



# FINAL REPORT OF THE FIFTY-FIRST MEETING OF THE CARIBBEAN METEOROLOGICAL COUNCIL



**CHAIRPERSON:**

Hon. Mr Rayburn Blackmoore,  
Minister of Public Works, Energy and  
Ports  
**DOMINICA**

**VENUE AND DATE:**

Fort Young Hotel  
Roseau  
**DOMINICA**  
17-18 November 2011



## **1. OPENING OF THE SESSION AND ELECTION OF CHAIRPERSON**

1.1 At the kind invitation of the of the Government of the Commonwealth of Dominica, the Fifty-first Session of the Caribbean Meteorological Council was held at the Fort Young Hotel in Roseau on 17-18 November 2011. The Caribbean Meteorological Council is the Governing and policy-making body of the Caribbean Meteorological Organization (CMO).

1.2 *Mrs Sheryl Etienne-Le Blanc*, Acting Senior Meteorological Officer in Dominica, commenced the Opening Session of the Meeting by extending words of welcome, after a prayer was offered by the Rev. Novel Josiah, Superintendent of the Methodist Church in Dominica. *Mr Tyrone Sutherland*, Coordinating Director of the CMO, delivered remarks that focussed on the important role that the Caribbean Meteorological Council has played over the years in guiding the development of the National Meteorological and Hydrometeorological Services of Member States. The Council's directives, he indicated, were carried out through the operational Organs of the CMO, namely the CMO Headquarters in Port of Spain and the Caribbean Institute for Meteorology and Hydrology (CIMH) in Barbados. Both of these have assisted the Member States in developing their scientific and technical capabilities in weather prediction and which will continue to be the main links to the global programmes and initiatives that will impact on the ways that the Services function and the type of services that they will have to provide to their nations in the future. *Mr Miguel Rabiolo*, Director of WMO's Regional Office for the Americas, delivered remarks on the relationship between the World Meteorological Organization (WMO) and the CMO. His remarks focused on the assistance that WMO can provide to CMO Member countries to strengthen National Meteorological and Hydrological Services in order that they could contribute to and benefit from the major global programmes, such as the *WMO Information System (WIS)* and the *WMO Integrated Global Observation System (WIGOS)*.

1.3 The feature address was delivered by *Hon. Mr Rayburn Blackmoore*, Minister of Public Works, Energy and Ports of the Commonwealth of Dominica. The Minister spoke about the importance of the information emanating from the Meteorological Services with regards to severe weather, especially during tropical storms and warnings. He spoke about the damaging impacts on the island of Dominica of the severe weather in 2011 and the assistance of the CIMH in providing guidance for the prevention of similar impacts in the future. The Vote of Thanks was delivered by the *Hon. Charles Kirnon*, Minister of Communications and Works of Montserrat.

1.4 The Meeting elected the *Hon. Mr Rayburn Blackmoore* as the Chair of the Caribbean Meteorological Council for its 51<sup>st</sup> session and the period until the next annual meeting of the Council.

## **2. ADOPTION OF AGENDA AND PROCEDURAL MATTERS**

2.1 The Agenda adopted by the Meeting is shown in **ANNEX I** of this Report. The Meeting fixed its hours of work and determined the order in which it would conduct its business. The list of Delegates attending the Meeting is attached as **ANNEX II** to this Report.

### **3. CMO EXECUTIVE REPORTS**

#### **3(a) Coordinating Director's Report**

3.1 The CMO Coordinating Director presented his report on the activities and issues concerning the CMO Headquarters Unit since the previous session of the Council. The Council noted the activities and issues concerning the CMO Headquarters in 2011, particularly those leading up to the 16<sup>th</sup> Congress of the World Meteorological Organization (WMO), held in Geneva, Switzerland in May-June 2011 and the implementation in CMO Member States of major programmes, such as a Quality Management System (QMS) for aeronautical meteorological services, Disaster Risk Reduction (DRR) activities, the Weather Radar Project in the Cayman Islands, to name a few. At the same time, the Council noted with concern, the impact of continued falling contributions by Member States to the Organization on the operations of the Headquarters, on the implementation of some planned programmes and activities and on the further deferral of important professional staff recruitments.

3.2 The Council recalled its discussions at previous sessions on matters concerning the status of the building occupied by the CMO Headquarters in Port of Spain, which were still ongoing and unsettled. The Council repeated its concern that CMO Headquarters had to undertake the payment of the rent during this protracted activity, resulting in an enormous budgetary burden that threatened to bring the entire operations of the Headquarters to a halt. Nonetheless, the Council cautiously accepted the assurance given by the **Delegate from Trinidad and Tobago** that the Headquarters matter was scheduled for a review near the end of November 2011. The Council remained of the firm view that once the status of the Headquarters was settled, the Government of Trinidad and Tobago should accept its responsibility to reimburse retroactively the rent already expended by the CMO Headquarters during this period of uncertainty with all appropriate laws being observed.

3.3 The Council took note of the staff-related administrative events of significance that took place within the CMO Headquarters in 2011. In particular, the Council proudly acknowledged the Administrative Officer, *Miss Lynn Nimblett*, who had served the Organization for **forty years**. The Council also noted that both the Administrative Officer and the Office Cleaner had reached the retirement age of 60 years, as prescribed in the CMO Headquarters Staff Rules and Regulations, which are based on those of the CARICOM Secretariat. The Council noted that, as permitted by those Rules and Regulations, the Administrative Officer was retained under contract for a period of three years from November 2011 to enable the Headquarters to adequately plan its future changes in financial management and administration. The Office Cleaner, *Miss Allison Haynes*, had also been retained on a month-to-month basis, primarily to enable her to meet the full requirements of the Trinidad and Tobago National Insurance Scheme (NIS). Council was informed of the passing of another former employee of the CMO, *Mrs Helen Dyal*, who worked for 23 years as Executive Secretary until her retirement in 1991. In addition, Council noted that the Coordinating Director's current contract would end in April 2012.

3.4. In this regard, the **Council**:

- (a) **Congratulated** and thanked the Administrative Officer, *Miss Lynn Nimblett*, for her outstanding service to the CMO for **forty years**;
- (b) **Advised** that a succession plan be put in place well before the end of the Administrative Officer's contract;
- (c) **Noted** the passing of Mrs Helen Dyal, another long-serving former employee;

- (d) **Endorsed** the continuation of the participation of the Office Cleaner in the Headquarters Staff Terminal Benefit Fund during her period of temporary employment;
- (e) **Approved** the renewal of the Coordinating Director's contract and authorized the Secretary-General of CARICOM to issue the new contract under the normal conditions for the post.

### **3(b) CIMH Principal's Report**

3.5 The Principal informed the Council that despite the financial challenges faced by the CIMH as a result of impacts of the global financial crisis on CMO Member States, there was still a strong demand for the Institute's products and services at the regional and international levels during 2011.

3.6 The Institute continued to provide valuable support in the area of disaster management through a range of training, products and advisory services, which were provided to governments, the Caribbean Disaster Emergency Management Agency (CDEMA) and the international community. The Institute responded to requests for assistance from CDEMA and the Governments of St. Vincent and the Grenadines and the Commonwealth of Dominica after hydrometeorological disasters.

3.7 The Principal highlighted other areas of support which the Institute has provided, such as:

1. The JICA-CDEMA CADM Phase II project, which supports reducing hydrometeorological risks in participating countries through the design and implementation of a real time early warning system that included the development of flood risk maps;
2. Implementation of the Caribbean Dewetra platform to integrate hazard, vulnerability, socio-economic data to effectively manage hydrometeorological risk from the regional to the watershed scale.

3.8 The CIMH continued to deliver high-quality training programmes, the highlights of which were:

1. The Online Continuous Professional Development Programme: This programme started in September 2011 with 12 students. The course would enhance the competency of Weather Forecasters of National Meteorological and Hydrological Services (NMHS) in Member States.
2. The Internship programme: Graduates from this programme continued to achieve academic excellence in the undergraduate programme at UWI. Further, many of the graduates of the Internship programme were gaining entrance to graduate programmes abroad.

3.9 The Institute has been pursuing recognition as the WMO Regional Climate Centre (RCC) for the English-speaking Caribbean. Funds had been identified to support the action and the application document was near completion for submission. However, long-term funding issues would have to be resolved to continue maintaining the RCC after the initial funding support has been exhausted.

3.10 The Council was informed that the limited and uncertain contributions received were insufficient to adequately sustain a robust infrastructural maintenance programme for the Institute. Students often rate the declining state of the infrastructure as a significant disappointment. CIMH's international reputation had continued to grow, and in order to demonstrate that the Institute could be an effective long term host of regional centres, such as the Regional Climate Centre (RCC), an upgrade of the Institute's infrastructure was essential.

3.11 The Principal reminded the Council that the declining trend in the receipt of contributions from Member States continued in 2011 and that the Institute expected it to continue into the foreseeable future as regional economies were expected to continue to either decline or show slow growth amid projected global economic uncertainty. The economic uncertainties faced by Member States had resulted in uncertainties in the amount and timeliness of funds received by the CIMH. This disrupted the planning process at CIMH, which in turn interrupted the timeliness of some of the products and services which CIMH provided to national, regional and international stakeholders.

**3.12 The Council:**

**Noted** the Principal's Report.

**3(c) CIMH Board of Governors' Report**

3.13 The Chairman of the CIMH Board of Governors (BoG) presented the Council with an overview of the deliberations of the Board, which met on November 14 and 15. The Council was reminded of the challenges in operating the Institute given the low levels of contributions received from Member States and the potential negative impacts on the Institute's programmes, including their quality management programmes.

3.14 The Council noted that the low levels of contributions were impacting on the ability of the Institute to make major upgrades to the infrastructure which, as it aged, was showing substantial deterioration. The Council agreed with the plan of the Chairman and the Principal to visit the Member States with significant arrears to show the direct and indirect benefits which accrued to the States if contributions were made.

3.15 The Council was informed about the calibration laboratory at the Institute and the need to limit the number of automatic weather station (AWS) sensors and spares that the Institute would need to have on hand. The Council noted the BoG's recommendation that the Institute only provide interfaces and spares for the larger AWS manufacturers and the list of the supported manufacturers be provided to the Meteorological Services in Member States for their use when purchasing AWSs.

**3.16 The Council:**

**Accepted** the Draft Summary of Conclusions of the Forty-Eight Meeting of the Board of Governors of the Caribbean Institute for Meteorology and Hydrology.

#### **4. STATUS OF ACTIONS FROM THE PREVIOUS SESSION**

4.1 Following every session of the Council, the CMO Headquarters produces a single document containing an **Action Sheet** that would allow the Council to follow-up on the actions taken on the decisions of its previous session, and to discuss any further actions if required. A summary of the decisions of CMC50 (Cayman Islands, 2010) was prepared, giving the status of actions taken to implement these decisions of Council, and to indicate areas where action as proposed had not materialized.

4.2 In this regard, the Council recalled its decision that the post of *International Affairs Officer* at the CMO Headquarters should be filled in the second half of 2011. However, it accepted the decision of the Coordinating Director to delay the recruitment process in 2011 because the level of contributions from Member States in 2011 was well short of that expected, making it impossible for the Headquarters to carry out the recruitment within the timeframe envisaged. The Council noted the intention of the CMO Headquarters to initiate the recruitment process in 2012 as soon as the contribution levels permit.

#### **5. SPECIAL CMO AND WMO ISSUES**

5.1 The Coordinating Director briefed the Council on the following special CMO and WMO-related issues in connection with the following:

- (A) Outcome/Highlights of the 16<sup>th</sup> **World Meteorological Congress**, 2011 and the 2011 **Executive Council** (EC) of the World Meteorological Organization
  - (i) Election results
  - (ii) Five Priorities for 2012-2015
  - (iii) Definition of “WMO Meteorologist” and “Meteorological Technician”
  - (iv) Education and Training Policy and Opportunities
  - (v) Budget and Financing
- (B) CMO States and the Implementation of the WMO Integrated Global Observing System (WIGOS)
- (C) Extraordinary Session of the World Meteorological Congress 2012
  - Implementation of the *Global Framework for Climate Services* (GFCS)
- (D) Back-up Arrangements for Meteorological Forecast and Warning Services among CMO Member States.

#### **5(A) Outcome/Highlights of the 16<sup>th</sup> World Meteorological Congress, 2011 and the 2011 Executive Council of the World Meteorological Organization**

5.2 The Coordinating Director presented to the Council, the outcomes and highlights of the 16<sup>th</sup> Congress of the World Meteorological Organization, which took place in Geneva from 16<sup>th</sup> May to 3<sup>rd</sup> June 2011. He noted that eight CMO Member States participated in part or all of the Congress proceedings. As the *Permanent Representative* of the British Caribbean Territories (BCT) with WMO, the Coordinating Director led a strong BCT delegation to the Congress, comprising *Mr Fred Sambula* (BCT-Cayman Islands), *Mr Glendell De Souza* of the CMO Headquarters and *Dr David Farrell*, Principal of the CIMH. The involvement of this team, as part of the CMO contribution to the WMO on behalf of all CMO Member States, was designed to increase the regional input into the session and to facilitate the critical follow-up actions.

5.3 The Council was informed of the results of the election process for the primary officers of the WMO, namely, the Secretary-General, its non-resident President and three Vice-Presidents and its Executive Council. In this regard, the Coordinating Director noted that, having served the maximum two consecutive terms as the Second Vice-president of WMO, he was unsuccessful in his bid for the Presidency of the Organization at this Congress. He thanked the Council and all CMO Member States for their strong support in this venture and his overall activities within WMO, and pointed out to the Council that he was re-elected to serve on the WMO Executive Council with similar responsibilities as before.

5.4 Council was informed that the major outcome of the Congress was the decision to launch the **Global Framework on Climate Services** (GFCS), involving WMO and its international partners. The GFCS was one of the five key priorities set by Congress for the next financial period, which were as follows:

- (i) Establishment and Implementation of the **Global Framework on Climate Services** (GFCS);
- (ii) **Capacity Building** for developing and least developed countries;
- (iii) Implementation of the new **WMO Integrated Global Observing System** (WIGOS) and the new **WMO Information System** (WIS), both of which are essential to all technical and scientific activities of Meteorological Services worldwide;
- (iv) Further enhancement of WMO's **Disaster Risk Reduction** (DRR) programmes and activities, for the effective mitigation against natural hazards;
- (v) Strengthening and further development of **new Services to Civil Aviation** by the meteorological community to ensure highest levels of safety and security in light of increasing volume of air traffic and the impact of severe weather events.

5.5 The Council recalled that, at its 50<sup>th</sup> session in the Cayman Islands (November, 2010), it dealt extensively with the delicate topic of the qualification, training and competency of personnel who provide meteorological services to the aviation community. Recognizing that the 16<sup>th</sup> World Meteorological Congress would finally decide on the definitions, qualification and competency requirements, the Council decided, *by Resolution 1 of CMC50*, that “the decisions of the 16<sup>th</sup> World Meteorological Congress in 2011 on the definitions, qualification and competency requirements for aeronautical meteorological personnel shall become the requirements for CMO Member States immediately after the Congress.”

5.6. In this regard therefore, **the Council:**

- (i) **Noted** the amended definitions for aeronautical meteorological personnel adopted by the 16<sup>th</sup> World Meteorological Congress, shown in **ANNEX III** to this Report, which now apply to aeronautical meteorological personnel in CMO Member States;
- (ii) **Also Noted** that the definitions described above are closely tied to competency standards for the core job-tasks in meteorology and hydrology, also shown in **ANNEX III**;



5.7 Council considered the *Education and Training Policy and Opportunities* emanating from the WMO Congress. It noted the close links between (i) the award of new fellowships and the provision by recipient States of post-fellowship reports; (ii) the criteria for selection of fellows and a Member State's development status; (iii) the NMHS's human resource development plan and the intended outcomes of the requested fellowship, and (iv) the award of fellowships and offers of cost-sharing, such as airfares. Council had previously discussed the high cost of training in Barbados in comparison to other parts of the world.

5.8 As a result, the **Council urged** CMO Member States to:

- (i) **Note** the WMO policies related to the award of fellowships, in particular the policy related to post-fellowship reports;
- (ii) **Consider** *cost-sharing options* with WMO when applying for WMO fellowships, and to include such cost-sharing proposals at the application stage, including links to other development partners to assist in cost-sharing; and;
- (iii) **Show** a clear link between a fellowship request and the development plans of the NMHS.

5.9 In its discussion of the WMO Programme and Budget for 2012-2015, Council noted that the assessed contributions for the developing WMO Member States and Territories, which were based on the United Nations scale of assessment, would remain unchanged for 2012 and 2013, but that these may be adjusted for the years 2014 and 2015. Nonetheless, the minimum rate, under which all but one of the CMO Members falls, shall remain at 0.02 per cent.

## **5(B) CMO States and the Implementation of the WMO Integrated Global Observing System (WIGOS)**

5.10 Council was informed about the significant progress that meteorology has made in the last few decades, which was as a result of impressive advances in research, numerical modelling, observing capabilities (in-situ and satellite), computer and communication technologies, all of which led to a substantial increase in quality and diversity of services. The current WMO observing systems had been developed and administered separately in the past to meet diverse sets of requirements.

5.11 The ***WMO Integrated Global Observing System*** (WIGOS) is an all-encompassing approach to the improvement and evolution of WMO global observing systems. It would foster the orderly evolution of the present WMO global observing systems into an integrated, comprehensive and coordinated system. A WMO brochure on WIGOS can be downloaded from [http://www.wmo.int/pages/prog/www/wigos/documents/Cg-XVI/WIGOS\\_flyer\\_en.pdf](http://www.wmo.int/pages/prog/www/wigos/documents/Cg-XVI/WIGOS_flyer_en.pdf).

5.12 WIGOS was expected to generate important benefits for Members, their *National Meteorological and Hydrological Services* and for the Organization as a whole. WIGOS would enable all Members and the WMO Programmes to provide timely, quality-assured, quality-controlled, and well-documented compatible long-term observations for enhanced and extended services. In addition, it will enable Members, especially those of the Least Developed Countries (LDCs) and Small Island Developing States (SIDS), to better respond to natural hazards; improve weather, water, climate, and related environmental monitoring and forecast services; and adapt to, and mitigate climate change.

5.13 The implementation of WIGOS would be one of WMO's five top priorities in the period 2012-2015, and would be essential for the *Global Framework of Climate Services* (GFCS), aviation meteorological services, disaster risk reduction, and capacity-building.

5.14 WIGOS would be implemented at the regional level with technical support provided by the WMO **Technical Commissions**. A **National Implementation Phase** would be developed for the period 2012-2015. For **CMO Member States**, it was imperative that the NMHSs designate one or two staff members to be their National Focal Point for WIGOS.

5.15 **Council** therefore:

- (i) **Urged** the CMO Member States to actively participate in WIGOS activities;
- (ii) **Also Urged** the NMHSs of Member States to designate one or two appropriate staff members as Focal Points for WIGOS;
- (iii) **Further Urged** the NMHSs to assign appropriate staff members to the task of preparing metadata (data about data) on all observing systems at the national level.

#### **5(C) Extraordinary Session of the World Meteorological Congress 2012**

##### **- Implementation of the *Global Framework for Climate Services* (GFCS)**

5.16 The 16<sup>th</sup> World Meteorological Congress decided that the *Global Framework for Climate Services* would be one of the top five priorities of the World Meteorological Organization (WMO) in the next four years. The GFCS would boost the availability of climate information needed by policy-makers and people to plan and to take decisions that are sustainable in a changing climate. It would be a global undertaking involving a wide array of stakeholders.

5.17 The Global Framework promises to unleash the full potential of billions of dollars invested in climate observation systems, research, and information management systems. This would yield massive benefits to the community, especially in disaster risk management, improved water management, sustainable agriculture and health protection. Congress adopted a restructured and strengthened *World Climate Programme* and decided that it would be a key programme in the delivery of the GFCS.

5.18 The World Climate Programme's responsibilities also include the establishment of a global network of **Regional Climate Centres** (RCCs). Congress therefore encouraged Member States and Territories to support the RCCs and to ensure global coverage of climate services. In this regard, the Caribbean Meteorological Council endorsed a proposal at its 50<sup>th</sup> session in 2010 that the CIMH be developed and recognized as a *WMO Regional Climate Centre (RCC)* for the English-speaking Caribbean. The CIMH, particularly in the role of an RCC, would have a very important role in supporting CMO Member States in their implementation of the GFCS.

5.19 An **extraordinary session of the World Meteorological Congress** would be held in late October 2012, with participation of all relevant stakeholders, including UN bodies, to review and adopt the draft implementation plan of the Global Framework.

5.20 Council expressed its strong support for the *Global Framework for Climate Services* and its continuing support for the establishment of the CIMH as a WMO RCC for the benefit of CMO Member States.

5.21 In this regard, **Council:**

- (i) **Urged** Member States to increase their support for the CIMH to enable it to carry out its various roles, including that of a WMO RCC;
- (ii) **Urged** the Meteorological and Hydrometeorological Services of Member States to pay close attention to the implementation of the GFCS and to participate in GFCS activities as appropriate;
- (iii) **Also urged** Member States to participate in the Extraordinary session of the WMO Congress in 2012.

**5(D) Back-up Arrangements for Meteorological Forecast and Warning Services among CMO Member States**

5.22 Council recalled that, at its 50<sup>th</sup> session (Cayman Islands, 2010), it passed a Resolution concerning the ***Regional Arrangements for Meteorological Forecast and Warning Services among CMO Member States***. The Resolution included the following backup arrangements for tropical cyclone watches and warnings, Aerodrome Forecasts (TAF) for main airports and agreed upon essential products.

- (a) Antigua will take over the responsibility of Barbados with respect to the island and coastal waters of Dominica;
- (b) Barbados will take over the responsibility of Antigua and/or Saint Lucia;
- (b) Barbados will take over the responsibility of Trinidad and Tobago;
- (c) Jamaica will take over the responsibility of the Cayman Islands;
- (d) Trinidad and Tobago will take over the responsibility of Barbados with respect to the islands and coastal waters of Barbados and St. Vincent and the Grenadines;
- (e) The USA will take over the responsibility of Jamaica.

5.23 Council was concerned that there was a real possibility of a "double whammy" situation occurring, in that a Forecast and Warning Office in one State and its designated backup in another State could both be "taken out of operations" by the same weather system. Considering that these arrangements also formed the basis for many other international arrangements or agreements, such as the WMO Caribbean-wide Early Warning System for tropical storms, hurricanes and other severe weather, as well as the basis for the provision of aeronautical meteorological forecasts and warnings under the auspices of the *International Civil Aviation Organization* (ICAO), Council requested that the existing back-up arrangement be reviewed at the 2011 session of the WMO Hurricane Committee for North America, Central America and the Caribbean, with the outcome to be reported to this 51<sup>st</sup> session of the Council.

5.24 In this regard, the CMO Coordinating Director brought the matter to the 33<sup>rd</sup> session of the WMO Hurricane Committee. In the process of its deliberation on the matter, the Hurricane Committee recognized that there was no backup arrangement for Belize and some other non-CMO States. The Hurricane Committee initiated a discussion among the National Meteorological and Hydrological Services (NMHSs) on the matter and came up with the following proposal, which would need to be formalized through the Caribbean Meteorological Council or on a bilateral basis:

- (i) Antigua will take over the responsibility of Barbados with respect to the island and coastal waters of Dominica;
- (ii) Barbados will take over the responsibility of Antigua and/or Saint Lucia;
- (iii) Barbados will take over the responsibility of Trinidad and Tobago;
- (iv) Jamaica will take over the responsibility of the Cayman Islands;
- (v) Trinidad and Tobago will take over the responsibility of Barbados with respect to the islands and coastal waters of Barbados and St. Vincent and the Grenadines. Trinidad and Tobago will serve as a secondary backup to Barbados with respect to Saint Lucia;
- (vi) The USA will take over the responsibility of Jamaica;
- (vii) The Cayman Islands will take over responsibility for Belize, with Jamaica serving as a secondary backup to the Cayman Islands with respect to Belize.

5.25 **The Council** discussed the backup proposals from the Hurricane Committee and:

- (i) **Endorsed** the new backup arrangements;
- (ii) **Replaced Resolution 2 of CMC50 with a new Resolution**, shown in **ANNEX IV**, to reflect the new backup arrangements;
- (iii) **Urged** the affected NMHSs to inform all relevant national authorities and organizations of the arrangements;
- (iv) **Also Urged** the affected NMHSs to formally exchange detailed operational material to enable the smooth implementation of backup operations; and
- (v) **Requested** the CMO Headquarters to inform the *East Caribbean Civil Aviation Authority* (ECCA) of these arrangements with respect to its Member States that were not Members of the ICAO.

## 6. FINANCIAL REPORTS

### 6(a) Status of Refundable Balances

6.1 The Council was presented with the current status of the CMO Member Refundable Balances from reimbursements from the United Kingdom held by the CMO Headquarters Unit. The Refundable Balances account, as of 3rd October 2011 in TT\$, was as follows:

<u>BCT</u>		<u>CMO MEMBERS OF WMO</u>	
Anguilla	57,646.23	Antigua & Barbuda	4,901.83
Br. Virgin Is.	47,867.24	Barbados	20,645.00
Cayman Is.	207,143.90	Belize	2,432.07
Montserrat	16,181.42	Dominica	9,018.25
Turks & Caicos Is.	67,462.31	Guyana	0.00
		Jamaica	95,497.90
		Saint Lucia	7,417.52
		T'dad & Tobago	110,175.35
	<u>\$396,301.10</u>		<u>\$250,087.92</u>
	=====		=====

St. Kitts & Nevis (funds held from BCT days \$83.74)

6.2 By Members' consent, these funds are held by the CMO Headquarters Unit to assist Members in attending important Met/Hydro Meetings, and also to purchase spares. The Coordinating Director noted that these funds have been used very effectively in pursuit of these objectives.

6.3 Council was reminded of a decision of the 47<sup>th</sup> Session of the Council (2007), which stated that each Session of the Council must be provided with the actual amount of Refundable Balance that each Member State was entitled to, which was as follows:

<u>BCT</u>		<u>CMO MEMBERS OF WMO</u>	
Anguilla	44,386.23	Antigua & Barbuda	4,901.83
Br. Virgin Is.	47,867.24	Barbados	20,645.00
Cayman Is.	207,143.60	Belize	2,432.07
Montserrat	16,181.42	Dominica	893.00
Turks & Caicos Is.	67,462.31	Guyana	0.00
		Jamaica	500.00
		Saint Lucia	7,417.52
		T'dad & Tobago	110,175.35
St. Kitts & Nevis	83.74		

### 6.4 The Council:

Noted the status of the Refundable Balances Account as presented;

Urged the Coordinating Director to continue to ensure that the method of drawdown on the Refundable Balances by Member States was very formal and clearly auditable at the CMO HQ end and the Member's end.

## **6(b) CMO HQ Auditor's Report**

6.5 The Coordinating Director presented the audited accounts for 2010 of the CMO Headquarters, which were audited during August 2011 by the Trinidad and Tobago Auditor General's Department.

6.6 The Council recalled that, at its 48<sup>th</sup> session in Guyana (December 2008), it requested a detailed explanation of the Accumulated Surplus shown in the Statement of Accounts. This explanation is repeated in **ANNEX V** to this Report.

### **6.7 The Council:**

**Reviewed and Noted** the audited Statements of Accounts for 2010.

## **6(c) Statement of Contributions and Arrears (CMO HQ & CIMH)**

6.8. The Council carried out very extensive discussions on the situation of arrears to both Organs of the Organization under various Agenda items. The Council recalled that for many years, both operational arms of the CMO, namely the CMO Headquarters Unit and the CIMH, had been forced to operate under very difficult circumstances because of the large arrears of contributions by Member States. The Caribbean Meteorological Council (CMC), as the Governing Body of the CMO, had constantly urged Member States to rectify the situation by making regular payments to the current budget estimates and by establishing a plan to pay off arrears.

6.9 The Council noted that the situation with the large arrears to the organs of the Organization had not changed in the last few years. It again urged that Member States in arrears to establish plans that would enable them to pay their current contributions while paying off the arrears in smaller portions over time. The Council was of the view that the Coordinating Director of the CMO, the Principal of the CIMH and the Chairman of the CIMH Board of Governors should make special visits to those countries with significant arrears and that these visits be used to demonstrate the valuable contribution that the Organization makes to the individual countries and to the region as a whole. The Council also felt the situation of arrears needed to be raised again with the CARICOM Heads of Government.

### **6.10 The Council:**

**Reiterated** an earlier call for Member States to make every effort to pay their full contribution for the current year, while setting up an internal mechanism to pay off arrears.

**Agreed** that the Coordinating Director, the Chairman of the CIMH Board of Governors and the Principal should make special trips to those Member States with significant arrears to discuss their situation.

**Also Agreed** that new efforts be made to bring this situation to the attention of the CARICOM Heads of Government.

## 7. **CMO BUDGETS (Headquarters Unit, CRN and Radar, CIMH)**

### 7(a) **CMO HQ Budget Estimates for 2012**

7.1 The Council examined the CMO Headquarters' Budget Estimates for 2012. The Council recalled that at its 49<sup>th</sup> session in 2009, it held in abeyance its earlier decision to fill two new professional posts and some general staff posts that it had earlier agreed should have been filled in 2010. The 50<sup>th</sup> session in 2010 decided that one of the professional posts be filled in the latter part of 2011. Because of the slow receipt of contributions in 2011, the Council noted that the post would be filled as soon as possible in 2012. Thus the 2012 Budget Estimates followed the pattern set by 2011. The Council accepted the view that while there had been little significant change in the overall economic situation, the continuing deferral of Council decisions within the budget estimates needed to be brought to an end in order that the Headquarters could implement the programmes that the Member States required.

7.2 The 2012 budget estimate therefore included full provisions for the ***International Affairs Officer*** post. The Council also held discussions on the timing of the filling of the other Professional post – the Project Development Officer. The budget estimates also made provision for the exceptional and special event to take place in late October 2012 in the form of an ***extraordinary session of the World Meteorological Congress*** to review and adopt the draft implementation plan of the ***Global Framework on Climate Services*** (GFCS), as discussed under Agenda item 5.

7.3 The Council also recognized that, as a temporary measure and as had been done in 2011, there was a need to include in the budget estimates, a budget line for the rent of the premises occupied by the CMO Headquarters in Port of Spain. Inclusion in the budgetary estimates would allow the Headquarters to expend funds for this purpose. However, this amount would not be included in the contributions to the Organization by Member States so that, in effect, the Council was asked to approve a budget estimate with a ***deficit***.

7.4 The Council examined the 2012 Budget Estimates for the CMO Headquarters Unit, the Caribbean Rawinsonde Network and the Radar Network.

### 7.5 **Council:**

- (i) **Approved** the deficit budget estimates of expenditure of **TT \$4,464,347**, as detailed in **ANNEX VI**, with Member contributions based on the figure of **TT \$3,948,347**, as indicated in **ANNEX VII**;
- (ii) **Reviewed** the regional contribution to the Radar Network and decided that the CMO Headquarters should study the operations of the radars and make a proposal at the next session;
- (iii) **Decided** that provisions for the filling of the *Project Development Officer* post be included in the 2013 Budget estimates;
- (iv) **Further decided** that support should not be provided for the attendance at sessions of the Meeting of the Directors of Meteorological Services and the CIMH Board of Governors, to Member States that were in arrears of contributions for over three years, unless arrears for at least one year, not including the current year, was paid off in advance of an upcoming session.
- (v) **Urged** Members to give priority to meeting annual contributions, through quarterly, bi-annual or more frequent part-payments if necessary, and to make every effort to pay off arrears to the Organization;

- (vi) **Reminded** Members that when forwarding their contributions to CMO Headquarters by bank transfers, to deposit funds into the same currency account as the sum remitted;
- (vii) **Urged** Members to inform the CMO Headquarters of their transfer of funds, including the date, amount and currency, in order to overcome difficulties in properly identifying the origin of funds within the banking system.

#### **7(b) CIMH Budget Estimates for 2012**

7.6 The Chairman of the Board of Governors informed the Council that CIMH presented the Estimates of Expenditure for the financial year 2012 to the Board of Governors for endorsement. The original total amount requested was BB \$6,267,929. It was noted that the Estimates included funds to fill numerous vacant positions which had been outstanding for some time. However, due to prevailing economic circumstances, prioritization was given to immediate needs. The Board of Governors considered all the proposals made by the CIMH and made adjustments to the Estimates accordingly.

7.7 The **Chairman** of the Board presented the Council with Revised Estimates of Expenditure of the CIMH for 2012 of **BB \$6,316,652** for its approval.

#### **7.8 The Council:**

**Approved** the Estimates of Expenditure for 2012 of **BB \$6,316,652** for the CIMH as presented by the Board of Governors.

### **8. ANNUAL MEETING OF THE DIRECTORS OF METEOROLOGICAL SERVICES**

8.1 The Meeting considered the Report of the Annual Meeting of Directors of Meteorological Services, held at the same venue on 16 November 2011, presented by Mr Glendell De Souza, Science and Technology Officer of the CMO Headquarters. The Report provided the Council with a summary of the deliberations and recommendations of the Directors on a wide range of technical and scientific topics.

8.2 Council was informed of the wide range of training opportunities provided by CIMH. However, it was noted that some students, on their return to their National Meteorological Service, seemed unable to perform some simple tasks. To remedy this apparent anomaly, it was recommended that Directors of Meteorological Services should submit the curricular for their on-the-job training programmes to CIMH for review since, given the different needs and lengths of the individual on-the-job training country programmes, it would be impossible for CIMH to create a one-size-fits-all model.

8.3 The telecommunication problem that prevented the creation of the regional radar mosaic was noted. Council was informed of the intervention of the CMO Headquarters, which led to the problem being identified. It noted that testing would be conducted as soon as all technical issues at both ends were resolved.



8.4 The Council was informed of the requirement that services provided to the aviation community by National Meteorological and Hydrological Services (NMHS) must conform to ISO 9001:2008 quality management systems from 15 November 2012. It noted that a different opinion was stated by the **Representative of the Cayman Islands** in regards to certification for the British Overseas Territories.

8.5 The planned changes to the International Satellite Communication System (ISCS) were noted by Council. In particular, it noted that the dissemination of the World Area Forecast Systems (WAFS) aeronautical products via the ISCS would be discontinued on **30<sup>th</sup> June 2012**. Member States that operate an Aeronautical Meteorological Office were urged to register to access the WAFS Internet File Service (WIFS). Information on registration for access to WIFS was available at: <http://www.aviationweather.gov/wifs/registration/index>.

8.6 It was also noted that the Regional Telecommunication Hub (RTH) in Washington would be initiating a new service for transmitting meteorological data to the RTH. Transition to the new service (GTS Internet File Service (GIFS)) would commence in January 2012, with a planned completion date of 31<sup>st</sup> March 2012. RTH-Washington would provide to WMO Member States, at no cost, the client software required for the transmission to interface with the RTH *Secure Socket Layer Virtual Private Network* (SSL VPN) server. The NMHSs would be responsible for all costs associated with maintaining a local VPN-capable Internet service to permit the SSL VPN connection. Status information on the implementation of GIFS would be posted to the URL <http://www.weather.gov/iscs/countdown.php>.

#### 8.7 The Council:

**Endorsed** the revised Report of the Meeting of Directors of Meteorological Services held on 16 November 2011.

### 9. CMO WEATHER RADAR NETWORK/PROJECTS

9.1 The CMO Weather Radar Project, implemented by the CMO Headquarters, installed four powerful German-made S-band Doppler weather radars in Belize, Barbados, Trinidad and Tobago and Guyana. These new radars, along with the Doppler radar in Jamaica, form the CMO component of a regional network of radars with neighbouring States. The new CMO network, along with other pre-existing radars in other Caribbean islands, provides the Caribbean with a modern sophisticated tool that complements other surface- and satellite-based weather observing platforms as part of the regional early weather warning system. Some weak points...or holes...in the regional radar coverage were still present. There were also technical issues that needed to be ironed out before one could say that the overall system worked perfectly.

#### (a) STATUS OF CMO RADAR NETWORK OPERATIONS

9.2 For the most part, operations at the radar sites were close to normal in most locations. The radars have all made an immense impact on the forecasts and warnings issued by the Meteorological and Hydrometeorological Services for their territories and areas of responsibilities, as well as for neighbouring Member States. The Belize radar worked through several tropical storms and hurricanes since its installation, including several in 2011, while the others have captured multiple episodes of severe weather that led to flooding and damage to property. Data from all the radars are archived in electronic form for easy retrieval for studies of various types. The importance of this was demonstrated in Guyana when all radar data was easily retrieved to assist in the investigation of an aircraft landing mishap in July 2011.

9.3 The Council was briefed on the products being generated by the radars, the usefulness for different sets of users, the availability of radar imagery on Websites, etc. The Council noted that there were some differences in the type of data provided to users by the four radar sites. The Council was briefed on the episodes of “down-time” of some of the radars which appeared to be primarily caused by power supply issues and not due to the radar equipment itself.

9.4 In discussing maintenance issues, the Council was informed about the situation with the reduction in the number of trained radar technicians in the four Member States. Of a total of 13 technicians trained, some had retired and others had moved out of an operational mode. The CMO Headquarters was very concerned that, if special attention was not placed on rectifying this situation, the radar network could face long-term sustainability issues. The Council discussed options for **periodic refresher maintenance training** and/or training of new maintenance personnel.

9.5 The Council discussed an issue of electromagnetic interference with the Barbados radar, which the CMO Headquarters believed originated from an external source, either from an illegal radio transmission or from a significant fixed solid feature to the west of the radar site. The interference appeared on all Barbados radar images and negatively affected data over the southern part of the island of St. Vincent. In addition, the CMO noted that some masking of the Barbados radar beam was occurring in the southeast quadrant, with the most likely cause being the regrowth of large trees that had been trimmed earlier.

9.6 The Council noted the telecommunication difficulties being experienced in having the regional radar composite generated as a routine, but was hopeful that efforts by the CMO Headquarters, in collaboration with the USA and the four radar sites, would bring a resolution in the near future. In that regard, the Council noted that the radar in Jamaica also had operational difficulties that were being overcome with the upgrading of its radar computer software, and hoped that the Jamaica radar images would also form part of the regional composite as planned.

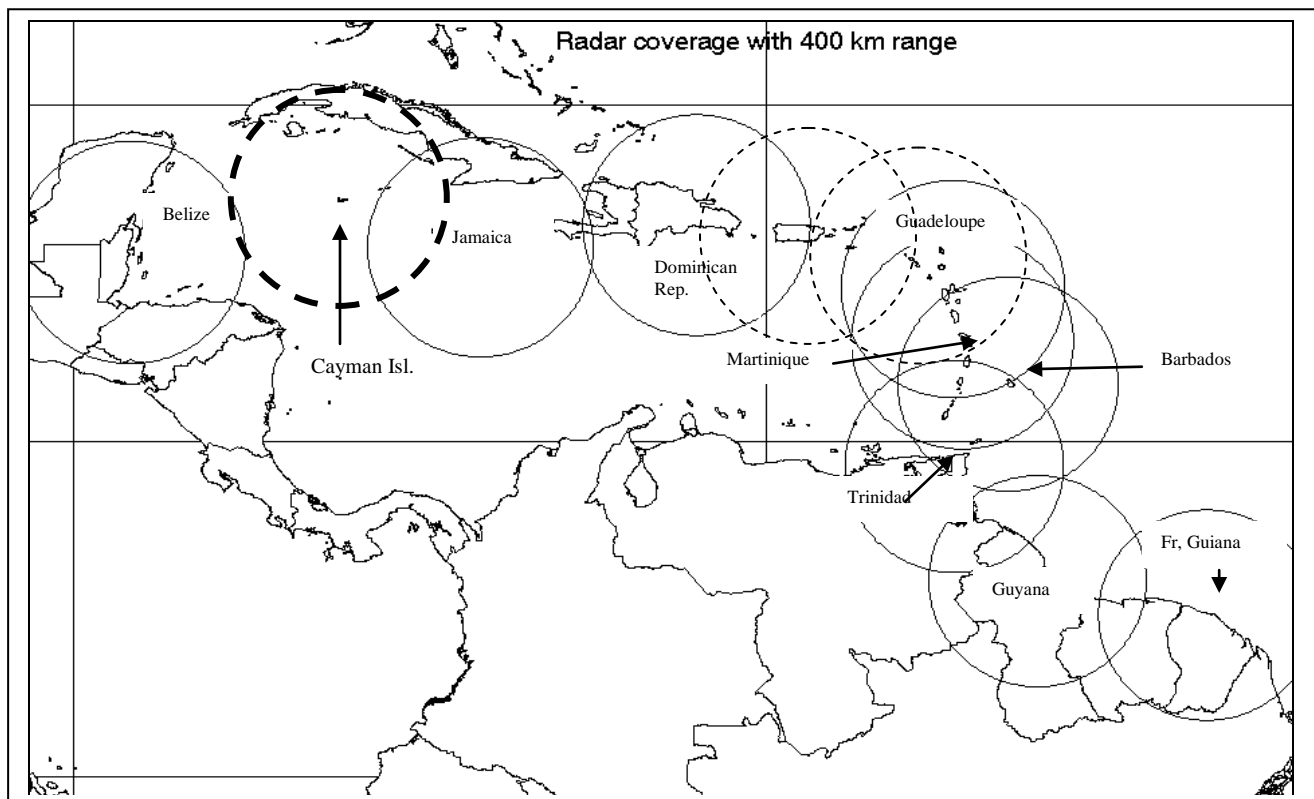
**(b). OPERATIONS OF THE CENTRAL RADAR SPARES DEPOT AND MAINTENANCE SUPPORT FACILITY AT CIMH**

9.7 The Council was briefed on the status of the Central Spares Depot and Maintenance Support Facility at the CIMH in Barbados. It was pleased to note that the CIMH had set up a computerized Central Spares Depot/Facility featuring:

- (i) A computerized radar spares manifest;
- (ii) The costs of the spares;
- (iii) An inventory management system and the automated generation of shipping invoices (*under development*).

**(c) CAYMAN ISLANDS WEATHER RADAR PROJECT**

9.8 The Council was briefed on the efforts of the Government of the **Cayman Islands** to close the one major gap in the regional radar coverage, which existed in its area. The CMO Headquarters was assisting the Cayman Islands with a project to install a new Doppler weather radar in Grand Cayman. Once implemented, the new Doppler weather radar would form the centrepiece of the Cayman Islands early warning system and would be integrated into the full CMO network, as depicted in **Figure 1** below.



**Figure 1: Cayman Islands Radar to provide complete Caribbean radar coverage**

9.9 **The Council** therefore:

- (i) **Urged** the Meteorological Service operating radars to publicize their Websites, including the availability of radar images, and for Services in neighbouring States to also publicize those sites and give access through their own Websites;
- (ii) **Also Urged** the Radar States and CIMH to collaborate with the CMO Headquarters to collectively decide on a common set of products for use by the public, special users and the wider meteorological community;
- (iii) **Noted** the efforts of the CMO Headquarters and the CIMH to source funding for **periodic refresher maintenance training** or training of new maintenance personnel. Due to the urgent need for this training, **recommended** that Barbados, Belize, Guyana and Trinidad and Tobago consider using national funds towards the training of their technicians;
- (iv) **Urged Barbados** to have the problem of interference with the radar signal thoroughly investigated by the appropriate local authority in collaboration with the Meteorological Service and the CIMH, with a view to curtailing any illegal transmission if found to be the cause, or to recommend other feasible solutions; and that arrangements be established to prevent or minimize masking of the radar beam by tall trees. It noted the view of the **Principal Delegate of Barbados** who indicated that representation would have to be made to the private owners of the properties to the south-east of the radar in order to trim the trees and remove the mask;

- (v) **Urged** that high priority be given to sorting out all communication and Website issues to enable the regional radar composite to become fully operational, and for the US National Hurricane Center and other weather prediction centres to have full access to appropriate radar data;
- (vi) **Noted** the operations of the Central Spares Depot and Maintenance Support Facility established at **CIMH**;
- (vii) **Noted** the progress towards the implementation of the new Radar Project in the Cayman Islands.

## **10. OTHER PROJECTS AND PROPOSALS**

10.1 The Council, aware of the fact that weather, climate and water are at the heart of the environmental issues affecting the planet, emphasized that the Meteorological and Hydrometeorological Services (NMHSs) in the Caribbean must provide accurate information, analyses and timely forecasts of hazardous weather-related conditions that affect sustainable development. At the same time, the Council discussed the role of the NMHSs in also providing the appropriate data and scientific-basis for studies on the long-term potential impacts of both natural and human-induced climate changes on the environment. In the process, it recognized that the contribution of meteorology and related sciences to these global studies was driven by the constant adaptation to and use of technological changes and opportunities.

10.2 In this regard, the Council was brought up-to-date on many of the projects being undertaken or planned and noted that most had observational and scientific data information components involving the use of new or modern technologies. Specifically, the Council discussed the progress of implementation of the following projects which involved CMO Member States and partner organizations, such as the *World Meteorological Organization (WMO)* and the *Association of Caribbean States (ACS)*.

### **(a) WMO CARIB-HYCOS Project - Implementation Status**

10.3 The Council recalled that WMO launched the ***World Hydrological Cycle Observation System (WHYCOS)*** in 1993. The aim of WHYCOS was the development of water resources information systems to assist WMO Member countries to improve their water management, mitigate the impact of water-related disasters, such as floods and droughts, and contribute to regional and global studies of the impact of climate change on water resources. A series of HYCOS components around the world were being used to develop WHYCOS. Carib-HYCOS, a component of WHYCOS, had been organized into two components, one addressing the needs of the Caribbean Island countries (CIC) and the other, the needs of the mainland countries of the Caribbean Basin. The implementation of the Islands Component of Carib-HYCOS started in 2008, with CMO being a member of the Project's Steering Committee (PSC).

10.4 The specific aims of Carib-HYCOS Project were the reinforcement of national capabilities in water resources management and the promotion of international cooperation (exchange of data, technology and expertise). The Island Component of the Carib-HYCOS project would therefore help develop the technical skills of the National Hydrological Services of the participating States regarding the collection, maintenance, analysis and application of reliable and high-quality water resources data, in order to promote a more sustainable development and management of freshwater resources.

10.5 Eleven Caribbean islands States were participating in the Project, namely **Antigua and Barbuda**, **Barbados**, Cuba, **Dominica**, the Dominican Republic, Guadeloupe, Haiti, **Jamaica**, Martinique, **Saint Lucia** and **Trinidad and Tobago**. The following agencies were involved in Project execution:

Supervising Agency	WMO
Executing Agency	Institut de Recherche pour le Développement (IRD)

10.6 The Project Regional Centre (PRC) was being hosted by IRD in Martinique, and included the Project Management Unit (PMU) and a server for a regional database. The PMU was being assisted by the **Caribbean Institute for Meteorology and Hydrology** (CIMH) and the *Instituto de Meteorologia* (INSMET, Institute of Meteorology) of Cuba for the English- and Spanish-speaking countries respectively.

10.7 The Council was informed that since the 50<sup>th</sup> session of the Council in 2010, the 3<sup>rd</sup> Meeting of the Project Steering Committee took place in Port of Spain, Trinidad and Tobago on June 21 and 22, 2011. In addition, the following had been undertaken or achieved by the Project since its last session:

- (a) The contract for the database software was awarded to the French firm *Compagnie Nationale du Rhône* for €106,322 for 12 licenses. Software installation and training for installation were done between January and March 2011. Training in the use of the software was done in March in the Dominican Republic for the Spanish-speaking countries, and in April 2011 in Barbados for the English-speaking countries;
- (b) Hydrological data collected in various formats from participating countries were reformatted for entry in the new data base. This had been scheduled for completion by July-August 2011;
- (c) The tender for the hydrological equipment for the participating countries closed on March 28, 2011. The contract was awarded in June to the European company *OTT Hydromet*;
- (d) Equipment installation and maintenance training workshops for two participants per country were scheduled to take place from October 10-16, 2011 in Cuba for Spanish-speaking countries, and from October 24-28 in Saint Lucia for English-speaking countries. Due to a number of problems in the dispatching and delivery of the hydrological stations and equipment, the training workshops had to be postponed into early 2012;
- (e) Remaining funds would be used to purchase additional equipment after consideration of the needs of individual countries. The amount could vary between €60,000 and €150,000, depending on whether the agreement between IRD and the General Council of Martinique was extended. Country submissions for additional equipment should have been made by the end of September 2011;
- (f) The Project Office met and discussed directly with Haiti, their installation and training requirements for the software and equipment, taking into consideration their special conditions.

10.8 The scheduled end of the Project was June 2012. The next Steering Committee Meeting was tentatively scheduled to be held in Guadeloupe on May 28-31, 2012. The 3<sup>rd</sup> Steering Committee Meeting decided that the future of the Project after June 2012 should be decided at a later date, possibly at the 4<sup>th</sup> Meeting. The discussion would include the outcome of the following activities:

- Monitoring of the installed systems between August and December 2011;
- Assessment of the Project outputs and possible authority or structure for management of Carib-HYCOS after July 2012;
- Assessment of form and type of extension needed;
- Assessment of regional institutions' interest in taking over the administration of Carib-HYCOS and management of the servers. During the Project preparation stage, CIMH and INSMET were identified as possible candidates for the English and Spanish-speaking countries. However, a few countries preferred a single entity.

**(b) Finland Initiative - Strengthening Hydrometeorological Operations and Services in the Central America and the Caribbean (SHOCS)**

10.9 Most countries, such as Finland, recognized that the NMHSs have a vital impact on the national economy and safety by providing data and products for the benefit of all sectors of society and the mitigation of impacts of natural disasters. Hence, the Ministry for Foreign Affairs (MFA) of Finland decided to provide 500,000 Euros for a *needs assessment and feasibility study project* in the Caribbean Small Island Developing States (SIDS). This project, entitled “***Strengthening Hydrometeorological Operations and Services in the Central America and the Caribbean (SHOCS)***”, was being implemented by FMI under the direction of the ACS and in collaboration with WMO and CMO. The participating CMO Member States were Antigua & Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, St. Kitts & Nevis, Saint Lucia, St. Vincent & the Grenadines and Trinidad & Tobago.

10.10 Council was aware that the *International Civil Aviation Organization (ICAO)* has placed high priority on the imposition of a **Quality Management System (QMS)** for all types of services to civil aviation. Specifically, ICAO has mandated that from November 2012, every designated Meteorological Authority around the world must have a properly certified Quality Management System in place. This would comprise procedure, processes and resources necessary to provide for the quality management of the meteorological information to be supplied to the aviation users.

10.11 As a result, the SHOCS Project placed its first major efforts in this area. During 2011, the Project's primary focus has been on ***Improving Meteorological Service processes*** through quality management systems, with special focus on aeronautical meteorology. In this regard, the Project organized a **Workshop on the implementation of a Quality Management System (QMS) to aviation weather services**. This was held in Barbados from 9–13 May 2011 with QMS experts from Finland and Canada. Each Meteorological Service of the CMO Member States mentioned in paragraph 10.9 sent the staff member who had been assigned as the principal person dealing with QMS. In addition, the CMO organized with the Project organizers to include a participant each from Anguilla, the Cayman Islands and the British Virgin Islands.

10.12 The Barbados Workshop revealed how far along the QMS preparation process the participant Meteorological Services had reached. The Project organized a follow-up **2<sup>nd</sup> Workshop on the implementation of a Quality Management System** for 5-9 December 2011 in Saint Lucia for the same participants at the Barbados workshop. Participants were expected to present their national progress-to-date towards certification, including “a *complete project plan/roadmap to implementation*”. Some basic elements of QMS which had not been included in the 1<sup>st</sup> workshop were to be covered and more in-depth attention given to those quality management blocks that were the most demanding to implement.

10.13 While QMS issues were being undertaken, the Project would carry on parallel activities in **Disaster mitigation and risk reduction**. The feasibility assessment on *Multi-Hazard Early Warning Systems* (MHEWS) and *Disaster Risk Reduction* (DRR) capacities in the Caribbean SIDS was scheduled for the period starting from November and ongoing until about March-April 2012. The Project would undertake meetings with the representatives of the National Meteorological and Hydrological Services (NMHSs) and Disaster Management Agencies (DMAs) in each SIDS to find the most important topics of capacity building to be implemented in follow-up projects.

**(c). CMO Members and WMO Disaster Risk Reduction Activities in the Caribbean**

10.14 The 50<sup>th</sup> session of the Council in 2010 invited the World Meteorological Organization to exchange views with the CMO Member States on WMO Disaster Risk Reduction Activities in the Caribbean. Even with over 30 years of regional cooperation in tropical cyclone forecasting and warnings, WMO continued its efforts to further strengthen the regional coordination in Multi-Hazard Early Warning Systems with national development components. These were being undertaken through a number of training workshops, assessment and national visits, consultations and technical workshops engaging senior management and experts from NMHSs, Disaster Risk Management (DRM) agencies and regional and international partners and centres, and building on the capacities and various activities already underway in the Caribbean (reference paragraph 10.13 above).

10.15 Specific Goals of the WMO programme were to: (1) strengthen national and regional institutional capacities and cooperation among the NMHS and DRM agencies through development/strengthening of components of early warning systems with a multi-hazard approach for hydro-meteorological and marine hazards; and, (2) to enhance coordination among hydro-meteorological warning systems (building on the existing regional coordination for tropical cyclones) and other hazards (e.g., tsunamis). The strengthening of these capacities involved a phased approach engaging consultations with countries/territories and the regional mechanisms and agencies and other stakeholders.

10.16 In 2010 and early 2011, WMO undertook the development of programmatic and technical aspects based on extensive consultations with the stakeholders in the countries/territories, regional agencies and institutions, and other stakeholders. Through 2011 and for the next two years, the planned activities included:

- 2011: Identification of institutional partnerships, resource mobilization strategy and development of implementation, monitoring and evaluation processes founded in the regional processes in the Caribbean;
- 2011-2012: Launch of the Programme and phase 1 of the project upon confirmation of available resources and funding; and
- 2012 – Onwards: Implementation and systematic coordination for monitoring progress and evaluation and expansion planning.

10.17 This cooperation framework was presented to the WMO Congress in 2011 as a model that could be expanded to other regions, such as the Pacific. A comprehensive report by WMO was expected late in 2011, which would lay the background for the next set of activities.

#### **(d) Other CMO Project Proposals**

10.18 At several of the previous sessions, the CMO Headquarters brought to the attention of the Council, its proposal to organize or participate in several projects in the near future aimed at reviewing, updating, improving and even widening the observational networks and data collection in the Caribbean, to ensure the constant availability of the highest quality data. Due to limited resources at the CMO Headquarters in 2011, these project proposals remained in the planning stages and would be implemented as soon as the situation would allow:

1. **Lightning Detection System:** - CMO indicated its intention to establish a Ground-based Lightning Detection System in the region in partnership with the Meteorological Service of France [Météo-France (MF)].
2. **Radar Calibration:** - Since the new weather radars in the English-speaking Caribbean were fully operational, a project involving the Meteorological Services of the radar countries and the CIMH would be needed to undertake the calibration of each radar, in collaboration with local hydrological and agrometeorological agencies that also operate rainfall networks.
3. **Radar Emission Survey:** - Recognizing that the term “radiation” has certain connotations for the public, the CMO Headquarters had been seeking funding to commission a survey by an independent and reputable institution to test and verify the conformity of the radar emissions to international health and safety standards. A preliminary survey had already been started by the Department of Physics at the University of the West Indies in St. Augustine in Trinidad.
4. **Coordination of CMO Automatic Weather Station data collection:** - There have been many Automatic Weather Stations (AWS) operated by the NMHSs in CMO Member States. However, some may not be in an operational mode, or that their data may not be shared through the WMO *Global Telecommunication System* (GTS). There was a need for proper quality control of AWS data, the availability of the data to all users and proper archiving for operational and climate use.



5. **Metadata Collection Project:** - Metadata gives all levels of detail of data collected, of the instruments used, methods of storage, ownership, etc. Metadata existed on most of the conventional weather observing stations at NMHSs in CMO Member States. But there needed to be an assessment to check the completeness of this metadata. In recent years, there had been a large number of Automatic Weather Stations (AWS), hydrological stations, sea level monitoring stations, which had been installed in the Caribbean. Metadata on these stations had not been properly documented, if at all. In some cases, stations, or parts thereof, had been moved to nearby locations, without any documentation of the move being recorded.

10.19 **The Council:**

**Noted** the updated information (i) WMO Carib-HYCOS Project, (ii) The Finland Initiative for the Strengthening Hydrometeorological Operations and Services in the Central America and the Caribbean (SHOCS) and (iii) Other CMO Projects Proposals.

11. **ANY OTHER BUSINESS**

11.1 The **Principal Delegate from Saint Lucia**, Mrs Allison Jean, who had been a regular participant in meetings of the Board of Governors of the CIMH and sessions of the Council, indicated that, in her estimation, she may be rotated into a post in another ministry before the next session of the Council. She bade a “tentative” farewell to all her colleagues at the session. The Council expressed its great appreciation for her valuable contribution to the Council over the years and hoped that her successor, if realized, would be an equally significant contributor to the efforts of the region.

12. **DATE AND VENUE OF CMC52 (2012)**

12.1 The Council received a tentative offer from the **Principal Delegate of Saint Lucia** to host the 52<sup>nd</sup> Session of the Council and related meetings in 2012. She indicated that, because of a pending general election in Saint Lucia later in the month of November 2011, she was unable to confirm the offer. The CMO Headquarters indicated that it would liaise with the Government of Saint Lucia in due course.

12.2 **The Council:**

**Thanked** Saint Lucia for the tentative offer to host these meetings;

**Expressed** its thanks to the Chair and the Deputy Chair for their excellent conduct of the session and to the Government of the Commonwealth of Dominica for the warm hospitality extended and the excellent arrangements put in place for the conduct of the business of CMC51.

**Close of Meeting**

12.3 There being no other business, the Meeting ended with an exchange of courtesies.

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**AGENDA**

1. OPENING OF SESSION AND ELECTION OF CHAIRMAN
2. ADOPTION OF AGENDA AND PROCEDURAL MATTERS
3. CMO EXECUTIVE REPORTS
  - (a) Coordinating Director's Report
  - (b) CIMH Principal's Report
  - (c) CIMH Board of Governors' Report
4. STATUS OF ACTIONS FROM PREVIOUS SESSION
5. SPECIAL CMO AND WMO ISSUES
  - (a) Outcome/Highlights of the 16<sup>th</sup> **World Meteorological Congress**, 2011 and the 2011 Executive Council (EC) of the World Meteorological Organization
    - (vi) Election results
    - (vii) Five Priorities for 2012-2015
    - (viii) Definition of "WMO Meteorologist"
    - (ix) Education and Training Policy and Opportunities
    - (x) Budget and Financing
  - (b) CMO States and the Implementation of the WMO Integrated Global Observing System (WIGOS)
  - (c) Extraordinary Session of the World Meteorological Congress 2012
    - Implementation of the *Global Framework for Climate Services (GFCS)*
  - (d) Back-up Arrangements for Meteorological Forecast and Warning Services among CMO Member States
6. FINANCIAL REPORTS
  - (a) Status of Refundable Balances
  - (b) CMO HQ - Auditor's Report
  - (c) Statement of Contributions and Arrears (CMO HQ & CIMH)
7. CMO BUDGETS (Headquarters Unit, CRN and Radar, CIMH)
  - (a) CMOHQ Budget Estimates for 2012
  - (b) CIMH Budget Estimates for 2012

8. ANNUAL MEETING OF THE DIRECTORS OF METEOROLOGICAL SERVICES
9. CMO WEATHER RADAR NETWORK/PROJECTS
  - (a) Status of CMO Radar Network Operations
  - (b) Operations of the Central Radar Spares Facility
  - (c) Cayman Islands Radar Project
10. OTHER PROJECT UPDATES AND PROPOSALS
  - (a) CARIB-HYCOS Project – Implementation Status
  - (b) Finland Initiative - Strengthening Hydrometeorological Operations and Services in the Central America and the Caribbean (SHOCS)  
– Progress of CMO Member States for QMS
  - (c) CMO Members and WMO Disaster Risk Reduction Activities in the Caribbean
  - (d) Other CMO Projects/Proposals
11. OTHER MATTERS
12. DATE AND VENUE OF CMC52 (2012)

**ANNUAL MEETING OF THE CARIBBEAN METEOROLOGICAL COUNCIL**

**ROSEAU, DOMINICA**

**17-18<sup>TH</sup> NOVEMBER, 2011**

**LIST OF DELEGATES**

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**WMO Congress 16 - RESOLUTION**

**Res. 6.2/2 (Cg-XVI) - DEFINITION OF A METEOROLOGIST AND METEOROLOGICAL TECHNICIAN**

**THE CONGRESS,**

**Noting** the discussion of EC-LXII and Resolution 18 (EC-LXII) – WMO definition of a Meteorologist,

**Noting further:**

- (1) The revision undertaken by the Editorial Task Force of the Executive Council Panel of Experts on Education and Training of the content of WMO Publication No. 258 "Guidelines for the Education and Training of Personnel in Meteorology and Operational Hydrology", 4<sup>th</sup> edition, Volume I: Meteorology,
- (2) The desirability of maintaining consistency between the definition of a Meteorologist and a Meteorological Technician,
- (1) The need for the definition of BIP-M and BIP-MT requirements to be included in the Technical Regulations due to the reference in the aeronautical meteorological personnel competency Standards,

**Considering** the lack of clarity in the formulation of the required qualifications of meteorologists by the term "a degree or equivalent" as reflected in the 4<sup>th</sup> edition of WMO Publication 258,

**Considering further** the proposed changes to the description of the requisite topics in the Basic Instruction Package for Meteorologists (BIP-M) and Basic Instruction Package for Meteorological Technicians (BIP-MT),

**Decides:**

- (1) To amend the definition of Meteorologist and Meteorological Technician to read:  
"Meteorologist – a person who has successfully completed the Basic Instruction Package for Meteorologists (BIP-M) requirements at university degree-level", and  
"Meteorological Technician – a person who has successfully completed the Basic Instruction Package for Meteorological Technicians (BIP-MT) requirements". The implementation date for the changed definitions and for the Basic Instruction Packages will be 1 December 2013;
- (2) To adopt the text in Annex I to this resolution, as Chapter B4, WMO Technical Regulations (WMO-No. 49), Volume I;
- (3) To adopt the text in Annex II to this resolution as the replacement for WMO Publication No. 258, Volume I, Meteorology.

**Urges** Members to:

- (1) Take the lead in consulting with the appropriate national and regional bodies to define the academic qualifications required by Meteorologists in their countries;
- (2) Work with their national education and training establishments to regularize or formalize the accreditation of their education and training institutions and certification of their courses according to Quality Management Framework principles.

**Requests** the Secretary-General to arrange for the publication of these documents as soon as possible;

**Authorizes** the Secretary-General to make any consequent editorial amendments to the Annexes to ensure consistency of the relevant documents.

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**Annex to Congress 16 Resolution 11.6/1 (Cg-XVI)**

**Aeronautical Meteorological Personnel Competence Standards**

***Aeronautical Meteorological Forecaster***

An **Aeronautical Meteorological Forecaster**,

- A. For the area and airspace of responsibility,
- B. In consideration of the impact of meteorological phenomena and parameters on aviation operations, and
- C. In compliance with aviation user requirements, international regulations, local procedures and priorities,

Should<sup>1</sup>, in taking into account conditions A to C, have successfully completed the BIP-M<sup>2</sup> and should<sup>3</sup> be able to:

- 1. Analyse and monitor continuously the weather situation;
- 2. Forecast aeronautical meteorological phenomena and parameters;
- 3. Warn of hazardous phenomena;
- 4. Ensure the quality of meteorological information and services; and
- 5. Communicate meteorological information to internal and external users.

***Aeronautical Meteorological Observer***

An **Aeronautical Meteorological Observer**,

- A. For the area and airspace of responsibility,
- B. In consideration of the impact of meteorological phenomena and parameters on aviation operations, and
- C. In compliance with aviation user requirements, international regulations, local procedures and priorities,

Should<sup>3</sup>, in taking into account conditions A to C be able to:

- 1. Monitor continuously the weather situation;
- 2. Observe and record aeronautical meteorological phenomena and parameters;
- 3. Ensure the quality of the performance of systems and of meteorological information; and
- 4. Communicate meteorological information to internal and external users.

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<sup>1</sup> 'Should' to become 'shall' in a November 2016 amendment of WMO-No. 49 Volume I;

<sup>2</sup> As defined in the revised WMO-No. 49 Volume I;

<sup>3</sup> 'Should' to become 'shall' in a November 2013 amendment of WMO-No. 49 Volume I.





## CARIBBEAN METEOROLOGICAL COUNCIL

### RESOLUTION 1, CMC51, 2011 - REGIONAL ARRANGEMENTS FOR METEOROLOGICAL FORECAST AND WARNING SERVICES AMONG CMO MEMBER STATES

#### THE CARIBBEAN METEOROLOGICAL COUNCIL,

**Noting** that the National Meteorological and Hydrometeorological Services (NMHS) of the CMO Member States have developed to various scientific and technical levels over the years,

**Considering** that the *Weather Forecast and Warning Offices* of Member States, with the higher scientific and technical levels and functions, operate round-the-clock and year-round and that the *Aeronautical Meteorological Offices* of Member States operate according to aeronautical requirements,

**Taking into account** the existing arrangements made under the auspices of the Caribbean Meteorological Organization in which the Member States with the Weather Forecast and Warning Offices provide the same weather forecast and warning services to those States without such offices, as well as the back-up arrangements between Services,

**Noting further** that these arrangements form the basis for many other international arrangements or agreements, such as the responsibilities of Member States for forecasts and warnings within the Regional Hurricane Warning System of the *World Meteorological Organization* (WMO) and the provision of aeronautical meteorological forecasts and warnings under the auspices of the *International Civil Aviation Organization* (ICAO),

**Recognizing** the major importance of these arrangements and **having reviewed** the scientific and technical capacities of the NMHSs of Member States,

**Decides** that the following arrangements shall apply:

<b>Member States with Weather Forecast and Warning Offices</b>	<b>States and Areas of Responsibility for Forecasts and Warnings</b>
Antigua & Barbuda	The islands and coastal waters of Antigua & Barbuda, Anguilla, British Virgin Islands, Montserrat, St. Kitts & Nevis
Barbados	The islands and coastal waters of Barbados, Dominica, St. Vincent and the Grenadines
Belize	The islands, coastal waters and inland areas of Belize
Cayman Islands	The islands and coastal waters of the Cayman Islands
Grenada	The islands and coastal waters of Grenada and its dependencies (weather forecasts)
Guyana	The coastal waters and inland areas of Guyana
Jamaica	The island and coastal waters of Jamaica
Saint Lucia	The island and coastal waters of Saint Lucia

Trinidad and Tobago	The islands and coastal waters of Trinidad and Tobago; tropical cyclone warnings responsibility for Grenada and its dependencies
<i>By agreement between CMO and The Bahamas (non-CMO Member), the Bahamas area of responsibility for forecasts and warnings includes the islands and coastal waters of the Turks and Caicos Islands</i>	

**Also decides** that, having consulted with the WMO Hurricane Committee for the region, the following backup arrangements for tropical cyclone watches and warnings, Aerodrome Forecasts (TAF) for main airports and agreed upon essential products, as determined under the auspices of the WMO and ICAO, shall apply:

- (i) Antigua will take over the responsibility of Barbados with respect to the island and coastal waters of Dominica;
- (ii) Barbados will take over the responsibility of Antigua and/or Saint Lucia;
- (iii) Barbados will take over the responsibility of Trinidad and Tobago;
- (iv) Jamaica will take over the responsibility of the Cayman Islands;
- (v) Trinidad and Tobago will take over the responsibility of Barbados with respect to the islands and coastal waters of Barbados and St. Vincent and the Grenadines. Trinidad and Tobago will serve as a secondary backup to Barbados with respect to Saint Lucia;
- (vi) The USA will take over the responsibility of Jamaica;
- (vii) The Cayman Islands will take over responsibility for Belize, with Jamaica serving as a secondary backup to the Cayman Islands with respect to Belize.

**Further decides**

- (i) that the NMHSs of all Member States should ensure that all stakeholders at the national level are aware of these arrangements and that the CMO Headquarters should make this Resolution permanently available on its Website;
- (ii) that variations in the international arrangements or agreements emanating from the above should be made in collaboration with and coordinated by the Headquarters of the Caribbean Meteorological Organization,
- (iii) to review this Resolution whenever significant changes in the arrangements are proposed.

**This Resolution replaces Resolution 2 of CMC50, which is no longer in effect.**

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**Tip on reading/ understanding the Surplus/ Accumulated Surplus on the financial statements**

The ***Income and Expenditure Statement/Income Statement*** is prepared under the accrual basis of accounting and **NOT** the Cash Basis. This means that the revenues are recorded as they are due, but they may not have been collected. Similarly, the expenses reported on the Income Statement might not have been paid.

Therefore, a ***Surplus/Accumulated Surplus*** on the Income Statement does not represent actual cash that the Organization has at that point in time. A Surplus/Accumulated Surplus on the income statement includes non-cash items such as depreciation and revaluation of non-current assets, as well as the computed surplus for the year that would have been achieved if all revenues were received and all expenses were paid. It also includes brought-forward balances of similar surpluses since the inception of the Organization.

Therefore, the ***Cash Flow Statement/Statement of Cash Flows*** is distinct from the ***Balance Sheet and the Income Statement*** as it does not include the amount of future incoming and outgoing cash that have been recorded. This statement identifies the actual cash that is flowing in and out of the Organization. The item Cash and Cash Equivalents at year-end on the Statement of Cash Flows and Cash in Hand and at Bank on the Balance Sheet represents **actual cash** that the Organization has at year-end for future operations. The ***Statement of Cash Flows*** gives a clearer picture of how well an organization is functioning and its ability to repay debt or fund projects.

Therefore, a Surplus/Accumulated Surplus as at year-end on the Income Statement is not the same as actual cash which the Organization has on hand for future operations.

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Prepared in consultation with and approved by the Auditor-General's Department



## HEADQUARTERS UNIT ESTIMATES 2012

VOTE	DETAILS OF EXPENDITURE	2012 EST.	2011 APP. EST.	2010 ACTUAL	INC. 2012/11	DEC. 2012/11
<b><u>1. PERSONAL EMOLUMENTS</u></b>						
1 (1)	Coordinating Director	883,991.00	869,733.00	867,728.00	14,258.00	-
1 (2)	Science & Technology Officer	392,832.00	377,836.00	363,660.00	14,996.00	-
1 (3)	International Affairs Officer	154,484.00	151,992.00	-	2,492.00	-
1 (4)	Administrative Officer	198,286.00	186,074.00	178,519.00	12,212.00	-
1 (5)	Accounts Clerk	87,167.00	84,473.00	66,289.00	2,694.00	-
1 (6)	Secretary	87,167.00	84,473.00	71,426.00	2,694.00	-
1 (7)	Messenger	52,665.00	51,094.00	50,148.00	1,571.00	-
1 (8)	Office Cleaner	49,350.00	52,177.00	51,162.00	-	(2,827.00)
1 (9)	Post Adjustment	300,000.00	330,000.00	270,194.00	-	(30,000.00)
1 (10)	Superannuation & NIS	400,000.00	400,000.00	348,775.00	-	-
	Total Personal Emoluments	2,605,942.00	2,587,852.00	2,267,901.00	50,917.00	(32,827.00)
<b><u>2. OTHER CHARGES</u></b>						
2	Travel	470,000.00	445,000.00	286,275.36	25,000.00	-
3	WMO Contribution	105,000.00	75,000.00	73,702.99	30,000.00	-
4	Incidentals	115,000.00	115,000.00	86,212.33	0.00	-
5	Furniture & Equipment	20,000.00	20,000.00	8,704.00	0.00	-
6	Audit Fees (include Prior Year Adj.)	35,000.00	35,000.00	29,650.00	0.00	-
7	Rent	516,000.00	516,000.00	-	0.00	-
8	WMO elections - Presidency	0.00	70,000.00	-	-	(70,000.00)
	Total Other Charges	1,261,000.00	1,276,000.00	484,544.68	55,000.00	(70,000.00)
	<b>GRAND TOTAL</b>	<b>3,866,942.00</b>	<b>3,863,852.00</b>	<b>2,752,445.68</b>	<b>105,917.00</b>	<b>(102,827.00)</b>

## HEADQUARTERS UNIT ESTIMATES 2012 –NOTES

VOTE	DETAILS OF EXPENDITURE	AMOUNT	VOTE	DETAILS OF EXPENDITURE	AMOUNT
	<b><u>1. PERSONAL EMOLUMENTS</u></b>			<b><u>2. OTHER CHARGES</u></b>	
1 (9)	<b>Post Adjustment (Ag/Housing / and CCS Allowances)</b>		2	<b><u>Travel (Coordinating Dir.)</u></b>	
	Responsibility (Coordinating Dir.)	57,740.00		<b><u>WMO Congress</u></b>	
	Housing (Coordinating Dir.)	130,460.00		Airfare	16,000.00
	Housing (STO, IAO & Admin. Off.)	16,882.00		Hotel	40,000.00
	Education Grant (Coordinating Dir.)	0.00		Per Diem	40,000.00
	Education Grant (STO.)	31,622.00		<b><u>RA IV HC Meeting</u></b>	
	Life Ins. (Coordinating Dir.)	6,360.00		Per-Diem	7,000.00
	Life Ins. (STO.)	15,087.00		<b><u>Regional Travel (Coor. Dir.)</u></b>	
	Health (Coordinating Dir.)	2,113.00		<b>3 Trips</b>	
	Health (STO.)	1,056.00		Airfare	16,000.00
	Leave Relief (4 Clerical Positions)	25,000.00		Hotel	12,480.00
				Per-Diem	11,610.00
		<b>286,320.00</b>		<b><u>International Travel</u></b>	
	<b>Estimate</b>	<b>300,000.00</b>		<b>2 Trips</b>	
				Airfare	12,000.00
				Per-Diem	6,000.00
				<b><u>Travel (STO.)</u></b>	
1 (10)	<b>Superannuation &amp; NIS</b>			<b>RA IV Hurricane Committee</b>	
	Coordinating Director	176,798.20		Airfare	7,500.00
	Technical Officer	78,566.40		Hotel	7,500.00
	International Affairs Officer	30,896.80		Per-Diem	5,000.00
	Administrative Officer	39,657.20		<b>Regional Travel (STO)</b>	
	Other Staff	34,049.85		<b>4 Trips</b>	
	<b>NIS</b>	<b>35,000.00</b>		Airfare	16,000.00
				Hotel	12,480.00
		<b>394,968.45</b>		Per-Diem	11,610.00
	<b>Estimate</b>	<b>400,000.00</b>		<b>Balance Carried Forward</b>	<b>221,180.00</b>

## HEADQUARTERS UNIT ESTIMATES 2012 –NOTES

VOTE	DETAILS OF EXPENDITURE	AMOUNT	VOTE	DETAILS OF EXPENDITURE	AMOUNT
2	<b>Balance Brought Forward</b>	<b>221,180.00</b>	2	<b>Balance b/forward</b>	<b>387,660.00</b>
	<b><u>CMC</u></b>			<b><u>Travel Grant</u></b>	
	<b>Coordinating Dir &amp;STO</b>				
	Airfare	12,000.00		Coordinating Dir	10,000.00
	Hotel	17,640.00		STO	10,000.00
	Per-Diem	7,600.00		General Staff	19,000.00
	<b>CMO Support Staff</b>				
	Airfare	12,000.00		<b><u>Vehicle Maintenance</u></b>	
	Hotel	17,640.00		Car Insurance	15,000.00
	Per-Diem	7,600.00		Maintenance	15,000.00
				Fuel	8,000.00
	<b>CMC - DMS</b>			Travel - Messenger	4,000.00
	Hotel	32,000.00			
	Per-Diem	20,000.00		<b>Grand Total</b>	<b>468,660.00</b>
				<b>Estimate</b>	<b>470,000.00</b>
	<b><u>IAO</u></b>			<b><u>Incidentals</u></b>	
	Travel	40,000.00	4	Postage	5,000.00
	<b>Total Travel</b>	<b>387,660.00</b>		Security (Coordinating Director)	5,000.00
				Imprest	1,000.00
				Maintenance & Contracts (Office Machines)	6,000.00
				Office Supplies/Requisites	20,000.00
				Bank Charges	500.00
				Electricity (Coordinating Director)	6,000.00
				Telephone (Office & Internet)	45,000.00
				Telephone (C/D residence)	9,000.00
				Miscellaneous	5,000.00
				Insurance – All Office Furniture	2,619.26
				Insurance – Employer's Liability	6,043.28
				Insurance – Computer/Electronic Equipment – On Premises	1,060.00
					<b>112,222.54</b>
	<b>Balance c/forward</b>	<b>387,660.00</b>			





## ANNEX VII

## REGIONAL CONTRIBUTION TO CMO BUDGETS - 2012

UNITS	COUNTRY	HQ	CRN					TOTAL CRN	RADAR	TOTAL HQ/CRN/ RADAR	CIMH
			B'DOS	BELIZE	CAY IS.	J'CA	T & T				
		TT\$	TT\$	TT\$	TT\$	TT\$	TT\$	TT\$	TT\$	TT\$	BDS\$
3	ANGUILLA	15,080	369	227	95	717	828	2,236	228	17,544	25,245
25	ANTIGUA	125,668	3,076	1,889	791	5,976	6,899	18,631	1,897	146,196	210,378
70	BARBADOS	351,871	30,709	5,290	2,214	16,732	19,316	74,261	5,312	431,444	1,915,554
43	BELIZE	216,149	5,291	25,347	1,360	10,279	11,866	54,143	3,263	273,555	361,850
3	BR. VIRGIN IS.	15,080	369	227	95	717	828	2,236	228	17,544	25,245
18	CAYMAN IS	90,482	2,215	1,361	22,666	4,303	4,967	35,512	1,366	127,360	151,471
10	DOMINICA	50,267	1,230	756	317	2,391	2,760	7,454	759	58,480	84,151
25	GRENADA	125,668	3,076	1,889	791	5,976	6,899	18,631	1,897	146,196	210,378
52	GUYANA	261,390	6,398	3,930	1,645	12,430	14,349	38,752	3,946	304,088	437,586
136	JAMAICA	683,635	16,733	10,278	4,302	54,604	37,528	123,445	10,320	817,400	1,144,454
3	MONTserrat	15,080	369	227	95	717	828	2,236	228	17,544	25,245
10	ST. KITTS/NEVIS	50,267	1,230	756	317	2,391	2,760	7,454	759	58,480	84,151
25	SAINT LUCIA	125,668	3,076	1,889	791	5,976	6,899	18,631	1,897	146,196	210,378
10	ST. VINCENT	50,267	1,230	756	317	2,391	2,760	7,454	759	58,480	84,151
157	T'DAD & TOBAGO	1,159,290	19,316	11,865	4,966	37,528	65,418	139,093	11,913	1,310,296	1,321,170
3	TURKS & CAICOS	15,080	369	227	95	717	828	2,236	228	17,544	25,245
<b>593</b>	<b>TOTAL</b>	<b>3,350,942</b>	<b>95,056</b>	<b>66,914</b>	<b>40,857</b>	<b>163,845</b>	<b>185,733</b>	<b>552,405</b>	<b>45,000</b>	<b>3,948,347</b>	<b>6,316,652</b>

