

WMO STRATEGIC PLAN

GENEVA, MAY 2007



**World
Meteorological
Organization**

Weather • Climate • Water

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FOREWORD

The Fifteenth World Meteorological Congress (Geneva, May 2007) approved the WMO Strategic Plan, which will, as from January 2008, replace the Sixth WMO Long-term Plan (2004-2011).

The Strategic Plan is the result of a planning process driven by the needs and priorities identified by the WMO Members. The Strategic Plan is a living document that, within a continuous planning process, further evolves through periodic planning, execution, evaluation and updating phases.

PURPOSE OF THE STRATEGIC PLAN

About one third of a developed country's Gross Domestic Product (GDP) is sensitive to weather, climate and water conditions and the corresponding share is even higher for developing economies. The application of weather, climate and water information and related services helps improve the safety and well-being of peoples, reducing poverty, increasing prosperity and protecting the environment for future generations. WMO activities are fundamental contributions to meeting the targets of the international community's strategies such as the UN Millennium Development Goals, the Johannesburg Plan of Implementation of the 2002 World Summit on Sustainable Development and relevant environment- and climate-related conventions. The vulnerability of communities everywhere will be reduced through the use of weather, climate and water information and services within the frameworks of sustainable development policies and global partnership strategies for development, especially for least developed countries and in the context of the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters.

The overall purpose of the Strategic Plan is to define the high-level and long-term objectives and strategies for WMO to effectively develop and coordinate plans and programmes for implementation that enable the 188 Members of WMO to collectively perform their key activities, mainly through their National Meteorological and Hydrological Services, namely, monitoring, assessing and forecasting weather, air quality, climate, oceanic conditions, the global water cycle, and hydrometeorological hazards. It provides guidance and direction to ensure focused and coordinated approaches across the Organization.

The Strategic Plan is also expected to motivate, guide and coordinate the activities of the Members, primarily through their National Meteorological and Hydrological Services, the Executive Council, regional associations, technical commissions, and the Secretariat. Its success depends on the partnership between nations to sustain and improve observing networks and forecast systems, and to share technology and expertise. It will help all Members to enhance their capacity to satisfy society's needs for weather, climate, water

and related environmental information and services to manage nature's risks and enhance social and economic development.

SCOPE OF THE STRATEGIC PLAN

Successful use of the Strategic Plan will contribute to the following desired societal outcomes:

- Improved protection of life, livelihoods and property;
- Improved health and well-being of citizens;
- Increased safety on land, at sea and in the air;
- Sustained economic growth in both developed and developing countries;
- Protection of natural resources and improved environmental quality;
- Mitigation of natural disasters.

The desired societal outcomes are addressed by three top-level objectives to improve forecasts, enhance services and their delivery and continue WMO's crucial international role as an authoritative scientific voice. These long-term objectives are achieved through a series of initiatives, which emphasize five strategic thrusts: science and technology development and implementation; service delivery; capacity-building; partnerships; and efficient management and good governance. Expectations associated with each of these initiatives define a set of eleven expected results and associated performance indicators, which form the basis for the development of the WMO Operating Plan, the WMO results-based budget and the performance monitoring and evaluation measures.

As directed by Congress and the Executive Council, WMO has adopted the Result-based Management Concept and made it the foundation on which the strategic planning process has been build. Result-based Management principles also guide programme implementation management in the Secretariat. We are confident that this new approach to planning and management of programmes and the budget will enable the Organization to better achieve its objectives and effectively assist Members in the realization of their own sustainable plans.



M. Jarraud
Secretary-General
World Meteorological Organization



A.I. Bedritsky
President
World Meteorological Organization

Geneva, May 2007

EXECUTIVE SUMMARY

The vision of the World Meteorological Organization (WMO) is to provide world leadership in expertise and international cooperation in weather, climate, hydrology and water resources, and related environmental issues, thereby contributing to the safety and well-being of people throughout the world and to the social and economic benefit of all nations.

Impacts on the environment are immense and growing. Natural disasters not only cause immediate loss of life but also have long-term economic after-effects on society. Day-to-day weather, hydrology and climate affect virtually every facet of human existence. Environmental information and services, when understood and incorporated, permeate almost every part of national, regional and global economies.

The WMO Strategic Plan is the result of an organization-wide strategic, operational and budgeting process to provide a blueprint for the 188 Member States and Territories to meet the changing needs of their communities for weather, climate, water and related environmental information.

Successful use of the Strategic Plan will contribute to the following desired societal outcomes:

- Improved protection of life, livelihoods and property;
- Improved health and well-being of citizens;
- Increased safety on land, at sea and in the air;
- Sustained economic growth in both developed and developing countries;
- Protection of natural resources and improved environmental quality;
- Mitigation of natural disasters.

The desired social outcomes are addressed by three top-level objectives to improve forecasts, enhance services and their delivery and continue WMO's critical international role as an authoritative voice in the scientific world. These long-term objectives are achieved through a series of initiatives, which emphasize five strategic thrusts: science and technology development and implementation; service delivery; partnership; capacity-building; and efficient management and good governance. Expectations associated with each of these initiatives define a set of eleven expected results and associated performance indicators, which form the basis for the development of operating plans and the WMO Budget.

The present Plan builds upon a long-term planning process that has enabled WMO to respond to the changing needs of its Members and society in general. It is forward looking in the medium and long term, anticipating new needs as well as expected technological advances. Based on the synthesis of all relevant factors and financial realities, the Plan outlines a pragmatic and achievable four-year programme and is now focused on 2008–2011. The Plan is a living document that will continue to be reviewed and updated by the World Meteorological Congress every four years.

Its success depends on the partnership between nations to sustain and improve observing networks and forecast systems, and to share technology, expertise and knowledge. This will help all WMO Members enhance their capacity to meet society's needs for weather, climate, water and related environmental information and services in order to manage nature's risks and enhance social and economic development.

INTRODUCTION

From the day-to-day weather that affects livelihoods and economic decisions, to the storms, floods and droughts that can determine the very survival of millions of people, weather, climate, water and related environmental issues impact people and the world's economy. Policymakers, professionals and the public alike use and benefit from environmental forecasts and assessments. Nevertheless, between 1980 and 2000, over 1.2 million people died and more than US\$ 900 billion were spent coping with weather, climate and hydrological phenomena. Much of the impact could have been avoided by proactive initiatives by governments and people. Loss of livelihood and financial costs are growing steadily as exposure to environmental hazards increases. At the same time, scientific and technological advances are providing tools and opportunities to enable more effective action.

Realizing these opportunities requires vision, planning and strong organizational commitment. This Strategic Plan lays out the vision and roadmap whereby WMO Members build upon their achievements and collectively identify their commitment to advance their efforts aimed at addressing the critical social and development needs of today and tomorrow.

PURPOSE OF THE WMO STRATEGIC PLAN

The Plan outlines the strategic initiatives that WMO Members will use to deliver more accurate, timely, useful and cost-effective weather, climate, water and environmental (including ocean and air quality) information and services to meet national and global needs. It focuses on strategic initiatives that increase utility, effectiveness and efficiency in the production and delivery of weather, climate, hydrological and environmental services. Successful use of the Plan will contribute to the following desired social outcomes:

- Improved protection of life, livelihoods and property;
- Improved health and well-being of citizens;
- Increased safety on land, at sea and in the air;
- Sustained economic growth in both developed and developing countries;
- Protection of natural resources and improved environmental quality;
- Mitigation of natural disasters.

WHY ACTION IS NEEDED

The social and economic impacts of weather, climate, water and environmental conditions are vast—and they are growing. Today, up to 30 per cent of a developed country's gross domestic product is sensitive to weather, climate and water conditions, and the corresponding share is even higher for developing

economies. At the same time, there are new opportunities for the application of weather, climate and water information to help governments improve the safety and well-being of their peoples, reduce poverty, increase prosperity and improve public health and security. There are also fresh opportunities to use this information to take decisions that protect the environment for future generations.

Weather, climate and water information influences social and economic decisions every day, routinely contributing to efficient generation of electricity; safe transport in the air, on land and at sea; management of agricultural production and water resources; and development planning. In the extreme, weather-, climate- and water-related events dramatically affect lives and livelihoods, threaten food security, reduce the availability of uncontaminated freshwater, increase the spread of disease and undermine development. Growing urbanization and the expansion of communities into previously uninhabited areas, such as arid zones and flood plains, are compounding the threat by exposing populations to air- and waterborne diseases, heat stress, drought, air pollution, landslides, floods, storm surges, tsunamis and other environmental hazards. Furthermore, many disasters are rooted in poor development planning and methodologies, increasing vulnerability to extreme weather, climate and water conditions.

Many disasters are rooted in poor development planning and methodologies, increasing vulnerability to extreme weather, climate and water conditions

Governments and people everywhere continue to need expert assistance to understand and assess the effects of day-to-day weather, climate and water conditions and the impacts of extreme events on their societies, and to exploit weather, climate and water information more effectively with a view to maximizing its benefits to society.

The vulnerability of communities throughout the world will be reduced by introducing authoritative, scientifically sound information into sustainable development policies and into the global partnership strategies for development, especially for least developed countries. In particular, WMO is committed to the implementation of the Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters. The Framework for Action 2005–2015 shifts disaster risk management from post-emergency response and recovery to an approach that emphasizes prevention, preparedness and contingency planning. WMO activities will help through the provision of early warning systems, support to operational decision processes and the incorporation of hydrometeorological risk assessment in disaster risk management and development planning.

Monitoring, assessing and forecasting weather, air quality, climate, oceanic conditions, the global water cycle and hydrometeorological hazards are important components of WMO's commitment to the international community's strategy

to attain the United Nations Millennium Development Goals. WMO activities will help to achieve the following results:

- Lessen the impact of drought, extreme weather, water and climate events, and associated pests and diseases on agricultural production and activities essential to food security and industrial production, thereby contributing to the eradication of extreme poverty and hunger (Goal 1);
- Mitigate the impact of weather- and climate-sensitive epidemics, thereby helping to reduce child mortality (Goal 4), improve maternal health (Goal 5), and combat HIV/AIDS, malaria and other diseases (Goal 6);
- Monitor the environment to assess and reduce the impact of climate change and help countries, especially the developing and least developed, to adapt, thereby helping to ensure environmental sustainability (Goal 7);
- Encourage the participation of women in science, and recognize and support the special needs of rural women and of women involved in water management and disaster response, to apply weather, water and climate information effectively, thereby contributing to the promotion of gender equality and the empowerment of women (Goal 3).

WHAT IS WMO?

WMO is an intergovernmental organization with a membership of 188 States and Territories. It originated from the International Meteorological Organization, which was founded in 1873. Established in 1950, WMO became a specialized agency of the United Nations in 1951. A more complete description of WMO is given in Appendix I.

THE VISION OF WMO

To provide world leadership in expertise and international cooperation in weather, climate, hydrology and water resources, and related environmental issues, and thereby to contribute to the safety and well-being of people throughout the world and to the economic benefit of all nations.

WMO facilitates worldwide cooperation in observing networks; promotes the establishment and maintenance of systems for the rapid exchange of information; furthers the application of weather, climate, water and related environmental information to agriculture, development, transport, water resources, health and many other human activities; promotes activities that further close cooperation between National Meteorological and Hydrological Services; supports cooperation

between providers and users of their services; and encourages and coordinates international aspects of research and training.

Since its creation, the collaborative efforts of WMO have developed institutions; trained thousands of meteorologists, climatologists, hydrologists and atmospheric chemists; contributed to the establishment of the United Nations framework conventions; produced a Global Observing System for Earth-based and satellite-based observation; implemented a Global Telecommunications System to share critical information quickly and efficiently; and developed a Global Data-processing and Forecasting System to monitor, assess and predict weather, climate, water and other environmental conditions that affect society. These combined capabilities have allowed nations of the world to exploit scientific advances with a view to improving severe weather warnings, day-to-day forecast accuracy and climate and hydrological assessments. WMO is focused on taking the next essential steps to address society's critical environmental and development needs.

THE WMO STRATEGIC PLAN AND ITS CONTEXT

The Plan is the result of a planning process driven by the needs and priorities identified by its 188 Members. The WMO strategic planning process is described in Appendix II. The Plan outlines the Organization's top-level objectives and provides guidance and direction to ensure focused and coordinated approaches across the Organization. It serves as the foundation for the WMO Operating Plan and supports performance- and results-based budgeting for the WMO Secretariat and constituencies, as appropriate.

Because of the longer lead times required for some capability development, the WMO Strategic Plan extends into the future conceptually to consider social and technological issues that may impact WMO objectives. However, its primary focus—the detailed direction and guidance—is on the WMO financial period 2008–2011.

Advances in predicting weather, climate and water over the years have been possible owing to the combined efforts of the entire community of nations. Major advances in understanding, predicting and applying knowledge of the weather, climate and water system have been achieved with the substantial and combined resources of many countries. Investment in global observing networks and telecommunications has ensured that data are routinely available for forecasting and assessing the impact of weather, climate and water.

It is important to recognize, however, that sustaining and improving products and services to meet the changing needs of societies for environmental information require an ongoing commitment. Economic pressures are forcing governments everywhere to question and review all public expenditure; therefore, it is essential that the benefits of weather, climate, water and related environmental information and services should be clearly understood by all governments. This Plan

establishes direction for service improvements consistent with the needs and priorities of Members' societies and grounded in fiscal realities to help Members reduce costs where feasible, while demonstrating the social and economic value of further investments in the enhancement of services.

Finally, the Plan provides for monitoring and evaluation to ensure ongoing adjustments in strategy and direction as required by changing needs, priorities and opportunities.

STRATEGIC CONSIDERATIONS AND TOP-LEVEL OBJECTIVES

High-level organizational imperatives provide the basis for good strategic plans. This section lays out the strategic foundation of the Plan. It is the summary result of a planning process in which strengths, weaknesses, opportunities and threats have been assessed; needs, issues, and priorities identified and consensus solutions developed. These solutions fall into three general areas: information and product quality, service delivery and support of policy and related decision-making, which form the basis for the top-level objectives of WMO.

STRATEGIC CONSIDERATIONS

Urgent social and economic drivers need targeted improvements in weather, climate, water and related environmental information and services. Risks associated with climate variability and extreme environmental events create social and economic stresses that require new meteorological, hydrological and climate services in order to ensure the safety and security of populations and the development of adaptive economic strategies. Responding to these risks is especially critical given population growth in environmentally vulnerable regions, such as continental coastlines and lowlands, and, in recent years, an apparent increase in the intensities and frequencies of extreme events. In responding to these drivers, the Organization has included several fundamental strategy development considerations:

- WMO Members must provide timely, accurate and cost-effective products and services that are useful to governmental and business-sector decision makers;
- WMO Members must understand and respond to users' changing needs to maintain the relevance and increase the utility of weather, climate, water and related environmental information and services for users;
- WMO must continue to rely on and promote international cooperation because of the increasing cost and complexity of the science and technology used to provide information and services;

TOP-LEVEL OBJECTIVES OF WMO

- To produce more accurate, timely and reliable forecasts and warnings of weather, climate, water and related environmental elements
- To improve the delivery of weather, climate, water and related environmental information and services to the public, governments and other users
- To provide scientific and technical expertise and advice in support of policy and decision-making and implementation of the agreed international development goals and multilateral agreements

STRATEGIC THRUSTS OF WMO

- Science and technology development and implementation to monitor and observe the environment, forecast and warn of significant weather, water and climate conditions, and understand the Earth system;
- Service delivery to ensure that society can derive the full benefit of the weather, water and climate information and services that WMO Members produce;
- Partnership to work with international agencies, other organizations, academia, the media and the private sector to improve the range and quality of critical environmental information and services;
- Capacity-building to sustain and improve the ability of all Members, with a particular focus on developing and least developed countries, to provide essential environmental services to their societies;
- Efficient management and good governance to ensure affordable environmental information and services.

- WMO must raise users' awareness of current and new capabilities;
- WMO must help countries translate commitments, particularly those agreed within the framework of global conferences, summits and international conventions, into effective and practical measures.

SCIENCE AND TECHNOLOGY DEVELOPMENT AND IMPLEMENTATION

Weather, climate, water and related environmental information and services have made great progress owing to scientific and technological breakthroughs over the past three decades. Improved science and technology have produced better warning lead times, more accurate predictions and new products and services, such as air quality alerts, seasonal climate outlooks and other environmental products. However, significant shortfalls in critical scientific and technology areas remain. As population growth and development continue, often in increasingly environmentally sensitive regions, the impacts of using inaccurate or untimely environmental information will grow at an accelerating rate. Continued improvements are needed in key scientific areas to increase the scope, accuracy and lead time of weather, climate, water and related environmental information and services.

The science and technology development and implementation strategic initiatives are designed to accomplish the following tasks:

- Develop integrated weather, climate, water and related environmental observing networks with appropriate resolution, accuracy,

reliability and timeliness to meet user needs. The expectation is that forecasts, warnings and hazard risk assessments will be more accurate with better underpinning data;

- Develop and implement enhanced very short-range (one to six hours) forecast capabilities, which significantly improve the accuracy and lead time of severe weather warnings and advisories to the public, emergency managers and other decision makers. The expectation is that making nowcasting tools available will significantly enhance warning accuracy and lead time for all meteorological and hydrological services;
- Improve storm track and intensity forecasts to reduce the errors that put populations at risk or result in unnecessary preparation and protective measures. The expectation is that the uncertainty of forecasts beyond the three- to five-day limit will be reduced or better quantified, or both;
- Provide quantitative measures of information certainty and/or uncertainty to increase the utility of weather, hydrology and seasonal climate information in decision-making, with a specific focus on ensemble prediction systems. The expectation is that operational products, which quantify forecast confidence, will be available to the users;
- Improve the utility of weather, seasonal climate and hydrology forecasts to allow advance planning in social and economic sectors, such as development, disaster risk management, transportation, agriculture, health and energy, which could generate significant socio-economic benefits. The expectation is that environmental information will be produced and provided in time to be effectively integrated into decision processes;
- Develop and implement better operational air quality and air chemistry capabilities needed to support governmental and other national initiatives aimed at boosting quality of life and protecting the environment. The expectation is that the capability of Meteorological Services to provide air quality and chemical weather forecasts and to extend these forecasts to relevant atmospheric constituents will increase;
- Expand the use of scientific models and techniques in producing environmental information and services. In particular, it is planned to develop further and implement the capability to forecast many components of the environment simultaneously. The expectation is that a broader diversity

EXPECTED RESULTS

1. Enhanced capabilities of Members to produce better weather forecasts and warnings
2. Enhanced capabilities of Members to provide better climate predictions and assessments
3. Enhanced capabilities of Members to provide better hydrological forecasts and assessments
4. Integration of WMO observing systems
5. Development and implementation of the new WMO Information System

Improved science and technology have produced better warning lead times, more accurate predictions and new products and services, such as air quality alerts, seasonal climate outlooks and other environmental products

of environmental predictions based on the latest scientific advances will become available.

- Improve the operational use of climate science to support societies' needs to identify and adapt to climate change and variability. The expectation is that the development of reliable and authoritative climate services will accelerate and help develop and implement regional, national and local plans on multi-annual to decadal timescales.

SERVICE DELIVERY

Weather, climate, water and related environmental information must reach the user—who depends on this information to make decisions—in an understandable and usable form and in a timely fashion to have the desired effect. Yet despite the scientific and technological improvements of the past few decades, service delivery is still a serious limiting factor for many Members. Those who

produce the information must better understand the users' needs and how information is applied in decision-making, and new techniques will need to be developed to provide it. In addition, users must better understand the information content to benefit fully. For many Members' National Meteorological and Hydrological Services, there is a need to shift the focus from creating information to providing improved services. Finally, the technologies for transmitting the information from providers to users need upgrading to increase the speed and volume of information provided and to reduce costs.

The service delivery strategic initiatives aim to achieve the following objectives:

- Improve the speed, volume and cost-effectiveness of telecommunications for weather, climate, water and related environmental information so as to ensure that it arrives at the right place, at the right time and in a cost-effective manner. The expectation is that targeted, improved information will be delivered to people, their governments and economic sectors in ample time for use in everyday decision-making;
- Enhance the understanding of and ability to address user needs. The expectation is that Members' National Meteorological and Hydrological Services will be more aware and capable of responding to the users of

EXPECTED RESULTS

6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness
7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services

their information and services and that the uptake of services by the public, governments and economic sectors will grow;

- Increase the provision of climate-related hydrological and agricultural information that is essential to sustain water and food security. The expectation is that new forecasting and assessment techniques will be developed and implemented to provide enhanced services to the water resource management and agricultural sectors and international aid agencies;
- Increase the provision of weather, climate, water and related environmental information to sustainable development practitioners. The expectation is that hydrometeorological risk assessment, climate variability and climate change information will be mainstreamed into development planning;
- Expand the provision of weather information needed to improve aviation safety and air traffic management. The expectation is that weather-related aviation mishaps will continue to decrease and that weather-related air traffic delays will be reduced;
- Improve the operational oceanographic and marine meteorological services that many Members provide by delivering more specific and targeted marine products to users. The expectation is that weather-related marine accidents and transportation delays will be reduced and that the sustainable use of the marine environment will increase;
- Enhance capabilities and capacities with respect to disaster risk reduction in the weather, climate and water domains, and strengthen appropriate mechanisms at the national and international levels; in partnership with other international organizations, bolster the effectiveness of multi-hazard early warning by augmenting capabilities and capacities to deliver warnings related to a broader range of environmental hazards, including tsunamis, accidental nuclear releases, volcanic eruptions and other environmental events. Key international partners include the United Nations Educational, Scientific and Cultural Organization/Intergovernmental Oceanographic Commission, the International Atomic Energy Agency and the International Civil Aviation Organization.

Those who produce the information must better understand the users' needs and how information is applied in decision-making, and new techniques will need to be developed to provide it

PARTNERSHIP

The complexity of the Earth system and the interconnections between weather, water, climate and related environmental processes are increasingly challenging the scientific and financial capacity of WMO to improve the quality and

No single government or agency has the necessary resources to address all the challenges on its own

accuracy of information and products. No single government or agency has the necessary resources to address all the challenges on its own. Consequently, the Organization's success depends on its ability to partner effectively with internal stakeholders and external organizations to meet its objectives.

The partnership strategic initiatives are designed to:

- Heighten understanding of WMO's environmental information and service capabilities by the United Nations system, Member countries, international and national organizations. The expectation is that all partners and constituents will have a better understanding of WMO capabilities and can leverage them for the public good;
- Enhance WMO's ability to utilize appropriately the capabilities and information of other organizations in developing and improving WMO information and services. The expectation is that the scope of services and the responsiveness of Member's agencies to emerging requirements will increase by leveraging capabilities of partners to develop and sustain service improvements;
- Broaden partnerships between developed, developing and least developed countries involving relevant national agencies. The expectation is that the capabilities of countries to acquire and exploit information for the public good will be enhanced and that all countries will benefit from closer cooperation;
- Maintain a proactive role in ensuring a coherent, science-based approach within the United Nations system and among other stakeholders to

implement environmental conventions, including outcomes of World Summits and follow-up to the United Nations Framework Convention on Climate Change, the Vienna Convention for the Protection of the Ozone Layer, the United Nations Convention to Combat Desertification, the United Nations Economic Commission for Europe Convention on Long-range Transboundary Air Pollution and the United Nations Convention on Biological Diversity. The expectation is that WMO activities will be mainstreamed into the agenda for action by the international community.

EXPECTED RESULTS

8. Broader use of weather-, climate- and water-related outputs for decision-making and implementation by Members and partner organizations

CAPACITY-BUILDING

Many developing and least developed countries lack the institutional infrastructure to provide even the most basic services to their governments and society.

Institutional capacity-building is a priority for these countries to provide the necessary national expertise for addressing environmental and development issues. Management education and training, as well as scientific and technical skills development, are essential.

Despite continued improvements in science and technology, the operations supporting services of developing and least developed countries still lack these capabilities. This generally results in less than adequate weather, climate, water and related environmental information and services to meet needs in these countries.

The media is a primary tool for communicating relevant environmental information to the public. Service providers in many developing countries and least developed countries do not have the ability to exploit the media effectively. Building capacity in communications, especially through television and radio broadcasting, to deliver information effectively to society is needed, both at the national and international levels.

In developed and developing countries alike, the public and decision makers often fail to make the best possible use of information from WMO Member's agencies and services. WMO has not been effective in showing the benefits of the services and products, and in turn, people and governments have been slow to recognize the breadth of utility of existing information. There is a need for education and training programmes targeted at those who deliver and those who use weather, climate, water, oceanic and air quality information, especially in developing and least developed countries. Full benefits will only be achieved through continued capacity-building for all users and providers.

The Millennium Development Goals recognize that men and women play different parts in society and that all United Nations organizations should strive to achieve gender equality. In many developing countries, there is a need to provide services tailored to the needs of women, who act as family protectors in times of disaster and play a significant role in agriculture and water resources and in the receipt and use of environmental information.

The capacity-building strategic initiatives are as follows:

- Boost the capacity of developing and least developed countries to provide user-relevant services with targeted improvements in communication, client relations and service delivery. The expectation is that Members'

EXPECTED RESULTS

9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates

Building capacity in communications, especially through television and radio broadcasting, to deliver information effectively to society is needed, both at the national and international levels

agencies will be able to respond more effectively to user requirements with targeted, effective services;

- Increase the capacity of Members' National Meteorological and Hydrological Services in developing and least developed countries to align their services with the particular development needs in their countries. The expectation is that countries will be able to sustain their own institutional capacity development, enabling them to increase their capabilities to address Millennium Development Goals, the Hyogo Framework for Action 2005–2015, national development priorities and community information requirements;
- Increase the scientific and technical capacity of developing and least developed countries. The expectation is that these countries will develop the ability to transition and sustain the science and technology needed to support operational capabilities;
- Broaden governmental and public education in Member countries to create a more environmentally literate populace. The expectation is that governments and the public in all countries will understand how to respond appropriately to weather, climate, water and related environmental issues, including air quality, ecosystem and ocean information alerts and warnings;
- Build the capacity of societies to address the different needs and experiences of men and women in the development of environmental products and services. The expectation is that WMO Members will contribute to achieving Millennium Development Goal 3.

EFFICIENT MANAGEMENT AND GOOD GOVERNANCE

Good governance promotes open and transparent processes, efficient and effective use of resources and equitable treatment of all parties

An organization's resource limitations and sub-optimum alignment with its objectives are fundamental constraints on the pace—and ultimately—the success of every strategic plan. Internally, process and management efficiencies can help mitigate resource limitations and can expedite progress towards strategic targets by improving alignment with organizational priorities. Good governance promotes open and transparent processes, efficient and effective use of resources and equitable treatment of all parties. Explicit efficiency goals are needed to accelerate the pace of improvements within currently achievable resources.

The efficient management and good governance strategic initiatives aim to accomplish the following tasks:

- Enhance the efficiency of the WMO Secretariat. The expectation is that budget growth for routine support will be kept below average

cost-of-living increases during the 2008–2011 financial period;

- Improve the connection of the Organization’s Programmes and Budget to its strategic initiatives. The expectation is that the planning process will be aligned to foster the efficiency and delivery of WMO Programmes;
- Ensure the integrity of WMO management systems, including information technology. The expectation is that WMO will maintain a robust physical and electronic archive of information and metadata, as well as a strong financial system and risk management system;
- Guarantee the Organization’s effectiveness by conducting a comprehensive review of its structure, programmes and priorities and implementing the findings thereof. The expectation is that WMO will align itself with its continuing objectives.

EXPECTED RESULTS

10. Effective and efficient functioning of constituent bodies
11. Effective and efficient management performance and oversight of the Organization

Within the framework of the three top-level objectives and five strategic thrusts described in this section, WMO will give special attention to needed improvements in disaster prevention and mitigation, capacity-building and other important ongoing activities related to data and product quality, service delivery and organizational efficiency. These priority needs are described in the next section as end results.

EXPECTED RESULTS AND PERFORMANCE INDICATORS

The success of any strategic plan depends on how it is put into practice. The Plan motivates and guides the collective and coordinated activities of the major Programmes, regional associations, technical commissions and Members, primarily through the National Meteorological and Hydrological Services (NMHSs). The top-level objectives outlined in the previous section identified five strategic thrusts, which generated a set of initiatives with corresponding expectations to achieve these objectives. Taken together, these are structured into results or outcomes, referred to as expected results that WMO wishes to achieve during 2008–2011.

A set of key performance indicators associated with each of the expected results is designed to guide the development and implementation of the WMO Operating Plan. These provide the basis for action and budgeting as appropriate. The key performance indicators focus on providing measures of success for each of the expected results. Key performance targets will be set by the WMO Operating Plan, as appropriate, to establish more specific outputs and objectives, and to measure progress towards achieving the targets.

Strategic thrusts	Expected results and performance indicators
Science and technology development and implementation	<ol style="list-style-type: none"> 1. Enhanced capabilities of Members to produce better weather forecasts and warnings <ol style="list-style-type: none"> (a) Accuracy of weather forecasts and accuracy and lead time of warnings (b) The number of Members providing forecasts out to 1, 2, 3 and 4 days 2. Enhanced capabilities of Members to provide better climate predictions and assessments <ol style="list-style-type: none"> (a) Number of Members able to provide seasonal forecasts and climate predictions at the national level (b) Number of Members exchanging seasonal forecasts and climate predictions with NMHSs of other Members (c) Number of Regional Climate Centres established in the WMO Regions 3. Enhanced capabilities of Members to provide better hydrological forecasts and assessments <ol style="list-style-type: none"> (a) The number of Members that have established mechanisms to improve flood forecasting capabilities through both collaboration between NMHSs and action within their own Service (b) The lead time and accuracy of hydrological forecasts (c) The number of Members with the capability to undertake national water resources assessments 4. Integration of WMO observing systems <ol style="list-style-type: none"> (a) Quality of observations (b) Availability of useful observations to WMO Members and external users (c) Completion of milestones towards integration 5. Development and implementation of the new WMO Information System <ol style="list-style-type: none"> (a) Completion of milestones agreed by Fifteenth Congress (b) Number of implemented interoperability arrangements across WMO centres and with external partners (c) Number of different functions including data discovery and information pull

Strategic thrusts	Expected results and performance indicators
Service delivery	<p>6. Enhanced capabilities of Members in multi-hazard early warning and disaster prevention and preparedness</p> <p>(a) Number of NMHSs with strengthened early warning systems, either in terms of greater range of hazards, increased timeliness or accuracy of warnings, in the weather, climate and water domain, or strengthened cooperation with civil protection agencies</p> <p>(b) Range of weather, climate and water related hazards covered by early warnings</p> <p>(c) Number of NMHSs participating in national risk assessment, reduction or transfer platforms and activities</p> <p>7. Enhanced capabilities of Members to provide and use weather, climate, water and environmental applications and services</p> <p>(a) Number of Members having undertaken or used studies related to social and economic benefits of weather, climate, water and air quality services</p> <p>(b) Number of Members reporting increased value of weather, climate and water services to user groups</p> <p>(c) Number of Members seeking and providing improved Integrated Flood Management</p>
Partnership	<p>8. Broader use of weather-, climate- and water-related outputs for decision-making and implementation by Members and partner organizations</p> <p>(a) Uptake of reports, bulletins, statements and other outputs by policy- and decision-makers</p> <p>(b) Number of active partnerships between WMO and Members' institutions, the United Nations system, other international organizations, non-governmental organizations and the private sector</p> <p>(c) Number of new requirements presented by partner organizations seeking WMO support, guidance and expertise</p>
Capacity-building	<p>9. Enhanced capabilities of National Meteorological and Hydrological Services in developing countries, particularly least developed countries, to fulfil their mandates</p> <p>(a) Number of NMHSs in least developed countries that are providing weather, climate and water information in support of national development plans and policies</p> <p>(b) Number of capacity-building projects that improve the infrastructure of the Services</p> <p>(c) Number of developing and least developed countries benefiting from training events and technical meetings, which lead to institutional capacity-building, and number of specialists per annum that participated in such events</p>

Strategic thrusts	Expected results and performance indicators
Efficient management and good governance	<p>10. Effective and efficient functioning of constituent bodies</p> <ul style="list-style-type: none"> (a) Quality of technical services (interpretation, conference services and facilities) measured through the satisfaction of Members (b) Quality of substantive services (documents and presentations to constituent bodies) measured through the satisfaction of Members (c) Cost of constituent body sessions <p>11. Effective and efficient management performance and oversight of the Organization</p> <ul style="list-style-type: none"> (a) Achievement by the Secretariat of agreed targets pertaining to key programme support services (b) Opinion of the External Auditor, regional associations, technical commissions and Executive Council subsidiary bodies (c) Percentage of oversight recommendations implemented by the Secretariat for improved business effectiveness and efficiency

MONITORING AND EVALUATION

Monitoring and evaluation are important tools in results-based management to help improve performance and achieve results. Continuous monitoring of WMO strategic thrusts and initiatives is carried out through the WMO Operating Plan, which assesses the effectiveness of the implementation strategies in tackling the constraints to achieving the expected results. Monitoring outcomes in addition to outputs is particularly important for assessing the effectiveness of WMO scientific and technical programmes. This requires ability to track the outputs of activities and measure their contributions to outcomes by periodic assessments of change. Monitoring provides critical input to the overall evaluation of the WMO Strategic Plan. Monitoring and evaluation of the Plan is the responsibility of the Executive Council. An annual performance report provides an assessment of progress toward the Plan's top-level objectives and the ongoing relevance of the strategic initiatives employed. Members, regional associations, technical commissions and the Secretariat all make specific, coordinated contributions to the process. This assessment is an important input to the strategic planning process and is used to adjust direction and priorities as required.

By monitoring programme activities and changes in the external situation that may affect programme performance, it will be possible to conduct routine evaluations of the effectiveness of the WMO programmes. Evaluations of the Plan are conducted midterm and at the end of the implementation cycle.

CONCLUSION

Progress in improving the quality, timeliness and utility of weather, climate, water and related environmental predictions and assessments has been made possible by the cooperation of all nations in contributing and sharing observations of the Earth system from the local to the global scale. In turn, advances in data assimilation techniques and numerical models have resulted in better forecast products and services. At the same time, societies have become increasingly sensitive to weather, climate and hydrological phenomena. More and more people are vulnerable to natural hazards, and national economies are becoming increasingly sensitive to the day-to-day variability of the weather. While weather, climate and water impact people locally, the Earth system is responsible for these phenomena on a global scale. Thus, local forecasts and assessments depend on cooperation between neighbouring countries, within regions and throughout the entire global community to provide data and global and regional products. This dependence of countries on each other for weather, climate and water information is the principal reason for the existence of WMO, which provides the forum for the exchange of data, the transfer of technology and expertise and the sharing of knowledge.

While societies benefit from continuing scientific and technological progress, the full benefit of weather, climate and water forecasts products and services is yet to be realized. Recognizing that people and economies are more vulnerable today is the first step towards developing decision processes that utilize environmental information more effectively. The WMO Strategic Plan underscores the importance of service delivery to improve the interaction between providers and users of weather, climate and water products and services. The Plan also recognizes that the changing needs of society require new tools and techniques. It therefore encourages science and technology development and implementation and ensures equal access to information that is vital for human development. The Plan emphasizes capacity-building as an essential element to achieve internationally agreed development goals and reduce the risks to development from disasters and climate change. WMO Members have always stressed the need for partnership, particularly among themselves. Today's problems transcend scientific, political and organizational boundaries. The Plan recognizes that protecting lives and livelihoods, and enhancing economic development, require extensive partnerships and that, to achieve its objectives, the Organization itself must focus on efficient management and good governance.

WMO Members are addressing some of the critical problems of the age. The WMO Strategic Plan provides direction for the Organization to achieve its objectives.

I. THE ORGANIZATION OF WMO

The World Meteorological Organization is an intergovernmental organization with a membership of 188 Member States and Territories. It originated from the International Meteorological Organization, which was founded in 1873. Established in 1950, WMO became a specialized agency of the United Nations in 1951. Its mission is to provide world leadership in expertise and international cooperation in weather, climate, hydrology and water resources, and related environmental issues, thereby contributing to the safety and well-being of people throughout the world and to the economic benefit of all nations.

- WMO is the authoritative voice of the United Nations system on the state and behaviour of the Earth's atmosphere, its interaction with the oceans, the climate it produces and the resulting distribution of water resources;
- Cooperative efforts of WMO Members have produced and maintain a global observing system of environmental satellites and complementary Earth-based systems, a global telecommunications system to share critical information quickly and efficiently and a global data-processing and forecasting system for monitoring, assessment and prediction. These collaboratively produced capabilities have allowed nations of the world to exploit scientific advances with a view to improving significantly severe weather warning, forecast accuracy, climate and hydrological assessments over what they were in the 1950s;
- WMO facilitates the free and unrestricted exchange of data and information, products and services in real or near real time on matters relating to the safety and security of society, economic welfare and the protection of the environment. It contributes to policy formulation in these areas at the national and international levels;
- WMO plays a leading role in international efforts to monitor and protect the environment through its Programmes. For instance, in cooperation with United Nations agencies and the National Meteorological and Hydrological Services of its Members, WMO supports the implementation of relevant conventions such as the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification and the Vienna Convention for the Protection of the Ozone Layer and its Protocols and Amendments. WMO is instrumental in providing advice and assessments to governments on matters relating to the above conventions.

According to Article 4 of the WMO Convention, the World Meteorological Organization comprises:

- The World Meteorological Congress, which determines the policy of WMO; every four years the Member countries send representatives to this Congress;
- The Executive Council, which is composed of 37 directors of National Meteorological or Hydrometeorological Services; it is the executive body of the Organization responsible for implementing the decisions of Member countries and meets annually;
- Six regional associations, which allow Members to address their regional concerns;
- Eight technical commissions, which bring together the world's foremost experts in the basic systems for observing, telecommunications and data processing, systems in support of all WMO Programmes, instruments and methods of observation, hydrology, atmospheric sciences, aeronautical and agricultural meteorology, oceanography and marine meteorology and climatology. They provide technical recommendations for the work of Organization and of the National Meteorological and Hydrological Services throughout the world.
- The Secretariat, which coordinates the activities of WMO with a regular staff of some 250 employees headed by the Secretary-General, who is appointed by the World Meteorological Congress.
- The Organization has a President and three Vice-Presidents, who are also President and Vice-Presidents of Congress and of the Executive Council.

Each Member is represented by a Permanent Representative with WMO, who acts on technical matters for that Member between sessions of Congress and who is the normal channel of communication between the Member and the Organization. The Permanent Representative should be the director of the National Meteorological or Hydrometeorological Service. Permanent Representatives are expected to maintain contact with the competent governmental or non-governmental authorities in their respective countries on all matters concerning the Organization's work. This role is becoming increasingly important as WMO Programmes make greater contributions to the integrated approaches to issues relating to the physical environment. Many Permanent Representatives have formally designated hydrological advisers.

WMO's scientific and technical programmes are designed to assist all Members in providing, and benefiting from, a wide range of meteorological and hydrological services and to tackle present and emerging problems. Programmes

are based on the concept and experience showing that mutual benefits are gained from cooperative use of the pool of knowledge and applications that have been, and are still being, generated by the worldwide sharing of meteorological, hydrological and related information among Members. WMO Programmes enable the provision of meteorological and related services in all countries at costs far below those that would be incurred if each Member acted alone.

II. THE WMO STRATEGIC PLANNING PROCESS

Introduction

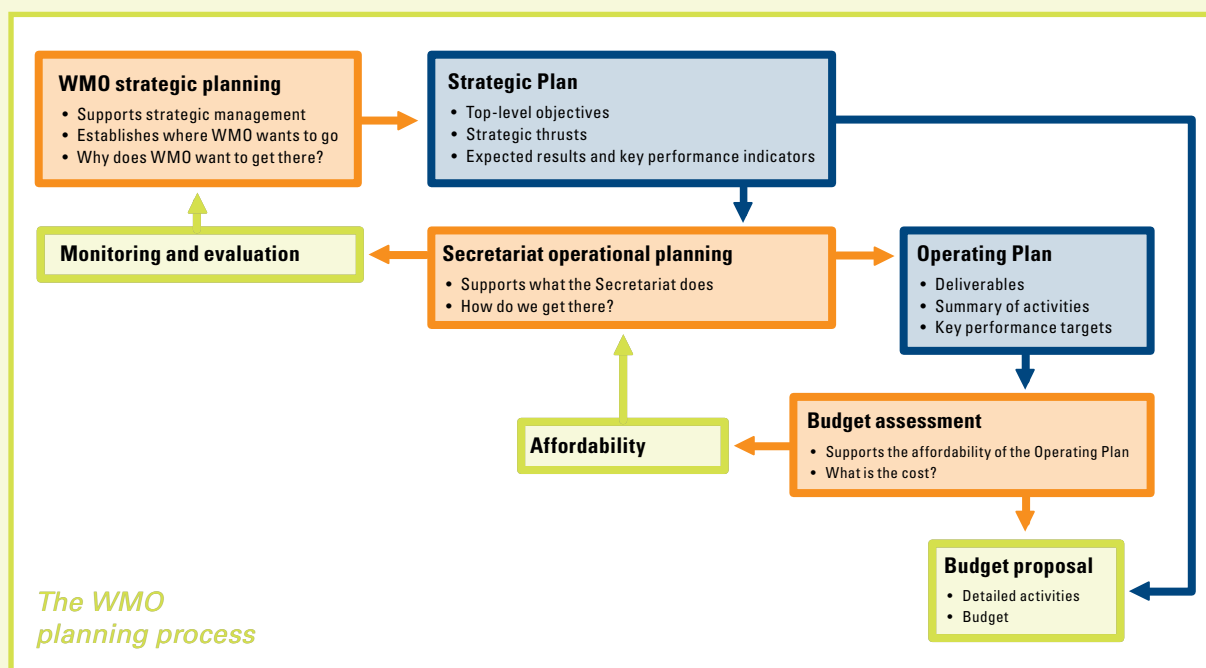
The overall purpose of strategic planning in WMO is to set broad objectives and strategies for the Organization. The resultant ongoing process of planning, implementing, evaluating and updating spans every four-year period.

As stated in Appendix I, WMO is an organization of 188 States and Territories working together to provide critical weather, water and climate information through Members' National Meteorological and Hydrological Services. WMO is composed of a Congress, an Executive Council, six regional associations of Member States and Territories, eight technical commissions and a Secretariat.

The strategic planning process begins with the inclusion of Member input in a draft planning document that is reviewed and approved by the WMO Congress. This serves as a basis for a more detailed Operating Plan. The Operating Plan describes the activities and outputs of the Organization and is used as a basis for results-based budgeting, as appropriate.

The WMO strategic planning process (see figure) results in three fundamental documents:

- **WMO Strategic Plan**, which provides a high-level statement of future directions and priorities of the Organization;



- **WMO Operating Plan**, which converts strategic directions into specific, measurable outcomes;
- **WMO Budget**, which connects outcomes, or end results, to resources.

WMO Strategic Plan

The WMO Strategic Plan is a document that sets a course for the Organization. It is the result of a Member-driven process to identify Organization-wide needs and priorities and establishes the focus for the Organization's four-year financial period. There is one Strategic Plan for the Organization. It is formally reviewed and approved by the WMO Congress one year prior to the beginning of the WMO financial period.

The Strategic Plan, which describes the purpose and direction of the Organization, contains the following items:

- Top-level objectives, high-level imperatives for the Organization;
- Strategic thrusts, the Organization's response to specific needs, including strategic initiatives targeted for action;
- Expected results and key performance indicators, highlighting those end results to be produced during the financial period and the measures of progress towards achieving those results.

Collectively, these elements support strategic management within WMO by establishing the basis for operational planning, as described below.

The Strategic Plan is evaluated periodically by monitoring programme performance during implementation, and the results form the basis for necessary strategy modifications.

WMO Operating Plan

The WMO Operating Plan is designed to turn the top-level objectives and expected results described in the Strategic Plan into specific initiatives and projects, which are needed to achieve the expected results and serve as a foundation for results-based budgeting.

The Secretariat Operating Plan defines specific initiatives and projects in the form of Programme activities and services that must be completed by Secretariat departments and offices to address WMO top-level objectives. It identifies key performance targets for each of the expected results and describes metrics to

be used to assess performance and progress toward achieving the expected results. Specific parts of the Secretariat Operating Plan are as follows:

- Programme activities and services, which provide specific approaches to address the top-level objectives;
- Initiatives and projects, which identify cross-cutting and other mechanisms for achieving the top-level objectives;
- Key performance targets, which establish the goals necessary to assess the progress of the Operating Plan towards achieving the expected results of the performance period;
- Mechanisms for monitoring and evaluating the implementation of the Operating Plan.

WMO Budget

The WMO Budget is a results-based budget in which resource justification is the end product of a process in which the Secretariat, working with regional associations and technical commissions, identifies specific activities and initiatives that need to be completed to achieve the key performance targets identified in the Secretariat Operating Plan and the resources required to meet them. The process consists of a four-year budget proposal prepared by the Secretariat following the financial guidance provided by the WMO Executive Council. The proposal is formally submitted for review and approval to Congress.

The WMO results-based budget determines the affordability of the Organization's programme activities. It is an iterative process that refines WMO's priorities by adjusting the programmes to operate according to predetermined financial guidance, while sustaining the strategic direction established by the Strategic Plan. The end result is a results-based budget for the Secretariat containing the following items:

- A logical framework for informed budgetary decision-making, which provides the objectives, expected results, outputs to be delivered, resources to be used and performance indicators;
- Resource justification by results, which is designed to optimize the use of resources and improve the Secretariat's responsiveness to meet Members' needs;
- Incorporation into the budgetary decision-making process of performance measures gauging progress towards delivery of the key performance targets against resources spent.

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