



CARIBBEAN METEOROLOGICAL ORGANIZATION

CARIBBEAN METEOROLOGICAL COUNCIL
SIXTY-FIRST SESSION
18-19 NOVEMBER 2021, VIRTUAL PLATFORM

Doc. 11

PROJECT UPDATES AND PROPOSALS

(Submitted by the Coordinating Director)

Introduction

1. Weather, climate, and water are at the heart of the environmental issues affecting the planet. National Meteorological and Hydrometeorological Services (NMHSs) in the Caribbean and across the globe must provide accurate information, analyses and timely forecasts of hazardous weather-related conditions that affect the sustainable development of their nations in the short term. At the same time, the NMHSs must provide the appropriate data and scientific-basis for studies on the potential impacts of climate variability as well as long-term natural and human-induced climate change on the environment. The contribution of meteorology and related sciences to these global studies is driven by the constant adaptation to and use of technological changes and opportunities.

2. In this regard, many of the projects being undertaken or planned have observational and scientific data information components involving the use of new or modern technologies. Additionally, most NMHSs are also in need of a legal mandate for their services and support in strategic planning to meet societal needs for weather, climate, water, and related environmental information. This is primarily an information document intended to keep the Council up-to-date on the status and/or progress of implementation on any projects of this nature, which involve CMO Member States and partner organizations and development agencies, such as the *World Meteorological Organization* (WMO), *World Bank*, and Universities. The document provides information on the following:

(a) **WMO Severe Weather Forecasting Programme (SWFP)**

3. Council has recognized the need to improve the early weather warning system, particularly for episodes of severe weather that may not be the result of a tropical cyclone and could occur at any time of year. In November 2015, Council endorsed a proposal by CMO and partners to implement a *WMO Severe Weather Forecast Demonstration Project* (SWFDP) in parts of the Caribbean, with an aim, among others, to foster greater collaboration among National Meteorological Services and Disaster Management Agencies. Since that time, significant strides have been made towards the implementation of what has been designated by the 18th WMO Congress as the **Severe Weather Forecasting Programme** (SWFP) - Eastern Caribbean (SWFP-EC). The WMO Secretariat, *Météo-France*, the CMO Headquarters, and the CIMH, have been collaborating to develop the SWFP-EC into an operational programme.

4. In this regard, the Regional WMO Management structure established what is now the *Regional Subprogramme Management Team* (RSMT) for the development and implementation of the SWFP. The Coordinating Director co-chairs the RSMT with an expert from *Météo-France*. Other CMO representatives on the RSMT include Ms Kathy-Ann Caesar of the CIMH and Mr Dale Destin, Director

(Ag) of Antigua and Barbuda Meteorological Service. It will be recalled that the WMO Severe Weather Forecasting Programme was being developed along the following lines:

- (i) The SWFP would cover all the islands from Trinidad in the south to Puerto Rico in the North, to Dominican Republic and Haiti in the West;
- (ii) The Météo-France Centre in Martinique will serve as the *Regional Forecast Support Facility* (RFSF) for the Project;
- (iii) The CIMH will provide technical support for the SWFP.

5. SWFP implementation in the Eastern Caribbean has been made possible by seed funding from Canada through the WMO *Climate Risk and Early Warning Systems* (CREWS) Project. The SWFP has been developing in four phases: 1) Overall Planning; 2) Implementation plan development and execution; 3) Demonstration and 4) Operational (no longer a project). Phase 3 and 4 include capacity building through training of meteorologists, public weather service focal points, and the media.

6. The SWFP-EC is in its demonstration or pre-operational phase, initiated in 2019, with global and regional model forecasts being used to monitor potential severe weather by the *Regional Forecast Support Facility* (RFSF–Martinique). All National Meteorological Services in the project domain have access to the Extranet of the RFSF, which became operational, 24/7, in 2019.

7. On 5 February 2021, the *Management Team* met virtually to examine progress made at the *Regional Forecast Support Facility* (Météo-France Martinique), including the Extranet, new data/product for sharing, to produce severe weather guidance, and to ensure real-time coordination.

8. To support the training goals of the SWFP-EC, CMO Headquarters solicited funding from the US National Weather Service International Affairs (NWS-IA). The NWS-IA generously supported nine forecasters from CMO Member States to attend the American Meteorological Society (AMS) Short Course on *GOES-R/JPSS Hands-on Training to Process, Display, and Analyze Satellite Data Products*, held on 17-18 March 2021.

9. In March 2021, the Coordinating Director, **Dr Arlene Laing**, and **Mr Jean-Noel Degrace** of Météo-France reported to the 43rd *Hurricane Committee* on recent activities of the SWFP-EC, including (i) new products available for forecasting severe weather, such as forecast soundings for each regional airport; (ii) a summary of training activities led by CIMH; (iii) postponement of forecaster exchange due to the pandemic; (iv) the development of an operational plan for severe weather; and (v) the coordination with related projects that are being implemented in the Caribbean, including the International Weather Ready Nations (WRN), Flash Flood Guidance System (FFGS), and Coastal Inundation and Forecast Initiative (CIFI).

10. As part of the training for the SWFP-EC, CIMH (led by **Ms Kathy-Ann Caesar**) has organized a *Severe Weather Forecasting Programme-Eastern Caribbean & Hurricane Forecaster Competency Virtual Workshop* for 8-12 November 2021. The workshop is supported by Météo-France, CMO Headquarters, the US National Hurricane Center, and the University of Leeds.

11. CMO Headquarters has been hosting an intern, **Ms Vikki Lee**, supported by the CCRIF-SPC (Caribbean Catastrophic Risk Insurance Facility) internship programme. Ms Lee, a post-graduate student at *The University of the West Indies*, St Augustine, has been developing a draft *Severe Weather Operational Plan*, modelled after the WMO RA IV Hurricane Operational Plan. The intern is scheduled to provide an overview of the draft Operational Plan at the Severe Weather Forecasting Programme-Eastern Caribbean & Hurricane Forecaster Competency Virtual Workshop. The full draft plan will be presented to the Regional Subprogramme Management Team at its next meeting (tentatively planned for December 2021).

12. Council will recognize that maximizing the benefits of the SWFP, requires a better understanding of the needs of each country for forecasting and warning of severe weather and to determine the gaps in capability and the necessary resources, services and training needed to improve that capability.

13. Council will recall that the WMO Expert Group on the SWFP identified the *Caribbean Meteorological Organization* (CMO), through its Headquarters and Technical Organ, the CIMH, as the regional entity to support the SWFP in the operational phase.

(b) CREWS Caribbean: *Strengthening Hydro-Meteorological and Early Warning Services in the Caribbean*

14. Council will recall presentations from CMC58 and CMC59 about the Climate Risk and Early Warning System (CREWS) Caribbean Project, co-funded by the CREWS Initiative, and Environment and Climate Change Canada (ECCC). The project is being implemented by the WMO, the World Bank Global Facility for Disaster Reduction and Recovery (WB/GFDRR), the UN Office for Disaster Risk Reduction (UNDRR), and regional partners: Caribbean Disaster Emergency Management Agency (CDEMA), CIMH, and CMO Headquarters. The Coordinating Director represents National Meteorological and Hydrometeorological Services (NMHSs) on the Project Steering Committee. The aim of the CREWS-Caribbean project is to strengthen and streamline regional and national systems and capacity related to weather forecasting, hydrological services, multi-hazard, impact-based warnings and service delivery for enhanced decision-making in CARICOM countries.

15. The CREWS-Caribbean Project has three components:

- Component (1): Development of a regional strategy and roadmap for EWS; led by WB/GFDRR and implemented together with WMO, UNDRR and regional partners, in coordination with national disaster management and national meteorological services.
- Component (2): Institutional strengthening and streamlining of early warning and hydro-met services; led by WMO
- Component (3): Support for piloting high priority activities at the national level with regional involvement as well as at the regional level, informed by the regional strategy; led by WB/GFDRR

16. The CMO Headquarters and the WMO signed an Implementing Arrangement for the partial delivery of CREWS-Caribbean Project Component (2) with a project entitled, *Building Resilience to High-Impact Hydro-meteorological Events through Strengthening MHEWS in Small Island Developing States (SIDS) in the Caribbean*. This project will help create an enabling environment for National Meteorological and Hydrological Services (NMHS) of CMO Member States through the development of National Strategic Plans (NSPs) and Model Legislation to be used by NMHSs and their Governments to formally establish the legal mandate for their services.

17. The WMO Component of the CREWS Caribbean project and *Environment and Climate Change Canada* (ECCC) provided \$263,000 USD, via a WMO-CMO Implementing Arrangement, for the CMO Headquarters to implement the following activities by December 2021.

- Meteorological Legislation and Policy
A Model Meteorological Bill and Policy for National Meteorological Services in the English-speaking CARICOM Member States, were developed by a legal consultant and endorsed by CMO Member States on 2 June 2021. CMO HQ implemented the project with strong support by the Organization of Eastern Caribbean States (OECS), especially **Mr Crispin d'Auvergne**. Reviews of the model legislation were provided by CMO Member States, CMO HQ, the OECS Legal Unit, *Mr Rodney Martinez Guingla* (WMO), and CARICOM Office of General Counsel.

The following documents were also provided through the project: Meteorology Policy Assessment and Appraisal Report, Meteorology Legislative Assessment Report, Meteorological Bill Explanatory Note, and Draft Cabinet Note. Professional publication of the model legislation and policy documents is being planned. Excerpts of the arrangement of the clauses in the Model Legislation and the Table of Contents of the Policy are shown in **Annex I**.

The adaptation to national circumstance and submission of two national Meteorological Bills to relevant national agency to enable enacting was included in the original project. In June, the CMO HQ made a request to the WMO to allocate unused travel funds towards the submission of meteorological legislation in six additional Member States. In August, the WMO and CMO amended the Implementing Arrangement and subsequently, an amended contract was signed with the legal consultant, to adapt the Model Meteorological Legislation for six more national meteorological bills.

- National Strategic Plans and Framework for Weather, Water, and Climate Services

The CMO HQ implemented a project that developed Strategic Plans, Framework for Weather, Water, and Climate Services and complementary Action Plan for National Meteorological and Hydrological Services of eight CMO Member States that requested assistance with developing strategic plans. The consultant was tasked with “*The development and endorsement of Strategic Plans (SPs) for the National Meteorological and Hydrological Services, a Framework for Weather, Water, and Climate Services (FWCS) and a complementary Action Plan for the countries: Anguilla, Antigua and Barbuda, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St Vincent and the Grenadines using the WMO National Strategic Plan Template and Guide.*”

The plans were developed following several months of consultation with NMHSs and their stakeholders, organized by the *National Focal Points* (listed in **Annex I**). National consultation workshops included the CMO Headquarters Unit, WMO Office for Regional Association IV, and CIMH, in its capacity as a WMO Regional Climate Centre. The implementation was coordinated with CIMH, which has been piloting National Frameworks for Climate Services in some CMO Member States, and this project, which encompasses weather, water, and climate services, is aligned with CIMH projects to enhance and develop climate services at the national level. With a National Framework for Weather, Water, and Climate Services, each country is expected to be better equipped to manage disasters, agriculture and food security, water resources, transportation safety, public health, renewable energy, marine services, tourism, etc...

Along with the CMO Headquarters Unit, **Mr Adrian Trotman** and **Dr Roché Mahon** of CIMH provided recommended revisions for all draft Strategic Plans. Seven beneficiary Member States Directors formally accepted receipt of the Plans in a meeting held with the WMO, the CREWS Secretariat, and CIMH on 11 August 2021. Thereafter, final review and revisions were completed and submission of the finalized Strategic Plans were made to the Directors of the National Meteorological Services in September and October. As of 22 October 2021, one of the beneficiary States had not yet formally acknowledged receipt of their Strategic Plan. The cover pages and the list of national focal points, who facilitated and coordinated the national consultations are shown in **Annex I**.

Council is asked to note that the Strategic Plans of two of the Member States are already being utilized in their national development plans. All beneficiary Member States are urged to endorse and launch the Strategic Plans for the strengthening of weather, water, and climate services at the national level.

18. Under Component (3) of the CREWS Caribbean Project, four priority activities have been proposed for implementation by the World Bank:

- Priority Activity 1: Development of a Multi-sensor Precipitation Grid
- Priority Activity 2: Support the Transition to Impact-Based Forecasting
- Priority Activity 3: Development of a Regional Emergency Alert System
- Priority Activity 4: Integrated Approach to Flooding (under discussion)

The priority activities are to be implemented by various regional organizations including CIMH, CDEMA, the CMO Headquarters, Météo-France, Caribbean Telecommunication Union (CTU), among others.

19. CMO Headquarters contributed to the development of the *Strategic Roadmap for Advancing Multi-Hazard Early Warning Systems in the Caribbean 2020-2030* and will be contributing to the Priority Activities.

20. CMO Headquarters is leading the coordination of Priority Activity 1, the development of a multi-sensor precipitation grid over the Eastern Caribbean. The prototype precipitation grid will have the Barbados weather radar as one of the primary data sources and is being implemented by the World Bank, through a contract with the Centro Internazionale in Monitoraggio Ambientale (CIMA) Foundation. The project will include CIMH, as the technical lead, and the National Meteorological Services of Barbados, Saint Lucia, and St Vincent and the Grenadines.

21. The goal of Priority Activity 1, is to rely on the Caribbean Radar Network to prepare a regional precipitation grid that will integrate radar and satellite derived rainfall estimates, calibrated with locally observed rain gauge data. The precipitation grid will be shared among participating countries and used to drive forecasting systems such as the Flash Flood Guidance System (FFGS) and be useful to disaster management, water resources managers, agriculture, energy and other sectors that increasingly demand more accurate and timely access to rainfall information. Since there is benefit to the entire region, the hope is that countries would be willing to participate so that the grid may be incrementally extended as beneficial experiences are shown.

(c) EUREC⁴A-UK/CMO Caribbean Weather Forecasting Initiative

22. Council will recall that the University of Leeds and CMO Headquarters, implemented a *Caribbean Weather Forecasting Initiative* in support of *EUREC⁴A-ATOMIC*, an international field study led by institutions from France, Germany along with the CIMH. The Forecasting Initiative is supported by a grant from the Natural Environment Research Council (NERC), United Kingdom, and the WMO Climate Risk and Early Warning Systems (CREWS) Caribbean Project. The project was partially funded through an agreement between WMO and CMO Headquarters Unit, as it supported the Severe Weather Forecasting Programme (SWFP) in the Eastern Caribbean by developing collaboration practice among regional forecasters and helping forecasters to understand the strengths and limitations of high-resolution weather prediction models.

23. Council will note the benefits of the Initiative to the National Meteorological Services of CMO Member States, whose forecasters gained enhanced capability in numerical weather prediction, understanding dry season weather and localized storms, through training workshops and a forecast "test-bed". The lessons learned the *EUREC⁴A Forecast Testbed* and subsequent research analysis meetings with *EUREC⁴A-UK* collaborations are to be shared in the *Severe Weather Forecasting and Hurricane Forecaster Competency Workshop*, 8-12 November 2021. This workshop is being hosted by CIMH, with support from Météo-France, CMO Headquarters, the US National Hurricane Center, and University of Leeds. A follow-up *EUREC⁴A Caribbean Weather Forecasting Initiative* workshop has been postponed to 2022 due to the pandemic.

(d) Hydromet Caribbean 2020: Second Symposium on Operational Hydro-meteorology

24. Council will recall that Directors of NMHSs expressed a desire for a second symposium following the successful first symposium that the CMO Headquarters Unit co-organized with a focus on aiding Directors of NMHSs to find share ideas and seek solutions to operational hydro-meteorology challenges in the Caribbean. The 2019 symposium focused on data issues and public-private-academic partnerships. The focus of the 2020 symposium, held on 15-17 December 2020, was on:

- (i) Integration of operational hydrology and meteorology in terms of the Caribbean context and how to develop a roadmap for hydrological activities
- (ii) Partnerships among public sector, private sector, academia, and inter-governmental bodies to collaborate on strengthening Hydro-Meteorological infrastructure, data sharing, products, and services to meet growing societal demand

25. The 2020 Symposium featured key international speakers, including opening remarks by **Dr David Farrell**, Principal of CIMH, and a keynote speech by **Dr Garvin Cummings**, Chief Hydrometeorologist, Guyana Hydrometeorological Service, the only fully-integrated hydrometeorological service among CMO Member States. Critical outcomes from the WMO *RA IV Hydrological Advisors Forum* were shared by **Dr Hwirin Kim**, Head, WMO Hydrological Forecasting and Water Resources Services Division.

26. Other key presentations were on funding mechanism for the development of National Hydrological and Meteorological Services, such as the *Green Climate Fund*, facilitated by the *Caribbean Community Climate Change Centre (5Cs)* or the *Caribbean Development Bank*. **Mr Massimiliano Lombardo**, UNESCO Cluster Office for the Caribbean, chaired a panel of national hydrological agencies on the challenges and opportunities for floods and drought management in the Caribbean, from the perspective of the *UNESCO Intergovernmental Hydrological Programme (IHP)*. UNESCO IHP, which describes itself as “devoted to water research and management, and related education and capacity development”, is a core partner of WMO, which traditionally focuses on operational hydrology. Real-time monitoring and prediction of water was featured in presentations on:

- *WMO Hydrological Status and Outlook System (HydroSOS)*, current global hydrological status of groundwater, river flow and soil moisture and two-week outlook for wetter/drier than normal
- *GEOGloWS ECMWF Streamflow Service* for rivers around the globe
- *US National Water Model and flood forecasting in the Americas*

27. Relationships among symposium participants were initiated and enhanced during roundtable discussions on topics such as “Advancing partnerships between meteorological and hydrological agencies in the Caribbean”; “Progress in data capture and sharing”; “Defining and growing stakeholder services”; and “The move to early warning systems and impact-based forecasting”. The symposium agenda is available at <https://hydrometcaribbean.hubilo.com/community/#/agenda>

28. Council is asked to note actions by the CMO Headquarters following the hydro-meteorology symposium. The CMO Headquarters and CMO Member States provided input to the WMO Plan of Action for Hydrology, to support the eight goals of operational hydrology adopted by the 18th WMO Congress in 2019. The Coordinating Director participated and encouraged Member States to participate in the information session on hydrology held on 31 August 2021 and in the Hydrological Assembly of the WMO Extraordinary Congress 2021. CMO Headquarters will be participating in the upcoming virtual Hydromet Symposium for Latin America on 5-7 December 2021.

(e) Lightning Detection System and Lightning Safety Awareness

29. Council will recall that, the CMO Headquarters indicated its interest in establishing a ground-based *Lightning Detection System* in the region in partnership with the Meteorological Service of France [Météo-France]. The CMO Headquarters studied this system and determined that such a system was very necessary in the Caribbean. At the 59th Session (Anguilla, 2019), Council approved the initiation of a project to develop a CMO Lightning Detection Network.

30. Over the years, the CMO Headquarters has received proposals from a number of lightning-detection suppliers. The CMO Headquarters proposed that the Council consider a capital project approach, in which international funding could be sought, in the same way as was done for the CMO Radar Project, through an internationally-tendered process, in which the equipment purchased and installed under such a project would be owned and operated by the CMO for the benefit of all CMO Member States and the region in general.

31. The 57th session of the Council (2017) discussed the matter and endorsed the concept of a *CMO Lightning Detection Network* (CLDN). However, it was felt that more information was required as to the cost of, and a sustainability model for the system. It was also suggested that before a final decision could be made on CLDN, the *Geostationary Lightning Mapper* (GLM), which had just become available on the new GOES satellites, should be evaluated during 2018 and 2019 prior to deciding on the CLDN. Studies conducted over North America that compared the GLM with the Vaisala's National Lightning Detection Network and Earth Networks Total Lightning Network, provided guidance for how to proceed. For operational forecasting, it is best to have lightning observations from both the GLM and a ground-based network of sensors. The GLM provides high quality observations over data sparse regions (e.g., the ocean) and while ground-based networks are excellent at locating cloud-to-ground flash strikes. Some Member States, such as Belize and Jamaica, have begun setting up sensors, which could become part of a regional network.

32. The importance of lightning safety awareness has also come to the forefront, particularly in Jamaica, where a number of lightning deaths occurred in 2020 and several casualties were reported since 2017.

33. With the aim of improving lightning safety, the CMO Headquarters and the WMO hosted the first ever ***Symposium on Lightning and Lightning Safety Awareness*** from 19-20 May 2021, on a virtual platform. With over 130 international participants from 28 countries, several prominent international presenters spoke on lightning safety, lightning injuries, public education and communications, engineering, lightning detection, lightning protection, lightning applications in weather forecasting, and lightning as an essential climate variable. Participants included stakeholders from aviation, health, sports, energy, agriculture, and other sectors. Following the symposium, the Coordinating Director authored an article about the symposium in *Meteoworld*, <https://public.wmo.int/en/resources/meteoworld/symposium-lightning-and-lightning-safety-awareness>. The Coordinating Director also met with **Mr Rodney Martinez Guingla**, WMO Representative for RA IV, and **Dr Jorge Tamayo**, Coordinator of the *Conference of Ibero-American National Meteorological and Hydrological Services* (CIHMET), to learn more about the implementation of a lightning detection network in Central America, which became operational in 2019. It is hoped that lessons learned could be applied to developing a network for the Caribbean.

34. Council is asked to note that following the successful lightning symposium, the Coordinating Director was invited to present at the *International Lightning Safety Day Preparation Conference*, on 28 May 2021. On International Lightning Safety Day, 28 June, the CMO Headquarters distributed a Press Release with lightning safety tips that were broadcast by regional media. These lightning safety awareness activities were timely, as on 17 June 2021, Barbados experienced a record number of lightning strikes, where the numbers of strikes in a few hours were similar to the total number received over the previous four years combined.

35. The Coordinating Director was invited to present on Caribbean efforts regarding lightning detection, safety, and awareness during a session on *Lightning and Wildfires* at the *Regional Platform on Disaster Risk Reduction*, 1-4 November 2021. The presentation emphasized that lightning risk management should be part of the disaster risk reduction framework and proposed the formation of an ad-hoc regional group that would join with the international group on lightning safety and promote lightning research and applications in our region.

ACTION PROPOSED TO COUNCIL

36. The Council is invited to:

- (i) **Note** the progress made by the WMO *Severe Weather Forecasting Programme* (SWFP) in the Eastern Caribbean and to **strongly support** the regional participation in its implementation.
- (ii) **Note** developments regarding the CREWS-Caribbean project to strengthen the National Meteorological and Hydrometeorological Services of CMO Member States through the development of Model Meteorological Legislation and Meteorological Policy and the drafting of national meteorological bills based on the model legislation.
- (iii) **Note** the development of National Strategic Plans with National Frameworks for Weather, Water, and Climate and Action Plans for eight beneficiary Member States and to **strongly support** the endorsement and implementation of the Strategic Plans' Frameworks and Action Plans.
- (iv) **Note** the planned priority activities under the CREWS Caribbean project including a high-resolution regional precipitation grid to aid decisions by hydro-met sensitive sectors.
- (v) **Note** the continuation of a collaborative forecasting initiative that advanced forecasting skill and allowed forecasters from across the region to have knowledge exchange and collaboration on scientific analysis with researchers in an international field study.
- (vi) **Note** the successful December 2020 operational hydro-meteorology symposium for Directors of National Meteorological Services and other key stakeholders and subsequent contributions to the global water agenda.
- (vii) **Note** the successful Symposium on Lightning and Lightning Safety Awareness and recent developments in connection with enhancing lightning safety awareness, and **support** the exploration of options for an operational ground-based lightning detection system, and the formation of an ad-hoc regional working group on lightning.

ANNEX I

Arrangement of Clauses of Model Meteorological Legislation



DRAFT MODEL HYDRO-METEOROLOGICAL SERVICES BILL

CARIBBEAN METEOROLOGICAL ORGANIZATION

**Financed by the Caribbean Meteorological Organization by Agreement
with the World Meteorological Organization (WMO)**

CONSULTANCY SERVICES FOR

**DRAFTING OF LEGISLATION AND POLICY FOR THE NATIONAL HYDRO-
METEOROLOGICAL SERVICES OF THE ENGLISH-SPEAKING MEMBERS
OF THE CARIBBEAN COMMUNITY (CARICOM)**

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March 12, 2021

ARRANGEMENT OF CLAUSES

PART I PRELIMINARY

1. Short title
2. Commencement
3. Interpretation

37. PART II

38. NATIONAL METEOROLOGY AGENCY

39. OR

40. METEOROLOGY [AGENCY] [DEPARTMENT] [DIVISION]

41.

4. Establishment of [Agency] [Department/Division]/ Continuation of [Department/Division]
5. Objectives of [Agency] [Department/Division]
6. Functions of [Agency] [Department/Division]

42.

43. PART III

44. ADMINISTRATION OF [AGENCY] [DEPARTMENT/DIVISION]

7. Regional and international obligations
 8. Role of Minister
 9. Establishment and membership of Board
 10. Functions of the Board
 11. Powers of Board
 12. Committees of the Board
 13. Remuneration
- 45.

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STAFF OF METEOROLOGICAL [AGENCY] [DEPARTMENT/DIVISION]

14. Appointment of Chief Executive Officer
[Appointment of Staff]
15. Powers and functions of Chief Executive Officer
[Powers and functions of the CMO]
16. Delegation by Chief Executive Officer
17. Appointment of Other Staff
18. Transfer of Staff
19. Pension rights and service with Agency
20. Powers and functions of staff
21. Qualified Staff
22. Immunity

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24. Provision of commercial [aviation] services
25. Early warning system in national interest
26. Protection of meteorological-related instruments, facilities etc
27. Precautionary principle

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- 37. Estimates
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SCHEDULE 2

Table of Contents of Meteorology Policy



METEOROLOGY POLICY

CARIBBEAN METEOROLOGICAL ORGANIZATION

**Financed by the Caribbean Meteorological Organization by Agreement
with the World Meteorological Organization (WMO)**

**CONSULTANCY SERVICES FOR
DRAFTING OF LEGISLATION AND POLICY FOR
THE NATIONAL HYDRO-METEOROLOGICAL
SERVICES OF THE ENGLISH-SPEAKING
MEMBERS OF THE CARIBBEAN COMMUNITY
(CARICOM)**

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Strategic Plans, National Frameworks for Weather, Water, and Climate Services, & Action Plans

Developed by Dr Bapon Fakhruddin



National Focal Points for Strategic Plan Consultancy

1. **Anguilla:** Mr Jeffrey Jennings
2. **Antigua and Barbuda:** Mr Dale Destin
3. **Dominica:** Mr Marshall Alexander
4. **Grenada:** Ms Cécil Mitchell
5. **Guyana:** Ms Haymawattie Danny, Dr Garvin Cummings
6. **Jamaica:** Mrs Jacqueline Spence-Hemmings
7. **St Kitts and Nevis:** Mr Elmo Burke
8. **St Vincent and the Grenadines:** Mr Billy Jeffers