World Meteorological Organization

SIXTEENTH CONGRESS

GENEVA, 2011

Cg-XVI/Doc. 11.9(2)

Submitted by: Secretary-General
Date: 21.III.2011
Original Language: English
Agenda item: 11.9

OTHER CROSS-CUTTING MATTERS

Global Cryosphere Watch

SUMMARY

ISSUE TO BE DISCUSSED:

Development and implementation of the Global Cryosphere Watch (GCW), including resources

DECISIONS/ACTIONS REQUIRED:

(a) Implementation of the Global Cryosphere Watch;
(b) Adoption of draft Resolution 11.9.1/5 (Cg-XVI) – Global Cryosphere Watch.

REFERENCES:

1. Report of the First Session of the Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS), Ottawa, Canada, 13-15 October, 2009 (http://www.wmo.int/pages/prog/www/WIGOS_6_EC_PORS/Final_Report.pdf)
2. Report of the Second Session of the Executive Council Panel of Experts on Polar Observations, Research and Services (EC-PORS), Hobart Australia, 18-20 October, 2010 (http://www.wmo.int/pages/prog/www/WIGOS_6_EC_PORS/Final_Report2010.pdf)
3. *Abridged Final Report with Resolutions of the Sixty-second Session of the Executive* Council (WMO-No. 1059)
4. Cg-XVI/Doc. 2.1 - Report by the President of the Organization
5. Cg-XVI/Doc. 2.2 - Report by the Secretary-General
6. Cg-XVI/Doc. 11.9(1) – WMO Polar Activities

CONTENT OF DOCUMENT:

Appendices for inclusion in the final report:

A. Draft text for inclusion in the general summary of Cg-XVI
B. Draft Resolution 11.9/5 (Cg-XVI) – Global Cryosphere Watch

Appendix for information:

C. Discussion Background Material

DRAFT TEXT FOR INCLUSION IN THE GENERAL SUMMARY OF Cg-XVI

11.9 OTHER CROSS-CUTTING MATTERS *(agenda item 11.9)*

…….

Global Cryosphere Watch (GCW)

11.9.9 Congress stressed the importance of the cryosphere, noting that it is global, existing in various forms spanning all latitudes and occurring in approximately one hundred countries, in addition to the Antarctic continent. It noted the unparalleled demand for authoritative information on past, present and future state of the world's snow and ice resources.

11.9.10 Congress considered the "Implementation Strategy for the Global Cryosphere Watch" developed by the Executive Council's Panel of Experts on Polar Observations, Research and Services (EC-PORS). It noted that countries from all six Regions have expressed their desire to be involved in WMO's cryosphere initiative and especially noted the interest from Members, where snow and ice does not occur, but were concerned about the impact of a changing cryosphere on their nation through changes in weather, climate, water resources and sea level rise. Congress noted with appreciation the efforts of the Norwegian Meteorological Institute in developing a WIS compliant web portal for GCW that would be interoperable with NMHS and external cryospheric data centres.

11.9.11 Congress agreed with the next steps for developing GCW as outlined in the GCW Implementation Strategy (see Annex to this paragraph). It encouraged Members to participate in the development of GCW and urged Members to support implementation on a shared basis through Project 4.4.1.50 on Implementation of activities of the EC Panel on Polar Observations, Research and Services (EC-PORS) in the Compendium for Voluntary Funding (2012-2015), thus complementing insufficient resources from the WMO regular budget. Congress agreed that WMO needs to have a focus on global cryosphere issues to be able to provide authoritative information to meet Members' responsibilities on regional and global weather, climate, water and related environmental matters, and adopted Resolution 11.9/5 (Cg-XVI) - Global Cryosphere Watch. Congress requested the Executive Council and the Secretary-General to oversee GCW's initial development to ensure optimal management of, and support to, the initiative. Congress also noted that GCW would be an important contribution of WMO to a potential International Polar Decade (IPD), once initiated.

Annex to paragraph 11.9.11 of the general summary

GLOBAL CRYOSPHERE WATCH (GCW)

GCW IMPLEMENTATION STRATEGY

1.0 BACKGROUND:

The cryosphere collectively describes elements of the Earth System containing water in its frozen state. It includes solid precipitation, snow cover, sea ice, lake and river ice, glaciers, ice caps, ice sheets, permafrost, and seasonally frozen ground. The cryosphere is global, existing not just in the Arctic, Antarctic and mountain regions, but at all latitudes and in approximately 100 countries. Frozen water and its variability and change in the atmosphere, on land, and on the ocean surface has direct feedbacks within the climate system, affecting energy, moisture, gas and particle fluxes, clouds, precipitation, hydrological conditions, and atmospheric and oceanic circulation. The cryosphere provides some of the most useful indicators of climate change, yet is one the most under-sampled domains of the Earth System. Improved cryospheric monitoring is essential to fully assess, predict, and adapt to climate variability and change.

All of these issues require a coordinated international and cross-disciplinary mechanism, thus the proposal for the establishment of an operational Global Cryosphere Watch (GCW).

2.0 GCW Meets User Needs

GCW will provide data, information and products that will help Members and the wider user community reduce the loss of life and property from natural and human-induced disasters, improve management of energy and water resources, contribute to a better understanding of environmental factors affecting human health and well-being, understand, assess, predict, mitigate and adapt to climate variability and change, improve weather forecasts and hazard warnings, aid in management and protection of terrestrial, coastal and marine ecosystems, and support sustainable agriculture.

GCW will provide information for informed decision making and policy development related to climate, water and weather, for use in real time, for climate change adaptation and mitigation, and for risk management. Over time, this information will become more service-oriented. During GCW consultation, Members emphasized the national and global impact of the cryosphere, particularly:

- Sea level rise threatens vital infrastructure, settlements and facilities of small island states and low-lying coastal zones;
- Changes in sea-ice affect access to the polar oceans and surrounding seas, in turn affecting economic development, accessibility to resources, navigation, tourism, marine safety and security. Declining summer sea-ice may also impact ocean circulation and weather patterns in the mid-latitudes;
- Permafrost thawing impacts infrastructure and is a potential major source of methane, a greenhouse gas;
- Changes in the cryosphere have major impacts on water supply, food production, availability of potable water, freshwater ecosystems, hydropower production, and the risk of floods and droughts;
- Natural hazards such as icebergs, avalanches and glacier outburst floods create risks for transportation, tourism and economic development;
- Cryospheric data and information are required for improved numerical weather prediction and climate monitoring and prediction in polar and alpine regions as well as globally.

3.0 Mission and Objectives

GCW will be an international mechanism for supporting all key cryospheric in-situ and remote sensing observations, from research and operations, and for implementing the recommendations of the Integrated Global Observing Strategy Partnership (IGOS-P) - Cryosphere Theme (hereinafter "CryOS").

To meet the needs of WMO Members and partners in delivering services to users, the media, public, decision and policy makers, GCW will provide authoritative, clear, and useable data, information, and analyses on the past, current and future state of the cryosphere. In its fully developed form, GCW will include observation, monitoring, assessment, product development, prediction, and research. It will provide the framework for reliable, comprehensive, sustained observing of the cryosphere through a coordinated and integrated approach on national to global scales and deliver quality-assured global and regional products and services. GCW will organize analyses and assessments of the cryosphere to support science, decision-making and environmental policy. To meet these objectives, GCW will encompass:

- *Requirements:* Meet evolving cryospheric observing requirements of WMO Members, partners, and the scientific community, by making CryOS a living document and contributing to the WMO Rolling Review of Requirements (RRR) process;
- *Integration:* Provide a framework to assess the state of the cryosphere and its interactions within the Earth System, emphasizing integrated products using surface- and space-based observations, while including a mechanism for early detection of, and support for, endangered long-term monitoring series, aimed at optimizing knowledge of environmental conditions and exploiting this information for predictive weather, climate and water products and services, thus contributing to the proposed WMO Global Integrated Polar Prediction System (GIPPS) and Polar Regional Climate Centres;
- *Standardization:* Enhance the quality of observational data by improving observing standards and practices for the measurement of cryospheric variables, by addressing differences and inconsistencies in current practices used by Members, partner organizations and the scientific community;
- *Access:* Improve exchange of, access to, and utilization of observations and products from WMO observing systems and those of its partners;
- *Coordination:* Foster research and development activities and coherent planning for future observing systems and global observing network optimization, especially within the WMO Integrated Global Observing System (WIGOS), by working with all WMO Programmes, technical commissions (TCs), regional associations (RAs), partner organizations and the scientific community.

GCW will be an essential component of WIGOS and will coordinate cryospheric activities with the Global Climate Observing System (GCOS), which includes the climate-related components of the Global Ocean Observing System (GOOS) and the Global Terrestrial Observing System (GTOS), enhancing GCOS support to the UNFCCC. GCW will strengthen the WMO contribution to the Global Framework for Climate Services (GFCS). Through WIGOS and the WMO Information System (WIS), GCW will also provide a fundamental contribution to the Global Earth Observation System of Systems (GEOSS).

4.0 GCW and the WMO Strategic Plan

The cryosphere, by its nature, is intrinsically interdisciplinary. GCW, in the context of the WMO Strategic Plan 2012-2015, is a crosscutting activity contributing to all five priority areas and to achieving the expected results of all Strategic Thrusts. It cuts across all the WMO technical departments (Observing and Information Systems, Research, Climate and Water, Weather and

Disaster Risk Reduction Services), joint sponsored activities (e.g. WCRP, GCOS) and WMO TCs. GCW will

- Enhance capabilities to produce better climate predictions and assessments, hydrological forecasts and assessments, weather forecasts and warnings;
- Provide the mechanism to integrate the atmospheric, terrestrial (including hydrology) and marine cryosphere Essential Climate Variables (ECVs) within GCOS;
- Coordinate cryospheric observations of WMO and other agencies and organizations;
- Be part of the WIGOS and WIS.

5.0 GCW Implementation

5.1 Phases

GCW Definition Phase (2007 - 2011)

Following a review of the feasibility study for developing and implementing GCW within WMO, EC-LXI endorsed the next steps for developing GCW with the guidance of its EC Panel of Experts on Polar Observations, Research and Services (EC-PORS). Extensive consultation contributed to developing the rationale, concept, principles and characteristics of GCW as well as the engagement of WMO Programmes and TCs, key partners from other agencies, institutes and organizations, and the scientific community who could contribute to the development and implementation of GCW. Pilot and demonstration projects are being identified to test GCW implementation. The Secretariat has provided support for initial GCW development through the EC-PORS Trust Fund.

GCW Implementation phase (2012-2019)

The Implementation phase, to be undertaken between 2012 and 2019, will be coordinated by WMO and its partners. It will focus on developing and implementing GCW through tasks and activities that will form the GCW Implementation Plan. Initial timelines and deliverables are given in Figure 1.

GCW Operational Phase (2020 onward)

Once the framework is established, GCW enters its Operational Phase. It will continue to evolve to improve service delivery and support decision-making in response to the needs of users and technological opportunities.

5.2 Tasks

Based on the feasibility study and continuing consultation with WMO Members and potential partners by the EC-PORS GCW Task Team, initial key tasks were identified for implementation:

1. Implement recommendations of CryOS;
2. Initiate pilot and demonstration projects;
3. Establish cryosphere reference sites;
4. Develop an inventory of satellite products for GCW;
5. Develop a web portal and interoperability for cryosphere users and providers;
6. Capacity building;
7. Communication and outreach.

GCW Expert and Technical Teams will be established to lead these activities with experts from WMO and its partners. A summary of the initial tasks follows.

Implementation of CryOS recommendations

CryOS provides a framework for developing and implementing GCW. Developed through widespread consultation and review within the global cryosphere community, it details observational capabilities and requirements, and gives recommendations for filling gaps. It proposes measures to develop and coordinate cryospheric components of the WIGOS, GCOS/GOOS/GTOS and other systems, so that cryospheric products will meet most user requirements within approximately 10-15 years. It describes arrangements to ensure that existing cryospheric data and products are openly accessible to users in a timely and interoperable manner. It highlights the need for the identification and coordination of resources to continuously improve observations as requirements and technology evolve, and reiterates the need for commitment by observing system operators to sustain and augment cryospheric observations and products. GCW will build on these recommendations to ensure a comprehensive, coordinated and sustainable system of observations and information to allow for a full understanding of the cryosphere and its changes.

Pilot and Demonstration Projects

Pilot projects will be implemented to demonstrate: (a) the types of data and information that GCW could provide for cryosphere components globally, regionally and nationally; (b) how GCW could build on existing efforts by the cryospheric community; (c) the time and resources required to create a fully functional integrated cryosphere information system; (d) how to document standards and best practices for observing and product development; and (e) challenges/gaps/needs that GCW could address. Demonstration projects would focus on regional or national contributions to standardization, integration and interoperability.

Projects will involve contributions of WMO Members, Programmes and TCs, and contributing partners. Potential projects which can contribute to demonstrating GCW's operation include CIMO's intercomparison of measurement of solid precipitation, snowfall and snow depth; Norway's CryoClim initiative to develop new operational services for long-term systematic climate monitoring of the cryosphere; ESA's "Global Monitoring of Essential Climate Variables" programme (Climate Change Initiative) for the cryosphere; the World Glacier Monitoring Service (WGMS), University of Zurich, Switzerland, which is operated under the auspices of the International Council for Science World Data System (ICSU/WDS), International Association of Cryospheric Sciences of the International Union of Geodesy and Geophysics (IUGG/IACS), UNEP, UNESCO and WMO; Nordic Centre of Excellence (NCoE): SVALI - Stability and Variations of Arctic Land Ice; and the IPY Data and Information Service (IPYDIS) global partnership of data centres, archives, and networks creating interoperability between cryosphere data centres in Norway, USA, Canada and the UK. GCW will build on existing programmes and projects, but other pilot and demonstration projects need to be established in different regions, including alpine areas, central Asia (notably the "Third Pole"), the tropics, and Antarctica.

Reference Sites

GCW will initiate a comprehensive cryosphere observing network called "CryoNet", a network of reference sites or "supersites" in cold climate regions, on land or sea, operating a sustained, standardized programme for observing and monitoring as many cryospheric variables as possible. CryoNet will provide reference sites for validation of satellite and model outputs. Initially, it will build on existing cryosphere observing programmes or add standardized cryospheric observations to existing facilities to create supersite environmental observatories. As encouraged by GCOS, GCW will facilitate the establishment of high-latitude supersites with co-located measurements of key variables, especially permafrost and snow cover, thus enhancing GCOS/GTOS Networks for Permafrost (GTN-P), Glaciers (-G) and Hydrology (-H). GAW stations and WCRP/Coordinated

Energy and Water Cycle Observations Project (CEOP) reference sites in cold climates are potential candidates.

Members, through their cryosphere focal points, are being asked to recommend suitable sites. China has established supersites in the "Third Pole" region where the High Asian cryosphere (HAC) serves as the Asian "water tower" for over a billion people. They would like to merge into the proposed GCW network and help lead the development of standardized cryosphere observing programmes. Another proposed contribution is the Sodankylä-Pallas supersite in the boreal forest of northern Finland. Its infrastructure is designed for integrated monitoring of soil-snow-vegetation-atmosphere interaction and provides reference measurements for satellite sensors on a continuous basis.

Reference sites will lead in the effort to establish best practices, guidelines and standards for cryospheric measurement. This will include consideration of data homogeneity, interoperability, and compatibility of observations from all GCW constituent observing and monitoring systems and derived cryospheric products.

Inventory of Satellite Data Products

This task involves developing an inventory of candidate satellite products for GCW which are mature and generally accepted by the scientific community. It includes an intercomparison of products to assess quality and to ensure an authoritative basis. The Polar Space Task Group of EC-PORS, with its direct connection to Space Agencies, will work with GCW to identify new satellite products to support GCW pilot projects and services.

Currently, the WCRP/SCAR/IASC Climate and Cryosphere Project (CliC) is sponsoring a workshop on the evaluation of satellite-derived sea ice extent and concentration products. This task was identified as a pilot project in the GCW feasibility study. The results of the intercomparison will provide valuable information to GCW on the many available products and on the process for determining "authoritative" information. The WCRP Observation and Assimilation Panel (WOAP) is organizing a workshop on essential climate variables (ECVs), where an inventory of satellite and in situ ECV products will be compiled with information on product maturity, accuracy, users, applications, and adherence to the GCOS guidelines for ECV datasets. For example, the United States National Oceanic and Atmospheric Administration (NOAA) is supporting work on satellite-derived climate data records (CDRs) for snow and ice, and the European Space Agency (ESA) Climate Change initiative will provide ECVs that meet GCOS requirements, and will support efforts to validate and improve current methods for extracting cryospheric geophysical parameters from satellite data.

GCW Web Portal

The GCW web portal will make GCW data and information available to WMO Members, their partners, and users while providing the ability to exchange data and information among a distributed network of providers of data and products. The portal, as a part of WIS, will allow for rapid exchange of data, metadata, information, and analyses. The concept for the flow of information to the portal is given in Figure 2.

The portal and associated data and information will be capable of including all elements of the cryosphere at national, regional and global scales. It will provide access to data and information on past, present and future cryospheric conditions, and be able to draw on operational and research-based observation and monitoring and modelling. GCW will ensure access to real time, near-real time and historical cryospheric data and products through WIS. GCW will respect partnership, ownership and data-sharing policies of partners. It will allow new types of information to be widely

distributed, such as real-time cryospheric “hot news” (e.g. extremes, physical or socio-economic impacts, new research results).

A prototype GCW web portal for GCW is being developed by the Norwegian Meteorological Institute (METNO), building on their web-based tool for searching data. IPY data centres/portals, such as METNO, Canadian Cryosphere Information Network (CCIN), British Antarctic Survey (BAS), and US National Snow and Ice Data Centre (NSIDC) are already interoperable. This approach will facilitate seamless access with NMHSs and external data centres holding relevant cryospheric data and information at the national or global scale.

Capacity Building

GCW must develop an effective capacity building strategy. A coordinated capacity building effort should respond to the needs at national and regional levels, as identified by Members, which would assist all countries in improving and sustaining observation and exchange of cryospheric data and information. For developing and the least developed countries there is a need to ensure access to, and effective utilization of, observations, data and products, related technologies and new knowledge. For example, information on potential sea level rise, loss of mountain, including tropical, glaciers, and improved understanding of the impact of cryospheric changes in the Antarctic on extreme weather and climate in tropical and sub-tropical regions has been identified by Members as a need to which GCW can contribute.

Capacity building will be coordinated with existing WMO efforts and will take advantage of mechanisms established by WIGOS and other WMO Programmes, RAs, TCs, and GCW partners.

Communications and Outreach

GCW will have numerous, diverse stakeholders both within WMO and with its partners. GCW will establish an effective communication, outreach and education strategy in collaboration with WMO Members, Programmes, RAs and TCs. It will take advantage of outreach programmes developed and effectively deployed through IPY and with organizations such as Association of Polar Early Career Scientists (APECS) and the Global Learning and Observations to Benefit the Environment program (GLOBE) program. The GCW portal will provide relevant information on communication, outreach and capacity building, aimed at complementing, not duplicating, others’ efforts.

6.0 Collaborations, Partnerships, Sponsorship

WMO Members have responded strongly and positively to GCW and, so far, over 30 Members from all WMO Regions have nominated GCW focal points. These focal points will be involved in the development of GCW and will help integrate the global initiative with their national plans. In addition to Members with specific national or regional activities in the Polar Regions, interest was expressed by Members (e.g. Maldives, Thailand, Ethiopia, Tajikistan) who are concerned about changes in the cryosphere and the potential impact on their country.

GCW will engage WMO co-sponsored programmes, TCs, RAs, and other organizations that have cryospheric responsibilities. GCW partnerships are being identified, including government agencies and institutions that measure, monitor, or archive cryosphere data and information from in-situ and satellite research and operational networks and model sources. International bodies, such as International Permafrost Association (IPA), World Glacier Monitoring Service (WGMS), Global Precipitation Climatology Centre (GPCC), and national institutions, such as the US National Snow and Ice Data Center (NSIDC) have already indicated their willingness to support GCW.

WMO’s co-sponsored programmes are essential partners. WCRP/CliC coordinated the development of the GCW feasibility study and co-led with SCAR the development of CryOS. The

WMO-IOC-UNEP-ICSU Steering Committee for GCOS endorsed the creation of GCW as a mechanism for integrating cryospheric observations.

Potential co-sponsorship is being investigated. The IOC of UNESCO, which has been engaged in the GCW process from the beginning, has already indicated its interest in being a co-sponsor. Memorandum of understanding or agreements would be established between all sponsors.

EC-PORS and its GCW Task Team will lead the discussion with partners.

7.0 GCW Management and Governance

7.1 *Conceptual Framework for GCW*

GCW's organizational, programmatic, procedural governance will be based on WMO structures and interfaced with those of partner organizations. Cryospheric data, information, products and knowledge will be provided not only from National Meteorological and Hydrological Services (NMHSs), but also from national and international partner organizations, agencies and the scientific community. Collaboration and cooperation through co-sponsorship and partnership is essential. GCW will include an effective interface with the user community. Capacity building and training will be included in all aspects of the GCW framework. Expert, technical and regional task teams would be responsible for developing, implementing and managing the GCW tasks. A GCW Advisory Committee will initially steer activities, tasks, and the establishment of teams within the available resources. An initial framework, or conceptual model, for GCW is given in Figure 2. It illustrates the "why, what, and how" of GCW operation.

7.2 *Deliverables and Milestones*

Upon approval and within available resources, GCW will address tasks associated with the key deliverables and milestones. Figure 1 shows the key milestones and timelines. The aim is to begin now to implement tasks, recognizing the complexity of engaging NMHSs and their national partner agencies, national and international institutes and the scientific community.

7.3 Resources

The successful launch of GCW depends directly on the availability of resources. Support of the definition phase has been through funding by Members to the GCW and EC-PORS Trust Funds (namely, part-time temporary staff and consultative meetings), supplemented by in-kind contribution from Members for technical expertise. However, additional resources will need to be provided through the WMO Secretariat for both staff and non-staff costs for the implementation and coordination that goes beyond the programmatic activities of the Secretariat to date. One full staff position would be needed in the WMO Secretariat for GCW implementation activities and should be funded jointly by the WMO regular budget and other sources, including:

- GCW and EC-PORS Trust Funds to supplement the WMO regular budget;
- In-kind contributions, e.g. Task Office/activity funded by a Member(s);
- Staff secondments;
- Project Compendium that includes a request for GCW funding from voluntary contributions (seeking contributions totalling CHF2.4M for implementation of EC-PORS activities over four years, including GCW to support the advisory committee and expert teams in implementing GCW and provide some Secretariat support for GCW development, coordination and implementation).

7.4 *Governance within WMO*

GCW requires cooperation, collaboration and coordination within WMO and with external partners, for which working arrangements between WMO and partners would be established. WMO provides a legitimate, valued and unique entry point on cryospheric issues related to weather, climate, water and other environmental matters in 189 countries.

A GCW Secretariat (Project Office) will be established in the WMO Secretariat to support all GCW activities, including coordination with partners, monitoring of implementation, reporting and follow-up actions. It will also provide support to national focal points and activities.

GCW is a truly cross-cutting activity. However, at the beginning of the Implementation Phase observational aspects (e.g. reference sites, observing practices, data compatibility, interoperability, etc.) may prevail. This would likely shift later in the Implementation Phase, as services become more prominent. At the beginning, the links would be strongest with WIGOS and WIS, several of the TCs, and co-sponsored programmes. Hence, the Executive Council, through its EC-PORS, would be best positioned to oversee GCW's initial development and implementation, recognizing that the structure of the Secretariat will have to adapt, as and when appropriate, to ensure optimal management of, and support to, the initiative.

Figure 1: GCW Milestones and Deliverables

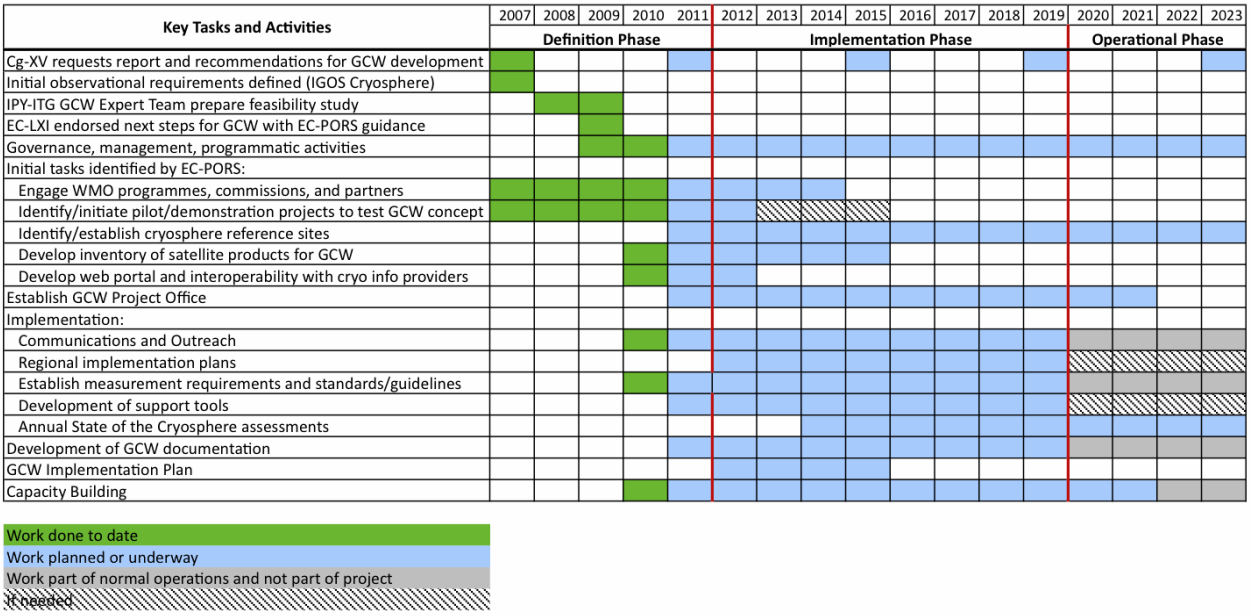
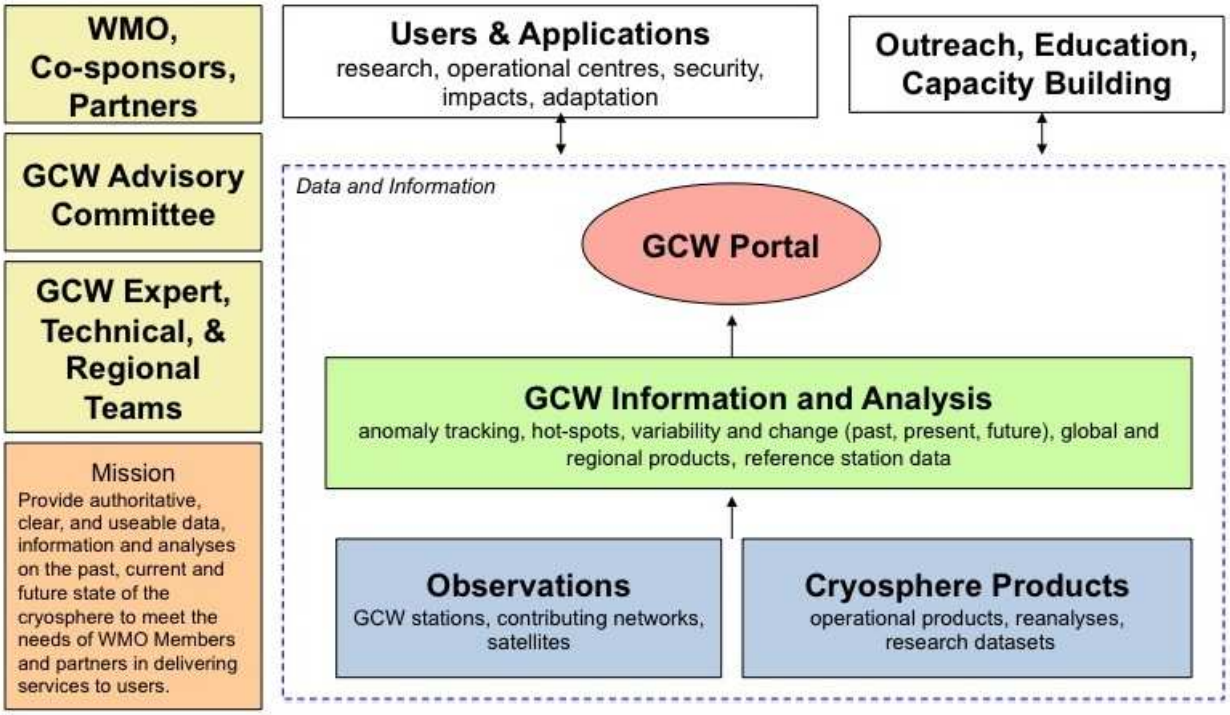


Figure 2: Conceptual Framework for GCW Operation



_____

DRAFT RESOLUTION

Res. 11.9/5 (Cg-XVI) - GLOBAL CRYOSPHERE WATCH

THE CONGRESS,

Noting:

(1) Resolution 36 (Cg-XV) – International Polar Year 2007-2008,

(2) That Fifteenth Congress welcomed the proposal to create a Global Cryosphere Watch (GCW) as an important part of the IPY legacy,

(3) That EC-LXII agreed that it would be highly desirable for coordinated international efforts to secure and develop an IPY legacy process,

(4) The GCW Implementation Strategy developed under the auspices of the Executive Council,

Considering:

(1) The cryosphere is global, existing in various forms spanning all latitudes and occurring in approximately one hundred countries in addition to the Antarctic continent,

(2) The cryosphere is an integrative element within the climate system and provides one of the most useful indicators of climate change, yet it is arguably the most under-sampled domain in the climate system,

(3) The role of the cryosphere-related feedbacks in the amplification of anthropogenic climate change in Polar Regions, including the “Third Pole” and the significant impact of a changing cryosphere on weather, climate and water globally,

(4) The cryosphere, its changes, and its impacts, not only have received increased scientific scrutiny in recent years, but also now receive continual attention by decision makers and coverage by the media, creating an unparalleled demand for authoritative information on past, present and future state of the world’s snow and ice resources,

(5) GCW is significant component of WIGOS and WIS, particularly in promoting interoperable and reference observations, and near-real time data and information exchange,

(6) GCW can only succeed by working with WMO Members and with other organizations which have cryospheric interests,

Acknowledging in particular the contributions of Members’ national operational and research programmes to monitor and provide data on the cryosphere,

Decides to embark on a development of the Global Cryosphere Watch (GCW), as an IPY Legacy with a view of an operational GCW;

Urges Members and **Invites** international partner organizations and programmes to:

(1) Collaborate actively in, and give all possible support to, the development and implementation of this initiative;

(2) Support the Global Cryosphere Watch by providing both human and financial resources to implement GCW;

Requests the Executive Council to:

(1) Establish a mechanism to steer and monitor the activity and to achieve the broadest possible collaboration and cooperation;

(2) 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 observing and research initiatives relevant to the cryosphere;

(3) Submit a comprehensive report on the development of GCW to the Seventeenth WMO Congress;

Requests the regional associations and technical commissions to include this activity in their work programmes in order to fully accommodate the cross-programme nature of this cross-cutting initiative;

Requests the Secretary General:

(1) To strengthen coordination and collaborate closely with relevant international partner organizations and programmes in pursuing this endeavour;

(2) To put in place an appropriate mechanism in the Secretariat to ensure optimal management of, and support to, the initiative.

_____

DISCUSSION BACKGROUND MATERIAL

1. The cryosphere, its changes, and its impacts have received increased scientific scrutiny in recent years. Today, it receives constant coverage by the media, creating an unparalleled demand for authoritative information on the past, present and future state of the world's snow and ice resources on a multitude of time and space scales, reaching from polar ice to tropical glaciers.

2. WMO, with the cooperation of other national and international bodies and organizations, and using its global observing and telecommunication capability, is in a position to provide an integrated, authoritative, continuing assessment of the cryosphere – a Global Cryosphere Watch (GCW).

3. Cg-XV welcomed the proposal of Canada that WMO would create a Global Cryosphere Watch which would be an important component of the International Polar Year 2007-2008 (IPY) legacy and requested the WMO Inter-commission Task Group on IPY to establish an *ad-hoc* expert group to explore the possibility of such a global system and prepare recommendations for its development.

4. Several experts were involved in the preparation of the Feasibility Study "Global Cryosphere Watch: Background, Concept, Status, Next Steps" that formed a basis for the Report on "Global Cryosphere Watch (GCW): Background, Concept, Status, Next Steps" submitted to EC-LXI for information. EC-LXI endorsed the next steps for developing GCW based on the report's suggestions and requested EC-PORS to provide guidance and momentum for the implementation of GCW.

5. EC-LXII, noting the ever increasing interest in the cryosphere globally and the requirement for authoritative information, agreed that the GCW initiative was even more timely and that there was an urgency to move forward with an implementation strategy to be developed under the auspices of EC-PORS and submitted to Cg-XVI for consideration. The Council strongly urged Members to support GCW activities, including the provision of support for meetings and workshops, and contributions to the GCW Trust Fund to provide secretariat support for the development of GCW.

6. Interested WMO Members have been requested to provide a focal point for the development of GCW. In response to the WMO letter sent to all Members, over 30 countries from all WMO Regions identified contacts for the development of GCW (see Table 1), so far. These contacts will also liaise with other national agencies engaged in cryosphere activities.

7. GCW partnerships are being identified and implemented, including government agencies and institutions that measure/observe/monitor/archive cryosphere data and information from in-situ, space based and model sources and from research and operational networks. Statements on contributing to GCW and its development include:

- "The World Glacier Monitoring Service (WGMS) is certainly willing to support GCW with data, information and expertise from within the Global Terrestrial Network for Glaciers (GTN-G)" (Director, WGMS);

- "The International Permafrost Association (IPA) expects that GCW will help to revolutionize our understanding of frozen ground, helping the IPA to fill the missing link between ground observations and global observing systems. Through the Global Terrestrial Network for Permafrost (GTN-P), the IPA will ensure that data, information and expertise are provided in a timely manner to GCW" (President, IPA);

- "The National Snow and Ice Data Center (NSIDC) fully supports the GCW, and endeavors to collaborate and interface NSIDC services in support of its critical mission" (Director, NSIDC);

- "The Global Precipitation Climatology Centre (GPCC) is fully supportive of the GCW mission and will identify possibilities to efficiently share products, information and expertise from its knowledge base, considering available resources" (Head, GPCC).

Table 1: Countries with GCW Focal Points/Contacts (as of February 2011)

Region I:	Ethiopia, Kenya, Morocco, Niger, United Republic of Tanzania, Zambia
Region II:	China, Islamic Republic of Iran, Japan, Kazakhstan, Maldives, Thailand, Tajikistan, Uzbekistan
Region III:	Argentina, Colombia, Peru
Region IV:	Canada, United States of America
Region V:	Australia, Malaysia, New Zealand
Region VI:	Austria, Belgium, Finland, France, Iceland, The Netherlands, Norway, Russian Federation, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland

_____

World Meteorological Organization

SIXTEENTH CONGRESS

GENEVA, 2011

Cg-XVI/Doc. 11.1(1)

Submitted by: Secretary-General
Date: 18.III.2011
Original Language: English
Agenda item: 11.1

REPORT OF THE HIGH-LEVEL TASKFORCE ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES

SUMMARY

ISSUES TO BE DISCUSSED:

1. Vision of the GFCS
2. The report of the High-level Taskforce as strategic guidance for the implementation of the GFCS
3. Response to the recommendations of the High-level Taskforce

DECISIONS/ACTIONS REQUIRED:

Consider and decide on the recommendations of the High-level Taskforce

REFERENCES:

1. *Report of the World Climate Conference–3 (Geneva, Switzerland, 31 August–4 September 2010),* WMO-No. XXX
2. Report of the Intergovernmental Meeting (Geneva, Switzerland, 11-12 January 2010): http://www.wmo.int/hlt-gfcs/documents/IGM_HLT_GFCS_Final_report_1061_en.pdf
3. Report of the High-level Taskforce on the Global Framework for Climate Services

CONTENT OF DOCUMENT:

Appendices for inclusion in the final report:

A. Draft text for inclusion in the general summary of Cg-XVI
B. Draft Resolution 11.1/1 (Cg-XVI) – Response to the Report of the High-level Taskforce on the Global Framework for Climate Services

DRAFT TEXT FOR INCLUSION IN THE GENERAL SUMMARY OF Cg-XVI

11.1 REPORT OF THE HIGH-LEVEL TASKFORCE ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES *(agenda item 11.1)*

Relevant outcomes from the World Climate Conference-3

11.1.1 Congress recalled the outcomes of the World Climate Conference–3 (WCC-3) (Geneva, Switzerland 31 August–4 September, 2009) and its decision to establish a Global Framework for Climate Services (GFCS). It was noted that the overarching theme of the Conference was; "Climate prediction and information for decision-making: focusing on scientific advances in seasonal to inter-annual time-scales, taking into account multi-decadal prediction" (http://www.wmo.int/wcc3/theme_en.php), and that it addressed issues relating to the application of climate prediction and information including assisting adaptation to climate variability and change in a wide variety of sectors including agriculture and food security, forestry, energy, water, health, urban and rural settlements, infrastructure, tourism, wildlife, trade and transport that contribute to sustainable socio-economic development.

11.1.2 Congress further recalled that the focus of the Conference included the integration of climate prediction and information in decision-making in relation to user needs, with parallel Conference sessions for sectors that contribute to sustainable socio-economic development such as agriculture and food security, energy, water, health, tourism, disaster management and transport. Congress noted that the technical component of the Conference was attended by around 2500 experts and produced, *inter alia*, 12 “white papers” which were captured in the Conference statement which was subsequently used to inform the work of the High-level Taskforce.

11.1.3 Congress noted that the three-day technical component of WCC-3 was followed by a two-day high level segment attended by, *inter alia*, 13 Heads of State/Government, 57 Ministers (or equivalent) and 14 Heads of UN agencies or programmes which decided to establish a Global Framework for Climate Services to strengthen production, availability, delivery and application of science-based climate prediction and services and requested the Secretary-General of WMO to convene, within four months of the adoption of the Conference Declaration, an intergovernmental meeting of Member States of the WMO to approve the terms of reference and to endorse the composition of a task force of high-level, independent advisors to be appointed by the Secretary-General of WMO with due consideration to expertise, geographical and gender balance.

Relevant outcomes from the Intergovernmental Meeting

11.1.4 Congress noted that the WMO convened an Intergovernmental Meeting for the High-level Taskforce on the Global Framework for Climate Services at the Geneva International Conference Centre (CICG) from 11 to 12 January 2010, under the chairpersonship of its President, Dr A.I. Bedritskiy.

11.1.5 Congress recalled that the Intergovernmental Meeting provided terms of reference which, *inter alia*, asked the High-level Taskforce to:

(a) Develop the components of GFCS and define the roles, responsibilities, and capabilities of the elements within the GFCS and clearly illustrate how it will assist the integration of climate information and services into national planning, policy and programmes for, among others, water resource management and development, health and public safety, energy generation and distribution, agriculture and food security, land and forestry management, desertification, eco-system protection, sustainable development and poverty reduction, taking into account the special needs of Africa,

Small Island Developing States (SIDS), Least Developed Countries (LDCs), and Land-Locked Developing Countries (LLDCs);

(b) Develop options for governance of the GFCS, ensuring its intergovernmental nature, and provide a reasoning for the preferred option(s);

(c) Outline a plan for the implementation of the GFCS, which includes:

(i) Ensuring a central role of national governments;
(ii) Proposing a range of options for immediate and longer-term actions to realize the GFCS;
(iii) Specifying measurable indicators, with timelines, for the actions necessary to implement the elements of the GFCS;
(iv) Estimates of costs of implementation of these options, with clear indications of the financial resources and enhanced technological capabilities required, and their likely sources, to ensure effective global implementation; and,
(v) A strategy for capacity building in developing countries, particularly those of the African countries, Least Developed Countries (LDCs), Small Island Countries (SIDS) and Land-Locked Developing Countries (LLDCs);

(d) Make findings and propose next steps in relation to:

(i) The role of the UN system and other relevant stakeholders, as well as the mechanisms for their contributions;
(ii) Approaches to global data policy (addressing data gaps, ownership, data protection, confidentiality, exchange, applications, and usage), that would lead to enhanced capability of the GFCS, taking into account Resolution 40 (Cg-XII) and Resolution 25 (Cg-XIII);
(iii) Improving systematic in-situ observations and monitoring of climate especially in data-sparse areas, in order to increase data availability, including for research and prediction;
(iv) Approaches for reviewing the implementation of the GFCS;
(v) Strategies for building capacity in developing countries in accordance with their needs and priorities, including their access to global and regional climate models output and the underlying technology embedded in the models, and their ability to independently develop/improve in-country climate services capacity; and,
(vi) A strategy for promoting a common global understanding of the GFCS and for coherent and coordinated messaging and information sharing.

11.1.6 Congress further recalled that the Intergovernmental Meeting endorsed the following composition of the Taskforce:

1. Joaquim CHISSANO (Mozambique)
2. Jan EGELAND (Norway)
3. Angus FRIDAY (Grenada)
4. Eugenia KALNAY (Ms) (Argentina/USA)
5. Ricardo LAGOS (Chile)
6. Julia MARTON-LEFEVRE (Ms) (Hungary/France/USA)
7. Khotso MOKHELE (South Africa)
8. Chiaki MUKAI (Ms) (Japan)
9. Cristina NARBONA RUIZ (Ms) (Spain)
10. Rajendra Singh PARODA (India)
11. QIN Dahe (China)
12. Emil SALIM (Indonesia)

13. Mahmoud ABU-ZEID (Egypt)
14. High-level representative of indigenous peoples
15. High-level member from Pacific SIDS
16. High-level economist

11.1.7 Congress noted that the Intergovernmental Meeting charged the Secretary-General of WMO with the responsibility of recruiting the individuals to fill the last three positions (numbered 14, 15 and 16 in the previous paragraph). As a result, Ms Fiame Naomi Mata 'Afa from Samoa agreed to join the Taskforce, thus providing the competence called for by positions 14 and 15 while Dr Emil Salim from Indonesia supplied expertise in economics to the Taskforce, resulting in a Taskforce of 14 members.

The Report of the HLT

11.1.8 The co-chair of the High-level Task Force on the Global Framework for Climate Services, Dr Jan Egeland/Dr Mahmoud Abu-Zeid briefed the Congress on the Taskforce's Report, noting that the findings of the Taskforce included:

(a) Present capabilities to provide climate services fall short of meeting present and future needs and are not delivering their full and potential benefits. This is particularly the case in developing and least developed countries;

(b) Existing climate services are not focused well enough on user needs and the level of interaction between providers and users of climate services is inadequate. Climate services often do not reach "the last mile", to the people who need them most, particularly at the community level in developing and least developed countries;

(c) To support climate services, high quality observations are required across the entire climate system and of relevant socio-economic variables and further commitment to sustaining high quality observations is inadequate and enhancements to existing networks are required, particularly in developing countries;

(d) Effective climate services will depend on maximizing the potential of existing knowledge, new research developments and strong support from and strengthened collaboration between all relevant research communities;

(e) Efforts to provide effective climate services globally will only be successful if capacity is systematically built to enable all countries to manage climate risk effectively. Current capacity building activities to support climate services need to be scaled up and better coordinated.

11.1.9 Congress was advised that the Taskforce approached its task through a consultative process along with the outputs from WCC-3. Furthermore, they developed an early outline of their report based around a three-part strategy: Part I to benchmark existing climate services from a provider perspective; Part II to identify gaps in the existing provision, particularly from a user perspective; and, Part III to provide governance options, an implementation plan and next steps as called for in their terms of reference.

11.1.10 It was noted that from the outset that, with one year to report, the Taskforce faced a very tight timetable and so it developed its consultation process based around already scheduled climate-related meetings. As a result the following consultation sessions were conducted:

• Nairobi, Kenya	12–16 April	First Conference of Ministers responsible for Meteorology in Africa
• Bali, Indonesia	30 April-6 May	Fifteenth session of WMO Regional Association V
• Geneva, Switzerland	18 May	UN Interagency Consultation Meeting
• Geneva, Switzerland	25 May	Diplomatic Club of Geneva
• Geneva, Switzerland	2 June	Briefing to Permanent Missions in Geneva
• Oslo, Norway	8-12 June	Conference on the International Polar Year
• Geneva, Switzerland	9 June	WMO Executive Council
• Beijing, China	17-18 June	Consultation Meeting with Government officials
• Delhi, India	21 June	Consultation Meeting with Government officials
• Belo Horizonte, Brazil	1-4 July	Fifteenth session of the Commission for Agricultural Meteorology
• Mexico City, Mexico	5-7 July	Meeting of Heads of NMHSs on GFCS
• Beijing, China	2-4 August	Consultation Meeting with Government officials
• Bogota, Columbia	22-29 September	Fifteenth session of WMO Regional Association III
• Bonn, Germany	26 September	Consultation Meeting with German climate experts
• Washington, USA	1 October	Consultation Meeting with NOAA and the World Bank
• Geneva, Switzerland	26 October	Briefing to Permanent Missions in Geneva
• Marrakech, Morocco	28 October-4 November	Fifteenth session of WMO Regional Association I
• Windhoek, Namibia	15-21 November	2010 Extraordinary session of the Commission for Basic Systems
• Santiago, Chile	17-19 November	Conference of Directors of the Ibero-American NMHSs
• Cayman Is, Caribbean	9-10 November	Meeting of Heads of NMSs and Ministers
• Cancun, Mexico	29 November-10 December	UNFCCC 16th Edition of the Conference of the Parties (COP 16)
• Geneva, Switzerland	17 December	Briefing to Permanent Missions in Geneva

11,1.11 Congress was advised that the Taskforce also made extensive use of the Internet and Web, carrying out a great deal of work via e-mail as well as providing regular updates and reports on the Website: http://www.wmo.int/hlt-gfcs/index_en.html The Taskforce met formally on five occasions to coordinate and advance its work: 25-26 February; 24-26 May; 2-4 August; 25-27 October; and 13-15 December.

11.1.12 Congress noted that the Taskforce had released a draft copy of its report on 1 November 2010 for comment by governments and experts. Around 1700 comments were received over the three-week review period and each of these was considered in the subsequent preparation of the final report. The Taskforce's final report can now be accessed through its Website (see previous paragraph for Web address) and is available in hard-copy format.

The vision of the GFCS developed by the HLT

11.1.13 The Taskforce proposes that the structure of the Framework be as proposed by the WCC-3, but with the addition of a capacity building component. The proposed components of the Framework are then as follows:

(a) The User Interface Platform that will provide a means for users, user representatives, the climate research and development community, and climate service providers to interact, thereby maximizing the usefulness of climate services and helping develop new and improved applications of climate information;

(b) The Climate Services Information System to produce and distribute climate data and information according to the needs of users and according to the procedures agreed by governments and other data providers;

(c) The Observations and Monitoring component that will ensure that the climate observations necessary to meet the needs of climate services are generated;

(d) The Research, Modelling and Prediction component that will assess and promote the needs of climate services within research agendas;

(e) The Capacity Building component that will support systematic development of the necessary institutions, infrastructure and human resources to provide effective climate services.

11.1.14 The Taskforce noted that many of the foundational capabilities and infrastructure that make up these components already exist or are being established, but they require coordination and strengthened focus on user needs and that the role of the Framework should be to facilitate and strengthen, not to duplicate.

11.1.15 Congress was further advised that the Taskforce proposes universal access to reliable, scientifically sound climate services should be the focus of the Framework. To meet this objective the Taskforce further proposes that the Framework should operate at global, regional and national levels, in support of, and in collaboration with global, regional and national stakeholders and efforts:

(a) At the global level, it should focus on producing global climate prediction products, coordinating and supporting data exchange, major capacity building initiatives, and establishing and maintaining standards and protocols;

(b) At the regional level, it should support multilateral efforts to address regional needs, for example through regional policy development, knowledge and data exchange, infrastructure development, research, training and the provision of services regionally to meet agreed regional requirements;

(c) At the national level, it should focus on ensuring access to data and knowledge products, tailoring information to user requirements, ensuring effective routine use of information in planning and management along with developing sustainable capacities in these respects.

The Recommendations of the HLT

11.1.16 Congress noted that the Taskforce had made five Recommendations:

Recommendation 1: We, the High-level Taskforce, unanimously recommend that the international community make the commitment to invest on the order of USD 75 M per year to put in place and sustain a Global Framework for Climate Services. This investment will build upon existing investments by governments in climate observation systems, research, and information management systems to return to the community benefits across all societal sectors but most importantly, and most immediately, in disaster risk reduction, improved water management, more productive and sustainable agriculture and better health outcomes in the most vulnerable communities in the developing world.

Recommendation 2: To ensure that the Global Framework for Climate Services provides the greatest benefit to those who need climate services the most, we recommend that the following eight principles be adhered to in its implementation:

Principle 1: All countries will benefit, but priority shall go to building the capacity of climate-vulnerable developing countries

Principle 2: The primary goal of the Framework will be to ensure greater availability of, access to, and use of climate services for all countries

Principle 3: Framework activities will address three geographic domains: global, regional and national

Principle 4: Operational climate services will be the core element of the Framework

Principle 5: Climate information is primarily an international public good provided by governments, which will have a central role in its management through the Framework

Principle 6: The Framework will promote the free and open exchange of climate-relevant observational data while respecting national and international data policies

Principle 7: The role of the Framework will be to facilitate and strengthen, not to duplicate

Principle 8: The Framework will be built through user – provider partnerships that include all stakeholders

Recommendation 3: We recommend that the UN-system establish, as a matter of urgency, an *ad-hoc* technical group to develop a detailed implementation plan for the Global Framework for Climate Services based upon the broad strategy outlined in this report, this plan to be endorsed by governments through an intergovernmental process prior to its implementation.

The detailed implementation plan should identify high priority projects to advance the Framework in areas where this would assist in reducing vulnerability to climate change and variability. In addition to the fast-track, capacity building projects, the implementation plan should describe a sustainable programme to underpin the coordination needed to maintain the operational capabilities of the Framework. The implementation plan should set targets to be achieved over the next ten years, further elaborate the roles and responsibilities of components of the Framework that contribute at the global, regional and national levels and of the secretariat that supports it, and include a risk assessment.

Recommendation 4: We strongly recommend that governments and development assistance agencies give high priority to supporting national capacity building that will allow developing countries to participate in the Framework. Further analysis of national needs is required, but in the meantime we recommend a number of fast track projects as outlined above. To ensure effective national access to global climate information by the largest number of countries, we recommend an initial strategy to strengthen rapidly or create the regional elements of the Framework. These regional elements should be led and hosted by countries of the region based upon regional agreements and should be tasked with supporting information flow and assisting national capacity building at national level.

Recommendation 5: The Taskforce is unanimous in recommending the following two options be considered for governance of the Framework:

Option A An Intergovernmental Board on Climate Services would be established to provide leadership and direction for the Framework. It would report to the World Meteorological Organization Congress. The Board would be open to membership of all countries and would meet in plenary session periodically, probably annually. It would develop formal mechanisms to engage the United Nations and other stakeholders in its work. It would elect a chair and a small executive committee to conduct the affairs of the Board between sessions as well as designating a number of technical management committees to oversee and contribute to the Framework's implementation work. These management committees would work intergovernmentally and where possible would be based on relevant existing international committees.

Option B A Joint Board of relevant United Nations System entities (agencies, organizations, programmes, departments and independent funds) would be created to provide leadership and direction for the Framework. The United Nations System Joint Board would report regularly to the UN Chief Executives Board as well as to governments through the plenaries of the sponsoring UN agencies and programmes. The Joint Board would establish technical management committees to implement and manage the Framework, these management committees working intergovermentally. Mechanisms to engage non-United Nations stakeholders in the work of the Board would be developed through both the User Interface Programme and, up to the level desired by governments, through participation in national delegations.

The Taskforce recommends that Option A be adopted and that the Secretary-General of the World Meteorological Organization convene the first intergovernmental plenary meeting of the Global Framework for Climate Services by the end of 2011. The World Meteorological Organization should lead the process and put in place arrangements to ensure full participation of all interested UN agencies and programmes.

Response to the Taskforce's Report

11.1.17 Congress congratulated the co-chairs and all Taskforce Members on the work of the Taskforce and endorsed the broad thrust of the High-Level Taskforce's Report, including the concept that operational climate services should be the focus of the Framework, operating at global, regional and national levels, in support of, and in collaboration with, global, regional and national stakeholders with priority being given to climate-vulnerable developing countries, particularly African countries, least developed countries, land-locked developing countries and small island developing states where climate services are also often weakest.

11.1.18 Congress supported the general proposal of the Taskforce that the international community make a significant investment in the implementation of the GFCS (Recommendation 1) and that this investment be seen as an incremental addition to the already significant investment of many governments in climate data, information and services. Congress recognized that detailed proposals need to be developed to ascertain whether USD 75 M per year is both realistic and achievable when the Framework is fully operational.

11.1.19 Congress agreed that the Principles provided in Recommendation 2 would provide useful guidelines into the future for those with the responsibility of implementing the Framework.

11.1.20 Congress strongly endorsed the proposal that WMO should host the secretariat of the GFCS while calling on other UN agencies and programmes to support the initiative and

requested the Secretary-General of WMO to work closely within the UN System and with other relevant partners to achieve the overall success of the Framework (Recommendation 3).

11.1.21 Congress was pleased to see the proposals for the rapid implementation of projects aimed at increasing the capacity of developing and least developed countries to provide climate services (Recommendation 4) but believes that further work needs to be done to ensure that the projects proposed are of high priority and meet clearly identified requirements.

11.1.22 Congress noted that of the two options for governance of the Framework, Option A provides for a higher level of government engagement through the establishment of an intergovernmental board while also allowing for a considerable opportunity for the United Nations System to develop and use mechanisms similar to those described in Option B to support the Framework. Congress recognized that the strong engagement and support of the United Nations System would be especially useful during the preliminary phase that would be required to debate, design and put into place the intergovernmental board. Congress also noted that Option B does provide the advantage of a speedier implementation but considered that this does not outweigh the importance of the high level of government engagement and agreed with the Taskforce preference for Option A.

11.1.23 Congress appreciated the strong sentiments expressed by the Heads of State and other High-Level Officials present at Congress, in support of the work of the Taskforce, and their pledges of ongoing support for the implementation of the GFCS.

11.1.24 Congress adopted Resolution 11.1/1(Cg-XVI) in response to the Report of the Taskforce, leaving consideration of the WMO's implementation strategy for its part in the GFCS to a separate resolution.

DRAFT RESOLUTION

Res. 11.1/1 (Cg-XVI) – RESPONSE TO THE REPORT OF THE HIGH-LEVEL TASKFORCE ON THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES

THE CONGRESS,

Noting:

(1) The decision of WCC-3 to establish a Global Framework for Climate Services,

(2) The Report of the High-level Taskforce on the Global Framework for Climate Services,

Considering that:

(1) Present capabilities to provide climate services do not exploit all that we know about climate, fall far short of meeting present and future needs and are not delivering their full and potential benefits. This is particularly the case in developing and least developed countries, which are also the most vulnerable to the impacts of climate variability and change,

(2) Existing climate services are not focused well enough on user needs and the level of interaction between providers and users of climate services is inadequate. Users need access to expert advice and support to help them select and properly apply climate information. Climate services often do not reach “the last mile”, the people who need them most, particularly at the community level in developing and least developed countries,

(3) To support climate services, high quality observations are required across the entire climate system and of relevant socio-economic variables. While existing capabilities for climate observation provide a reasonable basis for strengthening climate services, commitment to sustaining high quality observations is inadequate and enhancements to existing networks are required, particularly in developing countries. Further effort is also needed by governments and others to overcome the currently significant restrictions concerning sharing of, and access to, climate and other relevant data,

(4) Effective climate services will depend on maximizing the potential of existing knowledge, new research developments and strong support from and strengthened collaboration between all relevant research communities. Understanding of the climate system is advancing quickly but is not being effectively translated into services that can inform decision making. In particular, further effort is required to improve our ability to predict climate and help users incorporate its inherent uncertainty into their decision making,

(5) Efforts to provide effective climate services globally will only be successful if capacity is systematically built to enable all countries to manage climate risk effectively. Current capacity building activities to support climate services need to be scaled up and better coordinated. A comprehensive capacity building initiative in the area of climate services is needed to strengthen existing capabilities in the areas of governance, management, human resources development, leadership, partnership creation, science communication, service delivery and resource mobilization,

Decides to:

(1) Endorse the broad thrust of the High-level Taskforce's Report, including the concept that operational climate services should be the focus of the Framework, operating at global, regional and national levels, in support of, and in collaboration with, global, regional and national stakeholders with priority being given to climate-vulnerable developing countries, particularly African countries, least developed countries, land-locked developing countries and small island developing states where climate services are also often weakest;

(2) Accept the intent of Recommendation (1), thereby supporting the general proposition that the international community make a significant investment in the implementation of the GFCS and that this investment be seen as an incremental addition to the already significant investment of many governments in climate data, information and services;

(3) Accept Recommendation (2), thereby supporting the use of the Principles provided by the Taskforce as guidelines for decision making in the implementation of the Framework;

(4) Accept Recommendation (3);

(5) Accept Recommendation (4), particularly supporting the rapid implementation of projects aimed at increasing the capacity of developing countries to provide climate services but noting that further work needs to be done to ensure that the projects proposed are of high priority and meet clearly identified requirements;

(6) Proceed with Option A of Recommendation (5) [with the following caveats….];

(7) The Framework will have five Management Committees working intergovernmentally that are responsible for leadership and technical direction in the areas of: the User Interface Platform, the Climate Service Information System, Observations and Monitoring, Research Modelling and Prediction, and Capacity Building;

Strongly urges Members to:

(1) Continue to make their expertise and wisdom available during the development and implementation of the GFCS;

(2) Strengthen their national capacity in the attainment of self-sufficiency to meet their climate services needs;

(3) Make maximum use of regional and global capabilities to exchange data, to generate climate information and to provide climate services;

(4) Make voluntary contributions of the resources needed to continue the implementation of this critically important new initiative;

Calls on the United Nations System and International Organizations to give strong support to the implementation of the GFCS through participation in its working mechanisms and contribution of expertise to its programmes, projects and other activities;

Requests the Executive Council to:

(1) Take all necessary actions to enable the Global Framework for Climate Services become an effective operational entity in 2012-2015 and beyond;

(2) Give high priority to ensuring effective overall coordination and leadership of the Framework;

(3) Continue to draw fully on the advice and assistance of climate experts and users of climate services in the further development of the Framework;

Requests the Secretary-General to:

(1) Convey the thanks of Congress to the Members of the High-level Taskforce for their work and congratulate them on consulting broadly and producing a high quality and well balanced report in such a short time;

(2) Consistent with Recommendation (3) of the Taskforce's Report, work with the UN-System to establish an *ad hoc,* technical group to develop a detailed implementation plan for the Global Framework for Climate Services based upon the broad strategy outlined in this report, this plan to be endorsed by governments through an intergovernmental process prior to its implementation;

(3) Convene the first session of the [intergovernmental board] [joint board] before January 2012;

(4) Develop a proposal to establish each of the Management Committees at the first session of the [intergovernmental board] [joint board];

(5) Commence the preparation of a detailed implementation plan for consideration at the first session of the [intergovernmental board] [joint board].

_____