water and climate;

(3) To coordinate the relevant WMO Programmes to contribute effectively to the objectives of the Public Weather Services Programme and to promote collaboration with relevant international organizations.

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**Note:** This resolution replaces Resolution 13 (Cg-XIV), which is no longer in force.

## Resolution 17 (Cg-XV)

## AGRICULTURAL METEOROLOGY PROGRAMME

THE CONGRESS,

**Noting:**

(1) Resolution 14 (Cg-XIV) – Agricultural Meteorology Programme,

(2) Resolution 11 (EC-LV) – Report of the thirteenth session of the Commission for Agricultural Meteorology,

(3) The progress made in the implementation of the Programme, including that on drought and desertification,

(4) The *Abridged Final Report with Resolutions and Recommendations of the Fourteenth Session of the Commission for Agricultural Meteorology* (WMO-No. 1014),

(5) The report of the president of the Commission for Agricultural Meteorology,

(6) The WMO Strategic Plan,

**Expresses** its appreciation for steps taken to assist Members in combating desertification, alleviating the effects of drought and applying agrometeorology in the development of sustainable farming systems;

**Recognizing:**

(1) That food production and food self-sufficiency continue to be a high priority in many countries,

(2) That agrometeorological products, services and coping strategies are needed to sustain agricultural development for both effective short-term daily operational farming decisions and proactive long-term strategic agricultural planning measures,

(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 the decrease in agricultural production as a result of desertification, droughts, floods and other extreme events continues to affect many countries, in particular in Africa and Latin America, and that the world community has decided to take steps to combat desertification, droughts, floods and other extreme events and to develop sustainable farming systems,

**Endorses** the decision of the fourteenth session of the Commission for Agricultural Meteorology on the implementation of the Agricultural Meteorology Programme;

**Urges** all Members:

(1) To collaborate actively in, and to give all possible support to, the implementation of the Agricultural Meteorology Programme;

(2) To collaborate in climate-related risk management research and development programmes that are truly cross-disciplinary in order to facilitate the exchange of user relevant information and co-learning;

(3) To institutionalize climate information application as an important step to enable societies to proactively respond to climate risks;

(4) To continue to promote the applications of meteorological, climatological, hydrological and oceanographic data and information on the implementation of agricultural, livestock, forestry and fisheries activities and programmes, taking into account the Agricultural Meteorology Programme, including that of desertification, drought and meteorological and agricultural developments in both the scientific and practical fields;

(5) To develop their national agricultural meteorological services by transfer of knowledge and methodology through education and training programmes;

(6) To promote agrometeorological services for agricultural production, focusing on operational and research activities that promote agricultural production;

(7) To enhance support systems for agrometeorological services, concentrating on network observations, data and information management, and technological developments needed to advance the production of services;

(8) To address the priority issues affecting sustainable agriculture, such as water quality and availability, climate change, climate variability and natural disasters;

(9) To introduce effective methods for the exchange of agrometeorological data and products and for the dissemination of information and warnings to farmers;

(10) To be proactive in providing data and forecasts to National Locust Control Centres to assist in their control operations;

**Decides** that the substance of the Agricultural Meteorology Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

6. Enhanced capabilities of Members in multi-hazard early warning and disaster preparedness;
7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications services;
8. Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

**Requests** the Executive Council, with the assistance of the Commission for Agricultural Meteorology and other relevant technical commissions, to promote, guide and assist in the implementation of the Agricultural Meteorology Programme;

**Requests** the Secretary-General:

(1) To take necessary actions, within available budgetary resources, to support Members in their efforts to implement the priority activities in the Agricultural Meteorology Programme as described in the WMO Strategic 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 WMO Strategic Plan, especially in the areas of education and training in agrometeorology and the preparation of guidelines on the improvement of management practices in agriculture and forestry;

(4) To report annually to the Executive Council on progress achieved and to submit proposals for the future;

(5) To report to Sixteenth Congress on progress achieved and to submit proposals for the future.

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## Resolution 18 (Cg-XV)

## AERONAUTICAL METEOROLOGY PROGRAMME

THE CONGRESS,

**Noting:**

(1) Resolution 15 (Cg-XIV) ─ Aeronautical Meteorology Programme,

(2) The *Abridged Final Report with Resolutions and Recommendations of the Thirteenth Session of the Commission for Aeronautical Meteorology* (WMO-No. 1018),

(3) Recommendation 1 (CAeM-XII) ─ Training Activities of the Aeronautical Meteorology Programme,

(4) The request by the Executive Council at its fifty-eighth session (*Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007), general summary, paragraph 3.4.3.1) to the Secretary-General to endeavour to provide increased funding to the programme,

**Considering**:

(1) That aviation meteorology as a fundamental source of income particularly for developing countries needs to increase efficiency in the provision of services to aviation while maintaining safety,

(2) That National Meteorological and Hydrological Services are coming under increasing pressure to provide timely and increasingly accurate services to aviation, and to apply International Organization for Standardization certified quality management systems,

(3) That such programmes require a stable funding basis either through a commitment to direct and appropriate government funding or through recognized principles of cost recovery for aviation meteorological service provision,

(4) That the national and transnational Air Traffic Management authorities in several regions are actively considering a review of airspace structure and consequently may request the provision of aeronautical meteorological services to aviation in line with such changed airspace structures,

(5) That such adaptation would require an enhanced cooperation by Members at the regional and subregional levels and with Planning and Implementation Regional Groups of the International Civil Aviation Organization,

(6) That such changes in service delivery may affect the economic and organizational basis for National Meteorological and Hydrological Services and would require harmonization of many activities including training, capacity-building, scientific development and infrastructure investments,

(7) That aeronautical meteorology has to play an important role in cross-cutting activities such as disaster prevention and mitigation, support for developing countries, in particular least developed countries and small island developing States, for whom aviation is a key development factor,

**Decides:**

(1) That the WMO Aeronautical Meteorology Programme should be suitably resourced, enabling it to address new and urgent questions put before it;

(2) That the Aeronautical Meteorology Programme should form an integral part of the new WMO Strategic Plan;

(3) That adequate additional funding be provided for high-priority activities in support of training, implementation of cost recovery, capacity-building and support for least developed countries and small island developing States;

**Urges** all Members to collaborate actively, by making time and expertise of their staff available for the work in expert teams in the implementation of the Aeronautical Meteorology Programme;

**Requests** the Executive Council, with the assistance of the Commission for Aeronautical Meteorology and other relevant technical commissions, to guide and support the implementation of the Aeronautical Meteorology Programme;

**Requests** the regional associations:

(1) To create dedicated groups where necessary, to develop implementation plans for aeronautical meteorology in close collaboration with the aviation industry and relevant Planning and Implementation Regional Groups of the International Civil Aviation Organization and assist in the implementation of these plans;

(2) To assist these groups by providing the necessary resources;

**Requests** the Secretary General:

(1) To assist in the establishment of such groups, and give high priority to training and capacity-building at the regional and subregional levels;

(2) To collaborate in the establishment of these groups with the International Civil Aviation Organization, Agency for Air Navigation Safety in Africa and Madagascar, International Air Transport Association, International Federation of Air Line Pilots' Associations, International Federation of Air Traffic Controllers' Associations, regional and national aviation meteorology regulators and service providers as well as user representatives;

(3) To foster the integration of these regional programmes, in a cross-cutting way, into the WMO Strategic Plan and the WMO Secretariat Operating Plan;

(4) To bring this resolution to the attention of all concerned.

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## Resolution 19 (Cg-XV)

## MARINE METEOROLOGY AND OCEANOGRAPHY PROGRAMME

THE CONGRESS,

**Noting:**

(1) Resolution 16 (Cg-XIV) – Marine Meteorology and Oceanography Activities Programme,

(2) The *Abridged Final Report with Resolutions and Recommendations of the Second Session of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology* (WMO-No. 995),

(3) Recommendation 2 (JCOMM-II) – The development of operational oceanographic products and services under JCOMM,

(4) The request of the Executive Council at its fifty-eighth session (*Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007), general summary, paragraph 3.4.4.2) to the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) to continue working in the ongoing WMO priority areas, including the new area of tsunami monitoring and mitigation systems and services, in close cooperation with the various Intergovernmental Coordination Groups for the Tsunami Warning and Mitigation Systems of the Intergovernmental Oceanographic Commission (IOC) of United Nations Educational, Scientific and Cultural Organization,

**Considering:**

(1) That a continuing concerted effort by National Meteorological Services is needed, in association with national oceanographic agencies and institutions as appropriate, in order that marine meteorological and oceanographic services meet national, regional and international requirements,

(2) That the provision of marine meteorological and oceanographic services contributes substantially to national economies as well as being essential to safety of life at sea,

(3) That these goals, as well as supporting global ocean and climate monitoring and research programmes, require a multidisciplinary ocean data management, in accordance with the international standards for processing, quality control and archiving,

(4) That these targets can only be achieved by continuing and enhancing collaborations with international organizations and other entities representing the interests of users, such as the International Maritime Organization, International Hydrographic Organization, International Association of Oil and Gas Producers, International Chamber of Shipping, International Association of Dry Cargo Shipowners and International Association of Independent Tanker Owners,

(5) That these goals should be addressed through application of a vigorous training and capacity-building strategy based on different stages of development that, appropriately applied to each Member, result in a fully functioning suite of met-ocean services satisfying national, regional and international needs,

(6) That progress in developing and implementing marine meteorological and oceanographic products and services will be achieved through best use of adequate technology and opportunities such as in situ met-ocean data, emerging remote sensing platforms and operational models,

(7) That the Marine Meteorology and Oceanography Programme has an important role to play in WMO cross-cutting activities such as the WMO Information System, Natural Disaster Prevention and Mitigation, and support for least developed countries and small island developing States, for whom marine resources are a key development factor, as well as in assessing coastal vulnerability to marine-related hazards,

(8) That present contributions of Members to the implementation of the initial global observing system for climate constitute only about 58 per cent of what is needed, and that global coverage by the component ocean systems cannot be achieved with the level of resources presently being contributed,

**Decides:**

(1) That the substance of the Marine Meteorology and Oceanography Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

1. Enhanced capabilities of Members to produce better weather forecasts and warnings;
2. Enhanced capabilities of Members to provide better climate predictions and assessments;
4. Integration of WMO observing systems;
5. Development and implementation of the new WMO Information System;
6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness;
7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services;
8. Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developing countries, to fulfil their mandates;

(2) That detailed planning and implementation of the Marine Meteorology and Oceanography Programme should be in accordance with the WMO Strategic Plan and the above expected results, and assist Members to arrange for enhanced services provision, including:

(a) New operational ocean forecast and warning systems, to be developed in close coordination with users;

(b) Regional tsunami warning systems, in coordination with Members concerned and within the intergovernmental framework and structures established by the Intergovernmental Oceanographic Commission;

(c) Maintenance and operation strategies for these systems, in coordination with the Members concerned;

(3) That the Marine Meteorology and Oceanography Programme should be strengthened and expanded to address new and urgent challenges and issues, especially on Disaster Risk Reduction and associated marine hazard dimensions of coastal management in collaboration with the Intergovernmental Oceanographic Commission;

(4) That additional funding be sought, from within the budget framework approved by Fifteenth Congress and extrabudgetary resources, for high-priority activities in the field of training, capacity-building and support for least developed countries and small island developing States;

**Requests** the Executive Council, with the assistance of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology and other relevant technical commissions and regional associations, to promote, guide and assist in the implementation of the Marine Meteorology and Oceanography Programme, and to seek additional extrabudgetary support for the Secretariat for the Commission. In the event funds become available through donor contributions, the Executive Council should consider requesting the Secretary-General to establish a trust fund or other appropriate mechanism that can be used for ocean observing system maintenance;

**Urges** Members concerned to collaborate actively, by making time and expertise of their staff available, and by giving all possible support, both direct resources and in kind, to the implementation of the Programme and the work of the Commission 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, and also specialized services for various marine user groups;

(2) Continuing and/or expanding their contribution to met-ocean data collection and archival, including associated metadata, making use of modern telecommunication facilities for the collection and dissemination of information, within the concept and developing structure of the WMO Information System;

(3) 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;

(4) Assisting developing countries to fulfil their responsibilities under, and gain full benefit from, the Marine Meteorology and Oceanography Programme, in particular through strengthening specialized training facilities and programmes in marine meteorology and oceanography;

(5) Facilitating national involvement in the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology through support and encouragement of experts and relevant officers to participate in and contribute to intersessional activities, such as the work of the Commission expert teams and main subsidiary bodies, or national activities being developed or undertaken in support of the work programme of the Commission;

(6) Using part of the resources obtained by the marine meteorology and oceanography service providers in local research programmes and enhancement of services programmes;

(7) Supporting the implementation of regional demonstration projects promoted by WMO and IOC, in areas such as preparedness for marine coastal hazards as part of integrated coastal area management, in particular, in case of extreme events, for example storm surges and high and/or long waves, as well as the analysis of the impacts of oceanic response to climate variability and change;

(8) Increasing their contributions to the implementation of the initial global ocean observing system, and managing such contributions in cooperation with the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology;

**Requests** the co-presidents of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology:

(1) To ensure that the Commission takes the lead in satisfying the technical needs of Members in the area of marine meteorology and oceanography, including by continuing its policy of preparing and updating guidance material in various aspects of marine meteorology and oceanography management, through the collaborative efforts of its experts;

(2) To continue the efforts of the Commission in enhancing the collaboration between WMO and the Intergovernmental Oceanographic Commission in the field of marine meteorology and oceanography;

(3) To arrange for contributions from the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology to other WMO Programmes, as appropriate;

**Requests** the Secretary General:

(1) To assist in the implementation of the Marine Meteorology and Oceanography Programme, and in particular, to give high priority to training and capacity-building requirements;

(2) To foster the overall integration of the Programme in the cross-cutting activities of WMO, in accordance with the WMO Strategic Plan;

(3) To arrange for the coordination of activities under the Programme, with relevant programme activities of the Intergovernmental Oceanographic Commission and other international organizations, in particular to coordinate the sustained observing platform and data delivery operations of the international tsunami warning systems, through the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, as integral components of a comprehensive global ocean observing system;

(4) To work with Members and space agencies to ensure better continuity and overlap of relevant space-based and in situ ocean observing systems, and to move experimental observing systems into operational status;

(5) To assist in the implementation of these activities;

(6) To seek further enhancement of cooperation between the Marine Meteorology and Oceanography Programme and other WMO Programmes and technical commissions;

(7) To seek extrabudgetary resources, as necessary, to facilitate the implementation of the Programme and the work of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology;

(8) To bring this resolution to the attention of all concerned.

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**Note:** This resolution replaces Resolution 16 (Cg-XIV), which is no longer in force.

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**Resolution 20 (Cg-XV)**

**HYDROLOGY AND WATER RESOURCES PROGRAMME**

THE CONGRESS

**Noting:**

(1) Resolution 17 (Cg-XIV) – Hydrology and Water Resources Programme,

(2) Resolution 20 (Cg-XII) – World Hydrological Cycle Observing System (WHYCOS),

(3) Resolution 21 (Cg-XII) – Global Runoff Data Centre (GRDC),

(4) Resolution 25 (Cg-XIII) – Exchange of Hydrological Data and Products,

(5) Resolution 4 (EC-LVII) – Report of the twelfth session of the Commission for Hydrology,

(6) The report of the president of the Commission for Hydrology to Fifteenth Congress,

(7) The statement of the Ministerial Declaration of the Fourth World Water Forum, held in Mexico City from 16 to 22 March 2006, that recognizes “the importance of domestic and international policies that foster and assist building capacities and cooperation at all levels to mitigate water-related disasters including prevention, preparedness, risk assessment, community awareness, resilience and response”,

**Noting further:**

(1) That the United Nations General Assembly proclaimed the period 2005–2015 as the International Decade for Action, “Water for Life” starting 22 March 2005,

(2) That the increasing scarcity, quality problems and misuse of freshwater pose a serious threat to sustainable development,

(3) That the recent increase in the frequency of water-related disasters causing an increase in the number of deaths and property damage is threatening the sustainability of development,

(4) That an effective water resources assessment is an essential prerequisite for any serious effort at preparing integrated water resources management and water efficiency plans,

(5) That, despite the availability of effective technology, many countries are still unable to assess and manage their freshwater resources in a sustainable manner and provide protection from water-related disasters, as well as respond to climate change-related impacts on water resources,

(6) That the challenges of global change, including climate variability and change, demand a response from hydrologists and those responsible for water resources management,

(7) That the need for collaboration between the hydrological, meteorological and climatological communities in this regard, identified by previous Congresses, remains a high priority,

(8) That it is increasingly evident that in order to face the challenges posed by most water-related issues, an interdisciplinary approach and a participative process involving local communities is the only viable solution,

**Considering:**

(1) That provision of information by National Hydrological Services on the state of water resources, the response of the hydrologic systems to the actions taken and the monitoring of their impacts are essential to the sustainable development and management of water resources of their countries,

(2) That such Services are also essential to activities aimed at mitigating the effects of floods, droughts, 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 in many countries National Hydrological Services are under-resourced and ill-prepared to assume the wider responsibilities assigned to them by their governments in recent years, and that no effort should be spared in building their capacities in this regard,

(4) That new technologies have been developed in hydrology and water resources in recent times, making it necessary for both a drastic updating of education and training programmes in these fields, and for the preparation of adequate new guidance material to assist countries in their adoption,

(5) That WMO seeks to assist Members, particularly by enabling National Hydrological Services, to meet their obligations derived by the above considerations,

(6) That the Hydrology and Water Resources Programme provides the framework for all scientific and technical aspects of WMO activities in the field of hydrology and water resources,

**Decides:**

(1) That the substance of the Hydrology and Water Resources Programme be as indicated in the WMO Strategic Plan;

(2) That WMO should continue its efforts, with the support of financial partners and agencies, to develop and implement the World Hydrological Cycle Observing System as a component of the Programme;

(3) To endorse the WMO Strategy on Education and Training adopted by the Commission for Hydrology at its twelfth session and endorsed by the Executive Council at its fifty-seventh session, and to encourage the Commission to take the necessary steps to ensure its effective implementation;

(4) That WMO should continue its advocacy for a widespread adoption of an Integrated Flood Management approach at the basin, national and international levels;

(5) That WMO should continue playing an active role in UN-Water, the inter-agency coordination mechanism of the United Nations system;

(6) That WMO should seek to improve further the coordination of the Hydrology and Water Resources Programme with the International Hydrological Programme of the United Nations Educational, Scientific and Cultural Organization and seek collaboration with other United Nations agencies such as the Food and Agriculture Organization of the United Nations and the United Nations Development Programme in areas of common interest;

(7) That WMO should continue its efforts towards further enhancement of cooperation between the Hydrology and Water Resources Programme and other WMO Programmes;

**Invites** Members:

(1) To broaden links with the larger water community at the national level by encouraging other agencies involved in the water sector within their countries to participate in the activities of the Hydrology and Water Resources Programme;

(2) To take all possible measures to continue full support to the implementation of the four component programmes of the Hydrology and Water Resources Programme;

(3) 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, to participate in the implementation of the World Hydrological Cycle Observing System and to support the implementation of recommended actions of the Strategy and Action Plan for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting;

(4) To take advantage of new technologies in hydrology and water resources in order to improve measurements and water resources assessment in general;

(5) To arrange for their Hydrological and Hydrometeorological Services and their academic institutions to contribute to the implementation of the WMO Strategy on Education and Training in Hydrology and Water Resources;

(6) To support the establishment of WMO Regional Training Centres dealing with hydrology and water resources in their Regions;

(7) To support the implementation of demonstration projects promoted by WMO in areas such as Integrated Flood Management, improvement of cooperation between National Meteorological Services and National Hydrological Services for improved flood forecasting, analysis of impacts of climate variability and change on water resources;

(8) To institute or continue the cooperation between Hydrological, Hydrometeorological and Meteorological Services and other water-related institutions at the regional and subregional levels within shared river basins;

(9) To participate in and contribute to technical cooperation activities in hydrology and water resources;

(10) To contribute to the Hydrology and Water Resources Trust Fund and the Voluntary Cooperation Programme Fund to support the implementation of capacity-building activities in hydrology and water resources;

**Requests** the president of the Commission for Hydrology:

(1) To ensure that the Commission takes the lead in satisfying the technical needs of Members in the area of hydrology and water resources, in particular by continuing its policy of preparing guidance material in various aspects of hydrology and water resources management through the collaborative efforts of its experts;

(2) To ensure that the Commission provides a strategic ongoing approach to its activities in hydrology and water resources in order to develop a common and shared vision of the future and to adapt actions to this evolving context;

(3) To continue the valuable efforts of the Commission in enhancing the role of WMO in the field of hydrology and water resources and ensure that the Commission provides the technical expertise needed;

(4) To arrange for contributions from the Commission to other WMO Programmes, in areas such as the development of the Integrated Global Observation System, Quality Management Framework and WMO Information System as appropriate, while at the same time presenting the requirements of the hydrological community to those Programmes;

**Requests** the Executive Council to conduct, with the assistance of the Commission for Hydrology, a regular review of the progress in the implementation of the Hydrology and Water Resources Programme and to take appropriate action as may be required;

**Requests** the Executive Council and the Secretary-General, as appropriate and within the available budgetary resources:

(1) To arrange for the implementation of the Hydrology and Water Resources Programme 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 the Commission for Hydrology and all bodies concerned in implementing the Programme, in accordance with **Decides** (1);

(3) To continue to provide assistance in support of training events for Members in the field of hydrology and water resources, particularly those in developing countries and countries with economies in transition;

(4) To continue to provide support to regional activities of the Hydrology and Water Resources Programme;

(5) To continue to cooperate with other governmental and non-governmental organizations in the field of hydrology and water resources.

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**Note:** This resolution replaces Resolution 17 (Cg-XIV), which is no longer in force.

## Resolution 21 (Cg-XV)

## STRATEGY FOR THE ENHANCEMENT OF COOPERATION BETWEEN NATIONAL METEOROLOGICAL AND NATIONAL HYDROLOGICAL SERVICES FOR IMPROVED FLOOD FORECASTING

THE CONGRESS,

**Noting:**

(1) The Final Report of the Synthesis Conference of the WMO Flood Forecasting Initiative,

(2) The Executive Summary of the Strategy and Action Plan for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting (see the annex to this resolution), prepared and adopted by the Synthesis Conference of the WMO Flood Forecasting Initiative, held in Geneva from 20 to 23 November 2006,

**Noting further:**

(1) The wide participation of experts from National Meteorological Services and National Hydrological Services working in weather and hydrological forecasting in the eight regional workshops organized in the framework of the WMO Flood Forecasting Initiative, as well as the high level of expertise demonstrated by participants in the Synthesis Conference of the WMO Flood Forecasting Initiative,

(2) The increased frequency of major flood-related disasters in recent years and the general international agreement about the effectiveness in shifting the emphasis from a policy of response to a policy of prevention,

**Considering:**

(1) That improvements in collaboration between the meteorological and hydrological communities would result in improved flood forecasting practices in the most advanced as well as developing countries, and countries with economies in transition,

(2) That despite the widespread agreement that such collaboration is needed, successful examples are the exception rather than the rule in some regions,

**Decides** to endorse the Strategy and Action Plan for the Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting;

**Requests** the Secretary-General, as appropriate and within the available budgetary resources:

(1) To take all necessary actions to support the implementation of the Strategy;

(2) To promote the review of various activities of relevant WMO Programmes whose contribution is essential and whose sphere of activities could have an influence on the improvement of flood forecasting practices for the implementation of the Strategy;

(3) To support the implementation of demonstration projects such as the Flash Flood Guidance System with global coverage;

(4) To establish a suitable coordination mechanism to develop a detailed plan of activities and address the issues of hydrology and meteorology covering, but not limited to, flash-flood forecasting and warning, including participants from the Commission for Hydrology, Commission for Basic Systems, World Weather Watch, Natural Disaster Prevention and Mitigation Programme, and Hydrology and Water Resources Programme;

(5) To invite other relevant United Nations organizations and international agencies to participate in the implementation of the Strategy;

**Requests** the president of the Commission for Hydrology in coordination with presidents of other technical commissions, where needed:

(1) To ensure that the Commission provides the technical expertise needed in supporting the development of new and improved flood, including flash floods, forecasting products;

(2) To ensure that the necessary coordination with other technical commissions be established as required to keep the Strategy in review and further development and implementation of the implementation plan;

**Invites** Members:

(1) To take all institutional, legal and financial measures to create the necessary enabling environment for the implementation of the Strategy at the basin, national and regional levels;

(2) To ensure that National Meteorological Services and National Hydrological Services work in close collaboration and provide the required technical support to their disaster management authorities;

(3) To contribute to the Voluntary Cooperation Programme Fund and the Hydrology and Water Resources Trust Fund in support of the implementation of the Strategy.

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## Annex to Resolution 21 (Cg-XV)

## FLOOD FORECASTING INITIATIVE

### Enhancement of Cooperation between National Meteorological and National Hydrological Services for Improved Flood Forecasting

### Strategy and Action Plan

### Executive Summary

**General**

1. Flood forecasting provides a valuable tool in reducing flood impacts, thereby contributing to national sustainable development. Advances in data collection, continual model development, calibration and verification, etc., contribute to improving the accuracy of forecasts. Recent enhancements in meteorological forecasting have made it possible to extend the lead time for flood forecasting. A timely and reliable forecast helps greatly in disaster risk management responses.

However, this requires a set of multidisciplinary (meteorology, hydrology and emergency management) collaborative efforts.

2. At present many National Meteorological Services (NMSs) and National Hydrological Services (NHSs) do not have adequate means or the necessary know-how to provide extended forecasting services in flood critical situations and to communicate effectively with disaster management authorities. A strategic/coordinated approach is therefore needed for NMSs and NHSs to work closely together, making use of the state-of-the-art forecasting technologies, to improve hydrological forecasting products and provide better services.

**Scope**

3. Recognizing the need to improve the capacity of NMSs in detecting flood-critical situations and to improve the capacity of NHSs in using meteorological forecasting information, the WMO Flood Forecasting Initiative was launched in April 2003. The major activities within the scope of this initiative included an overall analysis of the strengths and weaknesses of current flood forecasting systems in the Member countries through a series of regional workshops (eight) organized for different Regions, which were attended by hydrologists and meteorologists engaged in forecasting from 85 countries along with a number of regional and river basin organizations, technical institutions and experts.

4. As collaborative efforts between NMSs and NHSs will not only improve flood forecasting services in the countries but also other domains such as water resources assessment and use of climate prediction products in water management, the workshops provided a unique opportunity for meteorologists and hydrologists to exchange experiences and views on these issues, which came up strongly during some of the workshops. Similarly, lack of financial resources for the NHSs and NMSs also emerged as one of the major concerns in certain workshops, particularly involving countries from Region I (Africa).

**Strategy and Action Plan**

5. In order to fulfil the objectives of the Initiative, a Synthesis Conference of the WMO Flood Forecasting Initiative was organized by WMO in November 2006 with the aim to analyse the key challenge areas that would need to be addressed as identified during the regional workshops. The conference resulted in the establishment of an agreed Strategy and Action Plan to improve national and regional capacities for flood forecasting. The Strategy and Action Plan concentrates on the areas of collaboration between the NMSs and NHSs in the field of flood forecasting and other issues raised in the workshops as mentioned in paragraph 4 above.

6. The Strategy and Action Plan, once considered and endorsed by Fifteenth Congress, would serve as a guide to the technical commissions and WMO Secretariat in all activities related to improving flood forecasting capabilities worldwide. In developing the Action Plan the diversity of conditions of levels of development, capabilities and status of National Meteorological and Hydrological Services, the various possible user requirements and the possibilities of using advanced technologies were kept under consideration.

7. The Strategy and Action Plan identifies the following areas of activities that need to be addressed to improve the overall chain of hydrological forecasting:

(a) Strengthening of observing and information systems;
(b) Promoting data exchange at the national and international river basin levels;
(c) Improvement of meteorological forecasting practices and products;
(d) Improvement of hydrological forecasting practices and products;

(e) Strengthening of institutional coordination, cooperation and integration between NMSs and NHSs;
(f) Strengthening of cooperation and coordination of countries in issues related to flood forecasting and warning;
(g) Promoting training and capacity-building in National Meteorological and Hydrological Services;
(h) Formulating technical documentation and guidelines related to flood forecasting and warning;
(i) Supporting disaster management;
(j) Addressing climate variability and change in the light of extreme events;
(k) Demonstrating the value of meteorological and hydrological data, information and products, including forecasts.

Activities under (c) to (h) would form the core of the Flood Forecasting Initiative, while the rest would be mainly addressed under, and in cooperation with, other programmes.

8. The Strategy and Action Plan promotes the preparation of national implementation plans. These would logically vary and have to be adapted in accordance with current national and regional flood forecasting capabilities, specific requirements and priorities of the corresponding National Meteorological and Hydrological Services. Access to information, reliability of forecasts and public trust are critical issues to be addressed when developing a modern flood forecasting system.

9. The Strategy and Action Plan suggests the implementation of demonstration projects at various levels (country-specific, subregional and regional projects). These would identify the technical and administrative difficulties in and showcase the value of an increased cooperation between NMSs and NHSs in flood forecasting. It is expected that the demonstration projects, at the national level, would assist National Meteorological and Hydrological Services in coping with their changing role in disaster risk reduction by means of a comprehensive suite of activities for the upgrading, modernization and strengthening of their flood forecasting and warning systems.

10. At the regional level, the Strategy and Action Plan advocates the establishment of a framework under which partnerships and development assistance could be provided and coordinated amongst the Members and the various contributing agencies while taking advantage of existing regional and international arrangements. Countries in a given region or river basin would be invited to collaborate on projects and activities to be undertaken to strengthen collaboration between NMSs and NHSs for improved flood forecasting and warning.

11. The Strategy and Action Plan also addresses requirements of well-established flood forecasting and warning systems for their further improvement through the development and use of new technology.

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## Resolution 22 (Cg-XV)

## SUPPORT TO THE AFRICAN INITIATIVES ON WATER

THE CONGRESS

**Noting:**

(1) The challenges identified in the Africa Water Vision 2025,

(2) The critical water situation in Africa as recognized in the African Water Development Report,

(3) The problems facing the water sector in the region owing to the low level of implementation of the principles of integrated water resources management,

(4) The rapidly increasing demand to improve the hydrological and water resources data and information for the development and management of water projects in Africa,

**Considering:**

(1) That the New Partnership for Africa's Development (NEPAD) Short-term Action Plan (STAP) has identified the development of integrated water resources management policies, mitigation of floods and droughts, and management of transboundary water resources as priority areas,

(2) That the African Ministers' Council on Water (AMCOW), established in April 2002 through the Abuja Ministerial Declaration on Water: A Key to Sustainable Development in Africa, has developed a strategy,

(3) The findings and recommendations of the Pan-African Implementation and Partnership Conference on Water, held in Addis Ababa, Ethiopia, from 8 to 12 December 2003,

**Decides** that WMO, in collaboration with other United Nations agencies, as well as national, subregional and regional organizations involved in the water sector, should take a prominent role to:

(1) Mobilize the political and financial support for the implementation of the NEPAD STAP and AMCOW strategy;

(2) Actively promote and support the NEPAD STAP and AMCOW strategy to contribute to the achievements of the United Nations Millennium Development Goals and the realization of the Africa Water Vision;

**Urges** National Hydrological Services and regional and subregional agencies to incorporate the NEPAD STAP and AMCOW strategy into their water-related development plans and management programmes and support their implementation;

**Requests** the president of the Regional Association for Africa (RA I):

(1) To ensure that the RA I Working Group on Hydrology would support and function in close collaboration with the AMCOW subregional committees, relevant economic and political groupings and international river basin authorities in developing plans for water resources management;

(2) To incorporate support to the NEPAD STAP and AMCOW strategy into the activities of the RA I;

(3) To support, through the RA I Working Group on Hydrology, the implementation of the NEPAD and AMCOW Strategy and Action Plan for Integrated Water Resources Management in Africa;

(4) To report back to the Executive Council on a regular basis;

**Requests** the Secretary-General:

(1) To provide all the necessary support for the RA I Working Group on Hydrology to work with NEPAD and AMCOW in the implementation of their Action Plan and activities mentioned under **Decides**;

(2) To invite other agencies involved in the field of water resources and external support agencies, particularly the World Bank, United Nations Development Programme, African Development Bank, European Union, and other multilateral and bilateral funding agencies, to incorporate the support to the NEPAD STAP and AMCOW strategy into their programmes in the Region;

**Requests** the Executive Council and the Secretary-General, as appropriate and within the available budgetary resources, to take all necessary actions to assist Regional Association I to work closely with NEPAD and AMCOW in implementing their activities.

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## Resolution 23 (Cg-XV)

## EDUCATION AND TRAINING PROGRAMME

THE CONGRESS,

**Noting:**

(1) Resolution 19 (Cg-XIV) ─ Education and Training Programme,

(2) Resolution 2 (EC-LV) ─ Executive Council Panel of Experts on Education and Training,

**Considering** that:

(1) Education and training in meteorology, hydrology and related disciplines is a major cross-cutting activity of WMO that has the potential to make a large positive impact on improving know-how, products and services of National Meteorological and Hydrological Services,

(2) Suitably qualified operational staff are critical to ensuring the required effectiveness of National Meteorological and Hydrological Services, and are thus fundamental to the successful implementation of the various WMO Programmes,

(3) The need for trained specialists in the application of meteorology and hydrology in support of social and economic progress remains acute in many developing countries, particularly in the least developed countries,

(4) The Education and Training Programme is needed as a vehicle to promote capacity-building in Member countries, by assisting National Meteorological and Hydrological Services towards meeting their education and training needs in developing their human resources,

**Decides** that:

(1) The major thrust of the WMO Education and Training Programme shall continue to be directed towards assisting Members in obtaining adequately qualified staff for their National Meteorological and Hydrological Services, so as to enable them to efficiently discharge their ongoing responsibilities and to meet the challenges of new functions, taking into consideration, inter alia, the importance of gender equity in training and education opportunities;

(2) The activities of the Education and Training Programme should be aligned with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV) and focus on supporting all expected results that are outlined in the Strategic Plan and in particular expected result 9 – Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

(3) The main strategy of the Education and Training Programme to achieve this goal is to work effectively with international partners, relevant training institutions, schools, academia, the media, and the public and private sectors in order to assist National Meteorological and Hydrological Services in meeting their training needs in the most cost-effective manner;

(4) Special emphasis should be placed on promoting and supporting the exchange and sharing of training resources and expertise between Members, making particular use of relevant new and emerging distance learning technologies, and encouraging Members to accept degrees granted through “blended learning” programmes accredited by recognized institutions;

**Urges** Members to:

(1) Collaborate in, and give all possible support to, the implementation of the WMO education and training activities; in particular, provide the Secretariat with modern training materials available in their own Services for the benefit of other Members;

(2) Strengthen their national capacity in the attainment of self-sufficiency in meeting their training needs, and developing their human resources, including through enhanced application of computer-aided distance learning;

(3) Make maximum use of the training opportunities offered by the WMO Regional Training Centres, national training institutions and other centres of excellence for the training of their staff and to expand their efforts to assist those centres to become more efficient and focused on meeting national and regional training needs;

(4) Cooperate and support WMO Regional Training Centres and national training institutions in the joint development and translation of training materials and programmes in meteorology and hydrology and to promote training on special subjects such as management, human resources development, education and outreach of the general public on issues related to weather, climate and water;

**Invites** the presidents of regional associations and technical commissions to:

(1) Keep under continuous review relevant education and training issues for a better coordination of ongoing activities within individual regions and within relevant subject areas towards meeting the expected results;

(2) Study and assist in the prioritization of regional and specialized training needs of Members;

(3) Establish a policy dialogue between the countries hosting WMO Regional Training Centres and their respective regional associations, aiming at further development of those centres;

**Requests** the Executive Council to:

(1) Take all necessary actions to enable the Education and Training Programme to meet its objectives under the WMO Strategic Plan;

(2) Give high priority to ensuring effective overall coordination and leadership of the Programme;

(3) Continue to draw fully on the advice and assistance of experts in meteorological and hydrological education and training in the further development of the Programme;

**Requests** the Secretary-General to:

(1) Collaborate closely with Members, regional associations and technical commissions to ensure the effective implementation of WMO education and training activities;

(2) Continue to provide assistance and advice on the training and qualification requirements of staff of National Meteorological and Hydrological Services, inter alia, on probabilistic forecasting and ensemble prediction systems, aeronautical meteorology, climate monitoring and prediction, as well as on the training tools, materials and methodologies suitable for use by WMO Regional Training Centres and national training institutions of National Meteorological and Hydrological Services, particularly those from developing countries;

(3) Support education and training activities in the new priority areas of emphasis within WMO Programmes, for example provide training support to planning for human resources development in least developed countries, management and resource mobilization, train the trainers for disaster risk reduction, encourage development of public weather services, and promote school and popular education;

(4) Maintain close liaison with the Standing Conference of Heads of Training Institutions of National Meteorological Services with respect to the effective use of distance learning technologies;

(5) Strongly support the promotion of new training approaches, modules and teaching methods in education and training, and provide the necessary resources for their implementation;

(6) Support the requests of Members for education and training assistance in meteorology and hydrology from various international and national bodies, including through multilateral arrangements;

(7) Undertake active mobilization of resources so as to meet the growing demand for education and training fellowships.

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**Note:** This resolution replaces Resolution 19 (Cg-XIV), which is no longer in force.

## Resolution 24 (Cg-XV)

## THE WMO VOLUNTARY COOPERATION PROGRAMME

THE CONGRESS,

**Noting:**

(1) That, in accordance with the directives contained in Resolution 20 (Cg-XIV) – The WMO Voluntary Cooperation Programme, the Programme has functioned in the fourteenth financial period in a highly satisfactory manner,

(2) That this Programme is a major element in supporting Members in the implementation of the World Weather Watch Programme as well as of other scientific and technical programmes of WMO and the provision of fellowships,

(3) That this Programme is an appropriate mechanism for the promotion and support of Technical Cooperation among Developing Countries,

(4) That during recent years, on average, annual contributions received for the Voluntary Cooperation Programme (Fund) amounted to US$ 220 000 and contributions received in the equipment and services component amounted to US$ 9.2 million,

(5) That Fifteenth Congress adopted the WMO Strategic Plan,

**Commends** the Members concerned for their continuation to the success of this Programme;

**Considering** the continued and increasing needs for support during the fourteenth financial period for the implementation of the various technical programmes of WMO,

**Decides** that:

(1) The WMO Voluntary Cooperation Programme shall be continued in the fifteenth financial period;

(2) As in the fourteenth financial period, the fields of cooperation covered by the Programme during the fifteenth financial period shall include the following:

   (a) The implementation of the World Weather Watch as first priority;

   (b) The support to the human resources development activities including the granting of short-term and long-term fellowships;

   (c) The support to training seminars for personnel engaged in the World Weather Watch and other activities covered under the Voluntary Cooperation Programme;

   (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, archiving and management 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 protection of life and property from environmental hazards;

(3) The Voluntary Cooperation Programme in the fifteenth financial period shall follow the same general procedures as during the fourteenth financial period;

(4) Special assistance should be provided to new Members of the Organization as well as to the least developed countries and small island developing States with emphasis on increasing the visibility of their National Meteorological and Hydrological Services;

(5) The substance of the Voluntary Cooperation Programme shall comply with the WMO Strategic Plan adopted under Resolution 27 (Cg-XV), and contribute to all of the expected result areas, with particular focus on expected result 9, “Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates” on weather, climate and water;

**Urges** Members of the Organization to contribute to the maximum extent possible to the Programme during the fifteenth financial period both in financial form and in equipment and services, including fellowships, and to use the mechanism of Technical Cooperation among Developing Countries, where possible;

**Authorizes** the Executive Council to review the present rules and procedures for the operation of the Voluntary Cooperation Programme, when necessary, bearing in mind the decisions of Fifteenth Congress;

**Requests** the Secretary-General to:

(1) Continue to administer the Voluntary Cooperation Programme during the fifteenth financial period;

(2) Report to Sixteenth Congress on the assistance rendered during the fifteenth financial period, in addition to the annual report on the Voluntary Cooperation Programme distributed to Members.

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**Note:** This resolution replaces Resolution 20 (Cg-XIV), which is no longer in force.

## Resolution 25 (Cg-XV)

## NATURAL DISASTER PREVENTION AND MITIGATION PROGRAMME

THE CONGRESS,

**Noting:**

(1) The *Abridged Final Report with Resolutions of the Fourteenth World Meteorological Congress* (WMO-No. 960), general summary, paragraphs 7.4.1 to 7.4.21 and 3.4.1.23, and Resolution 29 (Cg-XIV) – Natural Disaster Prevention and Mitigation Programme,

(2) The *Abridged Final Report with Resolutions of the Fifty-sixth Session of the Executive Council* (WMO-No. 977), general summary, paragraphs 11.1 to 11.13, and Resolution 5 (EC-LVI) – Executive Council Advisory Group on Natural Disaster Prevention and Mitigation,

(3) The *Abridged Final Report with Resolutions of the Fifty-seventh Session of the Executive Council* (WMO-No. 988), general summary, paragraphs 3.9.1 to 3.9.13, Resolution 9 (EC-LVII) – Natural Disaster Prevention and Mitigation, and Annex IV – Natural Disaster Prevention and Mitigation Programme revised Implementation Plan 2005–2007,

(4) The *Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007), general summary, paragraphs 3.9.1 to 3.9.20,

(5) The Final Report of the Second Session of the Executive Council Advisory Group on Disaster Prevention and Mitigation,

(6) The outcome documents of the World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan, from 18 to 22 January 2005, including the Hyogo Declaration and the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters,

(7) The Fourth Assessment Report of the Intergovernmental Panel on Climate Change,

**Noting further:**

(1) That disasters pose a serious threat to safety, security and sustainable development,

(2) The increasing concern within the international community on issues relating to disaster risk reduction,

(3) The significant loss of life and property associated with weather-, water- and climate-related hazards,

(4) The potential increase in hydrometeorological disasters associated with climate variability and change,

(5) The critical role of WMO and the National Meteorological and Hydrological Services in all components of disaster risk reduction,

**Stressing that** investment in meteorological, hydrological and climate services is critical to protection of life, livelihood, property and achievement of sustainable development,

**Considering:**

(1) That the WMO Natural Disaster Prevention and Mitigation Programme is a cross-cutting Programme spanning WMO Programmes, technical commissions, regional associations and the Secretariat,

(2) That successful implementation of the Programme requires a clear programmatic focus, effective governance and strong cooperation at the national to international levels,

(3) That the name WMO Natural Disaster Prevention and Mitigation Programme may not adequately reflect the complete scope of activities of WMO and the National Meteorological and Hydrological Services in disaster risk reduction,

**Reaffirming** that the protection of lives, livelihoods and property is a key strategic thrust of WMO,

**Recognizing** the strengthened International Strategy for Disaster Risk Reduction system as the primary collaboration mechanism across the United Nations system and other international and regional agencies and networks involved in disaster risk reduction,

**Decides** that the implementation of the Natural Disaster Prevention and Mitigation Programme should comply with the WMO Strategic Plan, adopted under Resolution 27 (Cg-XV), with its major contributions focused on the following expected results:

6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness;
7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services;
8. Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations;
9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates;

**Requests** the Executive Council:

(1) With the assistance of technical commissions and regional associations, to prioritize and provide further guidance for the implementation of the Programme in line with the WMO Strategic Plan, during the intersessional period;

(2) To re-establish, with updated terms of reference, its Executive Council Advisory Group on Disaster Prevention and Mitigation;

**Requests** presidents of technical commissions to coordinate inter-commission projects and activities to meet WMO Strategic Goals in disaster risk reduction;

**Requests** presidents of regional associations to ensure that the regional association strategic plans are aligned with the regional components of the Hyogo Framework for Action 2005–2015 and with the WMO Strategic Goals in disaster risk reduction;

**Requests** the Secretary-General, in reference to the Natural Disaster Prevention and Mitigation Programme vision statement, strategic goals and in response to the requirements and priorities of Members:

(1) To give high priority to the implementation of the Programme within available budgetary resources;

(2) To ensure that the Programme is implemented with clear roles and responsibilities among WMO Programmes, technical commissions, regional associations, Members and external partners to better leverage their resources, capacities and expertise for enhanced benefits to the Members;

(3) To further define and implement a set of prioritized national and regional Natural Disaster Prevention and Mitigation Programme-related projects;

(4) To assist with strengthening of international cooperation in disaster risk reduction, by facilitating coordination among the bilateral and multilateral capacity development activities of Members and by fostering collaboration with the International Strategy for Disaster Reduction system partners and other relevant governmental and non-governmental organizations;

(5) To prepare standard methodology for the collection of information from National Meteorological and Hydrological Services on meteorological, hydrological and climate-related hazards and their impacts, when possible and available, and coordinate collection of such information from the Services to prepare statistical reports to inform the United Nations specialized agencies;

**Invites** the system partners and the Secretariat of the International Strategy for Disaster Reduction to continue strengthening their partnerships with WMO;

**Urges** Members:

(1) To implement the Hyogo Framework for Action 2005–2015 at the national level;

(2) To participate proactively in the planning and decision processes in disaster risk reduction, including through support of related national committees and platforms;

(3) To strengthen collaboration of National Meteorological and Hydrological Services with the civil protection agencies and disaster risk management authorities.

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## Resolution 26 (Cg-XV)

## PUBLICATIONS PROGRAMME FOR THE FIFTEENTH FINANCIAL PERIOD

THE CONGRESS,

**Considering:**

(1) Resolution 22 (Cg-XIV) ─ Publications Programme for the fourteenth financial period,

(2) That the accurate and timely production and distribution of publications, as well as efforts towards equal treatment of all WMO languages, are 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 Secretary-General is responsible for WMO publication sales and distribution policies, including pricing, and for the integrity of data contained in WMO electronic publications,

(4) That the publications of the Organization generally fall into two broad categories:

(a) Mandatory publications, defined by the Convention of the World Meteorological Organization, 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 and the WMO Blue Training Series, 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 proposals for improved services or their cost-efficiency and to provide guidance on the best way to ensure 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 and identify appropriate resources for the further development of electronic publishing, information on available funds, facilities, sales potential and any possible limitations.

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**Note:** This resolution replaces Resolution 22 (Cg-XIV), which is no longer in force.

## Annex to Resolution 26 (Cg-XV)

## WMO MANDATORY PUBLICATIONS AND THE LANGUAGES IN WHICH THEY SHALL BE ISSUED IN THE FIFTEENTH FINANCIAL PERIOD

| *Publication* | *Number* | *Languages* |
|---|---|---|
| **1. Basic documents** | | |
| (a) *Basic Documents* | WMO-No. 15 | A, C, E, F, R, S |
| (b) *Technical Regulations* | WMO-No. 49 | |
| (c) Annexes to the *Technical Regulations*: | | |
| (i) *International Cloud Atlas,* Volume 1 | WMO-No. 407 | E, F, R, S |
| (ii) *Manual on Codes* | WMO-No. 306 | |
| (iii) *Manual on the Global Telecommunication System* | WMO-No. 386 | |
| (iv) *Manual on the Global Data-processing and Forecasting System* | WMO-No. 485 | |
| (v) *Manual on the Global Observing System* | WMO-No. 544 | |
| (vi) *Manual on Marine Meteorological Services* | WMO-No. 558 | |
| **2. Operational publications** | | |
| (a) *Composition of the WMO* | WMO-No. 5 | Bilingual E/F |
| (b) *Weather Reporting* | WMO-No. 9 | E* |
| (i) Volume A ─ Observing stations | | |
| (ii) Volume C1 ─ Catalogue of meteorological bulletins | | |
| (iii) Volume C2 ─ Transmissions schedules | | |
| (iv) Volume D ─ Information for shipping | | |
| (c) *International List of Selected, Supplementary and Auxiliary Ships* | WMO-No. 47 | Bilingual E/F |
| (d) *Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology* | WMO-No. 258 | A, E, F, R, S |
| (e) *Climatological normals (CLINO) for the period 1961–1990* | WMO-No. 847 | M |
| **3. Official records** | | |
| (a) Abridged reports with resolutions of Congress | | A, C, E, F, R, S |
| (b) Proceedings of Congress | | MΩ |
| (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 |
| (f) Resolutions of Congress and the Executive Council | WMO-No. 508 | E |
| **4. WMO Guides** | | |
| (a) *Guide to Meteorological Instruments and Methods of Observation* | WMO-No. 8 | C, E, F, R, S |
| (b) *Guide to Climatological Practices* | WMO-No. 100 | A, C, E, F, R, S |
| (c) *Guide to Agricultural Meteorological Practices* | WMO-No. 134 | E, F, R, S✧ |
| (d) *Guide to Hydrological Practices* | WMO-No. 168 | |
| (e) *Guide to the Global Data-processing System* | WMO-No. 305 | |
| (f) *Guide to Marine Meteorological Services* | WMO-No. 471 | |

| *Publication* | | *Number* | *Languages* |
|---|---|---|---|
| (g) | *Guide to the Global Observing System* | WMO-No. 488 | C, E, F, R, S |
| (h) | *Guide to the Automation of Data-processing Centres* | WMO-No. 636 | E, F, R, S✧ |
| (i) | *Guide to Wave Analysis and Forecasting* | WMO-No. 702 | |
| (j) | *Guide to Meteorological Observing and Information Distribution Systems for Aviation Weather Services* | WMO-No. 731 | |
| (k) | *Guide to Practices for Meteorological Offices Serving Aviation* | WMO-No. 732 | C✧, E, F, R, S✧ |
| (l) | *Guide to the Applications of Marine Climatology* | WMO-No. 781 | E, F, R, S✧ |
| (m) | *Guide to World Weather Watch Data Management* | WMO-No. 788 | |
| (n) | *Guide to Public Weather Services Practices* | WMO-No. 834 | |
| **5. Terminologies** | | | |
| | *International Meteorological Vocabulary* | WMO-No. 182 | M |
| | *International Glossary of Hydrology* (jointly with UNESCO) | WMO-No. 385 | |
| **6. Annual reports of WMO** | | | E, F, R, S |
| **7. *WMO Bulletin*** | | | E, F, R, S |

Notes: A = Arabic; C = Chinese; E = English; F = French; R = Russian; S = Spanish; M = Multilingual
* Expanded introductory and explanatory text in English, French, Russian and Spanish.
Ω Audio format, available upon request
On the web, updated on a yearly basis after the Executive Council session
✧ Where resources permit

## Resolution 27 (Cg-XV)

## WMO STRATEGIC PLAN

THE CONGRESS,

**Noting:**

(1) That Fourteenth Congress, in Resolution 25 (Cg-XIV) – Sixth WMO Long-term Plan, adopted the Sixth WMO Long-term Plan 2004–2011,

(2) Resolution 26 (Cg-XIV) – Preparation of the Seventh WMO Long-term-Plan,

(3) The decisions of the Executive Council concerning the development of the WMO Strategic Plan and the WMO Operating Plan,

(4) That the Executive Council endorsed the alignment of the WMO programme structure with the Strategic Plan so as to guide more effectively the development of the WMO programme and budget,

**Further noting** that the proposed WMO long-term planning process for the period 2008 to 2011 is based on and comprises the three interlinked key components, namely the:

(1) WMO Strategic Plan**,** which provides a high-level statement of the future direction and priorities of WMO,

(2) WMO Operating Plan**,** which converts strategic direction into specific, measurable outcomes,

(3) WMO Budget, which connects outcomes, or end results, to resources,

**Adopts**, under the provision of Article 8 (a), (b) and (c) of the Convention of the World Meteorological Organization, the WMO Strategic Plan for the period 2008–2011;

**Urges** Members to take the WMO Strategic 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 direction and priorities set forth in the Strategic Plan and to organize their programme structures and activities so as to pursue the top-level objectives and to achieve the expected results;

**Further requests** the Executive Council to use the Strategic Plan, complemented by the WMO Operating 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 Sixteenth Congress;

**Requests** the Secretary-General to arrange for the publication of the WMO Strategic Plan for its distribution to all Members and constituent bodies of WMO and to other international organizations, as appropriate.

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**Note:** This resolution replaces Resolution 25 (Cg-XIV) after 31 December 2007.

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**Resolution 28 (Cg-XV)**

**PREPARATION OF THE WMO STRATEGIC PLAN FOR 2012–2015**

THE CONGRESS,

**Noting** Resolution 27 (Cg-XV) ─ WMO Strategic Plan,

**Considering:**

(1) That the WMO Strategic Plan and the WMO Operating Plan provide useful guidance to Members and their National Meteorological and Hydrological Services in consolidating their own planning policies, programmes and activities,

(2) That there is a continuing need for a sufficiently long lead time in planning the main directions of the scientific and technical work of the Organization,

(3) That the WMO strategic planning process enables the Organization to reflect on intent goals, major expected results in the light of anticipated societal changes and scientific and technical progress,

(4) That the WMO strategic planning process has added to the effectiveness and enhanced the status of WMO within the United Nations system,

**Reaffirming** that the overall purpose of the strategic planning process in WMO is to set broad top-level objectives and expected results for the Organization and to provide sufficient guidance for the formulation of the four-year WMO Operating Plan and Results-based Budget document,

**Confirming** the important role of the Executive Council, regional associations and technical commissions in developing and coordinating the WMO Strategic Plan,

**Decides** that the WMO Strategic Plan for 2012–2015 should be prepared for Sixteenth Congress;

**Requests** the Executive Council:

(1) To study further, in the light of the experience gained during the preparation of the previous plans, the overall approach for the future plan with a view to improving further the strategic planning process of WMO;

(2) To establish the necessary coordination mechanism for the preparation of the WMO Strategic Plan for 2012–2015;

**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 needs and priorities within the context of the WMO Strategic Plan for 2012–2015, based on regional analyses and assessments;

(2) To coordinate, as necessary, national contributions to regional aspects of the Plan;

**Requests** the technical commissions to lead the formulation of the scientific and technical aspects of WMO Programmes and activities falling within their respective responsibilities, including providing relevant analysis, assessment and indication of priorities;

**Requests** the Secretary-General:

(1) To provide Secretariat support to the strategic planning process;

(2) To ensure that the WMO Strategic Plan, the WMO Operating Plan and the Budget for the sixteenth financial period are fully coordinated;

(3) To submit the draft WMO Strategic Plan for 2012–2015 to Sixteenth Congress on behalf of the Executive Council.

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**Note:** This resolution replaces Resolution 26 (Cg-XIV), which is no longer in force.

## Resolution 29 (Cg-XV)

## EVOLUTION OF NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES AND WMO

THE CONGRESS,

**Recalling** Resolution 30 (Cg-XI) – Development of National Meteorological and Hydrological Services, and Resolution 28 (Cg-XIV) – Role and Operation of National Meteorological and Hydrological Services, as well as the Geneva Declaration of the Thirteenth World Meteorological Congress,

**Noting** that by Resolution 21 (EC-LVII) – Executive Council Working Group on the Evolution and Operation of National Meteorological and Hydrological Services, and WMO, the Executive Council had decided to merge the Executive Council Advisory Group on the Role and Operation of National Meteorological and Hydrological Services and the Executive Council Action Group for an Enhanced WMO into a new Executive Council Working Group on the Evolution of National Meteorological and Hydrological Services and WMO,

**Recognizing** that many of the activities under the WMO scientific and technical programmes that are tailored to meet the needs of society are implemented through the National Meteorological and Hydrological Services of the Members of the Organization in cooperation with other data and service providers,

**Endorsing** the guidance provided in the 2005 Statement of the Executive Council on the Role and Operation of National Meteorological and Hydrological Services for Decision Makers,

**Emphasizing** the importance of building on, and drawing attention to, the unique competence and comparative advantage of WMO, particularly in relation to the social and economic benefits of the relevant support provided to its Members,

**Underlining** the need for continuous review of the role and evolution of National Meteorological and Hydrological Services and WMO,

**Requests** the Executive Council, within an effective and flexible working mechanism:

(1) To keep the subject of the role and operation of National Meteorological and Hydrological Services under review, especially with respect to new and emerging issues;

(2) To continue to review the role and evolution of National Meteorological and Hydrological Services and WMO and ensure that this is accomplished, among others, through appropriate administration of questionnaires to service and information providers, and users;

(3) To encourage actively and facilitate the development of cooperative arrangements and partnerships, including with specific groups, among all relevant sectors and service providers;

(4) To put in place an appropriate mechanism for ensuring effective follow-up of the outcomes and recommendations arising from the WMO International Conference on Secure and Sustainable Living: Social and Economic Benefits of Weather, Climate and Water Services, held in Madrid, Spain, from 19 to 22 March 2007;

(5) To ensure that the WMO structure and mode of operation, including the functioning and linkage of WMO constituent bodies, are well coordinated and support the WMO Strategic Plan;

**Requests** the Secretary-General to support the necessary initiatives and to continue efforts to assist Members, including in seeking and providing scientific, technical, management, financial and other support for the development of National Meteorological and Hydrological Services and the enhancement of their role and operation, as well as the sharing of relevant experiences among Members.

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**Note:** This resolution replaces Resolution 28 (Cg-XIV) after 31 December 2007.

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**Resolution 30 (Cg-XV)**

**TOWARDS ENHANCED INTEGRATION BETWEEN WMO OBSERVING SYSTEMS**

THE CONGRESS,

**Noting:**

(1) Article 2 of the Convention of the World Meteorological Organization,

(2) The *Sixth WMO Long-Term Plan (2004–2011)* (WMO-No. 962),

(3) The WMO Strategic Plan,

(4) The *Abridged Final Reports with Resolutions of the Fourteenth World Meteorological Congress,* and the *Fifty-sixth, Fifty-seventh and Fifty-eighth Sessions of the Executive Council* (WMO-No. 960, WMO-No. 977, WMO-No. 988, and WMO-No. 1007, respectively),

(5) The Report of the Executive Council Task Team on the Integration of the WMO Observation Systems (Geneva, 31 January–2 February 2007),

**Considering:**

(1) That all WMO constituent bodies, international steering committees and numerous subsidiary expert-level groups provide a complex framework for coordination and collaboration in which a large number of decision makers and experts from virtually all countries and partner organizations address matters related to the observation systems,

(2) That an enhanced integration between the WMO observing systems could have the potential to lead to important benefits for Members and their National Meteorological and Hydrological Services and the Organization as a whole,

**Appreciating** the important contributions international partner organizations and programmes make towards observing the Planet Earth,

**Recognizing:**

(1) That working towards enhancing integration between the WMO observing systems will be a major effort of the Organization and should proceed in parallel with the planning and implementation of the WMO Information System to allow for an integrated WMO end-to-end system of systems designed to improve the capability of Members to effectively provide the widening range of services and to better serve research programme requirements,

(2) That this endeavour would have an impact on the structure and functions of WMO, including aspects of the WMO Technical Regulations, data policy, roles, terms of reference and working arrangements of the technical commissions, the WMO Programme structure, and the WMO Secretariat,

(3) That the integration process would be a complex undertaking that would not be risk-free, stretch over several years and require the full support of all Members to be successful,

**Decides** to embark on enhancing the integration between the WMO observing systems;

**Urges** Members and **Invites** international partner organizations and programmes to collaborate actively in, and give all possible support to, the development and implementation of this initiative;

**Requests:**

(1) The Executive Council to:

(a) Establish a mechanism to steer and monitor the activity and to achieve the broadest possible collaboration and cooperation;

(b) Ensure the active participation and representation of the principal bodies concerned and also the participation, as appropriate, of technical experts and representatives of agencies undertaking co-sponsored observing initiatives;

(c) Ensure that this mechanism is closely coordinated with the institutional arrangements for planning and overseeing the WMO Information System;

(d) Submit a comprehensive report on the integration between the WMO observing systems to Sixteenth Congress;

(2) The regional associations and technical commissions to include this activity in their work programmes in order to fully accommodate the cross-programme nature of the integration initiative;

(3) The Secretary General to:

(a) Strengthen coordination and collaborate closely with relevant international partner organizations and programmes in pursuing this endeavour;

(b) Arrange for adequate resources to support the integration initiative;

(c) Adapt the structure of the Secretariat as and when appropriate, so as to ensure optimal management of and support to the initiative.

## Resolution 31 (Cg-XV)

## IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEMS BY NATIONAL METEOROLOGICAL AND HYDROLOGICAL SERVICES

THE CONGRESS,

**Aware** of the desire of National Meteorological and Hydrological Services to continue to enhance their operations, services and products,

**Noting** that users/customers of meteorological and related data, products and services are also increasingly requesting that quality management systems be in place to assist in providing a level of confidence in the quality of those data, products and services,

**Noting further** the International Civil Aviation Organization and WMO recommended practice of introducing quality management systems for the provision of meteorological services for international air navigation,

**Recognizing** that:

(1) Implementing quality management systems will satisfy user and customer requirements, provide good management practices and ultimately will enhance confidence in the quality of data, products and services,

(2) The adoption and implementation of a quality management system is customer-driven and country-specific,

(3) The implementation of an effective quality management system requires the full commitment and endorsement of the top management of National Meteorological and Hydrological Services,

(4) The enhancement of the quality of products and services also depends substantially on the quality of data and products internationally exchanged through the WMO coordinated systems,

**Encourages** National Meteorological and Hydrological Services to implement, where possible, a quality management system following, as far as possible, the latest version of the ISO 9001 quality management standard, or other appropriate internationally recognized standards, for the managerial processes and, as necessary, to fulfil their national and regional regulations and the needs or requirements of their customers;

**Further encourages** National Meteorological and Hydrological Services to implement a quality management system covering, if possible, most of their activities, or at least those they consider critical to the provision of data, products and services;

**Requests** Members to share relevant experience and cooperate with one another in developing quality management systems, including providing assistance to Members with specific quality management system implementation needs.

## Resolution 32 (Cg-XV)

## WMO QUALITY MANAGEMENT FRAMEWORK

THE CONGRESS,

**Recalling** Resolution 27 (Cg-XIV) – Quality Management, on the WMO Quality Management Framework,

**Affirms** that the WMO Quality Management Framework is aimed at addressing a wide range of quality management issues of importance to WMO operations, including both the needs of its Members and the implementation of WMO Programmes and activities;

**Expresses** satisfaction with the progress achieved in the development of the WMO Quality Management Framework, the expertise gained in the implementation of quality management systems based on the International Organization for Standardization quality management standards, in particular, to the guidance material on quality management that was developed and provided to Members and to the capacity-building activities such as training seminars that have been carried out;

**Noting** that users and customers of meteorological, climatological, hydrological, marine and related environmental data, products and services are increasingly requesting that a quality management system be in place to help provide assurance of the quality of those data, products and services,

**Recognizing:**

(1) That quality of data has been the primary goal of WMO activities throughout its existence as made explicit by the WMO technical publications, which provide a number of requirements, procedures and practices that can be used as reference and guidance in quality management systems implemented by its Members,

(2) That the quality of products and services depends substantially on the quality of data internationally exchanged through WMO-coordinated systems,

(3) That the implementation of the WMO Quality Management Framework should result in the exchange of data and products of known quality and appropriate for their intended use,

(4) That quality control, as an integral component of quality management, rests primarily with the Members,

**Taking into account** the relevant work undertaken by the Executive Council, the technical commissions, the Inter-Commission Task Team on Quality Management Framework and the Secretary-General on the quality management initiative,

**Decides:**

(1) That the WMO Quality Management Framework is an appropriate holistic approach to the delivery of meteorological, climatological, hydrological, marine and related environmental data, products and services that is based on the eight principles of quality management (customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision-making, mutually

beneficial supplier relationship) and can be implemented through structured quality management systems;

(2) That the aim of the WMO Quality Management Framework is to ensure the development, use and maintenance of the WMO technical documentation, supporting quality management systems for meteorological, climatological, hydrological, marine and related environmental data, products and services;

(3) That the WMO Quality Management Framework will consist of the following key elements:

(a) A WMO quality policy;

(b) Objectives aligned with the WMO Strategic Plan;

(c) Technical documentation and the procedures relevant to their development, review and adoption;

**Decides further** to approve the WMO quality policy as stated in the annex to this resolution;

**Requests:**

(1) The Executive Council:

(a) To lead and guide the further development and implementation of the WMO Quality Management Framework;

(b) To finalize the formal working arrangement between WMO and the International Organization for Standardization for the development of joint technical standards;

(c) To provide overall coordination for the further development of Volume IV on Quality Management of the WMO Technical Regulations;

(d) To retain the inter-commission mechanism to coordinate the further development of the WMO Quality Management Framework and the plan for its implementation;

(e) To coordinate, through the inter-commission mechanism, the quality-related activities of the technical commissions;

(2) The technical commissions:

(a) To maintain an up-to-date catalogue of all technical publications applicable to the WMO Quality Management Framework and review these publications according to quality management principles;

(b) To provide, following the guidance of the Executive Council, necessary contributions to a Volume IV of the WMO Technical Regulations for adoption at the earliest possible date;

(c) To provide quality-related technical guidance, advice, review and assessment, as appropriate;

(3) The regional associations:

(a) To promote capacity-building activities and bilateral activities to assist Members in the implementation of quality management systems;

(b) To provide advice and feedback on this matter;

(4) The Members:

(a) To quality control on-site observations and ensure the traceability of measurements to recognized world standards approved for the use of Members by WMO;

(b) To develop quality management systems, share relevant experience and cooperate with one another, including providing assistance to Members with specific quality management system implementation needs;

(c) To provide expertise to support the development of the WMO Quality Management Framework;

(5) The Secretary-General:

(a) To provide Secretariat support and take appropriate initiatives for the implementation of relevant actions;

(b) To expedite consultations with the Secretariat of the International Organization for Standardization for the preparation of the formal working arrangement between WMO and that Organization for the development of joint technical standards;

(c) To ensure appropriate financial resources for the further development and implementation of the WMO Quality Management Framework.

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**Note:** This resolution replaces Resolution 27 (Cg-XIV), which is no longer in force.

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**Annex to Resolution 32 (Cg-XV)**

**WMO QUALITY POLICY**

**Policy statement**

WMO is dedicated to ensuring optimum affordable quality for all meteorological, climatological, hydrological, marine and related environmental data, products and services, especially those supporting the protection of life and property, safety on land, at sea and in the air, sustainable economic development and protection of the environment.

Strategy:

WMO will endeavor through a process of continuous improvement, efficient management and good governance:

- To ensure that increasingly accurate and reliable warnings of severe events related to weather, water and climate are delivered to users in a timely and useful manner;
- To specify and enhance provision of user-oriented weather, water, climate and related environmental services of identified quality to the public, governments and other users and customers;
- To ensure that observations, records and reports on weather, water resources, climate and related natural environment, operational forecasts, warning services and related information are of identified quality for international exchange through the WMO coordinated systems and relevant joint standards with other international organizations;
- To address the needs to enhance the capabilities of Members to deliver services to users and customers with best available technology and assist to improve cooperation and collaboration between Members in the implementation of quality management systems;
- To address the need to enhance the capabilities of Members with comprehensive capacity-building activities that include training, through the development of partnerships and technology transfer.

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**Resolution 33 (Cg-XV)**

**INCREASED TRANSPARENCY AND INVOLVEMENT OF MEMBERS IN GOVERNANCE ISSUES OF WMO BETWEEN CONGRESSES**

THE CONGRESS,

**Considering** that the number of members of the Executive Council is fixed to 37 and the current number of Member States and Territories is 188,

**Recognizing** that:

(1) The members of the Executive Council are elected by the Congress and act in their personal capacity and as representatives of the Organization,

(2) In addition to the participation in the regional associations and technical commissions, Members of the Organization have a legitimate interest in the work of the Executive Council and other subsidiary bodies of the Organization,

(3) In many specialized agencies of the United Nations including WMO, observer status for Members wishing to attend sessions of certain constituent bodies is a normal practice,

(4) WMO places high priority on transparency, accountability, inclusiveness and good governance as essential elements for the proper management of an international organization,

(5) The decision of Thirteenth Congress provides conditions for the participation of Permanent Representatives of Members with WMO who are not members of the Executive Council as advisors of members of the Executive Council,

**Noting** that in accordance with Regulation 123 of the General Regulations of the Organization the meetings of constituent bodies shall be held in public, unless otherwise decided by the constituent body concerned,

**Requests** the Executive Council:

(1) To make public all its non-confidential documents as well as those of its subsidiary bodies;

(2) To identify relevant subsidiary bodies dealing with governance issues, strategic planning, programme and budget, to which Members could attend;

(3) To consider appropriate conditions for attendance of Members without limiting the efficiency of its work and review its Rules of Procedure accordingly;

(4) To invite Members, at their own cost, to attend sessions of the Executive Council and its relevant bodies no later than 2009;

(5) To assess the impacts of Member attendance on the conduct of the relevant governance mechanisms of WMO;

(6) To report to Sixteenth Congress in 2011 on its assessment of Member attendance and to recommend a proposed course of action for consideration of Congress.

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## Resolution 34 (Cg-XV)

## GENDER MAINSTREAMING

THE CONGRESS,

**Noting:**

(1) Resolution 33 (Cg-XIV) — Equal opportunities for participation of women in meteorology and hydrology,

(2) That following the recommendations of the Second WMO Conference on Women in Meteorology and Hydrology, held in Geneva from 24 to 27 March 2003, a number of Members had appointed gender focal points,

(3) That following the passing of recommendations and resolutions encouraging and supporting the increased participation of women in the work of all WMO regional associations and technical commissions, some of the associations and the majority of the commissions had already appointed gender focal points,

**Noting further:**

(1) The United Nations Fourth World Conference on Women, held in Beijing, China, from 4 to 15 September 1995, and its recognition of the importance of women and their contributions to science,

(2) The recommendations of the Second WMO Conference of Women in Meteorology and Hydrology,

(3) The United Nations Millennium Development Goal to promote gender equality and empower women,

(4) The draft WMO Policy on Gender Mainstreaming resulting from the WMO Expert Meeting on Gender Mainstreaming, held in Geneva from 26 to 29 March 2007,

**Considering:**

(1) The need to urgently effect gender mainstreaming in the design, implementation, monitoring and evaluation of policies and programmes by Members and the Secretariat,

(2) The need for trained, qualified and diligent professionals regardless of gender, in the work of WMO,

**Recommends** that Members familiarize themselves with the contents of the WMO Policy on Gender Mainstreaming as a tool to enable them to render sufficient focus to the efforts of ensuring gender equality;

**Urges** Members to:

(1) Adopt and actively implement the WMO Policy on Gender Mainstreaming;

(2) Report on progress in the implementation of this policy to Sixteenth Congress;

(3) Consider secondment of experts to the WMO Secretariat to assist with the implementation of this policy;

**Requests** the Executive Council to establish, within the approved budget, an advisory panel of experts on gender mainstreaming to oversee, advise and regularly report on implementation of WMO activities on this issue at all levels;

**Requests** the Secretary-General to:

(1) Establish a gender expert function within the approved budget of the fifteenth financial period 2008–2011, to assist with the implementation of the gender policy within the Secretariat and by Members, technical commissions and regional associations, and to monitor and evaluate progress;

(2) Continue the efforts as regards this important issue and to report to Sixteenth Congress on progress made on aspects of the implementation of this resolution during the fifteenth financial period.

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**Note:** This resolution replaces Resolution 33 (Cg-XIV), which is no longer in force.

## Resolution 35 (Cg-XV)

## MAXIMUM EXPENDITURE FOR THE FIFTEENTH FINANCIAL PERIOD (2008–2011)

THE CONGRESS,

**Noting**:

(1) Article 23 of the Convention of the World Meteorological Organization,

(2) Article 4 of the Financial Regulations of the Organization,

**Authorizes** the Executive Council during the fifteenth financial period from 1 January 2008 to 31 December 2011:

(1) To incur expenditures of two hundred and sixty-nine million eight hundred thousand Swiss francs (CHF 269 800 000), of which CHF 249 800 000 shall be from the assessed contributions and shall serve as the starting point for the assessed contributions budget level for the sixteenth financial period, and the balance of CHF 20 000 000 shall be from other regular resources (rental income, support cost income, interest and other income), and the division of such expenditures into expected results as shown in Annex 1 to this resolution;

(2) To approve biennial appropriations within these limits;

(3) To take note of the division of expenditure by organizational entity, as of May 2007, as shown in Annex 2 to this resolution;

(4) To also take note of the estimate of voluntary resources by expected result amounting to one hundred and twenty-four million Swiss francs (CHF 124 000 000);

**Further authorizes** the Executive Council during the fifteenth financial period:

(1) To incur additional expenditures to the budget of CHF 269 800 000 resulting from any surplus from the fourteenth financial period up to CHF 12 000 000, using the list of additional initiatives in Annex 3 to this resolution as guidance;

(2) To prioritize the list of additional initiatives in Annex 3, taking into account the following:

   (a) Within the list of additional initiatives, the implementation of International Public Sector Accounting Standards should be given highest priority;

   (b) Priority should be given to additional initiatives under expected results 5, 6, 7 and 9;

(3) To approve budgetary adjustments at the level of deliverables and activities resulting from the mandates approved by Fifteenth Congress and within the approved budgetary ceiling of CHF 269 800 000;

**Further authorizes** the Executive Council to incur any necessary expenditures additional to the sum stated above, resulting from any unanticipated increases in inflation and Secretariat staff salaries and allowances over and above 2.0 per cent per annum as from 1 May 2007, consequent to changes in the United Nations salaries and allowances, if the Executive Council is satisfied that

they cannot reasonably be met without adversely affecting the achievement of the expected results approved by Congress.

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**Annex 1 to Resolution 35 (Cg-XV)**

**BUDGET 2008–2011 BY EXPECTED RESULT**
**(in Swiss francs)**

| *Expected result* | *Budget 2008–2011* | | |
|---|---|---|---|
| | *Assessed contributions* | *Other regular resources* | *Total* |
| 1 Enhanced capabilities of Members to produce better weather forecasts and warnings | 18 830 200 | 1 109 700 | 19 939 900 |
| 2 Enhanced capabilities of Members to provide better climate predictions and assessments | 16 457 500 | 1 065 700 | 17 523 200 |
| 3 Enhanced capabilities of Members to provide better hydrological forecasts and assessments | 4 686 300 | 203 800 | 4 890 100 |
| 4 Integration of WMO observing systems | 15 942 400 | 941 200 | 16 883 600 |
| 5 Development and implementation of the new WMO Information System | 6 622 400 | 366 400 | 6 988 800 |
| 6 Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness | 11 513 900 | 805 900 | 12 319 800 |
| 7 Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services | 48 207 800 | 5 014 600 | 53 222 400 |
| 8 Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations | 26 068 000 | 2 550 500 | 28 618 500 |
| 9 Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates | 21 240 700 | 1 197 600 | 22 438 300 |
| 10 Effective and efficient functioning of constituent bodies | 66 395 700 | 6 057 200 | 72 452 900 |
| 11 Effective and efficient management performance and oversight of the Organization | 13 835 100 | 687 400 | 14 522 500 |
| Total | 249 800 000 | 20 000 000 | 269 800 000 |

## Annex 2 to Resolution 35 (Cg-XV)

## BUDGET 2008–2011 BY ORGANIZATIONAL ENTITY
## (in Swiss francs)

| *Organizational entity* | *Assessed contribution* | *Other regular resources* | *Total* |
|---|---|---|---|
| Policy-Making Organs | 5 451 300 | | 5 451 300 |
| Office of the Secretary-General | 2 880 000 | | 2 880 000 |
| — Cabinet and External Relations | 8 657 000 | | 8 657 000 |
| — Strategic Planning Office | 2 070 200 | | 2 070 200 |
| — Communications and Public Affairs Office | 3 311 600 | | 3 311 600 |
| Sub-total | 16 918 800 | | 16 918 800 |
| Internal Oversight Office and Oversight Provision | 5 218 500 | | 5 218 500 |
| Deputy Secretary-General and Support | 2 240 000 | | 2 240 000 |
| — World Weather Watch Department | 20 095 200 | | 20 095 200 |
| — Applications Programme Department | 15 286 900 | | 15 286 900 |
| — Atmospheric Research and Environment Programme Department | 13 561 000 | | 13 561 000 |
| — Hydrology and Water Resources Department | 11 770 700 | | 11 770 700 |
| — WMO Space Programme Office | 3 437 400 | | 3 437 400 |
| — World Climate Programme Department | 16 996 900 | | 16 996 900 |
| — Natural Disaster Prevention and Mitigation Programme Office | 3 608 800 | | 3 608 800 |
| Sub-total | 86 996 900 | | 86 996 900 |
| Assistant Secretary-General and Support | 2 110 000 | | 2 110 000 |
| — Development Cooperation and Regional Activities Department | 24 163 800 | 800 000 | 24 963 800 |
| — Education and Training Department | 14 969 200 | | 14 969 200 |
| — Conferences, Printing and Distribution Department | 9 718 500 | 2 000 000 | 11 718 500 |
| — Linguistic Services and Publications Department | 29 302 600 | 1 600 000 | 30 902 600 |
| Sub-total | 80 264 100 | 4 400 000 | 84 664 100 |
| Resource Management and Support | 1 910 000 | | 1 910 000 |
| — Budget Office and Finance Division | 8 014 700 | 2 700 000 | 10 714 700 |
| — Human Resources Division | 6 581 000 | 1 400 000 | 7 981 000 |
| — Information Technology Division | 8 072 800 | 2 200 000 | 10 272 800 |
| — Common Services, Procurement and Travel Divisions | 15 153 100 | 5 800 000 | 20 953 100 |
| Sub-total | 39 731 600 | 12 100 000 | 51 831 600 |
| Acquisition of Capital Assets and Joint Costs | 3 736 600 | 3 500 000 | 7 236 600 |
| Secretariats of the Joint Activities with other International Organizations | | | |
| — Secretariat of the Global Climate Observing System | 2 156 700 | | 2 156 700 |
| — Secretariat of the Intergovernmental Panel on Climate Change | 1 731 500 | | 1 731 500 |
| — World Climate Research Programme | 7 594 000 | | 7 594 000 |
| Sub-total | 11 482 200 | | 11 482 200 |
| Total | 249 800 000 | 20 000 000 | 269 800 000 |

## Annex 3 to Resolution 35 (Cg-XV)

## ADDITIONAL INITIATIVES FOR SURPLUS FUNDING (in Swiss francs)

| *Expected result* | | *Amount* |
|---|---|---|
| 5 | Development and implementation of the new WMO Information System | |
| | — Accelerate the development of the WMO Information System and other critical components of the WMO Integrated Global Observing System | 1 005 000 |
| 6 | Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness | |
| | — Enhance disaster prevention and mitigation at national and regional levels, with a specific focus on disaster risk management and multi-hazard early warning systems | 1 747 700 |
| 7 | Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services | |
| | — Enhanced provision of services of the applications programmes | 1 200 000 |
| 8 | Broader use of weather, climate and water outputs for decision-making and implementation by Members and partner organizations | |
| | — Gender mainstreaming | 500 000 |
| | — WMO annual report | 500 900 |
| | — Annual World Meteorological Day | 483 600 |
| 9 | Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates | |
| | — Education, to speed the skills development of the next generation of NMHS leaders | 1 945 100 |
| | — Assistance to National Meteorological and Hydrological Services for staying up-to-date on scientific and technological advancements, in particular the application of new technologies to meteorological and hydrological services | 1 400 000 |
| | — A better ability to respond to emerging issues in a changing world, especially issues related to climate change, the Millennium Development Goals and least developed countries | 1 400 000 |
| | — Publications on Quality Management Systems for use by National Meteorological and Hydrological Services | 500 000 |
| 1 to 11 (Resource apportionment of Resource Management Support) | Introduction of International Public Sector Accounting Standards | up to 4 000 000 |

## Resolution 36 (Cg-XV)

## INTERNATIONAL POLAR YEAR 2007–2008

THE CONGRESS,

**Noting:**

(1) Resolution 34 (Cg-XIV) ─ Holding of a Third International Polar Year in 2007–2008,

(2) That the International Council for Science/WMO Joint Committee for International Polar Year 2007–2008 and its subcommittees made significant progress in the preparation of the Year that resulted in over 200 international, interdisciplinary projects addressing a wide range of environmental and social research topics in the Polar Regions with active participation of more than 60 nations,

(3) That WMO Inter-commission Task Group on International Polar Year 2007–2008, technical commissions and a large number of National Meteorological and Hydrological Services provided substantial contributions to the preparation of International Polar Year 2007–2008,

**Considering:**

(1) That the polar regions are of great significance in the global climate system and that changes at high latitudes can have an impact on ecosystems and human society through factors such as sea-level rise and variations in atmospheric and oceanic circulation,

(2) That scientific and operational results of International Polar Year 2007–2008 will be offering benefits to all WMO Programmes by generating comprehensive data sets and authoritative knowledge to ensure the further development of environmental monitoring and forecasting systems as well as better assessment of climate change and its impacts,

(3) That projects for the Year when implemented would provide a great opportunity for the integrated observations of polar atmosphere and oceans,

**Requests** Members:

(1) To ensure the provision of resources sufficient to meet this scientific and international challenge at both the national level and through international funding agencies;

(2) To support activities of National Meteorological and Hydrological Services at the implementation stage of International Polar Year 2007–2008, when the existing elements of global observing systems that are at present within their areas of responsibility would be in use, as well as beyond the Year, when the major role of the Services should be to ensure the legacy of observing systems established during the Year;

(3) To make freely available data obtained from special observations carried out during International Polar Year 2007–2008 at stations, research vessels, and other platforms via the Global Telecommunication System;

(4) To contribute to the International Polar Year 2007–2008 Trust Fund to the extent possible to support further activities of the Joint Committee and its subcommittees to ensure the successful implementation of the Year;

**Requests** the Secretary-General:

(1) To secure necessary funding to continue support to the implementation process of International Polar Year 2007–2008 and the activities of the Joint Committee on the cost-sharing basis agreed between the International Council for Science and WMO;

(2) To facilitate the possibility for all relevant Members to make available International Polar Year 2007–2008 observations on the Global Telecommunication System.

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**Note:** This resolution replaces Resolution 34 (Cg-XIV), which is no longer in force.

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**Resolution 37 (Cg-XV)**

**REVISIONS TO 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 Financial Regulations under Article 3 (Maximum expenditures for the Financial period), Article 6 (The biennial budget), Article 7 (Appropriations), Article 8 (Provision of funds), Article 10 (Other income), Article 13 (Internal control) and Article 14 (The accounts) require revision,

**Decides** that the Financial Regulations as set out in the annex to this resolution shall apply effective 1 January 2008;

**Takes note** that with the amendments to the Financial Regulations, the Secretary-General is revising the related Financial Rules effective 1 January 2008.

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## Annex to Resolution 37 (Cg-XV)

## FINANCIAL REGULATIONS OF THE WORLD METEOROLOGICAL ORGANIZATION

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 that 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 presented in a results-based budget format 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 presented in a results-based budget format 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 bienniums 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, 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 of the results-based budget format 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:

(a) Supplementary appropriations for which contributions have not previously been assessed on Member States;

(b) Half of the estimated miscellaneous income for the biennium for which credits have not previously been taken into account and any adjustments in estimated income previously taken into account.

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 that 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 that 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 that 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 that 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.

ARTICLE 10

**Other income**

10.1 All other income, except:

(a) Contributions to the budget;

(b) Direct refunds of expenditures made during the biennium;

(c) Advances or deposits to funds and accounts;

(d) Interest earned on the Working Capital Fund to the extent that it is required to augment the level of the Working Capital Fund;

shall be classed as miscellaneous income, for credit to the General Fund, unless otherwise specified in accordance with Regulation 9.9.

**Voluntary contributions, gifts or donations**

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 that 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.

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.

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.

ARTICLE 11

**Custody of funds**

11.1 The Secretary-General shall designate the bank or banks in which the funds of the Organization shall be kept.

ARTICLE 12

**Investment of funds**

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.

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.

ARTICLE 13

**Internal control**

13.1 The Secretary-General shall:

(a) Establish detailed financial procedures in order to ensure effective financial administration and the exercise of economy;

(b) Cause all payments to be made on the basis of supporting vouchers and other documents that ensure that the services or goods have been received, and that payments have not previously been made;

(c) Designate the officers who may receive moneys, incur obligations and make payments on behalf of the Organization.

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;

(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.

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.

**Ex gratia payments**

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.

**Writing-off of losses or deficiencies**

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.

**Contracts and purchases**

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.

**Internal oversight**

13.7 Under the broader scheme of internal oversight, the Secretary-General shall establish an office to provide for an independent verification of the financial, administrative and operational activities of WMO, including programme evaluation, monitoring mechanisms and consulting services. The office shall be called the Internal Oversight Office and shall ensure the following:

(a) The regularity of the receipt, custody and disposal of all funds and other financial resources of the Organization;

(b) The conformity of expenditure with the appropriations or other financial provisions voted by 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;

(e) The effective, efficient and economical use of all resources of the Organization.

13.8 The Internal Oversight Office shall also be responsible for investigating all allegations or presumptions of fraud, waste, mismanagement or misconduct and for conducting inspections of services and organizational units.

13.9 The Secretary-General shall appoint a technically qualified head of Internal Oversight Office 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 head of the Office. 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 Internal Oversight Office shall function in accordance with the following provisions:

(a) The head of the Office shall report directly to the Secretary-General;

(b) The Office shall have full, free and prompt access to all records, property, personnel, operations and functions within the Organization that, in its opinion, are relevant to the subject matter under review;

(c) It shall be available to receive directly from individual staff member complaints or information concerning the possible existence of fraud, waste, mismanagement or misconduct. 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) It 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 head of the Office, any such report shall be submitted to the Executive Council together with the Secretary-General's comments thereon;

(e) The Office shall submit a summary report annually to the Secretary-General with a copy to the External Auditor on its 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 wishes to make;

(f) It shall monitor the implementation of recommendations duly noted by the Executive Council.

ARTICLE 14

**The accounts**

14.1 The Secretary-General shall submit accounts for each year. In addition he shall maintain, for management purposes, such accounting records as are necessary and shall submit annual accounts showing for the year to which they relate:

(a) The income and expenditures of all funds;

(b) 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 Secretary-General shall submit for the second year of the biennium, in addition to the accounts for the year as indicated in Regulation 14.1, biennial accounts showing for the biennium to which they relate the status of appropriations, including:

(a) The original budget appropriations;

(b) The appropriations as modified by any transfers;

(c) Credits, if any, other than the appropriations approved by the Executive Council;

(d) The amounts charged against those appropriations and/or other credits;

He shall also give such information as may be appropriate to indicate the current financial position of the Organization.

14.3 The annual and 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.

14.4 Appropriate separate accounts shall be maintained for all trust funds, reserve and special accounts.

14.5 The annual and biennial accounts shall be submitted by the Secretary-General to the External Auditor not later than 31 March following the end of the year or biennium.

14.6 The Secretary-General shall submit in the accounts of the first year of the financial period a statement of the total expenditures made in respect of the previous financial period.

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 or her own country, his or her tenure of office as External Auditor shall thereupon be terminated and he or she shall be succeeded as External Auditor by his or her successor as Auditor-General. The External Auditor may not otherwise be removed during his or her 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 or she 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, which shall include such information as he or she 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, 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 that are beyond the competence of the Executive Council.

17.2 The applications of any of the present Regulations may be suspended for a period that 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 that 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.

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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 or she deems necessary in order to satisfy himself or herself:

(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 or she chooses of all financial records, including those relating to supplies and equipment.

(3) The External Auditor and his or her staff have free access at all convenient times to all books, records and other documentation that are, in the opinion of the External Auditor, necessary for the performance of the audit. Information that 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 or her staff shall respect the privileged and confidential nature of any information so classified that 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 that in his or her 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 or she

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 or her 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 that 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;

(vii) Expenditure not in conformity with the authority that governs it;

(d) The accuracy or otherwise of the supplies and equipment records as determined by stock-taking and examination of the records;

(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.

(7) The External Auditor may make such observations with respect to his or her findings resulting from the audit and such comments on the Secretary-General's financial report as he or she deems appropriate to the Executive Council or to the Secretary-General.

(8) Whenever the scope of audit of the External Auditor is restricted, or whenever he or she is unable to obtain sufficient evidence, the External Auditor shall refer to the matter in his or her report, making clear in the report the reasons for his or her comments and the effect on the financial position and the financial transactions as recorded.

(9) In no case shall the External Auditor include criticism in his or her report without first affording the Secretary-General an adequate opportunity of explanation on the matter under observation.

(10) The External Auditor is not required to mention any matter referred to in the foregoing that, in his or her opinion, is insignificant in all respects.

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## Resolution 38 (Cg-XV)

## AUDIT COMMITTEE

THE CONGRESS,

**Noting:**

(1) Resolution 15 (EC-LVI) ─ Establishment of an Audit Committee,

(2) Resolution 11 (EC-LVII) ─ Terms of reference and membership of the Audit Committee,

(3) Resolution 10 (EC-LVIII) ─ Terms of reference of the Audit Committee,

(4) The *Abridged Final Report with Resolutions of the Fifty-sixth Session of the Executive Council* (WMO-No. 977), general summary, paragraph 18.4.6,

(5) The *Abridged Final Report with Resolutions of the Fifty-seventh Session of the Executive Council* (WMO-No. 988), general summary, paragraphs 4.1.1 and 4.1.18 to 4.1.19,

(6) The *Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007), general summary, paragraphs 4.1.1 to 4.1.3,

**Noting further** the recommendations of the Audit Committee and the recommendations of the External Auditor,

**Considering** the need for a review and follow-up mechanism to monitor the administrative functioning of the WMO Secretariat,

**Recognizing** the guidance provided by the Executive Council to the Audit Committee,

**Endorses** the work undertaken by the Audit Committee since it was established by the Executive Council at its fifty-sixth session in June 2004;

**Requests:**

(1) The Audit Committee to continue reporting to the Executive Council;

(2) The Executive Council to continue reviewing the functioning and membership of the Audit Committee.

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**Resolution 39 (Cg-XV)**

**FINANCIAL ADVISORY COMMITTEE**

THE CONGRESS,

**Recalling** Resolution 29 (Cg-X) – Financial Advisory Committee,

**Considering** the report of the fifty-eighth session of the Executive Council and the report of the twenty-sixth meeting of the Financial Advisory Committee,

**Decides** to maintain the Financial Advisory Committee with the following terms of reference:

**1. PURPOSE**

To provide advice from WMO Members to Congress and the Executive Council in a transparent fashion on:

(a) The affordability, sustainability and implementation of the results-based budget;

(b) Financial matters of the Organization;

**2. FUNCTIONS**

(a) To advise on the adequacy of the linkage between results-based budget and the WMO Strategic Plan;

(b) To advise on the adequacy of regular and extrabudgetary resource allocations against expected results;

(c) To advise on financial matters, such as proportional contributions and Financial Regulations and any surplus;

(d) To advise on the overall budget level, taking into account issues of affordability and sustainability;

(e) To consider the reports of the External Auditor, the Audit Committee and other relevant bodies as necessary in the deliberation of these functions;

**3. COMPOSITION**

(a) President of WMO serves as chairperson;

(b) Core membership comprising the President of WMO and the presidents of the WMO regional associations;

(c) Open to all WMO Members;

**4. WORKING ARRANGEMENTS**

(a) The President should convene the meeting in time, and for a long enough period, to prepare a report prior to the commencement of Congress and the Executive Council;

(b) Relevant documents should be made available to the Members at least three weeks before the Financial Advisory Committee meeting;

(c) The Committee should follow the traditional procedures of such WMO bodies, seeking to formulate its recommendations through consensus views;

(d) The Committee should make its reports available to all WMO Members.

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**Resolution 40 (Cg-XV)**

**ASSESSMENT OF PROPORTIONAL CONTRIBUTIONS OF MEMBERS FOR THE FIFTEENTH FINANCIAL PERIOD**

THE CONGRESS,

**Noting:**

(1) Article 24 of the Convention of the World Meteorological Organization,

(2) Resolution 36 (Cg-XIV) – Assessment of proportional contributions of Members for the fourteenth financial period,

**Decides:**

(1) That the latest United Nations scales of assessments approved by the United Nations General Assembly should be used as the basis for the calculation of the WMO scales of assessments, duly adjusted for differences in memberships;

(2) That the scales of assessments of proportional contributions of Members for the years 2008, 2009 and 2010 shall be based on the United Nations scales of assessments adopted by the United Nations General Assembly at its sixty-first session, and adjusted for differences in memberships as specified in Table 1 of the annex to this resolution;

(3) That the proportional contributions of non-Members that may become Members shall be assessed for the years 2008, 2009 and 2010 as specified in Table 2 of the annex to this resolution;

**Authorizes** the Executive Council**:**

(1) To adjust the scales of assessments for the year 2011 using the United Nations scale of assessments to be adopted by the United Nations General Assembly at its sixty-third session in December 2009, and adjusted for differences 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 that would exceed 200 per cent of the WMO scale in 2007;

(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.

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**Annex to Resolution 40 (Cg-XV)**

**Table 1**

**Proposed WMO scale of assessment 2008, 2009 and 2010**

| *Member* | *Approved WMO scale 2007* | *Approved United Nations scale 2007, 2008 and 2009* | *Proposed WMO scale 2008, 2009 and 2010* |
|---|---|---|---|
| Afghanistan | 0.02 | 0.001 | 0.02 |
| Albania | 0.02 | 0.006 | 0.02 |
| Algeria | 0.08 | 0.085 | 0.08 |
| Angola | 0.02 | 0.003 | 0.02 |
| Antigua and Barbuda | 0.02 | 0.002 | 0.02 |
| Argentina | 0.94 | 0.325 | 0.32 |
| Armenia | 0.02 | 0.002 | 0.02 |
| Australia | 1.57 | 1.787 | 1.76 |
| Austria | 0.85 | 0.887 | 0.87 |
| Azerbaijan | 0.02 | 0.005 | 0.02 |
| Bahamas | 0.02 | 0.016 | 0.02 |
| Bahrain | 0.03 | 0.033 | 0.03 |
| Bangladesh | 0.02 | 0.010 | 0.02 |
| Barbados | 0.02 | 0.009 | 0.02 |
| Belarus | 0.02 | 0.020 | 0.02 |
| Belgium | 1.05 | 1.102 | 1.08 |
| Belize | 0.02 | 0.001 | 0.02 |
| Benin | 0.02 | 0.001 | 0.02 |
| Bhutan | 0.02 | 0.001 | 0.02 |
| Bolivia | 0.02 | 0.006 | 0.02 |
| Bosnia and Herzegovina | 0.02 | 0.006 | 0.02 |
| Botswana | 0.02 | 0.014 | 0.02 |
| Brazil | 1.50 | 0.876 | 0.86 |
| British Caribbean Territories | 0.02 | – | 0.02 |
| Brunei Darussalam | 0.03 | 0.026 | 0.03 |
| Bulgaria | 0.02 | 0.020 | 0.02 |

| *Member* | *Approved WMO scale 2007* | *Approved United Nations scale 2007, 2008 and 2009* | *Proposed WMO scale 2008, 2009 and 2010* |
|---|---|---|---|
| Burkina Faso | 0.02 | 0.002 | 0.02 |
| Burundi | 0.02 | 0.001 | 0.02 |
| Cambodia | 0.02 | 0.001 | 0.02 |
| Cameroon | 0.02 | 0.009 | 0.02 |
| Canada | 2.77 | 2.977 | 2.93 |
| Cape Verde | 0.02 | 0.001 | 0.02 |
| Central African Republic | 0.02 | 0.001 | 0.02 |
| Chad | 0.02 | 0.001 | 0.02 |
| Chile | 0.22 | 0.161 | 0.16 |
| China | 2.02 | 2.667 | 2.62 |
| Colombia | 0.15 | 0.105 | 0.10 |
| Comoros | 0.02 | 0.001 | 0.02 |
| Congo | 0.02 | 0.001 | 0.02 |
| Cook Islands | 0.02 | – | 0.02 |
| Costa Rica | 0.03 | 0.032 | 0.03 |
| Côte d'Ivoire | 0.02 | 0.009 | 0.02 |
| Croatia | 0.04 | 0.050 | 0.05 |
| Cuba | 0.04 | 0.054 | 0.05 |
| Cyprus | 0.04 | 0.044 | 0.04 |
| Czech Republic | 0.18 | 0.281 | 0.28 |
| Democratic People's Republic of Korea | 0.02 | 0.007 | 0.02 |
| Democratic Republic of the Congo | 0.02 | 0.003 | 0.02 |
| Denmark | 0.71 | 0.739 | 0.73 |
| Djibouti | 0.02 | 0.001 | 0.02 |
| Dominica | 0.02 | 0.001 | 0.02 |
| Dominican Republic | 0.03 | 0.024 | 0.02 |
| Ecuador | 0.02 | 0.021 | 0.02 |
| Egypt | 0.12 | 0.088 | 0.09 |
| El Salvador | 0.02 | 0.020 | 0.02 |
| Eritrea | 0.02 | 0.001 | 0.02 |
| Estonia | 0.02 | 0.016 | 0.02 |
| Ethiopia | 0.02 | 0.003 | 0.02 |
| Fiji | 0.02 | 0.003 | 0.02 |
| Finland | 0.52 | 0.564 | 0.55 |
| France | 5.93 | 6.301 | 6.19 |
| French Polynesia | 0.02 | – | 0.02 |
| Gabon | 0.02 | 0.008 | 0.02 |
| Gambia | 0.02 | 0.001 | 0.02 |
| Georgia | 0.02 | 0.003 | 0.02 |
| Germany | 8.52 | 8.577 | 8.44 |
| Ghana | 0.02 | 0.004 | 0.02 |
| Greece | 0.52 | 0.596 | 0.59 |
| Guatemala | 0.03 | 0.032 | 0.03 |
| Guinea | 0.02 | 0.001 | 0.02 |
| Guinea-Bissau | 0.02 | 0.001 | 0.02 |
| Guyana | 0.02 | 0.001 | 0.02 |
| Haiti | 0.02 | 0.002 | 0.02 |

| *Member* | *Approved WMO scale 2007* | *Approved United Nations scale 2007, 2008 and 2009* | *Proposed WMO scale 2008, 2009 and 2010* |
|---|---|---|---|
| Honduras | 0.02 | 0.005 | 0.02 |
| Hong Kong, China | 0.02 | – | 0.02 |
| Hungary | 0.12 | 0.244 | 0.24 |
| Iceland | 0.03 | 0.037 | 0.04 |
| India | 0.41 | 0.450 | 0.44 |
| Indonesia | 0.14 | 0.161 | 0.16 |
| Iran, Islamic Republic of | 0.15 | 0.180 | 0.18 |
| Iraq | 0.02 | 0.015 | 0.02 |
| Ireland | 0.34 | 0.445 | 0.44 |
| Israel | 0.46 | 0.419 | 0.41 |
| Italy | 4.80 | 5.079 | 4.99 |
| Jamaica | 0.02 | 0.010 | 0.02 |
| Japan | 19.15 | 16.624 | 16.35 |
| Jordan | 0.02 | 0.012 | 0.02 |
| Kazakhstan | 0.03 | 0.029 | 0.03 |
| Kenya | 0.02 | 0.010 | 0.02 |
| Kiribati | 0.02 | – | 0.02 |
| Kuwait | 0.16 | 0.182 | 0.18 |
| Kyrgyzstan | 0.02 | 0.001 | 0.02 |
| Lao People’s Democratic Republic | 0.02 | 0.001 | 0.02 |
| Latvia | 0.02 | 0.018 | 0.02 |
| Lebanon | 0.02 | 0.034 | 0.03 |
| Lesotho | 0.02 | 0.001 | 0.02 |
| Liberia | 0.02 | 0.001 | 0.02 |
| Libyan Arab Jamahiriya | 0.13 | 0.062 | 0.06 |
| Lithuania | 0.02 | 0.031 | 0.03 |
| Luxembourg | 0.08 | 0.085 | 0.08 |
| Macao, China | 0.02 | – | 0.02 |
| Madagascar | 0.02 | 0.002 | 0.02 |
| Malawi | 0.02 | 0.001 | 0.02 |
| Malaysia | 0.20 | 0.190 | 0.19 |
| Maldives | 0.02 | 0.001 | 0.02 |
| Mali | 0.02 | 0.001 | 0.02 |
| Malta | 0.02 | 0.017 | 0.02 |
| Mauritania | 0.02 | 0.001 | 0.02 |
| Mauritius | 0.02 | 0.011 | 0.02 |
| Mexico | 1.84 | 2.257 | 2.22 |
| Micronesia, Federated States of | 0.02 | 0.001 | 0.02 |
| Moldova | 0.02 | 0.001 | 0.02 |
| Monaco | 0.02 | 0.003 | 0.02 |
| Mongolia | 0.02 | 0.001 | 0.02 |
| Montenegro | – | 0.001 | 0.02 |
| Morocco | 0.05 | 0.042 | 0.04 |
| Mozambique | 0.02 | 0.001 | 0.02 |
| Myanmar | 0.02 | 0.005 | 0.02 |
| Namibia | 0.02 | 0.006 | 0.02 |
| Nepal | 0.02 | 0.003 | 0.02 |

| *Member* | *Approved WMO scale 2007* | *Approved United Nations scale 2007, 2008 and 2009* | *Proposed WMO scale 2008, 2009 and 2010* |
|---|---|---|---|
| Netherlands | 1.66 | 1.873 | 1.84 |
| Netherlands Antilles and Aruba | 0.02 | – | 0.02 |
| New Caledonia | 0.02 | – | 0.02 |
| New Zealand | 0.22 | 0.256 | 0.25 |
| Nicaragua | 0.02 | 0.002 | 0.02 |
| Niger | 0.02 | 0.001 | 0.02 |
| Nigeria | 0.04 | 0.048 | 0.05 |
| Niue | 0.02 | – | 0.02 |
| Norway | 0.67 | 0.782 | 0.77 |
| Oman | 0.07 | 0.073 | 0.07 |
| Pakistan | 0.05 | 0.059 | 0.06 |
| Panama | 0.02 | 0.023 | 0.02 |
| Papua New Guinea | 0.02 | 0.002 | 0.02 |
| Paraguay | 0.02 | 0.005 | 0.02 |
| Peru | 0.09 | 0.078 | 0.08 |
| Philippines | 0.09 | 0.078 | 0.08 |
| Poland | 0.45 | 0.501 | 0.49 |
| Portugal | 0.46 | 0.527 | 0.52 |
| Qatar | 0.06 | 0.085 | 0.08 |
| Republic of Korea | 1.76 | 2.173 | 2.14 |
| Romania | 0.06 | 0.070 | 0.07 |
| Russian Federation | 1.08 | 1.200 | 1.18 |
| Rwanda | 0.02 | 0.001 | 0.02 |
| Saint Lucia | 0.02 | 0.001 | 0.02 |
| Samoa | 0.02 | 0.001 | 0.02 |
| Sao Tome and Principe | 0.02 | 0.001 | 0.02 |
| Saudi Arabia | 0.70 | 0.748 | 0.73 |
| Senegal | 0.02 | 0.004 | 0.02 |
| Serbia | 0.02 | 0.021 | 0.02 |
| Seychelles | 0.02 | 0.002 | 0.02 |
| Sierra Leone | 0.02 | 0.001 | 0.02 |
| Singapore | 0.38 | 0.347 | 0.34 |
| Slovakia | 0.05 | 0.063 | 0.06 |
| Slovenia | 0.08 | 0.096 | 0.09 |
| Solomon Islands | 0.02 | 0.001 | 0.02 |
| Somalia | 0.02 | 0.001 | 0.02 |
| South Africa | 0.29 | 0.290 | 0.28 |
| Spain | 2.48 | 2.968 | 2.92 |
| Sri Lanka | 0.02 | 0.016 | 0.02 |
| Sudan | 0.02 | 0.010 | 0.02 |
| Suriname | 0.02 | 0.001 | 0.02 |
| Swaziland | 0.02 | 0.002 | 0.02 |
| Sweden | 0.98 | 1.071 | 1.05 |
| Switzerland | 1.18 | 1.216 | 1.20 |
| Syrian Arab Republic | 0.04 | 0.016 | 0.02 |
| Tajikistan | 0.02 | 0.001 | 0.02 |
| Thailand | 0.21 | 0.186 | 0.18 |

| *Member* | *Approved WMO scale 2007* | *Approved United Nations scale 2007, 2008 and 2009* | *Proposed WMO scale 2008, 2009 and 2010* |
|---|---|---|---|
| The former Yugoslav Republic of Macedonia* | 0.02 | 0.005 | 0.02 |
| Togo | 0.02 | 0.001 | 0.02 |
| Tonga | 0.02 | 0.001 | 0.02 |
| Trinidad and Tobago | 0.02 | 0.027 | 0.03 |
| Tunisia | 0.03 | 0.031 | 0.03 |
| Turkey | 0.37 | 0.381 | 0.37 |
| Turkmenistan | 0.02 | 0.006 | 0.02 |
| Uganda | 0.02 | 0.003 | 0.02 |
| Ukraine | 0.04 | 0.045 | 0.04 |
| United Arab Emirates | 0.23 | 0.302 | 0.30 |
| United Kingdom of Great Britain and Northern Ireland | 6.03 | 6.642 | 6.53 |
| United Republic of Tanzania | 0.02 | 0.006 | 0.02 |
| United States of America | 21.64 | 22.000 | 21.64 |
| Uruguay | 0.05 | 0.027 | 0.03 |
| Uzbekistan | 0.02 | 0.008 | 0.02 |
| Vanuatu | 0.02 | 0.001 | 0.02 |
| Venezuela | 0.17 | 0.200 | 0.20 |
| Viet Nam | 0.02 | 0.024 | 0.02 |
| Yemen | 0.02 | 0.007 | 0.02 |
| Zambia | 0.02 | 0.001 | 0.02 |
| Zimbabwe | 0.02 | 0.008 | 0.02 |
| **Total** | **100.00** | **99.968** | **100.00** |

* Following the decision of the United Nations General Assembly on 8 April 1993, the state is being provisionally referred to for all purposes within the Organization as “The former Yugoslav Republic of Macedonia” pending settlement of differences that have arisen over its name.

**Table 2**

**Provisional assessment in respect of non-Members for the years 2008, 2009 and 2010 in the event of any such non-Members becoming Members**

| *Non-Member* | *Percentage assessment* |
|---|---|
| Andorra | 0.02 |
| Equatorial Guinea | 0.02 |
| Grenada | 0.02 |
| Holy See | 0.02 |
| Liechtenstein | 0.02 |
| Marshall Islands | 0.02 |
| Nauru | 0.02 |
| Palau | 0.02 |
| Saint Kitts and Nevis | 0.02 |
| Saint Vincent and the Grenadines | 0.02 |
| San Marino | 0.02 |
| Timor-Leste | 0.02 |
| Tuvalu | 0.02 |

## Resolution 41 (Cg-XV)

## SETTLEMENT OF LONG-OUTSTANDING CONTRIBUTIONS

**THE CONGRESS**,

**Recalling** Resolution 37 (Cg-XI) – Suspension of Members for failure to meet financial obligations and Resolution 35 (Cg-XII) – Settlement of long-outstanding contributions,

**Noting** Article 8.8 of the Financial Regulations,

**Considering** Resolution 12 (EC-LVIII) – Settlement of long-outstanding contributions,

**Decides:**

(1) That the settlement of arrears to recover voting rights should be received by WMO at least one week prior to the beginning of the sessions of constituent bodies;

(2) That Members that did not comply with the terms set out in a payment agreement for the settlement of arrears may re-enter the agreement provided that all past required payments have been made;

(3) That Members that did not comply with the terms set out in a payment agreement for the settlement of arrears may enter into a new payment agreement, but only after the approval of the Executive Council has been obtained.

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## Resolution 42 (Cg-XV)

## WORKING CAPITAL FUND

THE CONGRESS,

**Noting:**

(1) Resolution 37 (Cg-XIV) — Review of the Working Capital Fund,

(2) Financial Regulations 8 and 9,

(3) 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 following purposes:

   (a) To finance budgetary appropriations pending receipt of contributions;

(b) To advance such sums as may be necessary to cover unforeseen and extraordinary expenses that cannot be met from current budgetary provisions;

(2) That the principal of the Working Capital Fund during the fifteenth financial period shall be fixed at CHF 7.5 million;

(3) The existing advances of each Member shall, notwithstanding the provisions of Financial Regulation 9.3, be frozen at the level fixed for the fourteenth financial period;

(4) That the additional principal shall be provided from off-budget funds to be consolidated as of 1 January 2008 as approved by the Executive Council at its fifty-eighth session (*Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007), general summary, paragraph 5.2.4). The new principal shall be credited to the individual Members' advance accounts in the Working Capital Fund in accordance with the approved scale of assessment for the years 2008 to 2010;

(5) That advances for new Members joining the Organization after 1 January 2008 shall be assessed at the rate established for the scale of assessment for the year of entry.

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## Resolution 43 (Cg-XV)

## 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 as set forth in the contract in the annex to this resolution.

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## Annex to Resolution 43 (Cg-XV)

## SECRETARY-GENERAL'S CONTRACT

In application of Article 21, paragraph (a) of the Convention of the World Meteorological Organization, prescribing that the Secretary-General shall be appointed by the Congress on such terms as the Congress may approve; and

Having regard to the resolution adopted by the Fifteenth 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 Mr Michel J.-P. Jarraud appointed Secretary-General by the Fifteenth World Meteorological Congress during its meeting of 16 May 2007, on the other part,

1. The Secretary-General's term of appointment shall take effect from 1 January 2008.

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, not to seek or accept instructions in regard to the performance of my duties from any government or other authority external to the Organization, and at all times to observe the Standards of Conduct for the International Civil Service and the WMO Code of Ethics for Staff".

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 2011; 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$ 151 064 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 instalments; and

(b) An annual representation allowance of 29 000 Swiss francs, 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 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 thirty 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 to the judgement of the Administrative Tribunal of the International Labour Organization, the competence of which is recognized by the Organization, whose decisions will be final. For any appeals by the Secretary-General against the non-observation 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 of the United Nations 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 _____ 2007.

| | |
|---|---|
| _____ | _____ |
| (A.I. Bedritsky)<br>President of the World<br>Meteorological Organization | (M. Jarraud)<br>Secretary-General appointed<br>by the Fifteenth<br>World Meteorological Congress |

## Resolution 44 (Cg-XV)

## AMENDMENT TO THE PREAMBLE OF THE CONVENTION OF THE WORLD METEOROLOGICAL ORGANIZATION

THE CONGRESS,

**Considering** the success and the achievements of WMO in its existence since it was established in 1950,

**Considering** further the need to have a basic document that reflects and makes clear the scope and responsibilities of the Organization and the understanding that the Members have of their Organization,

**Considering** the fact that WMO is the United Nations specialized agency responsible for meteorology,

**Considering** further that WMO, along with other agencies and programmes of the United Nations and other international organizations, each within the framework of its own mandate, is responsible for relevant aspects of hydrology, the climate and the environment,

**Noting** the Geneva Declaration adopted by the Members participating in the Thirteenth World Meteorological Congress, held in Geneva from 4 to 26 May 1999 (*Abridged Final Report with Resolutions of the Thirteenth World Meteorological Congress* (WMO-No. 902), Annex IV),

**Decides:**

That the text of the CONSIDERATA of the Convention,

> "With a view to coordinating, standardizing and improving world meteorological and related activities, and to encouraging an efficient exchange of meteorological and related information between countries in the aid of human activities, the contracting States agree to the present Convention, as follows:"

shall be replaced by the following new preamble:

***"Considering** the need for sustainable development, the reduction of loss of life and property caused by natural disasters and other catastrophic events related to weather, climate and water, as well as safeguarding the environment and the global climate for present and future generations of humankind,*

***Recognizing** the importance of an integrated international system for the observation, collection, processing and dissemination of meteorological, hydrological and related data and products,*

***Reaffirming** the vital importance of the mission of the National Meteorological, Hydrometeorological and Hydrological Services in observing and understanding weather and climate and in providing meteorological, hydrological and related services in support of relevant national needs, which should include the following areas:*

*(a) Protection of life and property,*
*(b) Safeguarding the environment,*
*(c) Contributing to sustainable development,*
*(d) Promoting long-term observation and collection of meteorological, hydrological and climatological data, including related environmental data,*
*(e) Promotion of endogenous capacity-building,*
*(f) Meeting international commitments,*
*(g) Contributing to international cooperation,*

***Recognizing** also that Members need to work together to coordinate, standardize, improve and encourage efficiencies in the exchange of meteorological, climatological, hydrological and related information between them, in the aid of human activities,*

***Considering** that meteorology is best coordinated at the international level by one responsible international organization,*

***Considering** further the need for a close cooperation with other international organizations also working in the areas of hydrology, climate and environment,*

*The contracting States **agree** to the present Convention, as follows:"*

**Further decides** that these amendments, which do not create new obligations and which are adopted in accordance with article 28 (c) of the Convention, shall come into force on 1 June 2007.

## Resolution 45 (Cg-XV)

## EMBLEM AND FLAG OF THE WORLD METEOROLOGICAL ORGANIZATION

THE CONGRESS,

**Considering:**

(1) The adoption in 1955 of a WMO emblem and its modification by Fifth Congress,

(2) Resolution 2 (EC-X) – Legal protection of the name and emblem of the World Meteorological Organization,

(3) The adoption by Fifth Congress (agenda item 3.8) of the flag of the Organization comprising the official emblem centred on a United Nations blue background, the emblem appearing in white,

(4) The results of the consultation of all Members regarding possible changes to the WMO emblem, held in 2005,

(5) Resolution 20 (EC-LVII) – WMO emblem and flag,

**Recognizing:**

(1) That it is desirable to mark the more than 50 years of existence of the Organization by changing the colour of the wind rose superimposed on the United Nations emblem to gold,

(2) That it is also desirable to enhance the visibility and the distinctiveness of the WMO emblem by adding at the bottom of the emblem the full name of the Organization in Arabic and Chinese, and its abbreviation in the other four official languages, English, French, Russian and Spanish,

(3) That it is necessary to strengthen the protection of the name of the Organization, its emblem and flag, including through the adoption of precise guidelines,

**Decides:**

(1) That the design referred to above shall be the emblem and distinctive sign of the World Meteorological Organization and shall be used for the flag of the Organization;

(2) That the Secretary-General shall maintain the flag code and regulations concerning the dimensions, proportions and use of the flag;

(3) That the Secretary-General shall adopt guidelines concerning the use and reproduction of the WMO emblem and official seal;

(4) That Members of the World Meteorological Organization should maintain within their own jurisdiction appropriate measures as are necessary to prevent the use, without authorization by the Secretary-General, and in particular for commercial purposes by means of trademarks or commercial labels, of the emblem and the name of the World Meteorological Organization, and of abbreviations of that name through the use of its initial letters.

## Resolution 46 (Cg-XV)

## AMENDMENTS TO GENERAL REGULATIONS 15, 16, 71, 91 AND 92

THE CONGRESS,

**Noting:**

(1) Regulations 15, 16, 71, 91 and 92 of the General Regulations of the Organization,

(2) Resolution 37 (Cg-XI) – Suspension of Members for failing to meet financial obligations,

(3) The *Abridged Final Report with Resolutions of the Twelfth World Meteorological Congress* (WMO-No. 827), general summary, paragraphs 11.3.1 to 11.3.4,

(4) Resolution 38 (Cg-XII) – Revision of the General Regulations, on amendments to the WMO General Regulations,

(5) The *Abridged Final Report with Resolutions of the Fifty-eighth Session of the Executive Council* (WMO-No. 1007), general summary, paragraph 10.2.9,

**Considering:**

(1) That the period of “at least” 225 days for conducting an election by correspondence was extended by Twelfth Congress so as to permit Members in arrears to meet the conditions necessary for their nationals or representatives to be eligible to be nominated to fill a vacant office by correspondence,

(2) That there has been no payment of arrears of contributions from Members whose nationals or representatives were not eligible to be nominated to fill a vacant office by correspondence within the 45-day period introduced by Twelfth Congress,

(3) That the periods for nomination of candidates, determining eligibility and willingness, and voting could be shortened in Regulations 91, 92 and 71 of the General Regulations,

**Decides:**

(1) To suppress the 45-day notification period designed to allow Members in arrears to meet the conditions necessary for their nationals or representatives to be eligible to be nominated to fill a vacant office by correspondence;

(2) To shorten the periods contained in General Regulations 91, 92 and 71 for nomination of candidates, determining eligibility and willingness, and voting from 45, 30 and 90 days to 30, 20 and 60 days respectively;

(3) To amend General Regulations 15 and 16 by replacing the figure 225 by 130.

## Resolution 47 (Cg-XV)

## TERMS OF REFERENCE OF THE TECHNICAL COMMISSIONS

THE CONGRESS**,**

**Noting:**

(1) Regulation 179 and Annex III of the General Regulations of the Organization,

(2) The proposal for a change in its terms of reference adopted by the Commission for Atmospheric Sciences at its fourteenth session and subsequently noted by the Executive Council at its fifty-eighth session,

(3) The proposed change in the terms of reference of the Commission for Climatology adopted by the Commission for Climatology at its fourteenth session,

**Considering** the importance of ensuring that WMO 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;

(2) To adopt the revised terms of reference of the Commission for Atmospheric Sciences and the Commission for Climatology 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 reflect these changes in Annex III to the General Regulations, 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.

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## Annex to Resolution 47 (Cg-XV)

## TERMS OF REFERENCE OF THE COMMISSION FOR ATMOSPHERIC SCIENCES

The Commission for Atmospheric Sciences is responsible for promoting, coordinating and facilitating activities relating to the atmospheric sciences, including weather research, environmental pollution and atmospheric chemistry research, and associated training and capacity-building. Within the context of this broad role, the specific objectives of the Commission are:

(a) To determine the requirements of WMO Members, including support of environmental and climate conventions, and facilitate the transfer of knowledge, technologies and advice concerning atmospheric science issues;

(b) To conduct research in atmospheric and related sciences to advance the understanding and predictability of atmospheric processes within the broader Earth system, with emphasis on the following:

(i) Weather prediction for timescales ranging from very-short to the long range, embracing new developments in environmental prediction, with emphasis on refining the end-to-end forecast process including data assimilation so as to improve the forecasting of high-impact events associated with serious consequences for populations and economies;

(ii) Atmospheric composition and air pollution, including their interaction with weather, studies of transport, transformation and deposition of air pollutants and related monitoring;

(iii) Physics and chemistry of clouds, particularly in support of weather prediction, atmospheric chemistry and the prediction of the chemical composition of the atmosphere;

(iv) Weather modification with emphasis on the underlying physical and chemical processes and the development of rigorous evaluation procedures;

(v) Tropical meteorology, including studies of processes and phenomena of particular relevance to low latitudes and their influence beyond;

(vi) Climate, noting the central role of the World Climate Research Programme for improved understanding of climate, the Commission will provide supporting science and contribute expertise, especially in atmospheric, environmental and Earth system modelling, which links the weather interests of the Commission to climate scales;

(c) To maintain and develop the Global Atmosphere Watch programme using an integrated approach to global atmospheric chemistry observations and air quality, contributing to scientific assessments in support of international environmental and climate conventions and policies;

(d) In accordance with the WMO Strategic Plan, to coordinate the Commission's activities with relevant WMO bodies and promote cooperation between WMO Members, international scientific organizations, environmental institutions and other scientific groups;

(e) To standardize functions, constants, terminology and bibliographic practices applicable to atmospheric sciences;

(f) To support research on the policy, social and economic impacts of advances in the understanding of atmospheric sciences;

(g) To formulate requirements for observations and for the storage, retrieval and exchange of raw and/or processed data;

(h) To conduct scientific assessments of technical meteorological procedures, including verification techniques.

## TERMS OF REFERENCE OF THE COMMISSION FOR CLIMATOLOGY

The Commission shall be responsible for promoting, supporting and facilitating WMO 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, and describing and encouraging best practices in, the rescue, collection, quality control, archiving, access to and further management of climate data, including near-real-time data, proxy data, remote sensing data and associated metadata;

(c) Development of statistical and other objective methods for analysing climate data;

(d) Development of best practices for the archiving of data sets from numerical analysis and prediction systems for climatological purposes;

(e) Provision of advice on matters relating to the access and availability of climatological data, information and services;

(f) Development of methods for climate data exchange and presenting climate information;

(g) Coordination and promotion of the analysis and monitoring of climate, its spatial and temporal variability and change, and the distribution of monitoring products for research, applications and impact assessments;

(h) Development and review of operational climate information and prediction services, and the promotion and support of applications research;

(i) Preparation of authoritative statements on climate;

(j) Capacity-building, raising awareness of climate information, services and technology transfer;

(k) Preparation of guidelines for preparing and presenting climatological information for use in the development and implementation of adaptation and mitigation responses to climate change, and for demonstrating the high cost-benefit ratio of climate services;

(l) Formalizing the role of the Commission with respect to the cross-cutting initiatives of WMO, and evaluating the implications for each Open Programme Area Group and Expert Team.

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 in collaboration with other WMO technical commissions and programmes, especially the Agricultural Meteorology Programme, Global Climate Observing System, Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology, Earth System Science Partnership, World Climate Research Programme and Group on Earth Observations as key programme partners and benefactors.

## Resolution 48 (Cg-XV)

## AMENDMENTS TO GENERAL REGULATION 29 (b)

THE CONGRESS,

**Noting**:

(1) Regulation 29 of the General Regulations of the Organization,

(2) The *Abridged Final Report with Resolutions and Recommendations of the Twelfth Session of the Commission for Hydrology* (WMO-No. 979), general summary, paragraphs 4.4 and 4.5,

**Considering**:

(1) That the automatic establishment of a Subcommittee on Hydrology may not contribute to the interaction between hydrological and meteorological services represented in the delegations of the Members to Congress,

(2) That the efficient use of time and resources during Congress requires that committees and subcommittees be established only if and when the need arises,

**Decides** to amend General Regulation 29 (b) by replacing the verb “shall” by “may”.

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## Resolution 49 (Cg-XV)

## 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) Regulation 135 (17) of the General Regulations of the Organization, concerning the review of previous Congress resolutions,

(2) Resolution 47 (Cg-XIV) — 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 |
| Third Congress (Cg-III) | 3, 4, 29 |
| Fifth Congress (Cg-V) | 6, 15, 30 |
| Seventh Congress (Cg-VII) | 32, 39 (expect paragraph 1 under **Decides** and paragraph 1 of the annex) |
| Eighth Congress (Cg-VIII) | 33, 36, 48 |
| Ninth Congress (Cg-IX) | 9, 30 |
| Tenth Congress (Cg-X) | 9, 31 |
| Eleventh Congress (Cg-XI) | 8, 19, 24, 30, 37 |
| Twelfth Congress (Cg-XII) | 20, 21, 35, 40 |
| Thirteenth Congress (Cg-XIII) | 25, 26, 31 |
| Fourteenth Congress (Cg-XIV) | 5, 6, 21, 24, 46 |

(2) To keep in force but only until 31 December 2007:

Resolutions 2, 3, 9, 10, 19, 25, 26, 27, 28, 29, 30, 31, 35, 36, 38 (Cg-XIV);

(3) Not to keep in force other resolutions adopted before the fifteenth session of Congress;

(4) To publish the texts of resolutions kept in force pursuant to resolutions adopted by Fifteenth Congress.*

_____

**Note:** This resolution replaces Resolution 47 (Cg-XIV), which is no longer in force.

* The full texts of the resolutions of Congress and the Executive Council that are kept in force are published in *Resolutions of Congress and the Executive Council* (WMO-No. 508).

# ANNEXES

## ANNEX I
## Annex to agenda item 2.3 of the general summary

## RECOMMENDATIONS OF THE FINANCIAL ADVISORY COMMITTEE TO FIFTEENTH CONGRESS

### Financial report of the Secretary-General to Fifteenth Congress

**Recommendation 1**

That Congress take note of the financial report of the Secretary-General to Fifteenth Congress.

### Consideration of the Secretary-General's budget proposals for the fifteenth financial period (2008–2011)

**Recommendation 2**

That Congress:

2.1 Consider a zero nominal growth budget of CHF 249.8 million with various considerations of additional resources above zero nominal growth for high priority services, such as expected results 5 (Development and implementation of the new WMO Information System), 6 (Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness), 7 (Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services) and 9 (Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates).

2.2 Consider alongside the proposed budget for the fifteenth financial period the budgetary implications of new activities presented after the finalization of the budget proposal.

2.3 Request the Secretary-General to present statements of programme and budget implications as part of document cover sheets.

### Contributions matters

#### *Scale of assessment*

**Recommendation 3**

That Congress:

3.1 Approve the draft text for inclusion in the general summary of its report, as contained in Cg-XV/Doc. 10.2(1), Appendix A.

3.2 Adopt Resolution 40 (Cg-XV) – Assessment of proportional contributions of Members for the fifteenth financial period, submitted by the Secretary-General.

***Level of Working Capital Fund***

**Recommendation 4**

That Congress:

4.1 Approve the draft text for inclusion in the general summary of its report, as contained in Cg-XV/Doc. 10.2(3), Appendix A.

4.2 Adopt Resolution 42 (Cg-XV) – Working Capital Fund, submitted by the Secretary-General.

4.3 Urge Members to pay their assessed contributions in accordance with the recommendation presented by the Joint Inspection Unit in its report as contained in Cg-XV/Doc. 10.2(4).

***Settlement of long-outstanding contributions***

**Recommendation 5**

That Congress:

5.1 Approve the draft text for inclusion in the general summary of its report, as contained in Cg-XV/Doc. 10.2(2), Appendix A.

5.2 Adopt Resolution 41 (Cg-XV) – Settlement of long-outstanding contributions, submitted by the Secretary-General.

**Review of other Congress documents having budgetary and financial implications**

***Recommendations concerning the Financial Advisory Committee***

**Recommendation 6**

That Congress:

6.1 Take into account, inter alia, the proposal to adhere to the following requirements when considering the recommendations concerning the Financial Advisory Committee (document Cg-XV/Doc. 10.1(4)):

- Clear statement of the purpose, role and terms of reference;
- Composition consisting of an open group with a core membership;
- Mode of operation that ensures continuity within a financial period;
- Well-formulated objectives that deal with emerging issues, for example results-based budget, targets and key performance indicators;
- Provision for the input of Members;
- The name of the committee should reflect its purpose, which may be more than programme and budget;
- Flexibility and sufficient time to complete its work.

6.2 Request the Executive Council to take care when determining the terms of reference of the Audit Committee that there is no overlap with the Financial Advisory Committee.

***Revision of Financial Regulations***

**Recommendation 7**

That Congress:

7.1 Approve the draft text for inclusion in the general summary of its report, as contained in Cg-XV/Doc. 10.1(1), Appendix A.

7.2 Adopt Resolution 37 (Cg-XV) – Revisions to the Financial Regulations of the World Meteorological Organization, submitted by the Secretary-General.

***International Public Sector Accounting Standards***

**Recommendation 8**

That Congress:

8.1 Approve the draft text for inclusion in the general summary of its report, as contained in Cg-XV/Doc. 10.1(3), Appendix A, with appropriate edits with regard to the budgetary language.

8.2 Delegate to the Executive Council during the fifteenth financial period the authority to approve the necessary revisions to the Financial Regulations relevant to ensure compliance with the International Public Sector Accounting Standards and request the Executive Council to report to Sixteenth Congress on the actions taken.

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## ANNEX II
**Annex to paragraph 4.1.1 of the general summary**

## PROVISIONAL PROGRAMME OF SESSIONS OF CONSTITUENT BODIES DURING THE FIFTEENTH FINANCIAL PERIOD (2008–2011)

| *Session* | *Place* | *Remarks* |
|---|---|---|
| **2008** | | |
| Executive Council (Sixtieth session) | Geneva | |
| Regional Association II (Asia) (Fourteenth session) | India | Offer made during Fifteenth Congress |
| Commission for Basic Systems (Fourteenth session) | — | |
| Commission for Hydrology (Thirteenth session) | — | |
| **2009** | | |
| Regional Association IV (North America, Central America and the Caribbean) (Fifteenth session) | Bahamas | Verbal offer by Belize on behalf of the Bahamas to host in early 2009 |
| Executive Council (Sixty-first session) | Geneva | |

| *Session* | *Place* | *Remarks* |
|---|---|---|
| Regional Association VI (Europe) (Fifteenth session) | Belgium | Letter of intention to host received |
| Commission for Climatology (Fifteenth session) | Zimbabwe | Also offered to host the fifteenth sessions of the Commission for Agricultural Meteorology and of Regional Association I (Africa) |
| | Burundi | Also offered to host the fifteenth session of the Commission for Agricultural Meteorology |
| | Turkey | Letter of intention to host received |
| Commission for Atmospheric Sciences (Fifteenth session) | — | |
| Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (Third session) | — | |
| **2010** | | |
| Executive Council (Sixty-second session) | Geneva | |
| Regional Association III (South America) (Fifteenth session) | — | |
| Regional Association V (South-West Pacific) (Fifteenth session) | Indonesia | Offer made during Fifteenth Congress |
| Commission for Aeronautical Meteorology (Fourteenth session) | — | |
| Commission for Agricultural Meteorology (Fifteenth session) | Germany | — |
| | Moldova | Intention to host during the fourteenth session of the Commission |
| | Philippines | — |
| | Zimbabwe | Also offered to host the fifteenth sessions of the Commission for Climatology and of Regional Association I (Africa) |
| | Burundi | Also offered to host the fifteenth session of the Commission for Climatology |
| | Brazil | Verbal offer to host |
| Commission for Basic Systems (Extraordinary session) | — | |
| **2011** | | |
| Commission for Instruments and Methods of Observation (Fifteenth session) | — | |
| Regional Association I (Africa) (Fifteenth session) | Kenya | — |
| | Zimbabwe | Also offered to host the fifteenth sessions of the Commissions for Climatology and for Agricultural Meteorology |
| | Morocco | Offer made during Fifteenth Congress |
| | Libyan Arab Jamahiriya | Offer made during Fifteenth Congress |
| | Gabon | Offer made during Fifteenth Congress |
| Sixteenth World Meteorological Congress | Geneva | |
| Executive Council (Sixty-third session) | Geneva | |

## ANNEX III
## Annex to paragraph 7.4.45 of the general summary

## MADRID ACTION PLAN

The overall objective of this Action Plan is to achieve, within five years, a major enhancement of the value to society of weather, climate and water information and services in response to the critical challenges represented by rapid urbanization, economic globalization, environmental degradation, natural hazards and the threats from climate change.

**Action 1:** Review the institutional framework governing meteorological and hydrological service provision in order to strengthen partnerships with different sectors of the economy.

**Action 2:** Lead a quantum change in the way that weather, climate and water information and services are produced, used and communicated by identifying, confirming and responding to the rapidly increasing and evolving needs of multidisciplinary stakeholders for appropriately timed and scaled weather, climate and water information and services.

**Action 3:** Embark on capacity-building endeavours through creation of education and training opportunities for both users and providers of weather, climate and water information in order to increase awareness of users to the opportunities afforded by weather, climate and water services, and to assist the providers of these services to understand more fully user requirements.

**Action 4:** Foster increased recognition by governments and other stakeholders of the contribution that National Meteorological and Hydrological Services (NMHSs) and their partners are making to secure and sustainable living.

**Action 5:** Adopt the following steps to meet the growing demand for weather, climate, water and related information and services:

- Strengthening of observational programmes, and the associated research and development;
- Development of the next generation of climate and Earth system models with resolutions of 10 km or finer, and the corresponding data assimilation systems;
- Significantly strengthening multidisciplinary research programmes required to develop the understanding underpinning the development of these models;
- Improving delivery and distribution systems, including early warning systems, to allow NMHSs to meet the needs of institutions, agencies and the general public; consolidating existing and, when appropriate, creating new regional operational centres to mutualize competencies and resources.

**Action 6:** Develop analysis of the urban environment as a critical ecosystem requiring targeted observation, research, and meteorological and hydrological services.

**Action 7:** Facilitate and strengthen dialogue and collaboration between providers and users of weather, climate and water information and services through international, regional and national platforms and programmes, and through the development of appropriate tools and methods.

**Action 8:** Strengthen existing, and develop and implement new, multidisciplinary programmes that will define and improve ways and means to generate and deliver those weather, climate and water services, which address the developmental, societal, economic, environmental and health concerns of the countries.

**Action 9:** Strengthen existing, and establish new, operating partnerships between users and providers of weather, climate and water services to share responsibility for effective delivery of services, and evaluate their performance.

**Action 10**: Facilitate and strengthen the ability of NMHSs to effectively communicate weather services and products, through all forms of media, in such a manner as to maximize the benefits provided to society by the meteorological and hydrological community.

**Action 11:** Encourage the NMHSs and social science research community to develop knowledge and methodologies for quantifying the benefits of the services provided by NMHSs within the various socio-economic sectors; in particular:

- Develop new economic assessment techniques including especially techniques of economic assessments for developing and least developed countries;
- Develop WMO guidelines on operational use of economic assessment techniques;
- Train national staff on use and practical application of economic assessment of the benefits of services provided by NMHSs;
- Present results of economic assessments to governments and donors or international financial institutions with the goal of modernizing the infrastructure of NMHSs and strengthening their service delivery capacity.

**Action 12:** Encourage the free and unrestricted exchange of meteorological, hydrological and related data to support research and improve operational services.

**Action 13:** Build on the earlier WMO work on the development of a comprehensive economic framework for meteorological service provision.

**Action 14:** Develop, as a matter of urgency, the implementation plan to give effect to the actions set out above.

**Action 15:** Monitor and report every year to key partners on progress with the implementation plan, and organize a further, more broadly based, conference in five years to take stock of achievements under this Action Plan.

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## ANNEX IV
## Annex to paragraph 7.4.56 of the general summary

## WMO BUREAU

## Terms of reference

### 1. Definition, purpose and scope

The Bureau is an informal consultative mechanism to advise the President of the Organization and facilitate discharge of his mandate as defined in the WMO Convention and General Regulations.

The Bureau consists of the President, the three Vice-Presidents and the Secretary-General.

Its primary role is planning, organization and coordination of the work of Congress and the Executive Council. It also reviews the implementation of the directives of Congress and the Executive Council, and facilitates consultation on a broader range of topics, including cross-cutting and emerging issues, especially those requiring prompt attention.

## 2. Organization of the work and resource implications

The meetings of the Bureau will normally be held twice a year, with one short meeting organized in conjunction with every regular session of Congress or the Executive Council. The President, in consultation with the Secretary-General, may invite other participants with respect to consultations that may be required.

The cost of travel and subsistence will be met by the Organization in accordance with applicable rules (General Regulation 36 and Resolution 19 (EC-XLII) – Rules governing payment of travel expenses and subsistence allowances in respect of non-staff members of WMO). The Secretariat provides the necessary support for the meetings.

## 3. Agenda and outcomes

The President will inform Members of the agenda before Bureau meetings to enable feedback, as well as on the deliberation and outcomes following the meetings.

# APPENDIX

## LIST OF PARTICIPANTS

### 1. Officers of the session

| | |
|---|---|
| **President** | A.I. Bedritsky (Russian Federation) |
| **First Vice-President** | A.M. Noorian (Islamic Republic of Iran) |
| **Second Vice-President** | T. Sutherland (British Caribbean Territories) |
| **Third Vice-President** | |

### 2. Representatives of WMO Members

| | |
|---|---|
| **Afghanistan** | |
| K.A. Nasri | Principal Delegate |
| N. Tarzi | Delegate |
| **Albania** | |
| S. Qerimaj | Principal Delegate |
| M. Sanxhaku | Delegate |
| A. Alia | Delegate |
| E. Nina | Delegate |
| **Algeria** | |
| I. Jazairy | Principal Delegate |
| H. Mehadji (Ms) | Alternate |
| B. Mahi | Alternate |
| M. Aouali | Delegate |
| A. Terchi | Delegate |
| A. Saci | Delegate |
| A. Lagha | Delegate |
| B. Zeddigha | Delegate |
| D. Allili | Delegate |
| **Angola** | |
| G. de Honorato João | Principal Delegate |
| J.A. Xavier | Alternate |
| M. Mabika | Delegate |
| M.G. Correia de Azevedo (Ms) | Delegate |
| J. Silva | Delegate |
| A. Marques da Costa (Ms) | Delegate |
| P. Nsanzi | Delegate |
| **Antigua and Barbuda** | |
| K. Meade | Principal Delegate |
| **Argentina** | |
| H.H. Ciappesoni | Principal Delegate |
| M. Marino (Ms) | Alternate |
| A.J. Dumont | Delegate |
| E. Martínez Gondra | Delegate |
| M. Valle Fonrouge | Delegate |
| G. Jordan | Delegate |
| **Armenia** | |
| L. Vardanyan | Principal Delegate |
| **Australia** | |
| G.B. Love | Principal delegate |
| G.R. Foley | Alternate |
| V.K. Tsui | Alternate |
| M.A. Bergin | Delegate |
| J. Pahalad (Ms) | Delegate |
| M.W. Craig | Delegate |
| S. Thom | Adviser |

**Austria**

| | |
|---|---|
| F. Neuwirth | Principal delegate |
| C. Kokkinakis (Ms) | Alternate |
| E. Rudel | Delegate |
| E. Marschang (Ms) | Delegate |
| D. Chladek | Delegate |

**Azerbaijan**

| | |
|---|---|
| E. Amirbayov | Principal delegate |
| U. Taghiyeva (Ms) | Alternate |
| R. Novruzov | Delegate |

**Bahrain**

| | |
|---|---|
| A.M.H. Isa | Principal delegate |
| Y.A. Khalaf | Alternate |
| A.T. Mohammed | Delegate |
| B.S. Al-Asfoor | Delegate |

**Bangladesh**

| | |
|---|---|
| S. Karmakar | Principal Delegate |

**Barbados**

| | |
|---|---|
| F. Forde | Principal Delegate |
| C. Layne | Delegate |
| E. Marcus-Burnett (Ms) | Delegate |
| N. Burke (Ms) | Delegate |

**Belarus**

| | |
|---|---|
| S. Aleinik | Principal Delegate |
| A. Tribush | Alternate |

**Belgium**

| | |
|---|---|
| H. Malcorps | Alternate |
| D. De Muer | Delegate |
| G. Demarée | Delegate |
| A. Neukermans (Ms) | Delegate |
| J. De Preter | Delegate |
| J. De Vylder | Delegate |

**Belize**

| | |
|---|---|
| C. Fuller | Principal Delegate |

**Benin**

| | |
|---|---|
| F. Dide | Principal Delegate |

**Bolivia**

| | |
|---|---|
| S.J. Copa Romero (Ms) | Alternate |

**Bosnia and Herzegovina**

| | |
|---|---|
| A. Zoranic | Principal Delegate |
| J. Kalmeta (Ms) | Alternate |
| E. Sarac | Delegate |
| M. Muminovic | Delegate |
| A. Kundurovic (Ms) | Delegate |
| D. Trkulja | Delegate |
| M. Pinjo | Delegate |

**Botswana**

| | |
|---|---|
| P. Phage | Principal delegate |
| K. Kalaote | Alternate |
| M. Bonang | Delegate |

**Brazil**

| | |
|---|---|
| A.D. Moura | Principal Delegate |
| M. Vieira Komniski | Delegate |
| S. Tusi Brewer (Ms) | Delegate |
| J. Machado | Delegate |

| | |
|---|---|
| O. de Moraes Cordeiro Netto | Delegate |
| C.A.C. Leal Silva | Delegate |
| M.R. Matschinske | Delegate |
| M.A.F. da Silva Dias (Ms) | Delegate |
| L.A. Toledo Machado | Delegate |

**British Caribbean Territories**

| | |
|---|---|
| T. Sutherland | Principal delegate |
| F. Sambula | Alternate |
| D. Farrell | Delegate |
| G. De Souza | Delegate |

**Brunei Darussalam**

| | |
|---|---|
| M.H. bin Aji | Principal Delegate |
| Hj Y. bin Hj Md Tahir | Delegate |
| Hj S. bin Hj Sirabaha | Delegate |

**Bulgaria**

| | |
|---|---|
| K. Tsankov | Principal Delegate |
| D. Parusheva (Ms) | Adviser |

**Burkina Faso**

| | |
|---|---|
| A.A. Diallo | Principal Delegate |
| G.G.N. Ouedraogo | Delegate |
| A. Kansole Nébié (Ms) | Delegate |
| M.B. Nébié | Delegate |

**Burundi**

| | |
|---|---|
| N. Nkundwanabake | Delegate |

**Cambodia**

| | |
|---|---|
| Phan Peuv | Principal Delegate |

**Cameroon**

| | |
|---|---|
| F. Ngantcha | Principal Delegate |
| E.G. Ondoua | Alternate |
| P.F. Menye Onana (Ms) | Delegate |

**Canada**

| | |
|---|---|
| D. Grimes | Principal Delegate |
| B. Angle | Alternate |
| A. Pietroniro | Delegate |
| A. Wallace | Delegate |
| A. McMillan (Ms) | Delegate |
| K. Puckett | Delegate |
| S. Nadon | Delegate |
| K. Amegan | Delegate |
| D. Wartman | Delegate |
| M. Jean | Delegate |

**Chad**

| | |
|---|---|
| Moussa Tchitchaou | Principal Delegate |
| M. Bamanga Abbas | Delegate |

**Chile**

| | |
|---|---|
| M. Araneda (Ms) | Principal Delegate |
| E. Garrido | Delegate |
| O. Álvarez | Delegate |
| J.E. Eguiguren | Delegate |

**China**

| | |
|---|---|
| Zheng Guoguang | Principal Delegate |
| Shen Xiaonong | Alternate |
| Qin Dahe | Delegate |
| Zhou Heng | Delegate |
| Guo Yaxi (Ms) | Delegate |
| Yu Jixin | Delegate |

| | |
|---|---|
| Shi Peiliang | Delegate |
| Zhang Jianyun | Delegate |
| Sun Jian | Delegate |
| Song Lianchun | Delegate |
| Yu Xinwen | Delegate |
| Chen Zhenlin | Delegate |
| Jiao Meiyan (Ms) | Delegate |
| Zhao Yangling (Ms) | Delegate |
| Zhao Jie | Delegate |
| Liu Yiping | Delegate |
| Wang Yegui | Delegate |
| Lin Longfu | Delegate |
| Huang Wei | Delegate |
| Yang Xingye (Ms) | Delegate |
| Tang Xu | Delegate |

**Colombia**

| | |
|---|---|
| C. Costa Posada | Principal Delegate |
| M. Alarcon (Ms) | Delegate |

**Congo**

| | |
|---|---|
| A. Kanga | Principal Delegate |
| I. Debengue | Delegate |

**Cook Islands**

| | |
|---|---|
| A. Ngari | Principal Delegate |

**Costa Rica**

| | |
|---|---|
| P. Manso | Principal Delegate |
| L. Thompson (Ms) | Alternate |
| A. Segura (Ms) | Delegate |

**Côte d'Ivoire**

| | |
|---|---|
| G.A. Gauze | Principal Delegate |
| G. Guehi | Alternate |
| T. Moriko | Delegate |
| D. Guigui | Delegate |
| A. Traore | Delegate |

**Croatia**

| | |
|---|---|
| I. Cacic | Principal Delegate |
| K. Pandzic | Alternate |
| B. Ivancan Picek (Ms) | Delegate |
| D. Trninic | Delegate |
| G. Markotic | Delegate |
| M. Adamic (Ms) | Delegate |
| D. Klaric (Ms) | Delegate |

**Cuba**

| | |
|---|---|
| J.A. Fernández Palacios | Principal Delegate |
| T. Gutierrez | Alternate |
| J.C. Frómeta | Delegate |
| M. Sánchez Oliva | Delegate |

**Cyprus**

| | |
|---|---|
| N. Nicolaou | Alternate |
| J. Droushiotis | Delegate |
| M. Soloyianni (Ms) | Adviser |

**Czech Republic**

| | |
|---|---|
| I. Obrusník | Principal Delegate |
| R. Tolasz | Alternate |
| P. Hrncír | Delegate |
| J. Kubát | Delegate |
| K. Pesata | Delegate |

| | |
|---|---|
| K. Vancura | Delegate |
| J. Nemec | Adviser |

**Democratic People's Republic of Korea**

| | |
|---|---|
| Kye Chun Yong | Delegate |
| Kim Yong Il | Delegate |

**Democratic Republic of the Congo**

| | |
|---|---|
| F. Sambassi Khakessa | Delegate |

**Denmark**

| | |
|---|---|
| P. Aakjaer | Principal Delegate |
| F. Jenle | Alternate |
| A. Berling-Rasmussen | Delegate |

**Dominican Republic**

| | |
|---|---|
| H.L. Hernandez S. | Principal Delegate |
| C. Segura | Delegate |
| D. Vera | Delegate |
| C. Miranda (Ms) | Delegate |

**Ecuador**

| | |
|---|---|
| C. Lugo Freire | Principal Delegate |
| J. Holguín | Alternate |

**Egypt**

| | |
|---|---|
| M.A. Abbas | Principal Delegate |
| M.H. Doss | Alternate |
| M.I.R. Sallam | Delegate |
| O. El-Dandarawy | Delegate |
| A. Metawie | Adviser |

**El Salvador**

| | |
|---|---|
| C.E. Castillo-Gallandat (Ms) | Delegate |

**Estonia**

| | |
|---|---|
| J. Saar | Principal Delegate |
| R. Kärner | Delegate |
| K. Kuutma (Ms) | Delegate |
| M. Sepp (Ms) | Delegate |
| E. Pärn | Delegate |
| L. Tiits (Ms) | Delegate |
| T. Paljak (Ms) | Delegate |
| A. Kallis | Delegate |

**Ethiopia**

| | |
|---|---|
| K. Asefa | Principal Delegate |
| F. Yimer | Alternate |
| A. Shiketa | Delegate |

**Finland**

| | |
|---|---|
| P. Plathan | Principal Delegate |
| M.L. Ahtiainen (Ms) | Principal Delegate (23 to 25 May)/ Alternate (21 and 22 May)/Delegate (14–18 May) |
| M. Alestalo | Alternate |
| A. Vuorinen | Alternate |
| V. Himanen | Alternate |
| K. Soini (Mrs) | Delegate |
| J. Helminen | Delegate |
| B. Tammelin | Delegate |
| M. Hurtola (Ms) | Delegate |
| M. Puupponen | Delegate |
| S. Mattila | Delegate |
| M. Kultamaa (Ms) | Delegate |
| K. Forsen | Observer |

**France**

| | |
|---|---|
| P.-E. Bisch | Principal Delegate |
| J-M. Ripert | Alternate |
| C. Guilhou | Alternate |
| C. Blondin | Alternate |
| D. Lambergeon | Alternate |
| P. Bessemoulin | Alternate |
| G. Barrier | Alternate |
| E. Farcot | Alternate |
| J.-M. Tanguy | Delegate |
| A. Castagnon | Delegate |
| P. Bénichou | Delegate |
| A. de Billy (Ms) | Delegate |
| L. Contini | Delegate |
| N. Lambert | Adviser |

**French Polynesia**

| | |
|---|---|
| P.-E. Bisch | Principal Delegate |
| M. Lecorcher (Ms) | Alternate |
| A. Castagnon | Alternate |

**Gabon**

| | |
|---|---|
| P. Tonda | Principal Delegate |
| M. Angone Abena (Ms) | Alternate |
| M. Nzigou | Delegate |

**Gambia**

| | |
|---|---|
| M.B. Jallow | Principal Delegate |

**Georgia**

| | |
|---|---|
| R. Chitanava | Principal Delegate |

**Germany**

| | |
|---|---|
| W. Kusch | Principal Delegate |
| D. Frömming | Alternate |
| G.-R. Hoffmann | Delegate |
| J. Dibbern | Delegate |
| T. Fuchs | Delegate |
| P. Hechler | Delegate |
| R. Schröer | Delegate |
| C. Richter (Ms) | Delegate |
| G. Strigel | Delegate |
| R. Kellermann | Delegate |
| A. Lamp (Ms) | Delegate |

**Ghana**

| | |
|---|---|
| Z. Minia | Principal Delegate |
| J. Wellens Mensah | Alternate |
| M. Oquaye | Delegate |
| K. Adom-Boakye | Delegate |
| D. Okuley | Delegate |

**Greece**

| | |
|---|---|
| F. Verros | Principal Delegate |
| D. Skourgias | Alternate |
| M.-F. Katsimardou-Refene (Ms) | Alternate |
| A. Cambitsis | Delegate |
| T. Charantonis | Delegate |
| I. Basiakos | Delegate |
| S. Kyriakou (Ms) | Delegate |
| C.-A. Vousvouras | Delegate |

**Guatemala**

| | |
|---|---|
| C.R. Martínez Alvarado | Principal Delegate |
| I. Martínez Galindo (Ms) | Delegate |
| E. Valdés Rank (Ms) | Delegate |

**Guinea**

| | |
|---|---|
| M.L. Bah | Principal Delegate |
| O. Diakite | Delegate |

**Haiti**

| | |
|---|---|
| R. Semelfort | Principal Delegate |
| J.-C. Pierre | Principal Delegate |
| P.M.G. St-Amour | Delegate |
| G. Florestal (Ms) | Delegate |

**Honduras**

| | |
|---|---|
| J.D. Urbizo Panting | Principal Delegate |
| Y. Elvir Elvir (Ms) | Delegate |

**Hong Kong, China**

| | |
|---|---|
| Lam Chiu-ying | Principal Delegate |

**Hungary**

| | |
|---|---|
| Z. Dunkel | Principal Delegate |
| I. Dobi | Alternate |
| P. Bakonyi | Delegate |
| Z. Buzás (Ms) | Delegate |
| D. Blazsek (Ms) | Delegate |

**Iceland**

| | |
|---|---|
| M. Jonsson | Principal Delegate |
| F. Arnason | Principal Delegate |
| R.G. Kristjansson | Delegate |

**India**

| | |
|---|---|
| R.C. Bhatia | Principal Delegate |
| B. Mukhopadhyay | Delegate |
| T.A. Khan | Delegate |
| K. Ilango | Delegate |
| S. Basu (Ms) | Delegate |
| R.K. Gupta | Delegate |

**Indonesia**

| | |
|---|---|
| S.W.B. Harijono (Ms) | Principal Delegate |
| A.E. Sakya | Delegate |
| M.A. Ratag | Delegate |
| I. Isnugroho | Delegate |
| Y. Khan | Delegate |
| R. Boer | Delegate |
| D. Gunawan | Delegate |
| B. Nurdin | Delegate |
| J.A.D. Situmeang | Delegate |
| T. Mulyond | Delegate |
| J. Rimba | Delegate |
| N. Nurhayati | Delegate |
| D. Darwahyuniati | Delegate |
| I G.A.W. Puja | Adviser |
| M. Wibisono | Adviser |

**Iran, Islamic Republic of**

| | |
|---|---|
| A.M. Noorian | Principal Delegate |
| M. Jabbari (Ms) | Alternate |
| M. Araghizadeh | Delegate |
| S. Sehat (Ms) | Delegate |
| P. Pourkiani | Delegate |
| Y. Nadalizadeh | Delegate |
| A. Vazifeh | Adviser |
| J. Al Habib | Adviser |

**Iraq**

| | |
|---|---|
| D.Sh. Mahmood | Principal Delegate |
| T.H. Hantoush | Alternate |
| R.G. Mahmood | Delegate |
| N.H. Al-Kade | Delegate |
| A. Al-Gailani | Adviser |
| A. Al-Nakash | Adviser |

**Ireland**

| | |
|---|---|
| D. Murphy | Principal Delegate |
| W. Campbell | Delegate |
| G. Fleming | Delegate |
| J.C. O'Shea | Delegate |

**Israel**

| | |
|---|---|
| I. Levanon | Principal Delegate |
| H. Berkovich (Ms) | Alternate |
| M. Itzchaki | Alternate |
| D. Norris (Ms) | Delegate |

**Italy**

| | |
|---|---|
| M. Capaldo | Principal Delegate |
| S. Pasquini | Alternate |
| F. Ferrini | Delegate |
| C. de Simone | Delegate |
| P. Pagano | Delegate |
| D. Scordato | Delegate |
| C. Finizio | Delegate |
| R. Sorani | Delegate |
| A. di Vecchia | Delegate |
| S. Meiattini (Ms) | Delegate |

**Jamaica**

| | |
|---|---|
| S. McGill (Ms) | Principal Delegate |
| A.D. Dubidad-Dixon (Ms) | Delegate |

**Japan**

| | |
|---|---|
| T. Hiraki | Principal Delegate |
| K. Sakurai | Alternate |
| A. Mikami | Delegate |
| T. Hashida | Delegate |
| Y. Hikasa | Delegate |
| T. Kimura | Delegate |
| Y. Tanaka | Delegate |
| K. Kera | Delegate |
| K. Fukami | Delegate |

**Jordan**

| | |
|---|---|
| A.H. Abu Hazim | Principal Delegate |
| N. Kafawin | Delegate |
| H. Qudah | Delegate |
| M. Burayzat | Delegate |

**Kazakhstan**

| | |
|---|---|
| T. Zeinullin | Principal Delegate |
| M. Sagiyev | Delegate |
| Z. Terlikbayeva (Ms) | Delegate |
| N. Zhangarayev | Delegate |

**Kenya**

| | |
|---|---|
| J.R. Mukabana | Principal Delegate |
| W. Nyakwada | Alternate |
| M. Nzomo (Ms) | Delegate |
| L.M. Nyambu (Ms) | Delegate |
| S.W. Kahuha | Delegate |
| P.R. Owade | Delegate |

**Kiribati**

| | |
|---|---|
| N. Teewe | Principal Delegate |
| M. Tibiriano | Delegate |

**Kuwait**

| | |
|---|---|
| K.F. Al-Shaiji | Principal Delegate |
| K. Shuaibi | Alternate |
| H. Abdulrahman | Delegate |
| M. Ali | Delegate |
| A. Al Motawa | Delegate |
| A. Altaho | Delegate |
| E. Mohammad | Delegate |
| B. Boutaiban | Delegate |

**Latvia**

| | |
|---|---|
| A. Leitass | Principal Delegate |
| I. Dreimane (Ms) | Delegate |

**Lebanon**

| | |
|---|---|
| G. Soufan | Principal Delegate |
| I. Barakat Diab | Alternate |
| N. Al Akl (Ms) | Delegate |
| A. Arafa | Delegate |

**Lesotho**

| | |
|---|---|
| B.T. Sekoli | Principal Delegate |

**Liberia**

| | |
|---|---|
| J. Sulunteh | Delegate |

**Libyan Arab Jamahiriya**

| | |
|---|---|
| A.R. Wlad-Elhaj | Principal Delegate |
| N. Al Hajjaji (Ms) | Alternate |
| B.A. Alsiebaie | Delegate |
| A.M. Elbelaazi | Delegate |
| H.O. Abushawshi | Delegate |
| N. Al Zaroug | Delegate |

**Lithuania**

| | |
|---|---|
| V. Auguliene (Ms) | Principal Delegate |

**Luxembourg**

| | |
|---|---|
| L. Wietor | Principal Delegate |
| C. Alesch | Delegate |

**Macao, China**

| | |
|---|---|
| Fong Soi Kun | Principal Delegate |
| A. Viseu | Alternate |
| Ku Chi Meng | Delegate |

**Madagascar**

| | |
|---|---|
| A. Rambeloson | Principal Delegate |
| R. Rakotonarivo | Delegate |

**Malawi**

| | |
|---|---|
| D. Kamdonyo | Principal Delegate |

**Malaysia**

| | |
|---|---|
| K.S. Yap | Principal Delegate |
| Z. Abdullah | Delegate |
| A.A. Bakhtiar | Delegate |

**Maldives**

| | |
|---|---|
| A. Majeed | Principal Delegate |

**Mali**

| | |
|---|---|
| S.L. Sow | Alternate |
| D.A. Maïga | Alternate |
| S. Kasse | Delegate |

**Malta**

| | |
|---|---|
| S. Borg | Principal Delegate |
| S. Porter | Alternate |
| C. Mercieca | Delegate |
| R. Sarsero | Delegate |

**Mauritania**

| | |
|---|---|
| M.B. Ould Mohamed Lagdhaf | Principal Delegate |
| M. Ouldmagha | Delegate |
| A. Ould-Ishaq | Delegate |

**Mauritius**

| | |
|---|---|
| Y. Boodhoo | Principal Delegate |

**Mexico**

| | |
|---|---|
| M.M. Rosengaus Moshinsky | Principal Delegate |
| E. Martinez | Alternate |
| J.-M. Sanchez | Delegate |
| C.Y. Garcia Guiza (Ms) | Delegate |

**Moldova**

| | |
|---|---|
| V. Cazac | Principal Delegate |
| V. Moraru | Alternate |

**Monaco**

| | |
|---|---|
| R. Fillon | Principal Delegate |
| C. Lanteri (Ms) | Alternate |
| A. Jahlan | Alternate |
| L. Alessandri (Ms) | Alternate |

**Mongolia**

| | |
|---|---|
| S. Enkhtuvshin | Principal Delegate |
| D. Azzaya (Ms) | Delegate |
| B. Bolormaa (Ms) | Delegate |

**Montenegro**

| | |
|---|---|
| L. Mitrovic | Principal Delegate |
| R. Vuckovic | Alternate |
| P. Nenezic | Delegate |
| J. Sekulovic (Ms) | Delegate |
| M. Begovic | Adviser |

**Morocco**

| | |
|---|---|
| M. Loulichki | Principal Delegate |
| A. Zahoud | Alternate |
| M. Geanah | Alternate |
| D. Isbayene | Alternate |
| A. Mokssit | Delegate |
| A. Nassif | Delegate |
| O. Ouzzine (Ms) | Delegate |
| M. Nbou | Delegate |

**Mozambique**

| | |
|---|---|
| F.D.F. Lúcio | Principal Delegate |

**Myanmar**

| | |
|---|---|
| T. Lwin | Principal Delegate |
| N. Swe | Alternate |
| K.O. Hlaing (Ms) | Delegate |

**Namibia**

| | |
|---|---|
| F. Uirab | Principal Delegate |

**Nepal**

| | |
|---|---|
| M.L. Shrestha | Principal Delegate |
| B.R. Paudyal | Delegate |
| D.R. Bhandari | Delegate |

**Netherlands**

| | |
|---|---|
| F.J.J. Brouwer | Principal Delegate |
| P. de Wildt | Alternate |
| F. Grooters | Delegate |
| J. van der Meulen | Delegate |
| L. van Tongeren (Ms) | Adviser |

**Netherlands Antilles and Aruba**

| | |
|---|---|
| A.J. Dania | Principal Delegate |
| E. Evers | Adviser |

**New Caledonia**

| | |
|---|---|
| P-E. Bisch | Principal Delegate |
| A. de Billy (Ms) | Alternate |
| A. Castagnon | Alternate |

**New Zealand**

| | |
|---|---|
| J. Lumsden | Principal Delegate |
| R. Stainer | Alternate |
| C. Pearson | Delegate |
| P. Reid | Adviser |
| F. Small | Adviser |

**Niger**

| | |
|---|---|
| M. Labo | Principal Delegate |
| Kane Souleymane | Alternate |

**Nigeria**

| | |
|---|---|
| M.I. Uhomoibhi | Alternate |
| J. Chabo | Delegate |
| O. Odumosu | Delegate |
| A.N. Awanen | Delegate |
| E.C. Nwaobiala | Delegate |

**Norway**

| | |
|---|---|
| A. Eliassen | Principal Delegate |
| W. Strommen | Alternate |
| J. Sunde | Alternate |
| L. Svendsen (Ms) | Alternate |
| O. Hov | Delegate |
| M. Johnsrud | Delegate |
| G.K. Waage (Ms) | Delegate |

**Oman**

| | |
|---|---|
| A.R. Al Harami | Principal Delegate |
| A.H. Al Harthi | Alternate |
| J.S. Al-Maskari | Delegate |
| Y. Al-Zadjali | Delegate |

**Pakistan**

| | |
|---|---|
| Q.Z. Chaudhry | Principal Delegate |
| T. Janjua (Ms) | Delegate |
| A. Khokher | Delegate |
| M. Butt | Delegate |
| M. Husain | Adviser |

**Panama**

| | |
|---|---|
| J.A. Castillero | Principal Delegate |
| L. Lescure (Ms) | Alternate |

**Papua New Guinea**

| | |
|---|---|
| S. Maiha | Principal Delegate |
| T. Gabi | Delegate |

**Paraguay**

| | |
|---|---|
| R. Gauto | Principal Delegate |
| P. Frutos (Ms) | Delegate |

**Peru**

| | |
|---|---|
| W. Gamarra Molina | Principal Delegate |
| I. Zevallos Aguilar | Delegate |
| C. Chocano Burga | Delegate |

**Philippines**

| | |
|---|---|
| M.F. Rellin, Jr. | Principal Delegate |
| J.E.G. Garcia | Delegate |
| M.V.L. Barnes (Ms) | Delegate |

**Poland**

| | |
|---|---|
| J. Szyszko | Principal Delegate |
| M. Ostojski | Alternate |
| B. Ozga-Zielínski | Delegate |
| L. Legutko | Delegate |
| I. Marczyk-Stepniewska (Ms) | Delegate |
| A. Misztal | Delegate |
| Z. Rapacki | Delegate |
| M. Ziemianski | Delegate |

**Portugal**

| | |
|---|---|
| F. Xavier Esteves | Principal Delegate |
| A.V. Serrão | Alternate |
| C. Direitinho Tavares | Delegate |
| T. Abrantes (Ms) | Delegate |
| L.F. Nunes | Delegate |
| J. Guedes de Sousa | Delegate |
| F. Coelho (Ms) | Delegate |
| A. Ferreira (Ms) | Delegate |

**Qatar**

| | |
|---|---|
| A.A. Mohamed Ali | Delegate |
| I.H.A. Al-Majed | Delegate |
| A.M. Al-Mannai | Delegate |

**Republic of Korea**

| | |
|---|---|
| Lee Man-Ki | Principal Delegate |
| Park Kwang-Joon | Alternate |
| Chung Yun-Ang | Delegate |
| Nam Jae-Cheol | Delegate |
| Lee Dong-II | Delegate |
| Kim Jin-Dong | Delegate |
| Ahn Myoung-Hwan | Delegate |
| Shin Dong-Chul | Delegate |

**Romania**

| | |
|---|---|
| I. Sandu | Principal Delegate |
| P. Stanciu | Alternate |
| N. Birladianu (Ms) | Delegate |
| A.-M. Mihai | Adviser |

**Russian Federation**

| | |
|---|---|
| A.I. Bedritsky | Principal Delegate |
| A.V. Frolov | Alternate |
| V.V. Loshchinin | Alternate |
| V.A. Selin | Delegate |
| A.V. Lushin | Delegate |
| L.N. Karlin | Delegate |
| R.M. Vilfand | Delegate |
| V.A. Nebenzia | Delegate |
| N.V. Lozinskiy | Delegate |
| A.A. Dyatlov | Delegate |
| A.V. Surovtsev | Delegate |
| Y. Izrael | Adviser |
| M.V. Petrova (Ms) | Adviser |

| | |
|---|---|
| A.I. Gusev | Adviser |
| V.A. Trenin | Adviser |
| I.A. Shiklomanov | Adviser |
| V.M. Kattsov | Adviser |
| A.S. Zaytsev | Adviser |
| A.A. Nurullaev | Adviser |
| P.M. Lurie | Adviser |
| A.I. Efimov | Adviser |
| A.N. Minaev | Adviser |
| A.V. Gavrilov | Adviser |
| S.G. Tulinov | Adviser |
| G.M. Vaysman | Adviser |

**Rwanda**

| | |
|---|---|
| D. Musoni | Principal Delegate |

**Saudi Arabia**

| | |
|---|---|
| S.A. Bukhari | Alternate |
| A.S. Almugbel | Delegate |
| J.A. Bantan | Delegate |
| A.A. Attar | Delegate |
| A. Bahitham | Delegate |

**Senegal**

| | |
|---|---|
| M. Ndiaye | Principal Delegate |
| M.B. Ly | Alternate |
| D.M. Sène | Alternate |
| F.A. Lô (Ms) | Delegate |

**Serbia**

| | |
|---|---|
| J. Andrejevi (Ms) | Principal Delegate |
| D. Jovanovic | Delegate |
| S. Vukcevic | Delegate |
| T. Terzic (Ms) | Delegate |
| D. Mijuskovic (Ms) | Delegate |
| M. Andjelic | Adviser |

**Singapore**

| | |
|---|---|
| C.L. Foong | Principal Delegate |
| G.M.P. Ee (Ms) | Delegate |
| S.N. Syed Hassim | Delegate |

**Slovakia**

| | |
|---|---|
| P. Roncak | Principal Delegate |
| A. Pinter | Alternate |
| F. Rosocha | Adviser |
| J. Kucharcik | Adviser |

**Slovenia**

| | |
|---|---|
| K. Bergant | Principal Delegate |
| J. Roskar | Alternate |
| J. Knez | Delegate |
| Z. Mikulic | Delegate |
| D. Frelih | Delegate |
| B. Cernac | Delegate |
| M. Zagar | Adviser |

**South Africa**

| | |
|---|---|
| R. Mabudafhasi (Ms) | Principal Delegate |
| L. Makuleni (Ms) | Alternate |
| J. Mphepya | Alternate |
| S. Rensburg (Ms) | Delegate |
| P. Maqubela (Ms) | Delegate |
| R. Lourens | Delegate |
| Z. Manona (Ms) | Delegate |

| | |
|---|---|
| J. Maimela (Ms) | Delegate |
| J. van Wyk | Delegate |
| S. Qobo | Delegate |
| G. Kanyile (Ms) | Delegate |
| P. Moatohe (Ms) | Delegate |
| E. Poolman | Delegate |
| Z. Maswuma | Adviser |

**Spain**

| | |
|---|---|
| F. Cadarso González | Alternate |
| J. Patán Torres | Delegate |
| C. Rus Jiménez (Ms) | Delegate |
| A. Labajo Salazar | Delegate |
| F.J. Aparicio | Delegate |
| R. Díaz-Pabón Retuerta (Ms) | Delegate |
| J.M. Marcos-Espinosa | Delegate |
| M. Palomares Calderón | Delegate |
| F.P. Pérez | Delegate |
| M. Angoloti Benavides (Ms) | Delegate |
| L.I. López Cotín | Delegate |
| E. Cuevas Agulló | Delegate |
| J. García Legaz | Delegate |
| A. Rivera Pérez | Delegate |
| Y. Galvan Ramirez (Ms) | Delegate |
| A.R. Rodriguez Fontal | Delegate |

**Sri Lanka**

| | |
|---|---|
| M. Samarasinghe | Principal Delegate |
| G.H.P. Dharmaratna | Alternate |

**Sudan**

| | |
|---|---|
| M.A. Abdel Gadir | Principal Delegate |
| E.R.M. Hamad | Delegate |
| S. Idris | Delegate |
| I. Elamin (Ms) | Delegate |
| O.D. Mohamed | Delegate |

**Swaziland**

| | |
|---|---|
| N.P. Dlamini | Principal Delegate |

**Sweden**

| | |
|---|---|
| M. Agren (Ms) | Principal Delegate |
| T. Kvick | Alternate |
| E. Liljas | Alternate |
| G. Wennerberg (Ms) | Delegate |

**Switzerland**

| | |
|---|---|
| D.K. Keuerleber-Burk | Principal Delegate |
| J. Streuli | Alternate |
| G. Müller | Alternate |
| P. Garnier | Delegate |
| M. Spreafico | Delegate |
| P. Morscher | Delegate |
| P. Rauh | Delegate |
| G. Seiz (Ms) | Delegate |
| A. Rubli | Delegate |
| G. Ulmann | Delegate |
| H. Hodel | Delegate |
| B. Zierl | Delegate |
| N. Hechel (Ms) | Delegate |
| C. Rouge (Ms) | Delegate |
| N. Archinard (Ms) | Adviser |

**Syrian Arab Republic**

| | |
|---|---|
| I.E. Al-Beik | Principal Delegate |

**Tajikistan**

| | |
|---|---|
| B. Makhmadaliev | Principal Delegate |
| N. Mustaeva (Ms) | Delegate |
| V. Novikov | Delegate |

**Thailand**

| | |
|---|---|
| S. Tansriratanawong | Principal Delegate |
| S. Huntrakul (Ms) | Alternate (12-15 May)/Delegate (7-11 May) |
| P. Suvanpimol | Delegate |
| S. Chotikajan (Ms) | Delegate |
| C. Phatoomros (Ms) | Delegate |
| V. Isarabhakdi | Delegate |
| S. Tulayasathien | Delegate |

**The former Yugoslav Republic of Macedonia**

| | |
|---|---|
| G. Kotev | Principal Delegate |
| Z. Dimitrovski | Delegate |
| N. Aleksovska (Ms) | Delegate |
| V. Stojov | Delegate |
| G. Avramchev | Delegate |
| K. Salmani (Ms) | Delegate |

**Togo**

| | |
|---|---|
| A.A. Egbare | Principal Delegate |
| B. Egbare (Ms) | Delegate |

**Tonga**

| | |
|---|---|
| P. Karalus | Principal Delegate |
| O.F. Ofa Fa'anunu | Alternate |

**Trinidad and Tobago**

| | |
|---|---|
| E. Moolchan | Principal Delegate |
| D. Gajadhar | Delegate |
| S.A. Clarke-Hinds (Ms) | Delegate |

**Tunisia**

| | |
|---|---|
| S. Labidi | Principal Delegate |
| A. Ben Jemaa | Alternate |
| H. Landoulsi | Delegate |

**Turkey**

| | |
|---|---|
| M. Kayhan | Delegate |
| C. Oktar | Delegate |
| A. Ügdül (Ms) | Delegate |
| F. Ulusoy | Delegate |
| S.Y. Özkaya (Ms) | Delegate |
| E. Büyükbas | Delegate |

**Uganda**

| | |
|---|---|
| S.A.K. Magezi | Principal Delegate |
| N. Wobusobozi | Delegate |

**Ukraine**

| | |
|---|---|
| V. Lipinskyi | Principal Delegate |
| S. Ustymenko | Delegate |

**United Arab Emirates**

| | |
|---|---|
| A.A.A. Al Gifri | Principal Delegate |
| M. Alotiba | Principal Delegate |
| A. Dhanhani | Alternate |
| A.A. Al Mandoos | Delegate |
| A.I. Al Mahri | Delegate |
| N. Al Qassimi (Ms) | Delegate |
| S.A. Al Mazrooei | Delegate |
| A.A.H. Al Ghafri | Delegate |
| M.A.J. Shamsan | Delegate |

| | |
|---|---|
| M.N.S. Al Shelaili | Delegate |
| I.I.K. Al Mandoos | Delegate |

**United Kingdom of Great Britain and Northern Ireland**

| | |
|---|---|
| J. Mitchell | Alternate |
| M. Gray | Alternate |
| P. Evans | Delegate |
| T. Butcher | Delegate |
| B. Garnier-Schofield (Ms) | Delegate |
| I. Lisk | Delegate |
| S. Palmer | Delegate |
| J. Sharp | Delegate |
| A. Price | Delegate |
| J. Nash | Delegate |
| S. Foreman | Delegate |
| G. Pankiewicz | Delegate |
| A. Calver (Ms) | Delegate |
| C. Johnson (Ms) | Delegate |
| M. Guishard | Delegate |
| R. Williams | Delegate |
| P. Tarif (Ms) | Delegate |
| A. Searl | Delegate |
| S. Noyes | Delegate |
| S. Taylor | Delegate |

**United Republic of Tanzania**

| | |
|---|---|
| M.S. Mhita | Principal Delegate |
| M.Y.C. Lumbanga | Alternate |
| P.F. Tibaijuka | Delegate |
| K.A. Suleiman | Delegate |
| A.L. Kijazi (Ms) | Adviser |
| B.H. Luvanda | Adviser |

**United States of America**

| | |
|---|---|
| J.J. Kelly, Jr. | Principal Delegate |
| R. Masters | Principal Delegate (22-25 May)/Alternate (7-21 May) |
| C.C. Lautenbacher, Jr. | Delegate |
| W.W. Tichenor | Delegate |
| C. Ashley | Adviser |
| F. Branski | Adviser |
| M.J. Browne (Ms) | Adviser |
| C.J. Draggon (Ms) | Adviser |
| T. Fryberger (Ms) | Adviser |
| J.E. Gaynor | Adviser |
| M. Kicza (Ms) | Adviser |
| C. Koblinsky | Adviser |
| H. Lins | Adviser |
| V. Nadolski (Ms) | Adviser |
| G.E. Roberts (Ms) | Adviser |
| K. Turner (Ms) | Adviser |
| S. Yoffe | Adviser |
| R.O. Baron | Adviser |
| W. Dabberdt | Adviser |
| R.S. Marshall | Adviser |
| J.F.W. Purdom | Adviser |
| T. Spangler | Adviser |

**Uruguay**

| | |
|---|---|
| A. Perez Rivella | Principal Delegate |
| P. Davies (Ms) | Delegate |

**Uzbekistan**

| | |
|---|---|
| V. Chub | Principal Delegate |
| A. Mursaliyev | Alternate |

**Vanuatu**

| | |
|---|---|
| J. Napat | Alternate |
| J.B. Iauma | Delegate |

**Venezuela**

| | |
|---|---|
| R.J. Viñas García | Principal Delegate |
| G.E. Zambrano García | Alternate |
| J.A. Orozco Terán | Delegate |
| R.C. Valésquez Araguayán | Delegate |
| R. Quintana Gómez | Delegate |
| A. Quintero Ramírez | Delegate |
| R. Andressen | Delegate |
| N. Sanabria Segovia | Delegate |
| E. Bitetto Gavilanes | Delegate |
| J. Arias | Delegate |

**Viet Nam**

| | |
|---|---|
| Nguyen Cong Thanh | Principal Delegate |
| Nguyen Khac Hieu | Delegate |
| Vu Thien | Delegate |
| Hoang Manh Hoa | Delegate |
| Pham Hong Nga | Delegate |

**Yemen**

| | |
|---|---|
| H.A. Farag | Principal Delegate |
| A.A. Almakaleh | Alternate |
| E. Al-Mahbashi | Delegate |

**Zambia**

| | |
|---|---|
| S. Sayifwanda | Principal Delegate |
| P. Tembo | Alternate |
| M. Muchinda | Delegate |
| S. Sandi | Delegate |
| A. Zulu | Delegate |
| M. Daka | Delegate |

**Zimbabwe**

| | |
|---|---|
| A. Makarau | Principal Delegate |
| C. Mucheka | Delegate |
| G. Mawere | Delegate |
| S. Makwembere | Delegate |

## 3. Representatives of non-WMO Members

**Andorra**

| | |
|---|---|
| X. Trota | Observer |
| R. Copons | Observer |
| M. Jover | Observer |

**Holy See**

| | |
|---|---|
| M. de Gregori | Observer |
| F. Chica Arellano | Observer |
| S. Tomasi | Observer |
| L.M. Michaud | Observer |

**Timor-Leste**

| | |
|---|---|
| F.C. Da Cruz | Observer |
| T. Fernandes Moníz | Observer |

## 4. Observers

**Palestine**

| | |
|---|---|
| O. Mohammed | Observer |

## 5. Presidents of technical commissions

**President of the Commission for Aeronautical Meteorology (CAeM)**

| | |
|---|---|
| C. McLeod | Observer |

**President of the Commission for Agricultural Meteorology (CAgM)**

| | |
|---|---|
| J. Salinger | Observer |

**President of the Commission for Atmospheric Sciences (CAS)**

| | |
|---|---|
| M. Beland | Observer |

**President of the Commission for Basic Systems (CBS)**

| | |
|---|---|
| A.I. Gusev | Observer |

**President of the Commission for Climatology (CCl)**

| | |
|---|---|
| P. Bessemoulin | Observer |

**President of the Commission for Hydrology (CHy)**

| | |
|---|---|
| B. Stewart | Observer |

**Co-Presidents of the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM)**

| | |
|---|---|
| P. Dexter | Observer |
| J.L. Fellous | Observer |

## 6 . Invited experts

| | |
|---|---|
| J. Church | Invited Expert |
| R. Pachauri | Invited Expert |
| J. Zillman | Invited Expert |
| A. Badger | External Auditor |
| M. Lall | External Auditor |
| G. Miller | External Auditor |

## 7. Lecturers

| | |
|---|---|
| P. Lemke | IMO Lecturer |
| H. Auld (Ms) | Scientific Lecturer |
| K. Georgakakos | Scientific Lecturer |
| C.C. Lautenbacher, Jr. | Scientific Lecturer |
| B. Metz | Scientific Lecturer |
| R. Nicholls | Scientific Lecturer |
| J. Palutikof (Ms) | Scientific Lecturer |
| R. Wood | Scientific Lecturer |
| Zhang Wenjian | Scientific Lecturer |

## 8. Representatives of organs and organizations of the United Nations system

**United Nations Convention to Combat Desertification (UNCCD)**

| | |
|---|---|
| N. Ndiangui | Observer |

**United Nations Development Programme (UNDP)**

| | |
|---|---|
| M. Dilley | Observer |
| C.A. Villacis | Observer |

**United Nations Environment Programme (UNEP)**

| | |
|---|---|
| L. Arkadiy | Observer |
| I. Rummel-Bulska (Ms) | Observer |

**United Nations Framework Convention on Climate Change (UNFCCC)**

| | |
|---|---|
| A. Möhner (Ms) | Observer |

**United Nations Human Settlements Programme (UN-HABITAT)**

| | |
|---|---|
| A. Abbas | Observer |

**United Nations International Strategy for Disaster Reduction (ISDR)**

| | |
|---|---|
| R. Basher | Observer |
| H. Molin Valdes (Ms) | Observer |
| Y. Ono | Observer |

**United Nations Joint Inspection Unit (JIU)**

| | |
|---|---|
| V. Mitchell (Ms) | Observer |
| C. Terzi | Observer |

**United Nations Educational, Scientific and Cultural Organization (UNESCO)**

| | |
|---|---|
| S. Demuth | Observer |

**Intergovernmental Oceanographic Commission (IOC/UNESCO)**

| | |
|---|---|
| K. Alverson | Observer |
| C. Toro | Observer |
| P. Bernal | Observer |
| C. Clark (Ms) | Observer |
| A. Fischer | Observer |
| P. Koltermann | Observer |
| B. Lee (Ms) | Observer |

**International Civil Aviation Organization (ICAO)**

| | |
|---|---|
| O. Turpeinen | Observer |

**9. Representatives of intergovernmental organizations**

**African Centre of Meteorological Applications for Development (ACMAD)**

| | |
|---|---|
| M.-C. Dufresne (Ms) | Observer |
| A. Kignaman-Soro | Observer |

**Agency for Air Navigation Safety in Africa and Madagascar (ASECNA)**

| | |
|---|---|
| M. Saloum | Observer |
| M. Sonko | Observer |
| M. Youssouf | Observer |
| S. Zoumara | Observer |

**Caribbean Meteorological Organization (CMO)**

| | |
|---|---|
| T. Sutherland | Observer |
| G. De Souza | Observer |

**Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)**

| | |
|---|---|
| L. Zerbo | Observer |

**European Centre for Medium-Range Weather Forecasts (ECMWF)**

| | |
|---|---|
| D. Marbouty | Observer |

**European Commission (EC)**

| | |
|---|---|
| T. Béchet | Observer |
| C. Dufour | Observer |
| M. Gorska (Ms) | Observer |

**European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)**

| | |
|---|---|
| P. Counet | Observer |
| L. Prahm | Observer |
| H.P. Roesli | Observer |
| P. Valabrega | Observer |

**European Space Agency (ESA)**

| | |
|---|---|
| E. Oriol-Pibernat (Ms) | Observer |

**League of Arab States (LAS)**

| | |
|---|---|
| S. Alfarargi | Observer |
| A. Shalaby | Observer |
| Y. Tiliouant | Observer |

**Network of European Meteorological Services (EUMETNET)**

| | |
|---|---|
| J.-P. Chalon | Observer |

**Permanent Inter-State Committee on Drought Control in the Sahel (CILSS)**

| | |
|---|---|
| F. Gnoumou | Observer |

**World Bank**

| | |
|---|---|
| M. Chiapparino (Ms) | Observer |
| W. Zakout | Observer |

**10. Representatives of other organizations**

**American Meteorological Society (AMS)**

| | |
|---|---|
| W. Dabberdt | Observer |
| W. Hooke | Observer |

**Association of Hydro-Meteorological Equipment Industry (HMEI)**

| | |
|---|---|
| C. Charstone (Ms) | Observer |
| B. Dieterink | Observer |
| M. Ervasti | Observer |
| J. Hörhammer | Observer |
| B. Sumner | Observer |

**European Meteorological Society (EMS)**

| | |
|---|---|
| D. Burridge | Observer |

**International Council of Academies of Engineering and Technological Sciences, Inc. (CAETS)**

| | |
|---|---|
| J.W. Zillman | Observer |

**International Federation of Red Cross and Red Crescent Societies (IFRC)**

| | |
|---|---|
| M.O. Mukhier | Observer |
| A. Spalton | Observer |

**International Ocean Institute (IOI)**

| | |
|---|---|
| A. Behnam | Observer |
| I. Oliounine | Observer |

**International Research Institute for Climate and Society (IRI)**

| | |
|---|---|
| S. Zebiak | Observer |

**International Union of Geodesy and Geophysics (IUGG)**

| | |
|---|---|
| A. Askew | Observer |
| R. List | Observer |
| M.R. van der Valk | Observer |