

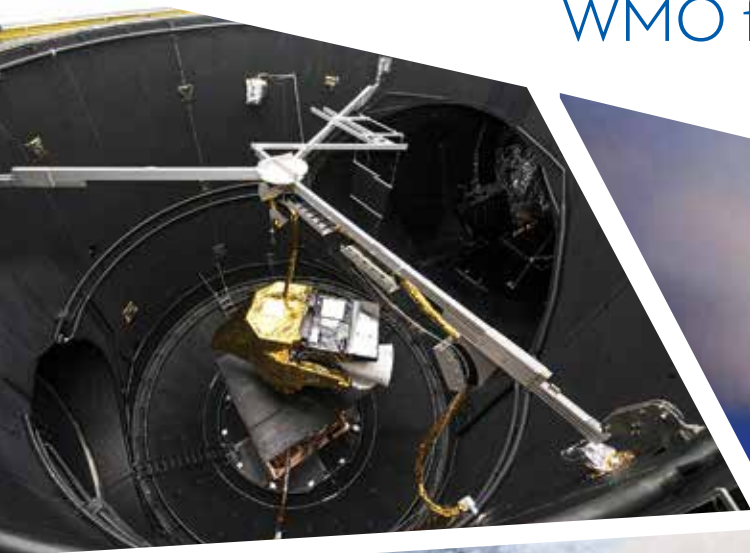


WORLD
METEOROLOGICAL
ORGANIZATION



2018 Annual Report

WMO for the Twenty-first Century



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WMO Secretary-General, Petteri Taalas, and United Nations Secretary-General, António Guterres,

UN Photo/Loey Felipe

A test model of the main imager for Europe's forthcoming Meteosat Third Generation weather satellite,
European Space Agency

Desert rainbow, © William Hanlon

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“A world where all nations, especially the most vulnerable, are more resilient to the socioeconomic impact of extreme weather, climate, water and other environmental events, and are empowered to boost their sustainable development through the best possible weather, climate and water services”
(WMO vision 2030)



This Annual Report does not aim to provide a comprehensive review of all that WMO achieved in the year – such details are available in the official documents posted on the WMO website. Instead, it provides a snapshot of progress on selected activities that have recently made a significant impact on people’s lives and well-being.

FOREWORD

Climate change is clearly visible. In 2018, the Intergovernmental Panel on Climate Change (IPCC) special report, *Global Warming of 1.5 °C*, issued an “ear-splitting wake-up call to the world”; declared the United Nations Secretary-General António Guterres. The report stressed the obvious benefits to human welfare, ecosystems and sustainable economic development of keeping warming to 1.5 °C compared to 2 °C. According to the report, limiting warming to 1.5 °C is technically possible within the laws of physics, but would entail a 45% cut from 2010 levels in global emissions of carbon dioxide by 2030, then further cuts to get down to zero by 2050.

Three consecutive annual World Economic Forum (WEF) Global Risks Reports have highlighted the urgency of addressing weather, climate and water extremes as well as climate change. As an example, Cyclone *Idai* hit Malawi, Mozambique and Zimbabwe in March 2019. The cyclone left more than 1 000 people dead and thousands more missing. In the aftermath, survivors found themselves at increased risk of diseases due to lack of access to safe drinking water and poor sanitary conditions.

However, the persistent effort of WMO has been pivotal in the tenfold reduction in global loss of life due to weather-, climate- and water-related extremes over the past half-century. This was recognized by the LUI Che Woo Prize for Welfare Betterment, which was awarded to WMO in 2018.

But the Organization is not resting on its laurels. WMO is carrying out a historic reform to meet the growing need for its expertise and to serve its Members more effectively. The WMO Executive Council has endorsed a proposal to establish a commission for all Earth system infrastructures – including weather, climate, water, ocean and atmospheric chemistry measurement and operational infrastructures – and a commission for dealing with all Earth system services. The proposal includes the establishment of a Scientific Advisory Panel and a Research Board. The Policy Advisory Committee and the Technical Coordination Committee will carry out preparatory work for the Executive Council and the World Meteorological

Congress. An extraordinary thematic Congress is foreseen two years after every main session of Congress. There is a desire to get a considerably greater number of Members and WMO partner organizations participating in the work of the new constituent bodies.

There is also a desire to engage research and innovation partners, as well as the hydrological community, to become an integral part of WMO, and to benefit from their expertise in science, observations and services. Engagement of the private sector in the core activities of WMO has increased considerably in recent years. WMO is planning to interact with the private sector in a more coordinated way and to benefit from its expertise at global and national levels.

WMO has been paying increasing attention to its efficiency and impact. Demand for our climate, disaster and water expertise has been growing worldwide. WMO has become one of the key climate actors in the United Nations system, cooperating closely with the United Nations Secretary-General and several sister organizations such as the Food and Agriculture Organization of the United Nations (FAO), the World Health Organization (WHO) and the United Nations Framework Convention on Climate Change (UNFCCC). The WMO meetings have become more action oriented, shorter with less, more focused documents.

In these pages, you will learn of WMO efforts in 2018 towards a world where all nations are more resilient to the socioeconomic impact of extreme weather, climate, water and other environmental events, and are empowered to boost their sustainable development through the best possible weather, climate and water services – WMO for the twenty-first Century.



(P. Taalas)
Secretary-General

INTRODUCTION

In mid-March 2019, Tropical Cyclone *Idai* swept through Mozambique, Zimbabwe and Malawi destroying everything on its path, causing devastating floods, killing and injuring thousands of people and ruining crops, in a region already afflicted by drought and poverty. The United Nations Secretary-General, António Guterres, described it as one of the worst weather-related catastrophes in the history of Africa.

Idai is, unfortunately, only the latest in a spate of extreme weather events, such as violent storms, floods, droughts and heatwaves, that have wrought havoc in recent years, with devastating consequences for people's safety, national economies, and food and water security. This pattern is not likely to change in the near future: according to the Intergovernmental Panel on Climate Change (IPCC), the intensity and frequency of these extremes will increase as a consequence of global warming and climate change.¹

WMO, as one of the co-sponsors of IPCC together with the United Nations Environment Programme (UNEP), is constantly called upon to provide more science on climate change and more policies and plans to adapt and mitigate its worst effects.

Integrated weather, climate, hydrological, marine and environmental observations and research are essential for our understanding of the Earth system and our ability to predict its evolution. This constitutes the foundation of the work undertaken by WMO and its Members, and underlies their efforts in addressing challenges to human health, food security, sustainable energy, water supply and the environment.



Youth champions Timoci Naulusala, Fiji, and Hanna Wojdowska, Poland, issuing a "Call to Action" and rapid mobilization of all stakeholders to step up efforts to meet the goals of the Paris Agreement on climate change at the Katowice Climate Change Conference.

© UNFCCC



“I have to say that, as Secretary-General of the United Nations, I am very proud of the work of the World Meteorological Organization. It provides a very solid, scientific base for the analysis that is absolutely essential in relation to how climate change is evolving, and as a clear guide to our actions in the future” (United Nations Secretary-General, António Guterres, at a joint press conference with the United Nations General Assembly President, María Fernanda Espinosa Garcés, and the WMO Secretary-General, Petteri Taalas, on 28 March 2019, at the United Nations headquarters in New York).

¹ Intergovernmental Panel on Climate Change (IPCC), 2018: *Global Warming of 1.5 °C* – An IPCC special report on the impacts of global warming of 1.5 °C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

I. BETTER SERVING SOCIETY

Every year, meteorological, hydrological and climate-related hazards result in disasters that cause significant loss of life and set back economic and social development by years, if not decades.

The United Nations Office for Disaster Risk Reduction (UNDRR)² reported that, between 1998 and 2017, 1.3 million people lost their lives and 4.4 billion people were injured, rendered homeless, displaced or required emergency assistance due to climate-related disasters. At the same time, there was massive economic hardship, with natural disasters accounting for 77% of total global economic losses, or US\$ 2.245 billion.³

According to the Centre for Research on the Epidemiology of Disaster (CRED), in 2018 alone there were 281 reported climate-related and geophysical events with 10 733 deaths and over 60 million people affected across the world.⁴

As climate change increases the intensity and frequency of high-impact weather-related events, it is urgent that global resources and expertise come together to mitigate its effects.

WMO provides relevant, science-based meteorological and hydrological information that individuals and organizations can use to reduce disaster risk both today and for decades to come. The Organization also transforms research results into operational activities and services to meet the needs of society.

Information for decision-making

The WMO Statement on the State of the Global Climate

The *WMO Statement on the State of the Global Climate in 2018* confirms the warming trend observed since the start of this century. Among its key findings are the exceptionally high land and ocean temperatures recorded over the past four years, with 2018 being the fourth warmest on record; the considerable increase in ocean heat content; a record sea-level rise; and well below-average sea ice extent in the Arctic and Antarctic.

The Statement also points out that with an average global temperature close to 1 °C above pre-industrial levels, recorded in 2018, the time remaining to meet commitments under the Paris Agreement is quickly running out.

The WMO climate statement includes input from National Meteorological and Hydrological Services (NMHSs), an extensive community of scientific experts, and United Nations agencies. It details climate-related risks to human health and welfare, migration and displacement, food security, the environment, and ocean- and land-based ecosystems. It also catalogues extreme weather events around the world.

A special report of the Intergovernmental Panel on Climate Change

WMO and the United Nations Environment Programme (UNEP), co-sponsors of the Nobel prize-winning Intergovernmental Panel on Climate Change (IPCC), released a landmark [report](#) in 2018 on the consequences of global warming of 1.5 °C above pre-industrial levels. It states that if the current rate of global greenhouse gas emissions continues, the world will reach 1.5 °C warming by between 2030 and 2052. The widely respected report demonstrates the need for far-reaching and immediate reductions in greenhouse gas emissions.

The IPCC report highlighted a number of impacts that could be limited by lower temperature increases. For instance, less global warming would limit the increase in ocean temperature and acidity and the loss of ocean oxygen, thus reducing risks to marine biodiversity, fisheries and ecosystems. But even with a temperature increase of 1.5 °C, coral reefs are expected to decline by 70%–90%, whereas more than 99% would be lost with 2 °C. Depending on future socioeconomic conditions, limiting global warming to 1.5 °C, compared to 2 °C, might reduce by up to 50% the proportion of the world population exposed to an increase in water scarcity induced by climate change.

² Formerly UNISDR

³ Centre for Research on the Epidemiology of Disaster (CRED) and United Nations Office for Disaster Risk Reduction (UNISDR), 2018: *Economic Losses, Poverty & Disasters, 1998–2017*.

⁴ Centre for Research on the Epidemiology of Disaster (CRED), *2018 Review of Disaster Events*.

The report concludes by exhorting the international community to take unprecedented action to limit warming to below 2 °C, to protect human well-being, ecosystems and sustainable development.

A new study assessing sea-level rise over the past 25 years

[Global sea-level budget 1993–present](#), an extensive study assessing the various datasets used to estimate components of sea-level rise since the start of the altimetry era in 1993, was published in 2018. The study, carried out under the auspices of the World Climate Research Programme’s Grand Challenge on Regional Sea-level Change and Coastal Impacts, found that the altimetry-based global mean sea-level rise averages 3.1 (\pm 0.3) mm per year, with an acceleration of 0.1 mm per year over the 25-year period. It also compares the observed global mean sea level with the sum of its components. Ocean thermal expansion, glaciers, and Greenland and Antarctic ice sheets contribute, respectively, 42%, 21%, 15% and 8% to the global mean sea level over the same period. Substantial uncertainty remains, however, for the land water storage component.

Measuring greenhouse gases

Levels of heat-trapping greenhouse gases in the atmosphere reached another new record high, according to the 2018 [WMO Greenhouse Gas Bulletin](#) – a comprehensive evidence-based report

on atmospheric concentrations of greenhouse gases. The study showed that globally averaged concentrations of carbon dioxide (CO₂) reached 405.5 parts per million (ppm) in 2017, up from 403.3 ppm in 2016 and 400.1 ppm in 2015. Concentrations of methane (CH₄) and nitrous oxide (N₂O) also rose, whilst there was a resurgence of a potent greenhouse gas and ozone depleting substance called CFC-11, which is regulated under an international agreement to protect the ozone layer.

Assessment of ozone depletion and recovery

The 2018 [WMO Reactive Gases Bulletin](#) called for more widespread and systematic surface observations, which are sparse or lacking in many parts of the world. This more complete coverage would enable better scientific assessments of the global distribution and impact of ozone. The Bulletin also called for more urban monitoring of ozone precursors, which is necessary to investigate episodes of high ozone levels and to verify compliance with air quality regulations.

The Bulletin noted that air-quality regulations and anti-pollution measures in Europe and North America have greatly benefited air quality. Since the year 2000, both average and peak surface ozone concentrations have levelled off and even started to fall at some locations after increasing throughout the twentieth century.

By contrast, the few available monitoring stations in East Asia have measured a continuous increase in ozone levels.



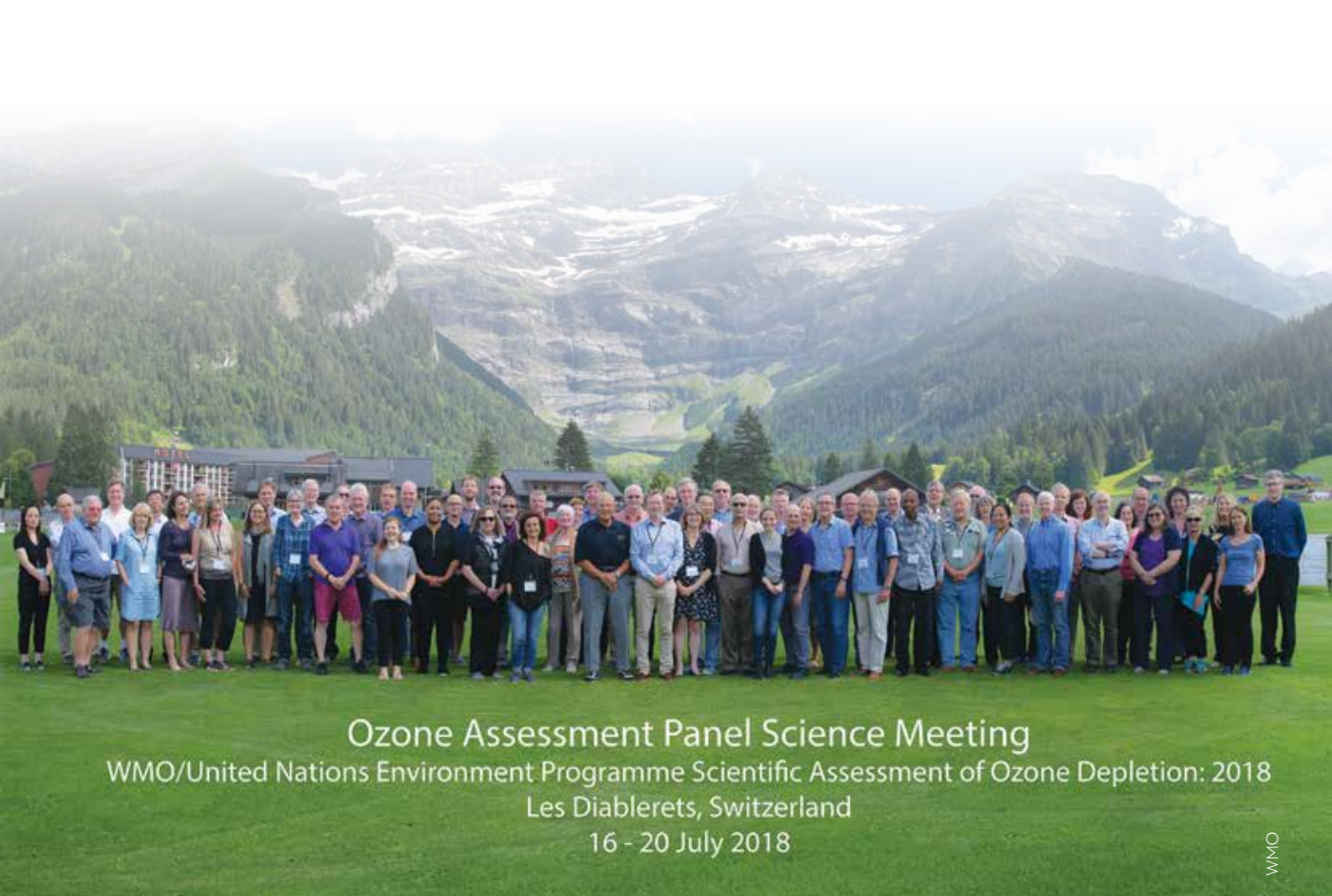
Total ozone measurement with a Brewer spectrophotometer at the Argentinian station of San Martin (68.1° S, 67.1° W)

WMO experts also contributed to the *Scientific Assessment of Ozone Depletion: 2018*, the quadrennial review from the Scientific Assessment Panel of the Montreal Protocol, which was presented at the thirtieth Meeting of the Parties to this historic accord in 2018. The report's findings confirm first and foremost that actions taken under the Montreal Protocol have led to long-term reduction in the atmospheric abundance of controlled ozone-depleting substances and to the ongoing recovery of stratospheric ozone. These findings are in line with those showcased in the WMO Reactive Gases Bulletin.

Evidence presented by the review authors shows that the ozone layer in parts of the stratosphere has recovered at a rate of 1%–3% per decade since 2000. At the projected rates, the northern hemisphere and mid-latitude ozone layer is scheduled to heal completely by the 2030s followed by the southern hemisphere in the 2050s and polar regions by 2060. The ozone layer protects life on Earth from harmful levels of ultraviolet rays from the sun.

REDUCING GREENHOUSE GASES IN LATIN AMERICA

During the Latin American and Caribbean Climate Week, in August 2018, WMO showcased its observation-based tools for identifying sources of greenhouse gases and supporting emission reductions, as well as activities to build resilience to the effects of climate change. WMO also organized a side event on its Integrated Global Greenhouse Gas Information System (IG3IS), which uses cutting-edge science to establish the source of greenhouse gases and inform efforts to reduce emissions. The WMO side event made a strong case for scientific support services for carbon reduction policies both nationally and sub-nationally in the Latin American region.



Ozone Assessment Panel Science Meeting

WMO/United Nations Environment Programme Scientific Assessment of Ozone Depletion: 2018

Les Diablerets, Switzerland

16 - 20 July 2018

WMO

Participants in the Ozone Assessment Panel Science Meeting, July 2018

Operational activities and services to the community

Strengthening multi-hazard early warning systems

National Meteorological and Hydrological Services play a key role in strengthening and maintaining early warning systems (EWS), which are a critical life-saving tool in the event of floods, droughts, storms, bushfires and other hazards. Governments and many non-governmental organizations have a legal and ethical obligation to protect citizens and economies by issuing early warnings. Some risks can be reduced to a tolerable level and preparations can be made to reduce damage. Other hazards cannot be managed, but people can be made aware of their likelihood and the severity of their impact. For most threats, a mix of formal and informal warning systems exists, each often focusing on one hazard or a group of similar or related ones, but they are operated simultaneously by individuals, communities, businesses, governments and international organizations. Collectively, they provide a first defence against a variety of threats. This is why WMO has made strengthening multi-hazard early warning system the first of its long-term goals.

The Climate Risk and Early Warning Systems initiative

Climate Risk and Early Warning Systems (CREWS) is a growing initiative that brings together the World Bank, UNDRR and WMO to partner on projects in least developed countries and small island developing States. The CREWS secretariat is hosted by WMO. Several countries financially contribute to CREWS, and in December 2018 Switzerland joined the initiative.

In 2018, CREWS deepened and broadened its support to country partners to improve their weather forecasting and climate prediction capacities and strengthen institutional collaboration among early warning agencies. Two regional projects were launched to support West Africa and the Caribbean. Through regional and country-driven initiatives, CREWS contributes to the objectives for disaster risk reduction and climate change adaptation of its partner countries. Since its launch in 2015, the initiative has directly invested US\$ 32 million and promoted additional aligned investment of US\$ 118 million in people-centred early warning systems to protect the lives and livelihoods of the most vulnerable.

The principles guiding CREWS include gender-sensitive programming, such as the consultations carried out

with women farmers in Burkina Faso to understand the agrometeorological information they need and how best to deliver it. In response, CREWS delivers, through its seminars and radio announcements and in partnership with agricultural extension workers, specific planting guidance for higher altitude, less fertile plots, often cultivated by women farmers.

A checklist for multi-hazard early warning systems to protect people

Climate change is multiplying the frequency and intensity of high-impact and extreme weather, water and climate events, aggravating existing risks. A multi-hazard approach to early warnings is an essential part of building the resilience of communities and nations to hazards. WMO, together with a wide range of partners of the International Network for Multi-hazard Early Warning System, issued a comprehensive [multi-hazard early warning system checklist](#), as part of an internationally coordinated drive to protect people and property from hazardous events.

The checklist, issued on World Meteorological Day in 2018, is designed as an important, practical tool to boost resilience. It focuses on community-level engagement and education, risk assessment, sound observation, monitoring and forecasting, and effective dissemination of warnings so that preparedness and early action and evacuation, as necessary, take place in a timely manner.

The checklist is intended to serve as a reference in the development of early warning systems. It is a key outcome of the first Multi-hazard Early Warning Conference, which took place in Cancun, Mexico, in May 2017. Feedback on use of this checklist will be discussed at the Second Multi-hazard Early



Storm surge at Cleethorpes, United Kingdom

© Chris Pham



© Aaron Coghill

Wildfire, Linville, Queensland

Warning Conference, which will take place in 2019, hosted by WMO in Geneva.

Following the launch of the checklist, the United Nations and WMO leadership urged countries to incorporate it into national and local strategies for disaster risk reduction, which should be in place by 2020 in accordance with the Sendai Framework for Disaster Risk Reduction 2015–2030.

2018 LUI CHE WOO PRIZE FOR WELFARE BETTERMENT AWARDED TO WMO

WMO was awarded the Lui Che Woo Prize for Welfare Betterment, which in 2018 focused on reduction of the impact of natural disasters.

Founded in 2015, the Lui Che Woo Prize for World Civilisation is intended to recognize and honour individuals or organizations worldwide for their outstanding contribution in three specific areas: sustainable development, improvement of people's welfare, and promotion of positive life attitude and enhancement of positive energy.

WMO AND THE HONG KONG OBSERVATORY EXPAND COOPERATION

In 2018, WMO signed an agreement with the Hong Kong Observatory (HKO) to expand cooperation, in particular, its support to the WMO proposal for a Global Multi-hazard Alert System (GMAS). The Hong Kong Observatory moved rapidly to implement the agreement by revamping the website of the Severe Weather Information Centre and beginning to update that of the World Weather Information Service, both core components of GMAS. This global system is designed to strengthen the capacity to aggregate authoritative meteorological and hydrological warnings from NMHSs and impact-related information at national, regional and global levels. WMO Members, the public, decision-makers, international organizations and humanitarian agencies will be able to consult the colour-coded maps on the GMAS website (with both open and restricted access) that link to the NMHSs and other national alerting authorities responsible for issuing these warnings.

Water for sustainable development

To strengthen its role in water observations, services and related climate science, WMO convened in May 2018 its first ever HydroConference in partnership with a wide range of international organizations. The event was timed to coincide with the start of the International Decade for Action on Water for Sustainable Development, 2018–2028. The conference brought together 215 providers and users of hydrological services from 85 countries to strengthen knowledge sharing and coordination. Delegates agreed that sustainability of water resources and reduction of disaster risk can only be achieved by addressing the full value chain, from data collection to the provision of efficient hydrological services that allow informed decision and policy-making.

In 2018, the WMO leadership was invited to join the High-level Panel on Water. The panel, set up by the United Nations and the World Bank, is made up of 11 heads of state and calls for a fundamental shift in the way the world manages water so that the Sustainable Development Goals (SDGs) can be achieved. *Making Every Drop Count*, a report issued by the High-level Panel on Water on the eve of the HydroConference, calls for urgent action to address water-related disasters, which account for 90% of the 1 000 most severe disasters that have occurred since 1990.

The Executive Council held a special one-day dialogue on water during its 2018 session as part of a concerted drive to strengthen hydrological services, improve forecasting, monitoring and use of water supplies and tackle the problem of too much, too little or too polluted water. The Council agreed to revamp the Organization's strategy on water in order to face up to the unprecedented challenges posed by water stress, floods and droughts and lack of access to clean supplies.

WMO also formally assumed the direction of the World Water Data Initiative and launched the first HydroHub Innovation Call looking for solutions in operational hydrology. The initiative will provide seed funding of CHF 100 000 for sustainable solutions that can be upscaled around the world. The HydroHub Innovation Call addresses difficulties experienced in hydrological monitoring. National Meteorological and Hydrological Services operate observation networks to collect measurements as a basis for forecast and warning services. These networks are expensive and the demand for more cost-effective products is high.

TWENTY-FIFTH ANNIVERSARY OF THE WORLD HYDROLOGICAL CYCLE OBSERVING SYSTEM

The year 2018 marked the twenty-fifth anniversary of the World Hydrological Cycle Observing System (WHYCOS). At its inception, one of the main objectives of WHYCOS was to address the deterioration of hydrological observing networks. After 25 years, WHYCOS has increased the visibility of hydrological issues worldwide. Within WMO, it has contributed to raising awareness of hydrological challenges and of the synergies with other elements of the WMO mandate, in particular weather and climate issues. It has also contributed to improving the perception of WMO as an important actor for water-related issues, from hydrometry to prediction of water-related extreme events, through data management and data exchange.



Nurture nature

Forecasting services for the Arctic

Like nowhere else on our planet, the Arctic is going through unprecedented change and warming at least twice as fast as the rest of the globe. Arctic climate issues and monitoring remained a top priority for WMO in 2018.

The first ever Pan-Arctic Regional Climate Outlook Forum provided predictions for the 2018 summer season as part of an international drive to improve weather, climate and sea-ice forecasts in a region undergoing rapid environmental change. WMO co-sponsored the meeting, which was hosted by Environment and Climate Change Canada in Ottawa and was attended by member countries of the Arctic Council.

Designed as a dialogue, the Forum heard from representatives of indigenous people who have lived in the Arctic for generations. They shared their knowledge about changing conditions, the challenges they face and the type of forecasts and climate services they need.

WMO also took part as an Arctic Council Observer in the Second Arctic Science Ministerial Forum in October 2018. The meeting brought together science ministers, researchers and representatives of international organizations and Arctic indigenous peoples. It builds on the first Arctic Science Ministerial hosted by the White House in 2016, whose main long-term objective was to deepen international collaboration to enable nations to address large-scale research questions and increase the pace of discovery.

National Frameworks for Climate Services

National Frameworks for Climate Services (NFCSs) are institutional mechanisms to coordinate, facilitate and strengthen collaboration among national institutions and United Nations and international agencies, with the aim of improving the co-production, tailoring, delivery and use of science-based climate services.

The *Step-by-step Guidelines for Establishing a National Framework for Climate Services* (WMO-No. 1206) was published in 2018 by the Global Framework for Climate Services Office in all WMO official languages. It is now widely used by WMO Members.

From four initial countries in West Africa – Burkina Faso, Chad, Mali and Senegal – NFCSs have spread to other regions with support from WMO. Countries such

as China, Germany, Switzerland and the United Kingdom have also developed NFCSs.

In 2018, the Economic Community of West African States (ECOWAS) partnered with WMO to support its members in developing NFCSs. Through funds made available by ECOWAS, the Gambia, Guinea-Bissau, Guinea and Togo conducted national consultations and began formulating strategic and costed NFCS action plans.

Cabo Verde and Nigeria also pursued the development of NFCSs. The Government of Côte d'Ivoire was able to source funds from the African Development Bank to support development of national climate services. Similarly, WMO partnered with the Gulf Cooperation Council to support the establishment of NFCSs in Bahrain, United Arab Emirates, Kuwait, Oman, Qatar and Saudi Arabia.

Other key actors, such as the World Bank, are integrating NFCSs into their hydromet investment activities.

International cooperation

A global coalition on health, the environment and climate change

Early in 2018, WMO, UNEP and the World Health Organization (WHO) launched a global coalition on health, the environment and climate change. The goal is to improve health outcomes through better weather, climate, atmospheric and hydrological services and through improved monitoring and management of environmental health risks, such as hazardous air quality. This coalition makes for closer coordination between meteorological services, which observe and predict air quality, and health authorities, which deal with the impact of human exposure to pollutants that cause an estimated 12.6 million premature deaths annually.

A new Collaboration Framework on Climate, Environment and Health was signed in May 2018 by the WMO Secretary-General, Prof. Petteri Taalas, and the WHO Director-General, Dr Tedros Adhanom Ghebreyesus. As detailed in the agreement, WMO will concentrate on strengthening the quality and availability of pollution observations, enabling provision of air quality forecast and advisory services, and incorporating health impacts in key scientific assessments on climate and climate change.

Air pollution shortens the lives of around 7 million people each year, and 9 out of 10 people breathe air polluted by emissions from traffic, industry, agriculture or incineration. To respond to this major health emergency, in 2018 WMO co-organized with WHO the first-ever Global Conference on Air Pollution and Health. This conference was the first action

carried out under the new Collaboration Framework. It aimed to secure commitments from governments, health authorities, international agencies and the scientific community to acting against air pollution. At the conclusion of the conference, all participants pledged to reduce deaths due to air pollution by two thirds by 2030.

AIR POLLUTION – THE SILENT KILLER



Every year, around
7 MILLION DEATHS
are due to exposure from both outdoor and household air pollution.

Air pollution is a major environmental risk to health. By reducing air pollution levels, countries can reduce:



Stroke




Heart disease



Lung cancer, and both chronic and acute respiratory diseases, including asthma

REGIONAL ESTIMATES ACCORDING TO WHO REGIONAL GROUPINGS:



- Over 2 million** in South-East Asia Region
- Over 2 million** in Western Pacific Region
- Nearly 1 million** in Africa Region
- About 500 000** deaths in Eastern Mediterranean Region
- About 500 000** deaths in European Region
- More than 300 000** in the Region of the Americas

CLEAN AIR FOR HEALTH

#AirPollution



World Health Organization

Sharing information with the energy and aviation sectors

Faced with growing worldwide energy demand and a massive transformation in the way energy is supplied, the energy sector is increasingly seeking to harness the weather, sun and wind to also achieve low-emission power. Access to meteorological information is needed in order to predict power generation and maintain capacity to meet demand. Helping the energy sector operate more effectively and efficiently is at the heart of a new agreement.

In 2018, WMO and the World Energy & Meteorology Council (WEMC) signed a memorandum of understanding to make climate and weather information and knowledge more readily available to the energy sector.

The partnership will identify and supply the types and formats of climate information products needed by the energy industry for the planning, design, operation and maintenance of energy systems throughout the world, to cover current and future climate.

The memorandum also formalizes the cooperation of the two organizations in support of SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.

In addition to collaborating with the energy sector, the WMO Commission for Aeronautical Meteorology works closely with WMO Members around the world and the International Civil Aviation Organization (ICAO) to support the aviation industry.

Air traffic has been doubling every 15 years, thus air navigation requirements are constantly evolving. With safety in the skies of paramount importance, the demand for an expanded array of national and regional weather services is rising. The Commission, at its sixteenth session, in July 2018, discussed the current state of the art and foreseen advances in meteorological science and technology to support aviation, and considered how to fast-track these advances into operations.

Furthermore, WMO and ICAO enhanced their ongoing collaboration in order to introduce space weather services in 2018. Over the year, WMO conducted nine site assessments and audits of prospective space weather information providers at the request of ICAO. The prospective providers demonstrated their capacity and capability to fulfil ICAO requirements for a new space weather information service for international civil aviation. Work is now underway amongst the designated providers to make the service operationally available in 2019 to aviation users worldwide.

WMO also entered into a new working arrangement with the International Air Transport Association (IATA) on the operation of the global Aircraft Meteorological Data Relay (AMDAR) system. The AMDAR observing system became operational around 30 years ago and has now grown to involve 40 airlines and over 4 000 aircraft. A critical component of the WMO Global Observing System, AMDAR utilizes sensors, computers and communication systems on board aircraft to collect, process and transmit meteorological data to ground stations via satellite or radio links.

II. BRIDGING THE CAPACITY GAP

The ever-rising number of climate challenges mean robust National Meteorological and Hydrological Services (NMHSs) are critical to protecting lives and livelihoods.

The [2018 IPCC Special Report](#) detailed the serious changes to weather, ocean, land, biodiversity and human welfare that the world can expect if temperatures increase by more than 1.5 °C over pre-industrial levels. National Meteorological and Hydrological Services are on the front line of efforts to monitor, adapt and readapt to climate change.

A core objective of WMO activity is the strengthening of national capacities, especially in developing countries, to track and respond to emerging weather- and climate-related risks. In 2018, WMO spearheaded and partnered in projects in every region of the world in order to achieve this objective.

International collaboration and partnerships

The Global Hydromet Compact

An international conference on the effectiveness and sustainability of investments in weather, climate and hydrological services was hosted at WMO headquarters in March, in coordination with the World Bank and its Global Facility for Disaster Reduction and Recovery (GFDRR). Over 80 representatives from National Meteorological and Hydrological Services, multilateral development banks, and financing and technical institutions attended the event. Together, they looked at ways:

- To address the risks of weather-, climate- and water-related hazards to sustainable development;
- To highlight the opportunities to scale up what works;
- To identify financial mechanisms to support and modernize meteorological and hydrological services.

Participants declared strong support for the establishment of a [Global Hydromet Compact](#) that would provide for sustained and effective investments in hydromet and early warning services. Building on the momentum created by the conference, WMO

and the World Bank signed a landmark agreement to strengthen and streamline their cooperation and undertook, in October, to jointly create an Alliance for Hydromet Development. The agreement outlines the framework for building up Members' capacity to generate and use weather, climate and hydrological information for resilient development. This partnership marks a milestone in the evolving relation between WMO and the World Bank. It forms an integral part of the Strategic Partnership Framework, signed in May by the United Nations and the World Bank.

WMO science, knowledge and expertise in support of development partners

In December 2018, at the Twenty-fourth Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 24), WMO and the Green Climate Fund (GCF) signed a memorandum of understanding to scale up collaboration and leverage WMO expertise in weather, climate and water to increase the effectiveness of GCF funded activities. WMO will thus serve as scientific and technical advisor to the GCF and accredited entities. The first assignment under the memorandum is the provision of WMO advisory services to the GCF to establish the climate science basis of the fund's climate rationale, which will inform all future GCF investment decisions. The climate rationale work started late in 2018 and will continue throughout 2019.

Regional highlights

Investing in Africa

In 2018, WMO stepped up its drive to mobilize political and financial support for hydrometeorological services in Africa in order to boost climate adaptation and sustainable development. A series of meetings and high-level discussions in late September, during the Economic Community of West African States (ECOWAS) Hydromet Forum, focused on challenges and solutions, and initiatives to improve weather forecasts and early warnings. In line with the discussions, the so-called Abidjan Declaration was signed and WMO launched a West Africa regional project funded by the Climate Risk and Early Warning Systems (CREWS) initiative.

The Abidjan Declaration promises big future benefits with better use of satellite technology. Meteosat Third Generation (MTG) satellites, to be launched by the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) in 2021, will afford a significant improvement of space-based monitoring of

weather and climate over Africa for the next two decades. As a result, there is a need to strengthen African capacities at regional and national levels for a smooth transition to the MTG satellites and to provide access to and exploitation of satellite data and products. The Abidjan Declaration – an in-principle agreement among regional and national institutions, WMO and EUMETSAT – outlines the road ahead to deliver on this promise.

The objective of the CREWS West Africa project is to build the capacity of subregional institutions for operational severe weather, flood and climate forecasts in the 17 Member States and in the Permanent Interstate Committee for Drought Control in the Sahel. The project will test and promote innovative tools and solutions for agrometeorology, food security and civil protection, both for slow-onset hazards, such as drought, and for rapid-onset hazards such as floods. It will also facilitate exchange of knowledge and best practices among West African and Sahel countries by establishing a community of practice among those engaged or about to engage in large investments for early warning systems (Burkina Faso, Chad, Côte d'Ivoire, Mali, Niger and Togo).



Community flood mapping in Kinshasa, Democratic Republic of the Congo

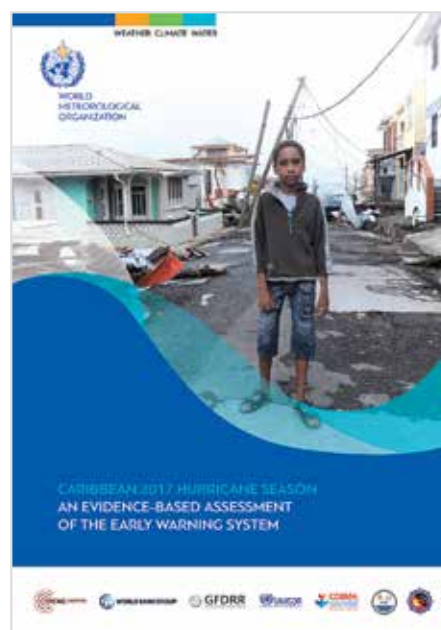
Below are a few additional examples of activities carried out by WMO in Africa in 2018:

- The three-year HighWAY project, launched in 2017 in the Lake Victoria Basin to improve regional early warning systems, continued to engage with users in order to understand and meet their specific needs.
- CREWS launched a project in Mali to strengthen multi-hazard early warning systems and to boost resilience.
- The WMO Volta Basin project to strengthen flood and drought management received a major grant from the [Adaptation Fund](#) in October. The project will endow NMHSs and other relevant authorities of Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali and Togo with robust and innovative solutions for disaster risk reduction and climate adaptation. The project includes capacity development for green solutions and gender sensitive participatory approaches.
- The [Agricultural Climate Resilience Enhancement Initiative](#) was launched in September. The project is funded by the Adaptation Fund and implemented by WMO in partnership with the Food and Agriculture Organization of the United Nations (FAO) and the Intergovernmental Authority on Development (IGAD). The initiative aims to buttress the capacity of smallholder farmers in Ethiopia, Kenya and Uganda to adapt and build resilience to weather variability and climate change. The three-year project will ultimately improve food security and nutrition in the Horn of Africa, both regionally and locally.
- WMO supported the drafting of development plans for the NMHSs of Cabo Verde, Liberia, Sierra Leone, Mauritania and Zambia.

Targeting early warning in the Americas

Forecasting dengue outbreaks in the Caribbean

The WMO Programme for Building Regional Climate Capacity in the Caribbean, funded by the United States Agency for International Development (USAID) and led by the Caribbean Institute of Meteorology and Hydrology, reported in 2018 that the region now had access to several early warning products to safeguard human health. These include a novel modelling framework to forecast the risk of dengue outbreaks using climate information. The model, which was initially



developed for Barbados, can be put into operation and extended to other countries in the Caribbean. This has put the Caribbean firmly on track to develop a climate-based early warning system for dengue and other mosquito-borne diseases in the region. The next phase of the Programme will focus on putting initial investments in health and climate research into practice.

Strengthening hydrometeorological and early warning services in the Caribbean

WMO in collaboration with CREWS published [Caribbean 2017 Hurricane Season – An Evidence-based Assessment of the Early Warning System](#). The study assesses the performance of the end-to-end early warning system, including its forecasting accuracy, the dissemination and uptake of warnings, and the gender aspects of early warning in the Caribbean. Building on this assessment and on previous initiatives in the region, a new project was launched in November 2018: Strengthening Hydrometeorological and Early Warning Services in the Caribbean. The project, which is supported by WMO, the World Bank and the United Nations Office for Disaster Risk Reduction (UNDRR), is designed to develop a regional strategy for early warning services in the Caribbean, to strengthen the capacities for hydrometeorological and early warning services, and to implement pilot activities under the regional strategy.

Weather-ready nations

The International Affairs Office of the United States National Weather Service, the USAID Office of U.S. Foreign Disaster Assistance, the University Corporation for Atmospheric Research and the Hydrologic Research Center are working with various NMHSs and national disaster management agencies to assist Members in the transition from focusing only on the accuracy of hazard-based forecasting to also outlining the potential impact of a forecast. In 2018, the weather-ready nation approach entered its implementation phase in Barbados, Costa Rica, El Salvador and Guatemala. Its goals include production of local-scale, relevant, impact-based forecasts that can be made into accurate, timely and easily understandable weather, water and climate information, which, in turn, can be easily integrated into decision-making processes.

Supporting climate services in the Andes

The second phase of Climate Services for Decision-making in the Andes (the Climandes project) came to an end in late 2018. The twinning project involving the Peruvian National Meteorological and Hydrological Service and MeteoSwiss, funded by the Swiss Agency for Development and Cooperation, has significantly increased Peruvian capacity to develop climate services for agriculture. Climandes has clearly demonstrated the socioeconomic benefits of climate services. On the basis of a very positive external evaluation of the project, WMO in collaboration with MeteoSwiss is now developing a new regional project that will upscale the benefits of Climandes.



Marlene Dapozzo Moali/WMO

Knowledge sharing: Mauro Zamalloa and Fortunato Puma, Yachachiqs from Cusco, with Tania Ita and Kris Correa, meteorologists (Climandes project)

Stepping up action in Asia and the Pacific

In September 2018, the new WMO Regional Office for Asia and the South-West Pacific started operations in Singapore. It seeks to improve coordination on hazards, including extreme weather and air pollution, and to strengthen meteorological services for rapidly evolving economic sectors such as air and sea transport.

The move is part of a wider WMO strategy to strengthen its regional presence, reinforcing regional cooperation and coordination to enhance resilience and adaptation to climate change. The regional offices aim to improve services to Members in their region and to deepen relationships with development partners. The existing WMO Offices for West Asia (Bahrain) and South-West Pacific (Samoa) will report to the team in Singapore.

The Central Asia Hydrometeorology Modernization Project

WMO continued to support the World Bank's [Central Asia Hydrometeorology Modernization Project](#), which has already invested US\$ 28 million into modernizing monitoring networks, improving forecasting facilities and skills, and enabling regional information sharing. The project has provided cutting-edge technical equipment – such as modern workstations, automated observation networks, access to satellite data, and numerical weather prediction tools – coupled with specialized training for participating agencies, delivered by multiple partners including GFDRR and WMO.

Meteorological support to the Belt and Road Initiative

WMO and the China Meteorological Administration set up a trust fund in 2018 to support regional cooperation on the Belt and Road Initiative. The trust fund will facilitate implementation of an agreement signed in 2017 to promote meteorological support for the Belt and Road Initiative. This includes work in disaster risk reduction and upgrading of regional disaster monitoring, forecasting and early warning capabilities, climate services, integrated observations, research and capacity development.

Support to farmers and agribusiness in South-East Asia

Researchers from the University of Southern Queensland, in Australia, began working with WMO and the International Center for Tropical Agriculture, in Viet Nam, on a project to protect farmers and agribusiness in South-East Asia from disasters associated with climate change and variability. The US\$ 12 million project, funded by the German Government's International Climate Initiative (IKI), encompasses seasonal climate forecasting and innovative insurance solutions to manage short- and longer-term climate risk. The four-year international aid project will assist governments in developing national and regional adaptation and risk management strategies in Cambodia, the Lao People's Democratic Republic, Myanmar and Viet Nam.

Strengthening hydrometeorological and early warning services in the Pacific

The main objectives of this project, led by CREWS, are to strengthen the ability of the Nadi Regional Specialized Meteorological Centre, in Fiji, to support other Pacific islands, and to enhance the capacity of the national hydrometeorological agencies of the Pacific Island Countries and Territories to provide impact-based forecasts of extreme weather events.

In 2018, the project focused on development of human resources, technology and institutional arrangements to support early warning, including a community-based early warning system for severe and high-impact hydrometeorological events.

Weather and climate early warning system in Papua New Guinea

In Papua New Guinea, CREWS seeks to improve drought monitoring and early warning in support of better decision-making in agriculture, disaster management, infrastructure and energy. In November, WMO and Papua New Guinea signed a letter of agreement to implement this project.

Developing climate information services in Vanuatu

This project, led by the Secretariat of the Pacific Regional Environment Programme, seeks to increase the ability of decision-makers, communities and individuals to prepare for and respond to the impact of climate change. It aims to enhance resilience to climate change through the collection and dissemination of tailored climate information and services, focusing on agriculture, water, tourism, infrastructure and fisheries.

Climate and Oceans Support Program in the Pacific

This programme, funded by the Australian Government, provides foundational climate information services to Pacific Islands to help them respond to climate change and climate-related disasters. The second phase of the programme, which began in July 2018, will focus on Pacific sea-level and geodetic monitoring, climate data for the environment, seasonal prediction, and coordination and communication.

Further examples of capacity-development activities in Asia and the Pacific in 2018:

- WMO, UN Environment, the United Nations Economic and Social Commission for Western Asia (UNESCWA) and the League of Arab States conducted a training workshop on sand and dust storms (SDS) in February, in collaboration with the WMO SDS regional centre in Barcelona (Spain).
- The Severe Weather Forecasting Demonstration Project (SWFDP) Regional Subproject in South-East Asia organized a two-week workshop in Hanoi to improve the analytical skills of forecasters.
- WMO organized a train-the-trainer Flash Flood Guidance System workshop in June, in New Delhi, to evaluate the competency of forecasters as future trainers.
- The Regional Subproject Management Team of the Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project (SWFDDP) in the South Pacific met in July to consider actions to ensure transition to Phase IV.

COASTAL FLOODING FORECASTING STRENGTHENED IN INDONESIA

The Indonesian Meteorological, Climatological and Geophysical Agency is making progress in integrating coastal flood forecasting into its meteorological early warning system. The Indonesian Coastal Inundation Forecasting Demonstration Project has successfully built a flood forecasting and warning capability for Jakarta and Semarang City, which face critical and ongoing flooding.

The five-year demonstration phase will now develop into the Indonesian Coastal Inundation Forecasting System, which is expected to be operational in 2019. It is hoped that communication of early warnings to the end user will be improved and that the forecasting system will be extended beyond Jakarta and Semarang City. Consideration will also be given to integrating this system with a tsunami warning capability, thus enabling a full end-to-end coastal inundation multi-hazard early warning system.

Indonesia has just over 99 000 km of coastline: the third longest in the world. Sitting amongst three tectonically active plates and within the Pacific Ring of Fire, Indonesia faces many natural hazards, with devastating impacts. Coastal flooding is a major risk, as a result of extreme weather and high tides, and earthquakes trigger tsunamis, as was highlighted yet again in 2018 with tragic results.

The Coastal Inundation Forecasting Demonstration Project has proved unique in bringing together stakeholders across a wide range of Indonesian government agencies and non-governmental organizations, as well as the hydrological and oceanographic communities. It demonstrated how the forecasting and warning system can provide significant benefits to coastal populations in Jakarta and Semarang City and support the Sendai Framework on disaster risk reduction.

“This project is an excellent example of forecast providers working closely with the end user community from the outset, and with the international experts, to jointly develop the forecast system. This has created a true sense of ownership of the project by Indonesia and supports sustainability and further enhancement of the Coastal Inundation Forecasting system,” said Val Swail, Co-Chair of the project Steering Group.



Satellite photo of Semarang, a port city on the north coast of Java, Indonesia, showing areas prone to coastal flooding (Copernicus Sentinel data (2018), processed by the European Space Agency)

AFGHANISTAN HAILS NEW, IMPROVED HYDROMETEOROLOGICAL SERVICE

The WMO-led project to establish a functioning hydrometeorological service in Afghanistan with better early warnings and accessible and accurate weather forecasts has “achieved more than anyone could imagine”, according to Mahmood Shah Habibi, the Head of the Afghanistan Civil Aviation Authority and Permanent Representative with WMO.

Mr Habibi stressed that Afghanistan is highly vulnerable to weather- and water-related hazards, with an average of 1 000 people losing their lives every year and more than 200 000 losing livelihoods.

“Climate change is increasing the frequency of flash floods, floods and landslides. The severity of drought is becoming more and more life-threatening, and the weather extremes are getting more dangerous every year”, Mr Habibi told a South Asia Hydromet Forum (18–20 September 2018) co-hosted by the World Bank and WMO.

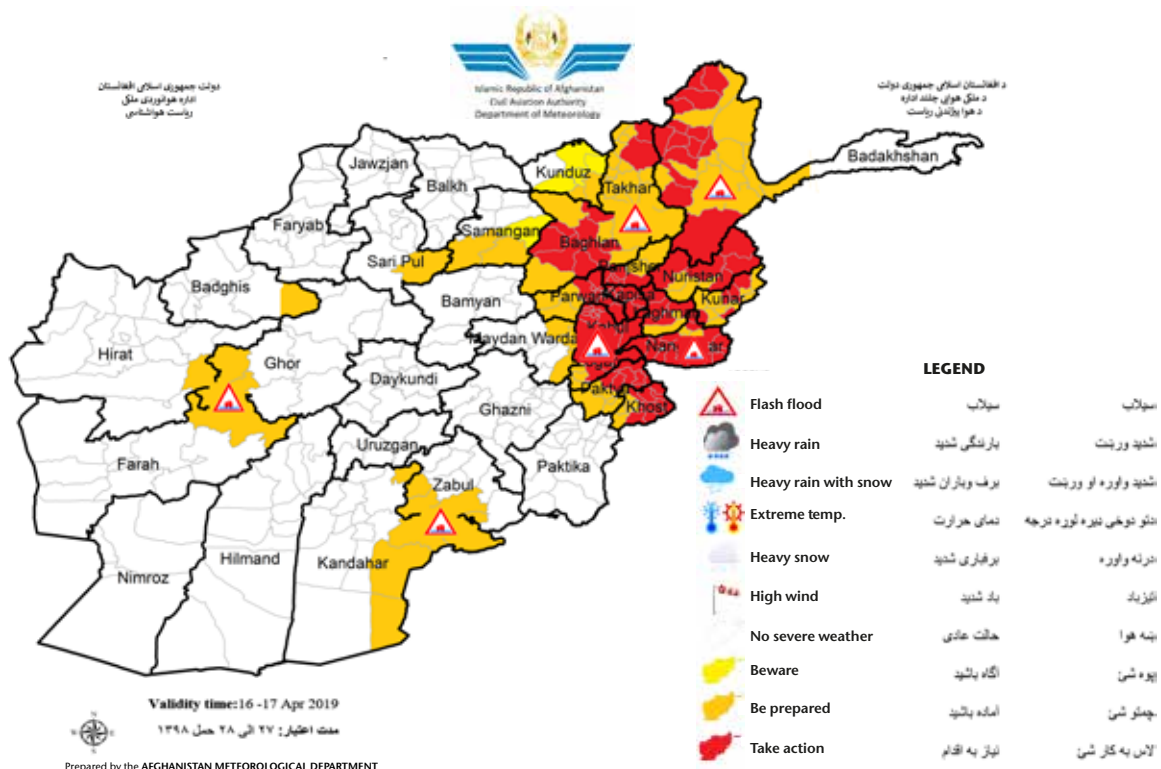
“Years of war hampered our development and took so many opportunities from our hands; we lost our communication to the meteorological and hydrological community, and we were not able to warn our people and take actions on time to save lives and livelihoods”, Mr Habibi recalled.

However, three years ago, WMO initiated a programme, funded by USAID and supported by the Turkish State Meteorological Service, to establish a functioning hydrometeorological service under the Afghanistan Meteorological Department for the provision of end-to-end early warnings.

Afghanistan now has an automated observation network, and weather information is accessible for Afghan people and the world. The meteorological department produces weather forecasts and provides early warnings for Afghan people through web portals, mass media, social media, radio and television.

A twinning agreement with the Turkish meteorological service has trained skilful staff to provide essential services and maintain operations and equipment to sustain this momentum. There has been a focus on gender balance and training women. A newly implemented Flash Flood Guidance System has increased capabilities for the early warnings of flash floods and heavy precipitation.

As a continuation of these efforts, the World Bank is creating a hydromet modernization roadmap together with WMO and the Afghanistan National Hydrological and Meteorological Services. This roadmap will design the future of weather, water and climate services in the country, and Afghanistan has asked WMO to implement this roadmap.



Warning map issued by the Afghanistan Meteorological Department in English, Dari and Pashto

Sharing information and resources across south-eastern Europe

A massive storm system brought historic flooding across south-eastern Europe in 2014, causing more than US\$ 2 billion in damages in Bosnia and Herzegovina and shrinking Serbia's economy by nearly 1%. Two years later, in August 2016, thunderstorms in the Former Yugoslav Republic of Macedonia dropped 93 litres of precipitation per square metre in just a few hours, sparking flash floods in the capital, Skopje, that killed at least 21 people.

Governments in the region are now working together to improve information exchanges across boundaries and strengthen regional early warning systems through the South-East European Multi-hazard Early Warning Advisory System. The region-wide system was set up in 2016 under the auspices of WMO, with support from USAID. The second phase of the project, supported by the World Bank through the GFDRR, began in February 2018 and focuses on development of a pilot operational hydrological modelling system for the region.

Developing and maintaining core competencies and expertise

Professional excellence improves service

In 2018, WMO education and training initiatives continued to ensure that the current and next generation have the knowledge and skills to meet existing and emerging challenges in meteorology, hydrology and climatology as well as in management and leadership. WMO set training standards, provided learning opportunities and monitored course effectiveness to ensure the highest level of professional learning.

WMO launched a global review of the Basic Instruction Package for Meteorologists and Meteorological Technicians as part of an ongoing effort to maintain quality and training standards. In addition, 40 WMO Regional Training Centres (RTC) and other training partners' continuing professional education courses benefited from WMO input.

WMO coordinated development of competency frameworks for forecasters, aeronautical meteorological personnel, WMO Information System users, marine meteorological personnel and climate service personnel.

Evaluations of RTCs were carried out in Egypt, Madagascar and the Philippines. The review covered the quality of training based on established criteria, course impact, the number of participants and training courses offered during the year.

Leadership and management development

WMO, in collaboration with the Meteorological Service of Singapore, organized an intensive five-day Leadership and Management Programme in September. Twenty senior managers from Asia and the South Pacific took part. The programme reviewed leadership functions including policy planning, economics, performance management and communications.

In 2018, WMO continued to strengthen the management capacity of newly-appointed Permanent Representatives by running familiarization programmes for managers from Burundi, Iraq, Mozambique, Nigeria, North Macedonia and Tunisia.

Fellowships awarded in 2018

WMO awarded education and training fellowships to 53 new fellows from 37 developing countries; 69 fellows completed their training.

Training delivery in brief

In 2018, 122 participants from 67 countries received financial support to attend 29 courses organized in six WMO Regions by RTCs and other partners. Thirty-six of the participants were women.

Regional Training Centres provided 266 short-term, 149 long-term, and 124 distance learning courses to 3 480 international participants, 1 344 of whom were women.

Fourteen experts from 11 Latin American countries took part in an online professional training course jointly organized by WMO and the Spanish Meteorological Agency (AEMET). The course was based on the WMO Basic Instruction Package for Meteorologists.

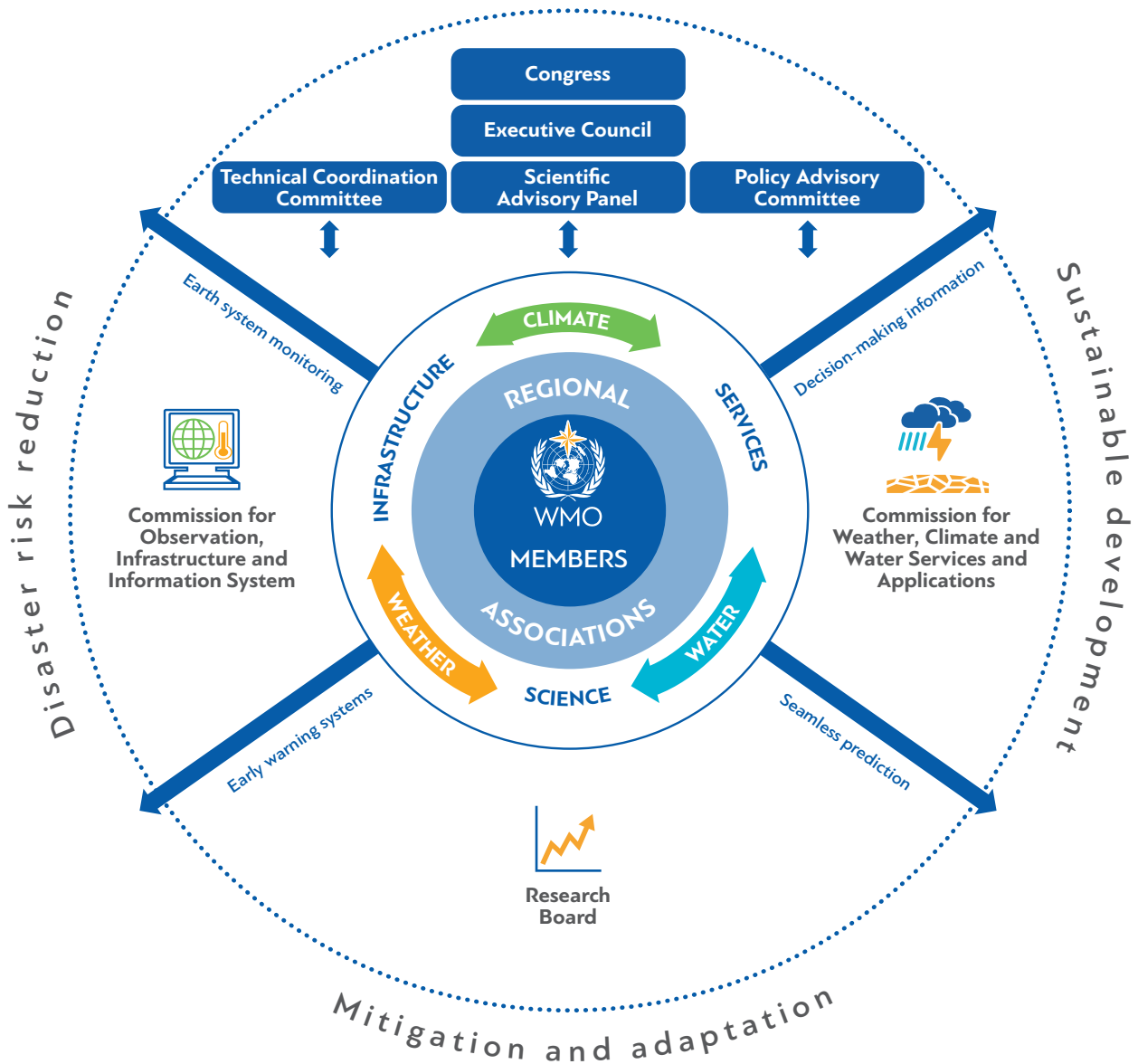
Sixty-five national instructors from 15 Member countries followed the WMO online train-the-trainer professional courses – 10 of the 19 facilitators were former course participants.

III. WMO GOVERNANCE, BUDGET AND STAFFING

WMO governance

Since the last session of the World Meteorological Congress (Cg-17) in 2015, the WMO Executive Council has been developing the new governance structure, which follows weather, climate and water processes from data acquisition and processing to forecasting and prediction, and services to Members, without omitting the key role of research in all of these. The objective was to increase effectiveness and efficiency, as well as to better engage Members and experts, throughout.

In 2018, the WMO Constituent Body Reform took a big step in that direction when the Executive Council, at its seventieth session, created two new bodies and made recommendations for the adoption of a new governance structure at the World Meteorological Congress (Cg-18) in June 2019. We encourage readers to visit the [WMO governance reform](#) page to learn more.



Proposed WMO governance structure

Budget, staffing and structure

WMO regular budget for the year 2018 by expected results (in Swiss francs)

Expected result	Total
1. Improved service quality and service delivery	7 596 000
2. Reduced disaster risk	2 455 800
3. Improved data processing, modelling and forecasting	6 716 200
4. Improved observations and data exchange	11 043 100
5. Advance targeted research	5 566 100
6. Strengthened capacity development	11 130 100
7. Strengthened partnerships	4 289 400
8. Improved efficiency and effectiveness	17 200 100
Total regular budget 2018	65 996 700
(Cost of administration apportioned by expected result: 12 378 100)	

Note: These eight expected results are set out in the *WMO Strategic Plan 2016–2019* (WMO-No. 1161), approved by the Seventeenth World Meteorological Congress in May 2015. The Plan also defines seven strategic priorities: disaster risk reduction, the Global Framework for Climate Services, the WMO Integrated Global Observing System, aviation meteorological services, polar and high-mountain regions, capacity development, and improved WMO governance.

The enhanced implementation of WMO expected results and strategic priorities is made possible by additional support in the form of in-kind and voluntary contributions from Members and partners.

Secretariat staffing table (as of 31 December 2018)

Total	Male	Female	
3	2	1	Executive management
189	115	74	Professional category staff and above
96	23	73	General service category staff
288	140	148	Total

Gender balance

Implemented from 2012 to 2017, the first phase of United Nations System-wide Action Plan (UN-SWAP) on Gender Equality and the Empowerment of Women (GEEW) covered 66 United Nations entities (94%) and reported on progress annually. The framework uses a five-point rating scale ranging from “not applicable” to

“exceeds requirements” for every performance indicator. This allows progress to be defined uniformly, measured progressively, and articulated in an aspirational manner.

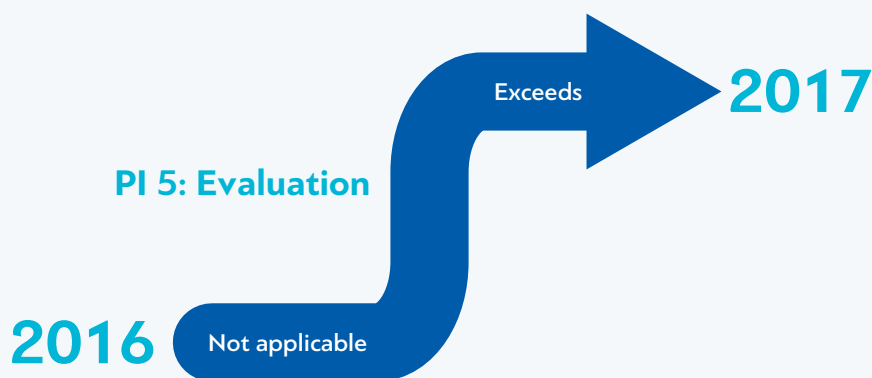
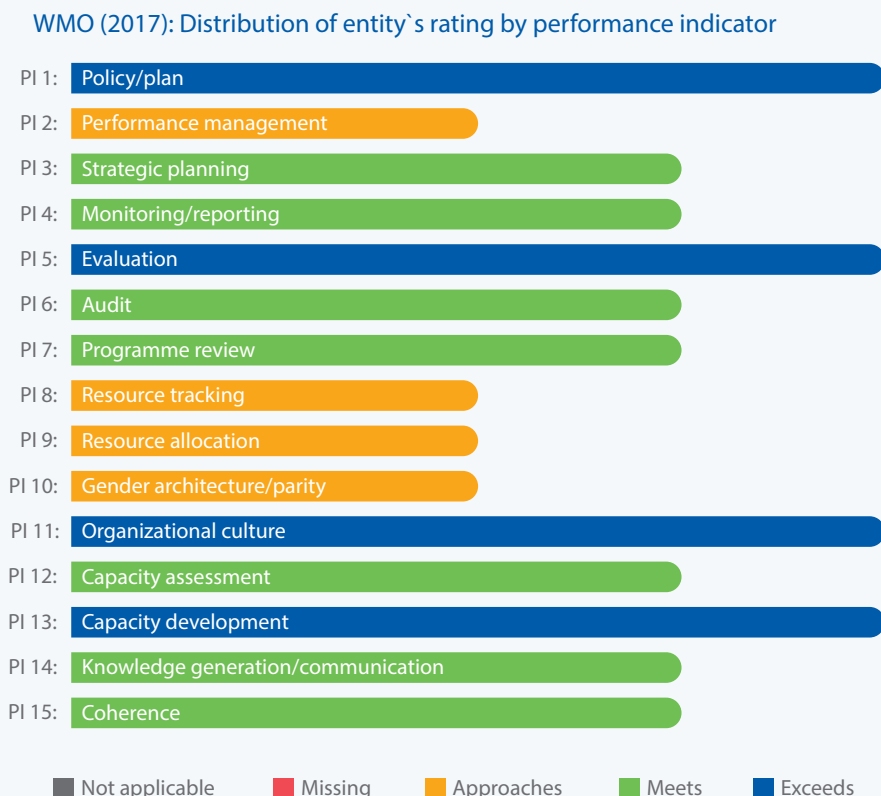
WMO received the latest UN-SWAP report in November 2018, and it is inspiring:

Results of WMO UN-SWAP reporting: 2016–2017

Overview

- Between 2016 and 2017, WMO maintained its overall strong performance and slightly increased the number of indicators rated as “meeting” and “exceeding” requirements, from 10 indicators in 2016 to 11 in 2017.
- The **Evaluation** indicator increased from “not applicable” to “exceeds” requirement.
- WMO maintained its excellent performance in the areas of **Policy/plan**, **Organizational culture**, and **capacity development**.

Ratings by performance indicator (2017)



Gain in performance

WMO’s increased performance in the area of **Evaluation**, moving from “not applicable” to “exceeds” requirements.

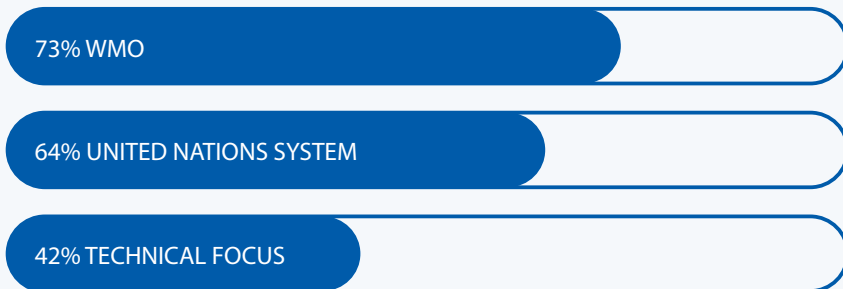
WMO slightly increased the number of indicators rated at “meets” and “exceeds” requirements, from 10 indicators in 2016 to 11 in 2017.

Progress in key areas

<p>UN Women congratulates WMO for the institutionalization of the Gender Champion of the Year Award to recognize staff who have made a significant contribution to advancing GEEW.</p>	<p>UN Women is pleased to acknowledge WMO’s priority towards addressing unconscious biases as a key influencer of organizational culture.</p>	<p>UN Women commends WMO for improving oversight for the attainment of gender-related mandates by fully integrating gender considerations into all phases of the Disaster Risk Programme Evaluation in 2017.</p>
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Source: UN Women

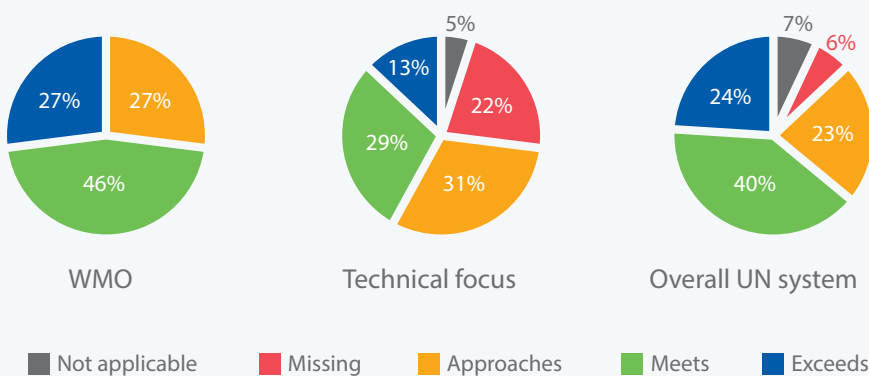
Comparative analysis (by entity type and year)



Aggregate performance in meets/exceeds ratings (2017)

- Commendably, WMO meets or exceeds 73% of indicators, compared to 42% and 64% reported by technical entities and the overall United Nations system.
- WMO has made significant progress in reducing the percentage of indicators rated as “missing” requirements from 53% in 2012 to 0% in 2017. Comparatively, technical entities as a whole were missing requirements for 22% of indicators in 2017.

WMO (2017): Comparative analysis



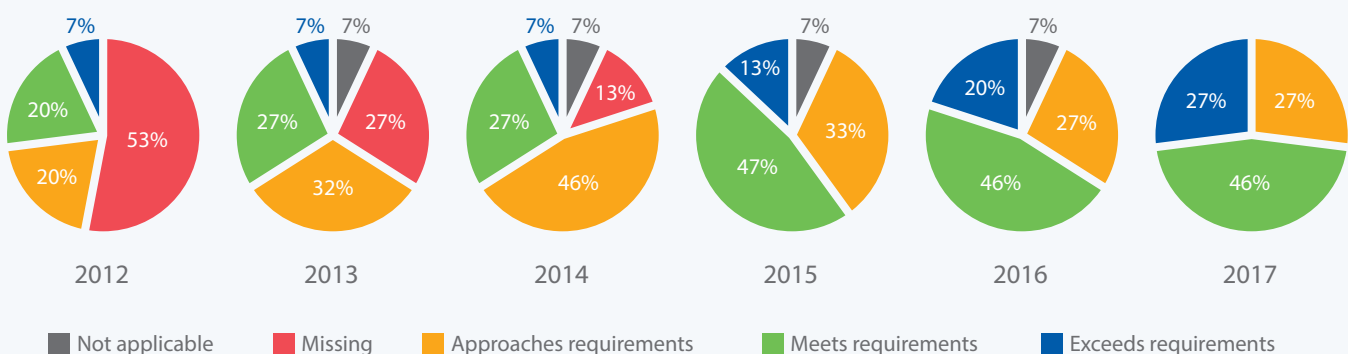
Ratings for all performance indicators: 2012–2017

WMO went from “meeting” or “exceeding” 27% of all indicators in 2012 to 73% in 2017, a significant increase of 46 percentage points.



WMO: Comparative analysis of ratings by year

Percentage of total ratings



WMO STRATEGIC PLAN 2020–2030

VISION 2030

A world where **all nations**, especially the **most vulnerable**, are **more resilient** to the **socioeconomic impact** of **extreme weather, climate, water** and other **environmental events**, and are **empowered** to boost their **sustainable development** through the **best possible weather, climate and water services**

OVERARCHING PRIORITIES

Preparedness for, and reducing losses from hydrometeorological extremes

Climate-smart decision-making to build resilience and adaptation to climate risk

Socioeconomic value of weather, climate, hydrological and related environmental services

CORE VALUES

Accountability for results and **Transparency**

Collaboration and **Partnership**

Inclusiveness and **Diversity**

LONG-TERM GOALS

1 Services
Better serve societal needs

2 Systems
Enhance Earth system observations and predictions

3 Science
Advance targeted research

4 Support to Members
Close the capacity gap

5 Smart Organization
Strategic realignment of structure and programmes

STRATEGIC OBJECTIVES

FOCUSED ON 2020–2023

- Strengthen **national multi-hazard early warning/alert systems**
- Broaden provision of **policy- and decision-supporting climate, water and weather services**

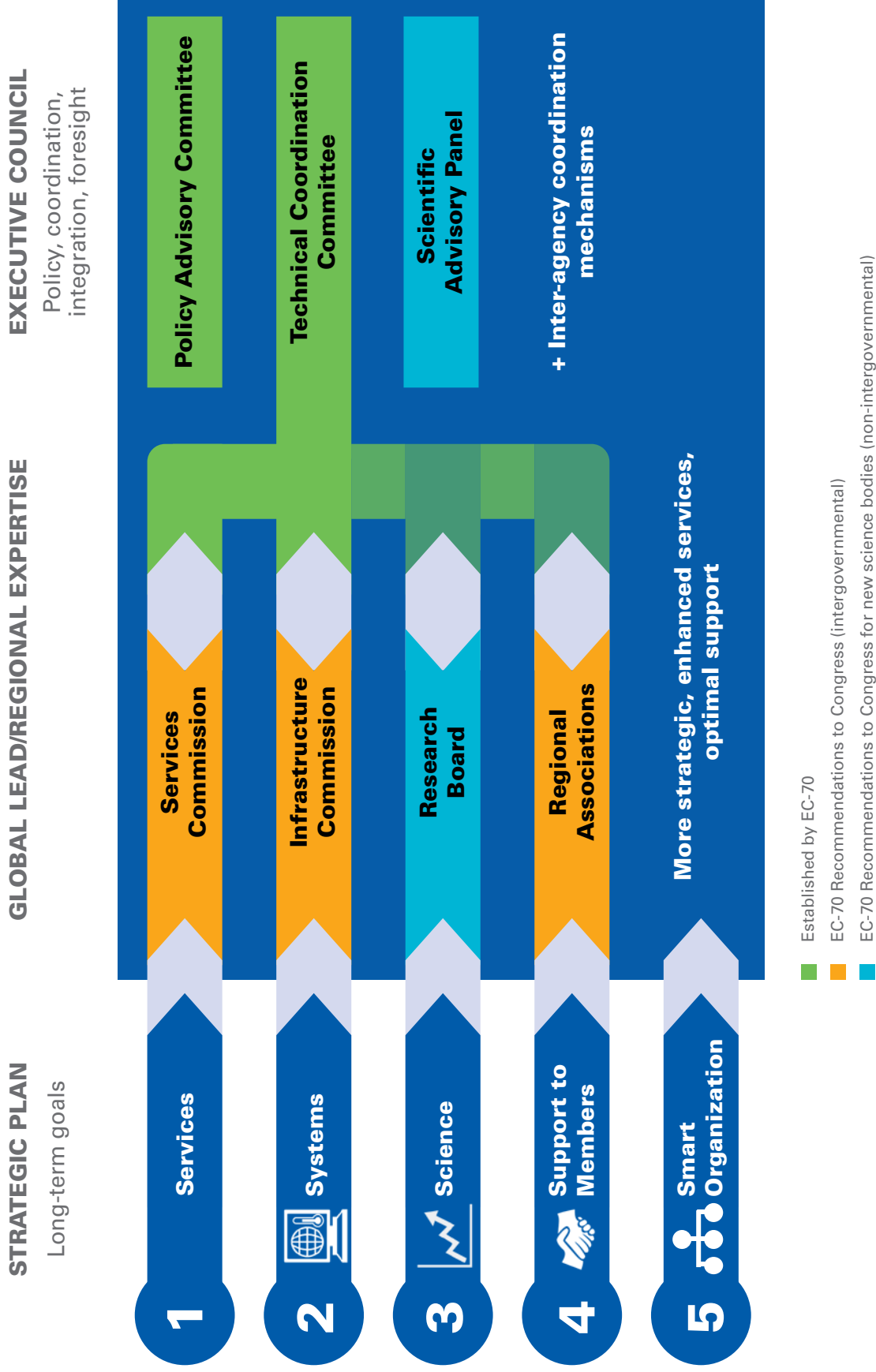
- Optimize **observation data acquisition**
- Improve access to, exchange and management of **Earth system observation data and products**
- Enable access and use of **numerical analysis and prediction products**

- Advance **scientific knowledge of the Earth system**
- Enhance **science-for-service value chain** to improve predictive capabilities
- Advance **policy-relevant science**

- Enable developing countries to **provide and utilize essential weather, climate, hydrological and related environmental services**
- Develop and sustain **core competencies and expertise**
- Scale up **partnerships**

- Optimize **WMO constituent body structure**
- Streamline **WMO programmes**
- Advance **equal, effective and inclusive participation**

ALIGNMENT OF WMO STRUCTURE



The WMO Constituent Body Reform aims to deliver a smart Organization with governance and working structures that align with the WMO Strategic Plan 2020–2050

For more information, please contact:

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