



Adapting to Climate Change – WMO Workshop for Implementation of Five-Year Programme

Climate change is considered one of the most serious threats to sustainable development, with adverse impacts expected on human health, food security, economic activity, natural resources, physical infrastructure and the environment. The world is responding to climate change by trying to reduce the flow of man-made greenhouse gases into the atmosphere. But these actions will not halt climate change; they will only slow it down and possibly reduce its severity in the future. The amount of greenhouse gases already in the air, the long lifetimes of these gases (some remain chemically active in the atmosphere for a century or more), and the properties of the global climate system ensure that our planet will continue to grow warmer for many decades to come.

We have no choice, then, but to adapt to climate change. Adapting means making adjustments that can help us to avoid the most severe impacts of climate change, position us to exploit its opportunities, and prepare us to cope better with its unavoidable consequences (e.g. sea level rise, heat waves, droughts and floods). In particular the Least Developed Countries and Small Island Developing States are highly vulnerable to impacts of climate change and need adaptation strategies that integrate social and economic development incorporating local and indigenous knowledge. In many of these countries, economic costs caused by adverse climate effects are beginning to outweigh development gains.

According to the World Meteorological Organization (WMO), the specialised UN agency on weather, climate and water, adaptation is one of the core pathways available to society for dealing with climate variability and change. Adaptation is a planned response to climate change as a major strategy for sustainable development with the aim to

reduce vulnerability, develop a climate change adaptation strategy, and building a strong adaptive capacity. The climate change adaptation strategy is designed to replace response strategies; instead of clean-up operations: constant alertness and preparedness.

Adaptation strategies include anticipatory measures that take into account future climate change in the following sectors: agriculture and food production, forestry, water resources, biological diversity, industry, energy, traffic and transportation, land use, health, tourism and recreation, and insurance. National, regional and local strategies seek to outline actions to improve adaptive capacity and to take advantage of opportunities associated with climate change. WMO's Commission for Climatology (CCI) has established many expert teams to address these issues and provide technical guidance.



Adaptation strategies position us to cope better with the unavoidable consequences of climate variability and change. Photo Courtesy: Photoshare, Kathy Strauss.

Adaptation strategies vary between sectors as the following three examples show.

(1) For public health the first goal of adaptation is to reduce human disease, injury, suffering and death due to climate variability and change and its harmful effects on natural systems. The federal department *Health Canada* is working in partnership with all levels of decision-makers, from the individual to the community leaders and the federal government, to

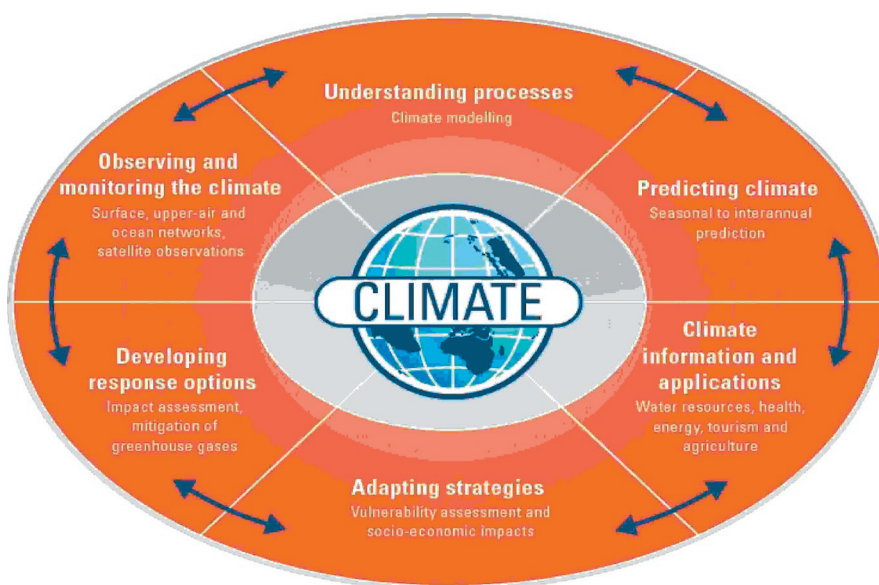
examine how a different climate may affect their activities, the infrastructure and the environment and to develop appropriate risk management principles, tools, and measures to reduce current and future vulnerability to climate variability and change.

(2) Also business man need to consider climate adaptation strategies during decision making. The *UK Climate Impacts Programme* (UKCIP), funded by the Department for Environment, Food and Rural Affairs, has developed an internet-based toolkit called 'adaptation wizard' designed to help businesses and government organizations to move through a process from simple understanding of climate change to integration of climate risks into decision-making. The recently published *Stern Review on the Economics of Climate Change*, a comprehensive study on the economic challenges associated with a changing climate and how these can be met by the UK and globally, provides an excellent basis for decision-makers. Suffering the consequences of a climate related event like a flood has costs and so do adaptive steps like building flood barriers. Governments and businesses need to strike an appropriate balance between the two.

(3) A lot more could be achieved by deploying resources to further strengthen early warning systems. Human diseases, injury, suffering and death due to adverse climate effects can be reduced when climate alerts reach the community in a timely and easy-to-understand manner. The French Meteorological Service *Meteofrance* has developed an interactive website ('carte de vigilance') that indicates climate risks on a scale from 0 to 4 for each region. Consulting this website on a daily basis during hot summers helps to protect humankind from excessive heat waves such as the one in 2003 when in France alone the heat claimed almost 15,000 lives.

The international political response to climate change began with the adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, which sets a framework for action in order to avoid 'dangerous anthropogenic interference' with the climate system. The Subsidiary Body for Scientific and Technological Advice (SBSTA) provides scientific guidance and advice to the 'board' of the Convention.

The UNFCCC Five-year 'Programme of Work of the Subsidiary Body for Scientific and Technological Advice (SBSTA) on Impacts, Vulnerability and Adaptation to Climate Change' highlights the urgency for action to address adaptation as a global priority. Adopted in December 2005 and currently implemented, the programme calls for strengthening the adaptation knowledge-base, promoting public participation, mobilizing



Integrated framework of WMO's climate activities as a response to address Millennium Development Goals.

funds and technology transfer amongst others.

The Five-year Programme consists of two thematic areas: (i) impacts and vulnerability, and (ii) adaptation planning, measures and actions. If successfully implemented, the programme is expected to enhance capacity at international, regional, national, local and sectoral levels. Trained professionals working on all these levels shall eventually be experts in identifying

and understanding possible impacts of climate change on humankind and the environment, their vulnerability and adaptation responses. Further, they shall select and implement effective and high priority adaptation actions.

WMO's World Climate Programme organized a brainstorming Workshop on Adaptation entitled 'The Role of the World Meteorological Organization (WMO) and National Meteorological and Hydrological Services (NMHSs) in the Implementation of the UNFCCC Five-year Programme on Impacts, Vulnerability and Adaptation to Climate Change' at WMO in Geneva, Switzerland, 17-18 October 2006. The workshop investigated benefits, requirements and constraints with respect to adaptation to climate variability and change as an effective contribution towards the UNFCCC initiative. Around 20 scientists from diverse fields including technical, policy, scientific, and climate risk management contributed to a WMO Concept Paper on the role of WMO and NMHSs in the adaptation process. (The Concept Paper made available on the WCP website is open to comments and discussions.)

WMO plays an important role in the Programme's implementation being instrumental in facilitating and coordinating the contribution of its global network of NMHSs, as well as regional and sub-regional meteorological and hydrological institutions to assist Parties to the UNFCCC in fulfilling their obligations under the Convention and other international agreements.

At the UNFCCC 11th Conference of the Parties in Montreal, Canada, 28 November – 10 December 2005, WMO organized a side event entitled 'Enhancing climate knowledge to improve adaptation to climate variability and change' which emphasized studies on socio-economic scenarios for assessments of climate variability and change impacts, vulnerability and adaptation in the context of sustainable

development. During the 24th session of SBSTA in May 2006, Bonn, Germany, the World Climate Research Programme (WCRP), a component of WMO's World Climate Programme, organized a side event on 'Climate change research achievements and challenges: priority goals for WCRP'. Both events showed the value and application of climate knowledge in adaptation and proved that it is the best scientific tool for better decision-making as well as planning for sustainable development. [ca]

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The **National Meteorological and Hydrological Services (NMHSs)** in the 187 WMO Member states bear the following responsibilities in support of the Programme's implementation: to assess the vulnerabilities of environment and humans to climate change; to develop an adaptation strategy to replace current response strategies; to define methodologies in action areas on adaptation to climate variability and change considering sustainable development mechanisms; to build capacity for facilitating adaptation activities; to eventually implement plans and modalities for the effective delivery and use of climate information and products.

References and links

Meteofrance <http://www.meteofrance.com>

Health Canada http://www.hc-sc.gc.ca/ewh-semt/climat/index_e.html

Stern Review on the Economics of Climate Change http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm

UK Climate Impacts Programme (UKCIP)
– Adaptation Wizard <http://www.ukcip.org.uk/resources/tools/wizard/home.asp>

World Climate Research Programme (WCRP)
<http://wcrp.wmo.int>

World Meteorological Organization (WMO)
www.wmo.int

WMO Natural Disaster Prevention and Mitigation (DPM) Programme <http://www.wmo.int/disasters/>

WMO World Climate Programme (WCP) <http://www.wmo.ch/web/wcp/wcp-home.html>.