WMO Progress Report on the implementation of the UNFCCC NWP
April 2009

As part of its contribution to the implementation of Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change, WMO has committed significant resources to the development of programmes in Disaster Risk Reduction (DRR), Climate Data and Monitoring and . The following is a brief account of the most recent relevant activities:

1. Methods and tools:

1.1 Towards establishing Climate Watch System in the Americas

As part of the WMO World Climate Data and Monitoring Program (WCDMP) and almost one year and half after WMO congress fifteen, Geneva June 2007 which called for the implementation of climate watches in various regions, a first regional workshop on climate monitoring including the implementation of a Climate Watch System was held in Guayaquil, Ecuador, from 08-11 December 2008. The workshop aimed at establishing connections between regional climate institutions and the National Meteorological and Hydrological Services (NMHSs) and users sectors in the region of the Americas, as a first step to building a dissemination of climate early warning mechanism based on climate advisories (climate watches). In addition to climate experts, participants from various International and regional organisations and users sectors attended the workshop and agreed on an implementation plan. The intended Climate Watch System will integrate the current climate monitoring activities at global, regional and national level and an improved monitoring and long range forecasting of major atmospheric and oceanic oscillations such as El-Nino Southern Oscillation (ENSO), the North Atlantic Oscillation (NAO) and Tropical Atlantic Oscillation (TAO). Other WMO activities such as regional climate outlook forums (RCOFs) will provide seasonal to inter-annual climate prediction to the system. The System will provide an early warning of climate extremes which affect the region.

2. Data and observations:

2.1 An improved Climate Data Discovery is on track

Several Experts from Africa, Asia, Europe, Australia and the Americas will meet in Zambia, 20 April-1 May to develop new schema for improving the Archiving and Discovery of Climate Data. Currently only a fraction of climate data are disseminated through WMO Information System (WIS) for near real time purposes. A large part of climate data is archived at national level at the NMHSs and in most developing countries, these data are not known from the outside world. A project aiming at improved discovery and dissemination of these data through WIS constitutes currently one of WCDMP major priority activities; including the provision of assistance to developing and least developed countries to access modern climate data management systems and climate data rescue technology.

3. Climate related risks and extreme events:

3.1 Disaster Risk Reduction Programme:

(i) Working with development partners, donor agencies and Members to work on modernization of observation and telecommunication infrastructure and forecasting systems of the National Meteorological and Hydrological Services (NMHSs) that are essential to support DRR.

(ii) Developing standard guidelines for monitoring, databases, metadata, analysis and mapping tools for hydro-meteorological hazards (e.g. floods, droughts, tropical cyclone, storm surges, severe weather, etc.) and is working to operationalize these guidelines at the national level through projects with the NMHSs.

(iii) Facilitating availability of hydro-meteorological data and information for sectoral planning and for the financial risk transfer markets (e.g., CAT insurance/bonds and weather risk management markets), working on the later, with the World Bank, the World Food Programme and the reinsurance sector. WMO, together with the World Food Programme, IFAD and the World Bank is developing a work plan to pilot these capacities in Africa and other regions.

(iv) Facilitating and strengthening multi-hazard early warning systems, through technical capacity development, and strengthening of operational partnerships of NMHSs with disaster risk management agencies. WMO has facilitated documentation of four good practices in Early Warning Systems in Cuba, Bangladesh, France and China/Shanghai. WMO is convening the "Second International Expert Symposium on Multi-Hazard Early Warning Systems" (MHEWS-II), in Toulouse, France on 5-7 May 2009, to develop the first guidelines on the "Role of National Meteorological and Hydrological Services in Multi-Hazard Early Warning Systems, with focus on Institutional Cooperation and Coordination." These documented good practices and guidelines will be used in training programmes for a number of national Early warning system projects underway in Central America, Southern Africa, Southeaster Europe, Central Asia and Caucuses, with the goal to expand to other countries and regions.

(v) Developing public awareness materials on meteorological, hydrological and climate-related hazards.

3.2 WMO Initiative to support climate adaptation:

Building on its current activities in the area of climate, WMO is developing a new initiative to facilitate provision of science-based and user-targeted climate information, to support decision-making in adaptation to climate variability and change, throughout the world. This initiative has four primary components:

(i) Facilitating a better understanding of sectoral needs for climate information (through partnerships with agencies and institutions working with vulnerable sectors) in responding to climate risks as well as opportunities;

(ii) Making available improved climate information and prediction products and services for national level decision-making through a coordinated network of operational entities at the global, regional and national levels in the form of a world climate services system;

(iii) Building on the established observational, research, modelling and operational capacities to advance scientific understanding of the climate system, and further strengthening them to develop and improve tools to address emerging needs for information;

(iv) Development of a user-interaction mechanism to bridge the gap between climate services providers and the decision makers.

This initiative, under a working title of Global Framework for Climate Services (GFCS), will be discussed at the World Climate Conference Three (WCC-3) being convened by WMO and its partners during August 31 – September 4, 2009, in Geneva, Switzerland.

4. Adaptation Planning and Practices

WMO's Agricultural Meteorology programme is organizing workshops in different regions of the world to discuss the impacts of climate change on agriculture, forestry and fisheries and develop appropriate frameworks for adaptation to climate change. Following are two activities undertaken in 2008 and 2009:

4.1 International Symposium on Climate Change and Food Security in South Asia

Home to 1.52 billion people—22 per cent of the world's population—South Asia is predominantly agricultural. More than two-thirds of its peoples reside in rural areas. Despite improvements in national food security over the last three decades, some 284 million people are still undernourished, and 43 per cent of the world's population living here have to survive on one dollar per day. Rural population density at 1.89 persons/ha is higher than in any other developing region and has resulted in severe pressure on natural resources. Future impacts of climate change and the means to adapt to them are therefore of paramount interest to the countries of South Asia.

Climate change has multi-dimensional impacts on agro-ecosystems in South Asia, including increases in temperature, declines in fresh water availability, sea level rise, glacial melting in the Himalayas, increased frequency and intensity of extreme events, and shifting of cropping zones. They all impact agriculture and the related food sector as well as the general economies, societies and environment.

To address these issues, an International Symposium on Climate Change and Food Security in South Asia was held in Dhaka, Bangladesh, in August 2008 and was attended by around 250 participants from 17 countries. The Symposium was co-sponsored by WMO, together with the Food and Agriculture Organization (FAO) of the United Nations, the UN Economic and Social Commission for Asia and Pacific (UNESCAP), the Ohio State University, the University of Dhaka and the Government of Bangladesh.

The Symposium identified the following key recommendations, knowledge gaps and opportunities for the design of programmes aimed at minimizing short- and long-term vulnerability of the region to climate change.

- Create a climate change and food security network in South Asia and a South Asia Climate Outlook Forum.

- Stimulate multi-disciplinary research in climate change and food security in South Asia and identify effective mitigation and adaptation options, including carbon sequestration in different ecosystems.

- Initiate and strengthen cooperation among academic and research institutions, international organizations, and NGOs to provide opportunities for strengthening institutions, human resource development and capacity building.

- Develop innovative financial mechanisms to scale up technical and financial support for adaptation efforts.

- Promote adoption of mitigation and adaptation options through payments for co-system services such as carbon trading.

- Strengthen regional institutional and policy mechanisms to promote and facilitate implementation of location-specific adaptation and mitigation practices.

The Symposium urged the development partners and the private sector to fund the implementation of programs that reflect the recommendations outlined above that deal with the mitigation and adaptation to climate change while advancing food security in South Asia.

4.2 Workshop on Climate Change Impacts and Adaptation to Agriculture, Forestry and Fisheries at the National and Regional Levels

As the world population grows and the global climate changes, local food supplies are facing more risks. The WMO/UNEP Intergovernmental Panel on Climate Change (IPCC) warns of increases in the frequency and intensity of floods, droughts, heat waves and other natural hazards that directly impact agriculture and fisheries. Higher global temperatures will also put crops and fish stocks at increased risk of disease and pests. These same climate pressures also threaten the health and viability of forests and other vulnerable ecosystems and land resources. However, the main determinants of agricultural production are still the seasonal weather variations. There are many adaptation measures that the agricultural sector can undertake to cope with these future changes.

To address these issues, local, national and international food providers must collaborate with climate experts to develop sustainable strategies. To that end, the World Meteorological Organization (WMO), the United States Department of Agriculture (USDA), and the Southeast Climate Consortium (SECC) of United States of America organized the Workshop on Climate Change Impacts and Adaptation to Agriculture, Forestry and Fisheries at the National and Regional Levels in Orlando, Florida, USA from 18 to 21 November 2008. The workshop was held in conjunction with the WMO Commission for Agricultural Meteorology (CAgM) Implementation/Coordination Team (ICT) on Climate Change/Variability and Natural Disasters in Agriculture and meeting of the SECC members.

The workshop brought together more than 60 land-use and food security experts to address the needs and requirements for such adaptation tools. The objective was to develop recommendations for producing and using weather and climate information to implement adaptation strategies at the national and regional levels. The recommendations focused on specific topics such as climate and agricultural research, refinements in climate forecasting, capacity building, agricultural operations, farming communities and farmer adaptation strategies.

4.3 International Workshop on Adaptation to Climate Change in West African Agriculture

Of the total present population in Sub Saharan Africa, more than 43% live in West Africa. In the major agroecosystems of West Africa, most economies and peoples depend on semi-subsistence agriculture. Rainfall in the semi-arid and sub-humid regions of West Africa is highly variable and undependable and negatively affects regular fod supply. Farming practices have developed as a response to such climatic risks, since the area covered by irrigation is fairly limited. Hence any changes in the current climate will further enhance the risk to agricultural productivity and the survival of the large populations in West Africa.

In West Africa, annual rainfall has decreased 20 to 40% from the period 1931-1960 to 1968-1990. The future projections of climate change indicate that Africa is very likely to warm during this century. The IPCC Fourth Assessment Report detailed many future impacts of climate change on agriculture. In West Africa, the area suitable for agriculture, the length of the growing season and yield potential, particularly along the margins of semi-arid and arid areas, are expected to decrease. In some countries, yields from rainfed agriculture could be reduced by up to 50% by 2020. Specifically, it is estimated that, by 2100, parts of the Africa are likely to emerge as the most vulnerable, with likely agricultural losses of between 2 and 7% of GDP. Hence a comprehensive and integrated approach to planning and implementing the climate change adaptation strategies across the wide range of agroecosystems in different countries in West Africa is needed to help both the planners and the local communities to deal effectively with the projected impacts.

It is with this background that the World Meteorological Organization (WMO), the United Nations Environment Programme (UNEP), the Food Agriculture Organization (FAO), and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) are organizing the International Workshop on Adaptation to Climate Change in West African Agriculture in Ouagadougou, Burkina Faso, from 27 to 30 April 2009.

Specific objectives of the workshop are:

- To provide a central forum to develop an improved understanding and assessment of the climate change impacts on agriculture and the associated vulnerability in West Africa;
- To discuss and develop informed decisions on practical adaptation strategies for the agricultural sector in different agroecosystems of West Africa;
- To discuss and suggest the appropriate ways to promote adaptation planning and implementation and it's integration into the sustainable development planning in different countries in West Africa; and
- To develop an appropriate mechanism for continuous information exchange on climate

Proceedings of the Meeting will be published by WMO, UNEP, FAO, and ICRISAT, and will be widely distributed to promote the Climate Change Adaptation Framework for West African Agriculture.
