C A R I B B E A N

M E T E O R O L O G I C A L

O R G A N I Z A T I O N

**CARIBBEAN METEOROLOGICAL COUNCIL** **Doc.7**

FIFTY-EIGHTH SESSION

Basseterre, ST. KITTS AND NEVIS, 15-16 NOVEMBER 2018

# CMO STRATEGIC PLAN 2020-2023

(Submitted by the Coordinating Director)

## INTRODUCTION

1. Council will recall that, at its 54th session (Jamaica, November 2014), it requested the CMO Headquarters to develop a regional strategic plan for the meteorological community that would be linked to the Caribbean Community Strategic Implementation Plan. The CMO Headquarters developed and presented to Council its **“Operational Programme 2015-2019 - For the Enhancement of Meteorological and Hydrometeorological Services in CMO Member States”.** This plan was linked to the Caribbean Community Five-Year Strategic Plan for 2015-2019 “Repositioning CARICOM".

2. The Caribbean Community is at present developing its Strategic Plan 2020, thereafter creating its Operational Plan for the same period. The CMO Headquarters and the CIMH have been contributing to an agreed Framework and Implementation Plan to accompany the Strategic Plan, which includes an attempt to link internal Strategic Plans and/or Work Programmes with Community Strategic Implementation Plan. The CMO Headquarters and the CIMH have been contributing primarily to the goal of“ *Building Environmental Resilience*”. In furtherance of this work, the CMO Headquarters has prepared the Draft CMO Strategic Plan for the period 2020-2023. The plan, which follows the CARICOM Results-based Management System, is produced in the **ANNEX** to this document.

## ACTION PROPOSED TO COUNCIL

3. **Council** is asked to:

1. **Discuss** the draft of the CMO ***Strategic Plan 2020-2023*,** shown in the **ANNEX**;
2. **Request** Members to review the Draft Strategic Plan and provide their input no later than 28 June 2019.

CARIBBEAN METEOROLOGICAL ORGANIZATION

DRAFT

# STRATEGIC PLAN 2020-2023

**STRENGTHENING CAPACITY, ADDING VALUE, AND BUILDING RESILIENCE IN THE METEOROLOGICAL AND HYDROMETEOROLOGICAL SERVICES OF THE CARIBBEAN**

DRAFT

# CMO STRATEGIC PLAN 2020-2023 (DRAFT)

# Table of Contents

1. Introduction 1

2. Addressing the Gaps 1

3. Overarching Priorities 2

4. Strategic Priorities and Outcomes 3

a) Enhancing disaster preparedness and reducing losses of life and property from extreme hydrometeorological events and severe weather. 3

Ultimate Outcome 1 Support for delivery of authoritative, accessible, user-oriented and fit-for-purpose information and services to reduce the disaster risk of hydrometeorological extremes.

b) Supporting climate-smart decision making to build resilience and adaptation to climate risk. 3

Ultimate Outcome 2 Climate services and information integrated into policy and decision-making framework for building socioeconomic resilience and reducing climate risk.

c) Supporting the strengthening and maintenance of observation networks and information services as critical components of disaster risk reduction and sustainable development frameworks. 4

Ultimate Outcome 3 Enhanced observations and integrated information services for impact-based forecasting and decision-support for both routine activities and high-impact events

d) Enhancing the socioeconomic and national security value of weather, climate, hydrological and related environmental services. 4

Ultimate Outcome 4 Enhanced service delivery capacity of Members to ensure availability of essential information and services needed by governments, economic sectors, and citizens

5. Monitoring indicators 5

## Introduction

The availability and integration of weather, water, climate, and socio-economic Information into policy making and societal action are critical to building resilience and realizing sustainable development goals in the Caribbean. The centrepieces for national and regional policy and action are the UN 2030 Agenda for Sustainable Development, the Paris Agreement on climate change, and the Sendai Framework for Disaster Risk Reduction. As governments, organizations and regional bodies align their development activities within these frameworks, CMO and National Meteorological and Hydrological Services (NMHSs) in particular, have enormous roles to play in supporting implementation. Governments, organizations, and regional bodies will increasingly rely on information from NMHSs as they pursue their sustainable development goals on land, at sea and in the air. The CMO Headquarters advocates for and works to procure the resources to allow national services to meet their mission. The concomitant decisions at all levels will continue to be contingent upon a better understanding of the changing threat levels from natural hazards, weather, water and climate extremes and climate change.

The provision of climate services at national levels for economic sectors in support of energy, water, health, and food production, among others, will be vital in building climate-resilient economies. To address these growing demands for actionable scientific information, the NMHSs of Member States will need targeted investments, scientific and technical development and strategic partnerships.

The consequences of high-impact weather, water and climate extremes are devastating for the safety of people, national economies, urban and rural environments, and food and water security. Extreme hydrometeorological[[1]](#footnote-2) events have accounted for more than 80% of the world’s natural disasters. (United Nations Office for Disaster Risk Reduction (UNISDR, 2015). According to the Intergovernmental Panel on Climate Change, these extremes are expected to occur with greater frequency and intensity as greenhouse gas concentrations continue to rise. Sea levels rise, also linked to climate change, will further increase the threat to the population of Members who are living in coastal areas.

## Addressing the Gaps

All CMO Member States collectively contribute to the meteorological and hydrological infrastructure and facilities of the region. While this collective system is a public good that benefits all, the contribution and service performance among the Members continues to be uneven. For example, observation data are vital for a variety of applications, from flood and drought forecasts to routine decision-making, but only a limited set of station data are actually integrated into regional and international information systems. This may be due to technical limitations and/or failure to prioritize this obligation to the regional and global observation network and information system.

Observations and forecasts have value when used in decision-making. This entails integrating weather, climate, and water information with other environmental and socio-economic information in a decision-support system and continuous communication with decision-makers. NMHSs are facing substantial development needs and capability gaps in providing the weather, climate, water and related environmental information and services to meet national, regional and global requirements. The regional radar network, in particular, requires specialized knowledge and has costly maintenance issues. These typical challenges for the Member services centre around maintaining sustainable infrastructure, human resources, and the ability to benefit from the advances in science and technology.

Such deficiencies are often present in countries that are particularly vulnerable to natural disasters, which jeopardize effective protection of life and property and they slow down socioeconomic recovery. Narrowing the capacity gaps by sustaining government support, international cooperation, catalyzing investment and targeted assistance is more important than ever in view of the increasing intensity of weather-, climate- and water-related extremes.

To address these capacity gaps, the CMO Headquarters embarked on an initiative to assist in upgrading meteorological services in the Turks and Caicos Islands to include forecasting capabilities. That activity was described in its Operational Plan for 2015-2019 and continues as part of an overarching priority of this Strategic Plan. The desire for having at least one senior forecaster in all CMO offices was recently noted in the WMO Climate Risk and Early Warning Systems (CREWS-Caribbean) review of Early Warning Systems (EWS) in the Caribbean in the wake of the catastrophic 2017 Hurricane Season. That EWS review found several issues, including the importance of having redundancy in communication systems. For example, the destruction of communication systems in Dominica by Hurricane Maria meant that there were no systems in place to prepare and communicate warnings of a subsequent tropical cyclone threat. While some Member States have emergency communication systems, others have begun addressing this deficiency, e.g., the Cayman Islands tested a new emergency satellite communication system in September 2018. The EWS review also found inadequate monitoring of hazards, such as coastal flooding and flash-flooding and highlighted the need for Quality Management Systems (QMS) for hydrometeorology; not only for warnings but for downstream development. The CMO HQ and the CIMH have experience in helping the National Meteorological Services develop QMS for aviation services—experience which can be applied for all areas of hydrometeorology.

While the Caribbean has a well-established regional hurricane forecast warning system, no program exists to facilitate regional collaboration and information exchange for non-tropical cyclone severe weather events, which are also deadly and destructive. Motivated by that need, the WMO, in partnership with the CMO, Météo-France, and NOAA (with initial funding from Canada) initiated a *Severe Weather Forecast Demonstration Project* (SWFDP) for the Eastern Caribbean with special arrangements for Haiti. The SWFDP will utilize forecast models from global centres and regional models of the CIMH and disseminate information to disaster management offices and other stakeholders.

The assessment of climate risk entails having knowledge of climate extremes**,** their current and potential variability under different future climate scenarios. By cataloguing and archiving extreme weather and climate events with the WMO **Regional Climate Centre** at CIMH, Member States can then link the events to any associated loss and damage and contribute to Article 8 of the Paris Agreement on “averting, minimizing and addressing loss and damage”.

## Overarching Priorities

This Strategic Plan is focussed on addressing the most pressing developments and needs during 2020-2023, as part of fulfilling the long-term UN Sustainable Development Goals out to 2030. The Plan, which articulates expected outcomes and clear benefits to Members, will be focussed on these overarching priorities, which are aligned with the WMO Strategic priorities for 2020-2023:

1. Enhancing disaster preparedness and reducing loss of life and property from extreme hydrometeorological events and severe weather.
2. Supporting climate-smart decision making to build resilience and adaptation to climate risk.
3. Supporting the strengthening and maintenance of observation networks and information services as critical components of disaster risk reduction and sustainable development frameworks.
4. Enhancing the socioeconomic and national security value of weather, climate, hydrological, and related environmental services.

## Strategic Priorities and Outcomes

### Enhancing disaster preparedness and reducing losses of life and property from extreme hydrometeorological events and severe weather.

#### Ultimate Outcome 1 Support for delivery of authoritative, accessible, user-oriented and fit-for-purpose information and services to reduce the disaster risk of hydrometeorological extremes.

* Intermediate Outcome 1 Enhanced capability of Members to develop, deliver, and utilize accurate and reliable weather, climate, water and related environmental impact-based forecasting services to mitigate against extreme hydrometeorological events.
* Immediate Outcome 1.1 Strengthened national multi-hazard early warning/alert systems to better enable effective responses to the associated risks.
* Immediate Outcome 1.2 Supported the implementation of the WMO Severe Weather Demonstration Project for the Eastern Caribbean (SWFDP) -a prototype for a regional early warning system for non-tropical cyclone severe weather.
* Immediate Outcome 1.3 Broadened provision of policy- and decision-support for drought and flood monitoring and prediction services.
* Immediate Outcome 1.4 Enhanced value and innovations in the provision of impact-based decision-support to mitigate weather, climate, and water-related hazards.
* Immediate Outcome 1.5 Support for the implementation of redundant communication systems to sustain warning systems in the event of multiple hazards and/or serial extreme events.

### Supporting climate-smart decision making to build resilience and adaptation to climate risk.

#### Ultimate Outcome 2 Climate services and information integrated into policy and decision-making framework for building socioeconomic resilience and reducing climate risk.

* Intermediate Outcome 2 Enhanced capability of Members to develop, access and utilize accurate, reliable climate, water and related environmental impact-based services to best support the policy-making and actions that mitigate against climate risks and build socioeconomic resilience.
* Immediate Outcome 2.1 Strengthened capability to provide climate services through investments and via public-private partners.
* Immediate Outcome 2.2 Broadened provision of policy- and decision-supporting climate information and services.
* Immediate Outcome 2.3 Supported the expansion of contributions to the Regional Climate Centre database for climate extremes, as called for by WMO Resolution 9 (Cg-17).

### Supporting the strengthening and maintenance of observation networks and information services as critical components of disaster risk reduction and sustainable development frameworks.

#### Ultimate Outcome 3 Enhanced observations and integrated information services for impact-based forecasting and decision-support for both routine activities and high-impact events

* Intermediate Outcome 3 An integrated observational network optimized to ensure effective national coverage and accessibility for risk monitoring and numerical weather prediction. High quality fit-for-purpose measurements feeding a continuous data exchange underpinned by best practices in data management and data processing mechanisms.
* Immediate Outcome 3.1 Optimized acquisition of observational data through the WMO Integrated Global Observing System (WIGOS).
* Immediate Outcome 3.2 Improved and increased access to, exchange, and management of current and past observational data and derived products through the WMO Information System (WIS).
* Immediate Outcome 3.3 Initiation of an operational radar working group to facilitate sharing of expertise and ensuring the maintenance and functioning of the Caribbean Radar Network.
* Immediate Outcome 3.4 Members are using information services that facilitate integration of observations, numerical models, and tools to support impact-based forecasting and collaboration with disaster management and other core partners.

### Enhancing the socioeconomic and national security value of weather, climate, hydrological, and related environmental services.

#### Ultimate Outcome 4 Enhanced service delivery capacity of Members to ensure availability of essential information and services needed by governments, economic sectors, and citizens

* Intermediate Outcome 4 Improved access to regional and global monitoring and prediction systems and utilization of weather, climate and water information and services that brings tangible benefits to Members.
* Immediate Outcome 4.1 Addressed the needs of Members to enable them to provide and utilize essential weather, climate, hydrological and related environmental services.
* Immediate Outcome 4.2 Assisted in the development and sustaining of core competencies and expertise.
* Immediate Outcome 4.3 Scaled-up effective partnerships for investment in sustainable and cost-efficient infrastructure and service delivery.

## Monitoring indicators

| Immediate Outcome | Monitoring indictors |
| --- | --- |
| 1.1 Strengthened national multi-hazard early warning/alert systems to better enable effective response to the associated risks. | 1.1.1 Number of Members participating in a global alert system1.1.2 Number of Members with a MHEWS integrated in a national Disaster Risk Reduction management system |
| 1.2 Supported the implementation of the WMO Severe Weather Demonstration Project (SWFDP) in the Eastern Caribbean, a prototype for a regional early warning system for non-tropical cyclone severe weather. | 1.2.1 Number of forecasters trained in the SWFDP concept1.2.2 Number of Members participating in the SWFDP1.2.3 At least one verification measure implemented for severe weather forecasts 1.2.4 Users feedback on the usefulness of severe weather forecasts |
| 1.3 Broadened provision of policy- and decision-supporting drought and long-term flood monitoring and prediction services. | 1.3.1 Number of Members providing national flood and drought monitoring and prediction services1.3.2 Number of Members making use of RCCs and/or RCOFs1.3.3 User/stakeholder assessment of the relevance, usefulness and timeliness of outlooks/alerts for extreme climate events |
| 1.4 Enhanced value and innovations in the provision of impact-based decision-support to mitigate weather, climate, and water-related hazards. | 1.4.1 Number of Members using (a) web applications and (b) social media in warning delivery1.4.2 Number of Members with QMS for hydrometeorology and EWS.1.4.3 Number of Members using online platforms for integrating weather, water, and climate hazards with socio-economic data1.4.4 Number of Members with agreements between NMHSs and private sector/academia actors on(a) EWS service delivery and (b) maintenance of networks for EWSs |
| 1.5 Support for the implementation of redundant communication systems to sustain warning systems in the event of multiple hazards and/or serial extreme events. | 1.5.1 Number of Members with backup communication and power systems1.5.2 A revised regional EWS with backup assignments for forecast and warnings |
|  |  |
| 2.1 Strengthened capability to provide climate services through investments and by public-private partners. | 2.1.1 Number of Members with basic system for delivering climate services2.1.1 Number of Members with QMS for selected services (aviation, marine, hydrometeorology, EWS) |
| 2.2 Broadened provision of policy- and decision-supporting climate information and services. | 2.2.1 Number of Members making use of RCCs and/or RCOFs2.2.2 Number of Members organizing NCOFs2.2.3 Number of users accessing climate services through web platforms or other methods of service delivery (e.g., mail-in requests)2.2.4 User/stakeholder assessment of the relevance, usefulness and timeliness of climate information |
| 2.3 Supported the expansion of contributions to the Regional Climate Centre database for climate extremes, as called for by WMO Resolution 9 (Cg-17).  | 2.3.1 Number of Members contributing to the weather and climate impacts databases of the WMO RCC at CIMH |
|  |  |
| 3.1 Optimization of the acquisition of observational data through the WMO Integrated Global Observing System (WIGOS). | 3.1.1 Percentage of the regional Earth system covered by observations (especially hydrosphere)3.1.2 Number of Members complying with WMO observation standards3.1.3 Number of Members implementing national observing system WIGOS |
| 3.2 Improved and increased access to, exchange and management of current and past observational data and derived products through the WMO Information System (WIS). | 3.2.1 Number of Members with national network monitoring and data management systems established3.2.2 Number of Members implementing data exchange policies, as per WMO Resolutions 40, 25 and 60. |
| 3.3 Initiation of an operational radar working group to facilitate sharing of expertise and ensuring the maintenance and functioning of the Caribbean Radar Network. | * + 1. Approved Terms of Reference for the radar operations working group
		2. Initial meeting/workshop held
		3. Online platform initiated for collaboration, troubleshooting, and information exchange
 |
| 3.4 Members are using information services that facilitate integration of observations, numerical models, and tools to support impact-based forecasting and collaboration with disaster management and other core partners.  | 3.4.1 Number of Members using online platforms for integrating observations, model forecasts, with hydrological and socio-economic data for decision support and collaboration.3.4.2 Number of Members with agreements between NMHSs and private sector/academia actors on(a) service delivery and (b) maintenance of networks |
|  |  |
| 4.1 Addressed the needs of Members to enable them to provide and utilize essential weather, climate, hydrological and related environmental services. | 4.1.1 Number of NMHSs with strategic plans and legal basis for their operation4.1.3 Number of NMHSs with enhanced human and technical capacity to provide a range of services. |
| 4.2 Developed and sustained core competencies and expertise. | 4.2.1 Number of NMHS staff trained at WMO training centres and/or fellowships 4.2.2 Number of NMHSs whose staff have adequate (to be defined) level of core competencies to meet national and international mandate |
| 4.3 Scaled up effective partnerships for investment in sustainable and cost-efficient infrastructure and service delivery. | 4.3.1 Number of NMHSs receiving international capacity development assistance4.3.2 Number of Members benefiting from catalyzed development projects4.3.3 Number of Members with legal basis for public-private partnerships4.3.4 Number of Members with socioeconomic benefit analysis conducted in the past X years |
|  |  |

1. Hydrometeorological hazards are of atmospheric, hydrological or oceanographic origin. [↑](#footnote-ref-2)