



**WORLD METEOROLOGICAL ORGANIZATION**

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**REPORT OF**

**INFORMAL PLANNING MEETING OF THE  
VOLUNTARY COOPERATION PROGRAMME**

**Bali, Indonesia**

**7 & 8 May 2010**



## **1 OPENING OF THE MEETING**

1. The Informal Planning Meeting (IPM) of the Voluntary Cooperation Programme (VCP) met in Bali Indonesia 7-8 May 2010 under the chairmanship Mr. Steve Palmer (UK). The meeting was attended by representatives of Australia, Canada, China, Finland, France, Germany, Japan, New Zealand, Republic of Korea, Spain, UK and USA. The meeting was also attended by Mr Arona NGARI, outgoing President of RA V and Mr Dean SOLOFA, from SPREP. The full list of participants is given in **Annex I**.

## **2 ADOPTION OF THE AGENDA**

2. The Agenda agreed by the meeting is at **Annex II**.

## **3 REPORT OF THE VCP 2009**

### **3.1 VCP and VCP Coordinated Activities 2009**

3. The Meeting was informed of the activities supported at the national level in developing and least developed countries under the Voluntary Cooperation Programme including through the VCP (F) and through activities coordinated through WMO VCP (ES).

4. The Meeting welcomed the information that in 2009, in addition to major regional development projects, support in the form of replacement, upgrading and extension of observing and communications infrastructure was provided through the VCP Programme through the various funding mechanisms, with some 50 countries receiving support through the VCP (F) (including short-term fellowships) while 15 countries were supported under the VCP (ES) Mechanism. (Full details are provided at **Annex III**). In terms of VCP (ES) and VCP (F), support provided amounted to some US\$ 1,807,481. Additionally, 8 Members made new cash contributions to the VCP Fund (VCP (F)), amounting to approximately US\$ 269,715.

5. The RMO brought attention to the fact that the trend in VCP over the past five years through the VCP (F) and (ES) Programme indicate a fairly constant support of this VCP mechanism but that the overall trend in real value terms would however constitute a decline in use of VCP mechanisms to channel support to developing country members. In this respect, it was stressed that the VCP (F) and VCP (ES) mechanisms provide very valuable and fairly immediate short term support to countries to enable them to maintain operations while also moving towards the development of strategic plans for longer term development (as described below). Members are urged that these mechanisms not be abandoned by donor members but that members continue and increase their support in these areas which are a necessary compliment to broader development activities.

6. Regarding reporting of financing of activities supported under the VCP (F) and VCP (ES), it was suggested in future to present the activities carried out by WMO totally separately from bi-lateral financing and also showing the financial support by region, support area and making emphasis on the impact of the assistance in the beneficiary countries.

### **3.2 Bilateral Technical Cooperation Activities 2010**

7. The meeting was also informed of a broad range of development assistance being provided through bi-lateral means by WMO Members to improve delivery of climate weather and water services in developing country member states including the efforts of Australia, Canada, China, Finland, France, Japan, Korea, New Zealand, Spain, UK and USA. (**Annex IV**). A large number of

countries were supported through bi-lateral arrangements with financing of some US equivalent value of support provided bringing total support to some USD 6,837,338.1

8. It was proposed that VCP should forge stronger links with Presidents of Technical Commissions as they have finger on the pulse re funding and also the enhancement of partnerships with funding and development agencies focusing on project/initiatives on training (COMET), support to management teams and others required by NMHSs of developing countries, in particular LDCs and SIDS.

9. The meeting also considered that there should be a stronger focus by the WMO and the VCP partners on regular management training for staff of developing country NMHSs that would contribute to the successful and sustainable development of the NMHSs.

### **3.3 Report from Chair Executive Council Working Group on Capacity Building (EC-CB) and proposal for work of the WG in 2010/2011**

10. The meeting was briefed on the proposal of work of the EC-CB Working Group highlighting several issues including the procurement of equipment for VCP projects in the WMO Secretariat and the assistance from CBS in this matter; the participation of Education and Training as this area and the organization of a side meeting with the EC-CB members during the next Executive Council.

11. The meeting considered the working mechanisms and focus of the EC-CB in the interim to the next Congress, the EC-CB / IPM participants expressed concern at the poor progress and work of the group to date and were of the view that the WG should focus its efforts on issues of significant importance in terms of capacity of LDC Members and identify time-bound actions that would be delivered in the remainder of the 2010-2011 inter-session period.

12. The IPM observed that the mechanisms established by WMO to facilitate communication and coordination among Members to address capacity building have had difficulty in generating broad participation and that the objectives set forth by Congress and EC have not been realized. The IPM observed that resource mobilization and project development are most successful when conducted at the national, regional or sub-regional levels. The IPM noted that two Regional Associations have established management groups with the responsibility for, among other things, capacity building. Therefore, the IPM suggests that Regional Associations be encouraged to consider the establishment of a subsidiary body that is charged with addressing capacity building, with a particular focus on priority areas identified at the Regional level. The IPM suggests further that with the support of the Secretariat the RAs communicate their priorities for capacity building to WMO subsidiary bodies, especially those with capacity building programs, and to bilateral and multilateral development agencies.

### **3.4 Review of Actions of Last IPM Meeting**

13. The meeting was informed on the implementation of actions recommended by the last IPM meeting regarding management of VCP Programme and processes; WMO project support cost Policy; WMO Revolving Fund mechanism and TOR for the EC-CB Working Group. Details and progress made for each one of these actions is in the VCP and VCP Coordinated Activities 2009 Report as **Annex III**.

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1 The real figure in terms of development cooperation within the WMO community is of course much higher as this related only to what is reported by IPM members.

## **4 GUEST SPEAKERS**

14. The outgoing President of RA V, Mr. Arona NGARI made a presentation to the IPM meeting of the requirements of LDCs and SIDS in RA V highlighting the aspects of institutional development, telecommunications, climate change and disaster risk reduction. Mr. Mr Dean SOLOFA from SPREP also presented to the meeting the recent evaluation made to LDCs and SIDS Meteorological Services in RA V with specific recommendations for their improvement.

## **5 MAJOR DEVELOPMENT PROJECTS**

15. The Secretariat provided an overview of the significant strategic work being undertaken by the WMO Resource Mobilization Office and the DRA in respect of regional programmes for capacity enhancement of NMHS in West Africa, South Eastern Europe, Central Asia, Pacific and the Americas in cooperation WMO Members (Korea, Spain, Finland, Italy, US) and with major partners such as World Bank, Rockefeller Foundation, and UN system partners UNISDR, UNDP and others (**Annex V**).

16. The group strongly supported this regional and partnership oriented approach to development assistance for improvement of weather, water and climate services and urges the Secretariat to continue working in this way and to encourage other WMO Members to consider supporting such regional development projects. The meeting also noted however that the human resources allocated to management of technical cooperation projects has declined significantly in recent years and urged the Secretary-General to consider the need to enhance the capacity for project management and support of the VCP Programme.

17. The group noted the welcome trend towards support for major development programmes by Members as complimentary to VCP and a significant contribution to development cooperation activities overall noting that in 2009 some US\$ 8.4 additional funds was secured for major development activities from WMO Members while in total some US\$ 17.5 millions were secured for national and regional development projects overall in 2009.

## **6 ENHANCEMENT VCP COORDINATION**

### **6.1 VCP Brochure**

18. Discussions regarding the draft VCP Brochure proposed by the Secretariat considered the issue of "what exactly is the VCP". Several members were concerned that the brochure welcomed private sector engagement in the VCP as their perspective was that is inherently a WMO Members only programme in essence being member to member support. This mechanism being somewhat unique in the UN system should be considered a specific programme in its own right and separately from the wider development cooperation programme and hence the brochure should be quite specific about this. Members committed to providing follow up comment in order to facilitate better definition of the brochure bearing in mind the above distinction between VCP and wider development cooperation.

### **6.2 VCP Website**

19. The new VCP website was welcomed and members considered it was an excellent portal for both VCP recipients and VCP donors.

### **6.3 VCP Staffing**

20. IPM greatly welcomed the advice on additional staffing for the VCP and RMO. Mr Tom Butcher is seconded from Met Office (UK) for a period of one year to support the wider activities of the RMO while Ms. Salla Himberg joins as a Junior Professional Officer courtesy of Ministry of Foreign Affairs of Finland.

## **7 OUTLOOK OF VCP 2009/10 AND ENHANCEMENT OF VCP MECHANISMS**

### **7.1 Priorities proposed by WMO Technical Programmes for VCP 2010**

21. The meeting was informed on the priority needs and opportunities for capacity building of the developing country Members as offered by the WMO Technical Programmes (**Annex VI**).

22. The group held extensive and wide-ranging discussions on capacity building and development needs in the WMO system, including priorities for the immediate future. Key priority areas discussed included: Observing and Information Systems (GUAN, GSN, RBSN, RBCN), Communications (WIS); Forecasting (SWFDP, use of NWP); Weather and Disaster Risk Reduction Services (PWS, DRR),

21. The **WMO Revolving Fund** mechanism was reviewed. The meeting recommended based on prior consultations with D/LDCR that the mechanism should be retired as it not been utilized in the last few years by developing countries. The funds remaining should be transferred to the Emergency Assistance Fund.

## **8 ANY OTHER BUSINESS**

### **8.1 Election of VCP Chairman**

22. Mr Jaakko Nuottokari of the Finnish Meteorological Institute was elected unamously by the meeting as new Chairman of the IPM. The meeting offered its heartfelt thanks to the outgoing Chair Mr. Steve Palmer of Met Office (UK) for his many years of dedicated service as Chair of the IPM and also many years of support to the VCP.

## **9. DATE AND PLACE OF THE NEXT IPM MEETING**

23. Next meeting will take place in March 2011 in Geneva.

## ANNEX I

### 2010 Informal Planning Meeting (IPM) on the Voluntary Co-operation Programme and related Technical Co-operation Programmes

(Denpasar, Indonesia, 7 to 8 May 2010)

#### LIST OF PARTICIPANTS

Mr Jon GILL  
Australian Government Bureau of Meteorology  
**Australia**  
Tel.: + 613 9669 4219  
Fax: + 613 9669 4473  
Email: [J.Gill@bom.gov.au](mailto:J.Gill@bom.gov.au)

Mr Bruce ANGLE  
Environment Canada  
Senior Advisor, International Affairs  
**Canada**  
Tel.: +1 613 943 5594  
Fax: +1 613 943 5737  
Email: [Bruce.Angle@ec.gc.ca](mailto:Bruce.Angle@ec.gc.ca)

Dr. Zhou Heng, Deputy Director-General  
Department of International Cooperation  
China Meteorological Administration  
46, Zhongguancun Nandajie  
Beijing 100081  
**China**  
Tel: +86 10 62172957  
Fax: +86 10 62174797

Mr Arona NGARI  
Meteorological Service  
President of RA V with WMO  
**Cook Islands**  
Tel. : +682-20603  
Fax : +682-21603  
Email: [angari@met.gov.ck](mailto:angari@met.gov.ck)

Mr Jaakko NUOTTOKARI  
Finnish Meteorological Institute  
Head of Group, International Projects Consulting  
Services  
P.O. Box 503  
FI-00101 HELSINKI  
**Finland**  
Tel.: +358 50 589 5820  
Fax: +358 9 1929 2203  
Email: [jaakko.nuottokari@fmi.fi](mailto:jaakko.nuottokari@fmi.fi)

Ms Claudia RUBART  
Deutscher Wetterdienst  
**Germany**  
Tel.: +49 69 8062 4309  
Fax: +49 69 8062 4130  
Email: [claudia.rubart@dwd.de](mailto:claudia.rubart@dwd.de)

Mr Naoyuki HASEGAWA  
Japan Meteorological Agency  
Head, Office of International Affairs  
**Japan**  
Tel.: +81 3 3211 4966  
Fax: +81 3 3211 2032  
Email: [iao-jma@met.kishou.go.jp](mailto:iao-jma@met.kishou.go.jp)

Mr Eric PETERMANN  
Meteo France  
Directeur du Service météorologique régional en  
Nouvelle Calédonie  
NOUMEA  
**New Caledonia**  
Email:

Mr Pene LEFALE  
MetService  
Manager International Cooperation and  
Development  
**New Zealand**  
Tel.: +64 4 470 0818  
Fax: +64 4 473 5231  
Email: [Pene.Lefale@metservice.com](mailto:Pene.Lefale@metservice.com)

Mr Dean SOLOFA  
SPREP  
APIA  
**Samoa**  
Tel.:  
Fax:  
Email: [deans@sprep.org](mailto:deans@sprep.org)

Mr Francisco PASCUAL  
AEMET  
Coordinator of WMO cooperation matters  
**Spain**  
Tel.: +34 91 581 96 42  
Fax: +34 91 581 98 96  
Email: [fcopascual@inm.es](mailto:fcopascual@inm.es)

Ms Jennifer LEWIS  
NOAA  
NWS program Analyst  
**USA**  
Tel.: +1-301-713 0645 (Ext.109)  
Fax: +1-301-587 4524  
Email: [jennifer.lewis@noaa.gov](mailto:jennifer.lewis@noaa.gov)

Dr Won-Tae YUN  
Korea Meteorological Administration  
Director International Cooperation Division  
**Republic of Korea**  
Tel.: +82 2 836 2385  
Fax: +82 2 836 2386  
Email: [wtyun@kma.go.kr](mailto:wtyun@kma.go.kr)

Ms Mary POWER  
**WMO**  
D/RMO  
GENEVA  
Switzerland  
Tel.: + 4122 730 8306  
Fax: + 4122 730 8047  
Email: [MPower@wmo.int](mailto:MPower@wmo.int)

Mr Henry TAIKI  
**WMO**  
WMO Office RAP  
Switzerland  
Tel.:+ 685 25706  
Fax:  
Email: [HTaiki@wmo.int](mailto:HTaiki@wmo.int)

Mr Steve PALMER  
Met Office  
Technical Cooperation Programme Manager  
**UK**  
Tel.: +44-(0)-1392-886915  
Fax: +44-(0)-1392-885681  
Email: [steve.palmer@metoffice.com](mailto:steve.palmer@metoffice.com)

Mr Dan THOMPSON  
NOAA  
**USA**  
Tel.: + 1 301 713 0645 (Ext.  
Fax: + 1 301 587 4524  
Email: [Dan.Thompson@noaa.gov](mailto:Dan.Thompson@noaa.gov)

Mr Robert MASTERS  
**WMO**  
WMO D/DRA  
GENEVA  
Switzerland  
Tel.: + 4122 730 8325  
Fax: + 4122 730 8047  
Email: [RMasters@wmo.int](mailto:RMasters@wmo.int)

Mr Francisco VILLALPANDO  
**WMO**  
SPM/RMO  
GENEVA  
Switzerland  
Tel.: + 4122 730 8309  
Fax: + 4122 730 8047  
Email: [FVillalpando@wmo.int](mailto:FVillalpando@wmo.int)

Dr Tokiyoshi TOYA  
**WMO**  
WMO D/RAP  
GENEVA  
Switzerland  
Tel.: + 4122 730 8252  
Fax: + 4122 7308047  
Email: [TToya@wmo.int](mailto:TToya@wmo.int)



## ANNEX II

### WORLD METEOROLOGICAL ORGANIZATION

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#### INFORMAL PLANNING MEETING OF THE VOLUNTARY COOPERATION PROGRAMME

Bali, Indonesia  
7 to 8 May 2010

#### AGENDA

- 1. OPENING OF THE MEETING**
- 2. ADOPTION OF THE AGENDA**
  - 2.1. Adoption of the agenda
  - 2.2. Working Arrangements of the meeting
- 3. REPORT OF THE VCP 2009**
  - 3.1. VCP and VCP Coordinated Activities 2009/10
  - 3.2. Reports from members on Bi-lateral Technical Cooperation Activities 2009 and those planned for 2010
  - 3.3. Report from Chair Executive Council Working Group on Capacity Building and proposal for work of the WG in 2010 -11
  - 3.4. Review of actions of last IPM Meeting
- 4. GUEST SPEAKERS**
  - 4.1 Arona Nagari, President of RA V with WMO – priority needs in RA V SIDS
  - 4.2 Dean Solofa, SPREP – Review of NMHS Capacity in Pacific SIDS
  - 4.3 Presentation of BMKG, Indonesia and visit to the Opening Ceremony for the new radar in Bali
- 5. MAJOR DEVELOPMENT PROJECTS**
  - 5.1 Overview current and emerging major partnerships / regional development programmes being facilitated by RMO-DRA and WMO Technical Departments.
  - 5.2 Showcase (2-3) major bi-lateral regional development programmes.
- 6. ENHANCEMENT VCP COORDINATION**
  - 6.1 VCP Brochure
  - 6.2 VCP Website
  - 6.3 VCP Staffing
- 7. OUTLOOK OF VCP 2010/10 - PRIORITIZING VCP**
  - 7.1 Priorities proposed by WMO Technical Programmes for VCP 2010.
  - 7.2 Discussion and agreement on priority areas for VCP and other cooperation mechanisms for 2010/11 taking into account 5.1, 7.1 and plans detailed in 3.2.
- 8. ELECTION OF VCP CHAIRMAN**
- 9. DATE AND PLACE OF THE NEXT MEETINGS OF THE IPM**



## **ANNEX III**

### **VCP AND VCP COORDINATED ACTIVITIES 2009**

## **1. The Voluntary Cooperation Programme**

### **1.1 Management of the Voluntary Cooperation Programme**

VCP Management Activities focused on:

- Enhancing the visibility of Technical Cooperation and VCP Programme, and ensuring the cost-effective and efficient management of the VCP Programme and the timely distribution of the relevant information to Members;
- More rapid response to VCP Members' requests for assistance using the VCP(F), the Emergency Fund or through the VCP Coordinated Programme;
- Strengthening working relationship with Scientific Departments and Regional Offices for support of VCP projects.
- Retirement and / or supporting outstanding VCP requests and discussions with Scientific Programmes and Regional Offices concerned in order to support valid projects using the VCP(F);
- Upgrade of Website;
- New VCP Brochure;
- Securing additional human resources support for RMO and VCP Programmes.

### **1.2 2009 Informal Planning Meeting on the VCP and related Technical Cooperation and Executive Council Working Group on Capacity Building (EC-CB)**

The 2009 Informal Planning Meeting (IPM) on the Voluntary Co-operation Programme (VCP) and related Technical Co-operation Programmes met jointly with the first formal session of the Executive Council Working Group on Capacity Building (EC-CB) in Dubrovnik, Croatia from 18 to 20 March 2009 under the joint chairmanship of the respective group chairs Mr. Tyrone Sutherland (British Caribbean Territories for EC-CB) and Mr. Steve Palmer (UK for IPM). The meeting was attended by nominated EC-CB Members or their representatives from the Cook Islands, Korea, Namibia, Finland, and Spain, and IPM representatives of Australia; Canada; China, Croatia, France; Japan, New Zealand, Republic of South Africa, Russian Federation, UK and USA and the Mission of Sudan to the UN.

The Meeting welcomed the information that in 2008, in addition to major regional development projects, support in the form of replacement, upgrading and extension of observing and communications infrastructure was provided through the VCP Programme through the various funding mechanisms, with some 20 countries receiving support through the VCP (F) (including short-term fellowships) while 7 countries were supported under the VCP (ES) Mechanism.

The Meeting discussed a range of issues related to VCP Programme processes and management and arrived at the following recommendations:

### 1.3 Review of actions of last IPM Meeting

*Regarding management of VCP Programme and processes the Meeting therefore recommended that:*

1. VCP requests could be opened to the donor Members for advice as soon as they are received, to remove the current long delays in inspection by the Technical Programmes and the subsequent approval for circulation by Secretary-General and that the Donor Members should enlist the help of technical experts in NMS in these evaluations;
2. Where VCP requests have been partially fulfilled, the original request should be retired and, if appropriate, a new request for the remaining elements should be submitted;
3. Where appropriate, the mechanism in the VCP rules should be used to reformulate requests into regional or other groupings, with a view to identifying additional resource mobilization opportunities;
4. The current system of rule -based priorities is not helpful, so the evaluation should take account of conformity with NMHS strategic plans and national development plans and disaster platforms, role and operations of the NMHS and the development status of the country;
5. Noting that there is delays in getting formal technical endorsement for determination of specifications and evaluation of offers for equipment and instruments for Voluntary Cooperation and Emergency Assistance Projects procurement for developing country Members, it was proposed that the CBS might assist in this regard by establishment of a panel of voluntary experts to give technical support and approval for procurement of goods and services through these mechanisms. In this context, EC-CB /IPM resolved to request CBS during its XIV Session in Dubrovnik, to assist through its relevant bodies the Secretariat in this matter.

#### Progress made:

Requests are now sent to probable supporting countries immediately on receipt based on the geographic and thematic preferences of the various VCP contributing countries while WMO Technical Programmes are also reviewing them. Once reviewed requests are then posted to the website. This has resulted in an increased support rate for VCP Coordinated requests as per below item 2.2.

Outstanding requests have been clustered as appropriate and attempts made to address them collectively or regionally. In this respect Climate Data Rescue projects in Africa and Caribbean (VCP-F and US) and Pacific (Australia) have been supported.

Representation was made to CBS Meeting in Dubrovnik 2009 regarding establishment of a list of Experts willing to provide technical support to assessment of VCP and Emergency Assistance Requests and procurements. Response of CBS was positive. Further discussions with CBS Management Group have resulted in a much more expansive concept of the potential of "Volunteerism" in the WMO Community. It is now proposed to explore the potential to establish a network similar to "Engineers without Borders" within and possibly with participation also from without the WMO Community including retirees of various NMS. This concept is being further developed by DRA-RMO in discussion with CBS MG members and other technical experts.

*Regarding the WMO Project Support Cost Policy, IPM-EC/CB decided:*

6. Request the SG to initiate a full review of this policy with a view to moving to a Full Cost Recovery model as IPM members considered that the current model is actually a deterrent

to donor members with respect to running development projects through the WMO rather than on a bi-lateral basis and considering also that many of the main financing mechanisms such as the World Bank and the European Commission have Overhead Cost limits that would not comply with the WMO Policy.

Progress made:

This item is still under consideration and is currently addressed on a case by case basis with individual donors within the flexibility of the current Policy.

*Regarding the WMO Revolving Fund mechanism the meeting recommended:*

7. Consult D/LDCR and take a decision whether this mechanism should be maintained since it has not been utilized in the last several few years by developing countries.

Progress made:

Advice is that considering that this mechanism is not utilized, it should be recommended to EC that the Fund should be closed and the remaining funds transferred to the VCP- (F).

*Regarding Terms of Reference of Executive Council Working Group on Capacity Building (EC-CB) (constituted to replace the EC Advisory Group of Experts on Technical Cooperation (ECTC) but with a much broadened Terms of Reference [RESOLUTION 10 (EC-LX)] the meeting identified the following specific areas that could benefit from specific EC-CB attention:*

8. EC-CB to work with CBS in one or more development projects aimed at uptake of WIS / WIGOS in specific regions in order to demonstrate how the countries and region can uptake and benefit of WIS concept.

Several WIS Pilot projects are underway in developing regions at present. Expert Service to assist countries develop WIS strategies are provided by the Secretariat with support of Members and CBS.

## **2 WMO Voluntary Cooperation Programme – Activities supported**

### **2.1 VCP (F) Supported Activities**

A wide range of activities were supported through the VCP-F in 2009 including:

**Expert Missions:**

- Expert mission regarding Restructuring of NMS of Mali.
- In-country assessment of NMS capacity Azerbaijan.
- WMO mission undertaken in conjunction with ICAO European officer for establishment of a functioning cost recovery and QMS system for the provision of meteorological services to international civil aviation Tbilisi, Georgia.
- Expert Advisory Mission to the Dept of Meteorology, Cambodia, 6-7 April 2009.
- Advisory support for Strategic Plan Development for Senegal.

- Expert services for installation of hardware, software and training with Bangladesh NMS.
- Support to 41st session of the Typhoon Committee, Chiang Mai, Thailand.

### **Project Development Activities for Regional Development Projects (see IPM/2010/Doc. 4)**

- "Weather Info for All" :
  - Project Development Meeting project with Global Humanitarian Forum (GHF): Ericsson, Zain, WMO, and target countries Kenya, Uganda and Tanzania. Geneva, Switzerland, 23-24 June 2009 (PRs and / or representatives funded to participate).
  - Project Development Meeting "Weather Info for All" project with Global Humanitarian Forum (GHF): Ericsson, Zain, WMO - Stockholm, 20 May 2009.
- Central Asia and Caucus Disaster Risk Management Project:
  - Consultant on CAC WMO/UNISDR/WB Assessment Project to attend the Coordination Meeting of the, Geneva, Switzerland
  - Support to PRs to attend CAC Regional NMHS Modernization Programme Development Meeting - Tashkent
- Lake Victoria Food Security and Maritime Safety Project (for World Bank Support).
  - Expert Advisory Mission to Tanzania for discussions with PRs Uganda, Tanzania and Kenya and EAC.
- South African Weather Service (SAWS) and Meteorological Association of S Africa. Finalization of Regional Plan and MASA Constitution and presentation at SADC Ministerial Meeting for endorsement.
- Financial support for the organization of 13RMSD, Nadi, Fiji, 4-8 May 2009

### **VCP Spares/shipping of equipment**

- Purchase of Electricity Generator for NMS of Zambia.
- Purchase HF SSB Radio Transceivers for the Bangladesh Meteorological Department
- 8 Automatic Weather Stations predominantly for airports, 2 each for:
  - Bangladesh,
  - Yemen,
  - Seychelles and
  - Haiti
- Internet connection services for Afghanistan Met Authority
- Support to Upper Air Station Guinea (with additional funds from US and Spain)

### **Support to CDMS and Climatological Activities**

- Provision of a CLIDATA software license for Cyprus NMHS including training and installation

- CD Rescue Projects in Bolivia, Nicaragua, El Salvador, Paraguay, Malí, Níger, Senegal, Kenya,

### **Training and Short Term Fellowships. See 2.8**

## **2.2 Emergency Assistance (in combination with Emergency Assistance Fund)**

<b>Table 1 - Emergency Assistance requests received during 2009</b>			
Country	Event	Requested	Estimated Cost
Laos	Major Flooding	Restoration of 3 destroyed stations due to flooding.	
Samoa	Earthquake and subsequent Tsunami	Computers communications and support equipment essentially needed for Earthquake and Tsunami monitoring	
Tonga	Earthquake and subsequent Tsunami	Restore the totally destroyed Niuatoputapu Meteorological Station and upgrade earthquake and tsunami Early Warning System	USD 100,000
Haiti	Earthquake	Immediate assistance to cope with imminent Hurricane Season and longer term for total rebuilding of the NMS and Observation Systems	

<b>Table 2 - Emergency Assistance requests supported during 2009</b>		
Bangladesh 08 Haiti 08** Seychelles 08 Yemen 08 Tonga	Rehabilitation of the Meteorological Networks: Provision of two AWS fully equipped to operate as synoptic weather stations in these countries	VCP(F) and VCP Emergency Assistance Fund
	Restore fully destroyed Niuatoputapu Meteorological Station and upgrade earthquake and tsunami Early Warning System	NOAA / NWS, VCP Emergency Assistance Fund and New Zealand
Samoa	Computers communications and support equipment essentially needed for Earthquake and Tsunami monitoring	Under discussion

\*\* Regarding current situation for Emergency Assistance to Haiti post Earthquake please see **Appendix 2** for overview of support package in process.

## **2.3 VCP- F Expenditure for 2009**

Full details on VCP-F expenditure for 2009 are provided in **Appendix 1** and summarized in **Table 3** below. **Table 4** indicates expenditure trends over the period 2006 to 2009 and shows a trends towards annually increasing expenditure over that time frame (considering that in 2007 100,000 of expenditure consisted of direct transfers to LDC and Emergency Assistance Funds).

As expenditure now generally exceeds income to the TF efforts are being made to expand the support of the VCP-F.



<b>Table 3 - VCP (F) Activities Supported in 2009 (incl. requisitions)</b>		<b>USD</b>
1	Expert Missions	33,342
2	Project Development	34,648
3	Fellowships and training activities	133,530
4	VCP Spares/shipping of equipment	281,782
6	Internet connection services for Afghanistan Met Authority	6,257
7	Support to Upper Air Station Guinea (with additional funds from US)	18,851
8	Support to CDMS and climatological activities	38,472
9	VCP Management (Website Update, Brochure, Communication-Visibility Actions)	17,288
<b>TOTAL</b>		<b>564,170</b>

<b>Table- 4 VCP(F) Expenditure 2006-9 (USD)</b>						
	<b>Activity Area</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	
	Project Development Activities					34,648
	VCP spares/shipping of equipment	1,480	170	147,267		281,782
	Expert services		14,013	16,528		33,342
	Short-term fellowships	40,954	45,339	106,570		133,530
	Group Training Activities			20,999		
	TCDC activities	14,852	4,462			
	Improvement of GTS		59,316			
	Improvement of GTS Asia/Pacific					
	Improvement of GTS Africa		79			
	Improvement of GTS South America					
	Improvement of GTS South-East RA VI					
	Improvement of GTS Central & Eastern Euro			3,238		
	Improvement of upper-air observing systems		22,643	28,688		
	Upper-air stations & GCOS	5,846	7,230			18,851
	Improvement of GDPS	4,065				
	Agricultural meteorology activities					
	Support to CLICOM & climatological activities			4,490		38,472
	Mitigation of natural disasters	2,810				
	Emergency disaster assistance	13,328	101,553			
	ACMAD	6,427				
	EAMAC	8,705	585			
	Operational hydrology activities		79			
	Improvement of satellite reception					
	Internet capabilities			13,916		6,257
	Long-term fellowships		1,682			
	Support to LDCs		50,000			
	Training activities by ETR		1,229			
	VCP Management					17,288
	<b>Total</b>	<b>98,467</b>	<b>307,210</b>	<b>341,696</b>		<b>564,173</b>

## 2.4 VCP (ES) Coordinated

In 2009, **6 donor Members** offered equipment and / or expert services within the framework of the VCP Equipment and Services Programme (VCP-ES) including for outstanding requests carried over from previous years. In total **17 new project requests** were posted to the web in 2009 (Table 5) while a total of **15 projects were supported** (Table 6).

Project requests were aimed at strengthening surface observing stations, strengthening communications systems, and improving meteorological applications. As usual there were many requests for strengthening of upper-air observing stations, an item generally beyond the spending limits of VCP-F but not often supported by VCP-ES either due to high costs associated and sustainability issues.

**Table 5 - VCP Requests received 2009**

Country	Project Title	Indicator	Description	Estimated Cost
Afghanistan	Rehabilitation of Afghanistan Meteorological Authority	TE/6/3/1	Provision of MESSIR System at Kabul International Airport comprising GTS Message Switching System , Forecaster workstation and Pilot Met Briefing	€ 344,340
Bolivia	Improvement of medium range and seasonal forecasts in Bolivia (DARE project)	WCP/4/1	Data rescue and collection from selected stations; Capacity building training; Inventories of data and creation of Metadata	US \$19,690
Eritrea	Expert services for the briefing of local staff on the maintenance of the NOAA receiver and operation of the MSC receiving system	TE/EX/1	Estimations Expert services for training of local staff on the maintenance of the NOAA receiver and operation of the MSC receiving system	N / A
Gabon	Rehabilitation of synoptic stations	OB/2/6/1	Rehabilitation of seven synoptic stations and establishment of 13 new synoptic stations	N / A
Kazakhstan	Provision and installation of hydrologist's workstation	HY/3/1/2	1 workstation for Astana city, Installation, commissioning and training	US \$25,630
Mozambique	Provision of sondes, balloons and granulated caustic soda for Nampula upper-air stations	OB/1/2/12	sondes, balloons and granulated caustic soda	
Philippines	Provision of 400 sets of GRAW radiosonde transmitters for Laoag upper-air station	OB/1/2/11 (REV.)	400 GRAW radiosonde transmitters Model DFM -97TU/GPS	US \$200,000
Uganda	Improvement of medium range and seasonal forecasts (DARE project)	WCP/4/1	Data rescue and collection from selected stations; Capacity building training; Inventories of data and creation of Metadata	US \$50,000
Belarus	Provision of Alisa workstation, installation and users training at Belarus NMHS	OB/3/1/1	The purpose is to improve the effectiveness of the used Alisa workstation by the National Hydrometeorological Service for the forecasting of the convective phenomena.	USD 10,000
Guinea	Rehabilitation of Upper Air Station	OB/1/2/6	Rehabilitation of Upper Air Station	
Kiribati	Develop Strategic Action Plan		Expert/consultant and national workshop to develop Strategic	

**Table 5 - VCP Requests received 2009**

Country	Project Title	Indicator	Description	Estimated Cost
			Action Plan	
Maldives	Consumable for Upper-air observation system at Gan, Maldives	OB/1/2/6	The purpose is to continue Gan upper-air station observation. It is an important observation to maintain, to monitor climate of the region and its contribution in imperative for the regional and global NWP models	USD 100,000
Mauritius	Provision of 800 Radio Sondes for wind, temperature and humidity observations in the south-West Indian Ocean for 2 years duration		Strengthening the upper air observations to help in monitoring the state of the atmosphere for aviation, public weather, tourism and fishing which contribute to the economy of Mauritius. The radio-sondes will help monitor extreme weather.	
DPR of Korea	Provision of meteorological radiosondes and balloons.	OB/1/2/9	To maintain the upper air meteorological measurement, thereby steadily provide its data in making operational weather forecasting and meteorological services	
St. Lucia	Refurbishing and upgrading of AWS network	OB/2/3/1	The Met Service operates an island-wide network of AWSs. Some of these AWSs (16) comprise an ALERT Flood Warning System (AFWS) installed in 2003. This network is a critical part of the Early Warning System and has been invaluable in decision making during weather emergencies. Some network components are now showing signs of aging and this project proposes to refurbish, expand and strengthen the existing AFWS.	Equipment: USD 19,150, supplier support: USD 2,000, Training: USD 6,600
Togo	Meteorological and climate data rescue and data management	WCP/4/1/1	Rescue climate data and improve data processing for a better analysis and forecasting of climate variations through the use of new technologies for the digitization of recent and past data, and easier access to data	USD 35,000

**Table 6 - VCP Coordinated Projects supported in 2009**

	Requesting Country	Project	Focus	Supporting country
1	<b>Bolivia</b>	WCP4/1	Improvement of medium range and seasonal forecasts (DARE project)	NOAA/NWS
2	<b>Eritrea</b>	TE/EX/1	Expert services for training of local staff on the maintenance of the NOAA receiver and operation of the receiving system.	Kenya Met Service and VCP-TF
3	<b>Uganda</b>	WCP4/1	Strengthen climate data rescue, management and metadata	NOAA/NWS
4	<b>Kazakhstan</b>	HY3/1/2	Provision and installation of hydrology workstation.	Roshydromet
5	<b>Armenia (08)</b>	HY5/1/1	Provision and installation of hydrology workstation	Roshydromet
6	<b>Kazakhstan (08)</b>	HY3/1/2	New version of CLIWARE Provision and installation of hydrology workstation	Roshydromet
7	<b>Namibia (07)</b>	WCP4/1	Strengthen climate data rescue, management and metadata	NOAA/NWS
8	<b>Paraguay (06)</b>	WCP/4/1/1	Improvement of medium range and seasonal forecasts (DARE project)	NOAA/NWS
9	<b>Belarus</b>	OB/3/1/1	Provision of Alisa workstation, installation and training at NMHS	Roshydromet
10	<b>Guatemala / El Salvador (06)</b>	OB/2/2/1	AWS: Hydrometeorological stations for flood forecasting; 7 to Guatemala and 2 for El Salvador	Spain
11	<b>Guinea</b>	OB/1/2/6	Rehabilitation of Upper Air Station: Provision of hydrogen generator, radiosondes and training; implemented with the assistance of GCOS	NOAA / NWS, Spain and GCOS
12	<b>Kazakhstan</b>	HY/3/1/2	Provision of automated work station for hydrological forecaster to Kazakhstan	Roshydromet
13	<b>Mauritius</b>		Provision of about 800 Radio Sondes observations in the south-West Indian Ocean for 2 years duration	GCOS
14	<b>St. Lucia</b>	OB/2/3/1	Refurbishing and upgrading of AWS network	UK
15	<b>Togo</b>	WCP/4/1/1	Meteorological and climate data rescue and data management	Programme of Cooperation for NMSs of West African countries funded by Spain

## 2.5 Members Related Technical Cooperation Activities

See IPM/(2010)/Doc. 3 for a full inventory of Members bi-lateral cooperation activities.

## 2.6 WMO Voluntary Cooperation Programme – 2009 Financial Contributions

The Members' contributions to the WMO Voluntary Co-operation Programme in 2009 are shown In **Table 7** in terms of VCP(ES) and VCP(F) and reported bi-lateral support.

In 2009, 8 Members made cash contributions to the VCP Fund (VCP(F)), amounting to approximately USD 269,715 while USD 1,243,668 and equivalent support was provided to VCP Coordinated Projects through WMO and some 6,837,338 USD equivalent through bi-lateral arrangements for a total investment of 8,354,739 USD. (Additionally 5.66 M USD was channeled through DRA to major regional development programmes – **Table 8**).

Regarding reported bi-lateral, these figures are very indicative. There are some difficulties with representing "Reported" figures as some members are very specific on the figures for the year past in terms of what should be reflected in the report while others offer specific figures for VCP but

clearly are engaging in major bi-lateral efforts (i.e. Japan and Korea reported activities in Doc 3) of a multi-year nature that do not fit this reporting style and it is likely that other IPM members have not reported similar activities.

**Table 7 - Total VCP Contributions in 2009 (USD)**

Member	VCP(F)	VCP(ES)	Bi-Lateral As Reported		Total
		Equipment and Services through WMO	Equip & Services	Fellowships & Training	
Australia	50,000	147,700	600,500		798,200
Canada			710,000		710,000
China	10,000				10,000
Finland		7343	768,500		775,843
France		4,479	96,079	845,407	945,983
Germany			519,758	285,080	804,838
Ireland	9,555				9,555
Japan	91,000	105,000		250,000	446,000
Maldives	10,000				10,000
Mauritius	1,460				1,460
Norway	70,000				70,000
Republic of Korea	27,700			212,500	240,200
Spain		243,500	26,765	292,532	562,797
Switzerland		9,734			9,734
UK		71,000	814,637	189,892	1,075,529
USA		654,912	500,060	729,628	1,884,600
<b>Total</b>	<b>269,715</b>	<b>1,243,308</b>	<b>4,036,299</b>	<b>2,801,039</b>	<b>8,354,739</b>

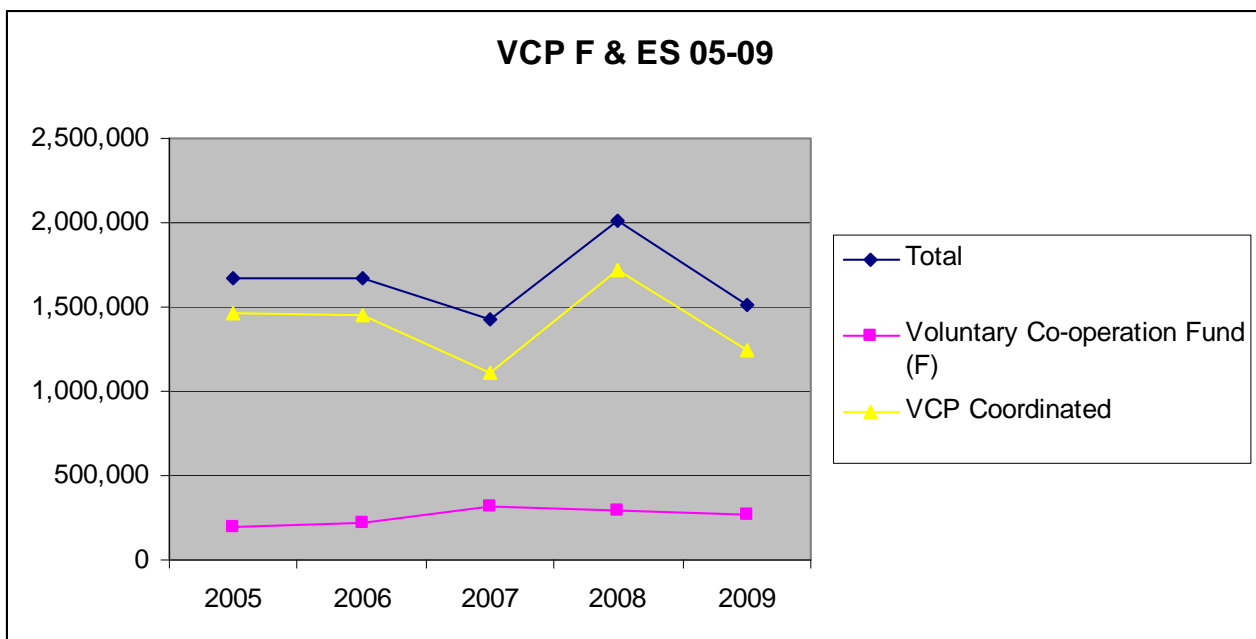
**Table 8 - Major Development Projects 2009 through DRA**

	2009	2008	2007	2006	2005
Spain	2,030,500	4,597,934	5,764,000	1,068,662	783638
Saudi Arabia	1,063,541				
Republic of Korea	600,000				
USAID	1,130,000				
Italy	415,000	350,000			
UNDP	420,000				
Finland	0		0	1488947	875000
<b>Total</b>	<b>5,659,041</b>	<b>4,947,934</b>	<b>5,764,000</b>	<b>2,557,609</b>	<b>1,658,638</b>

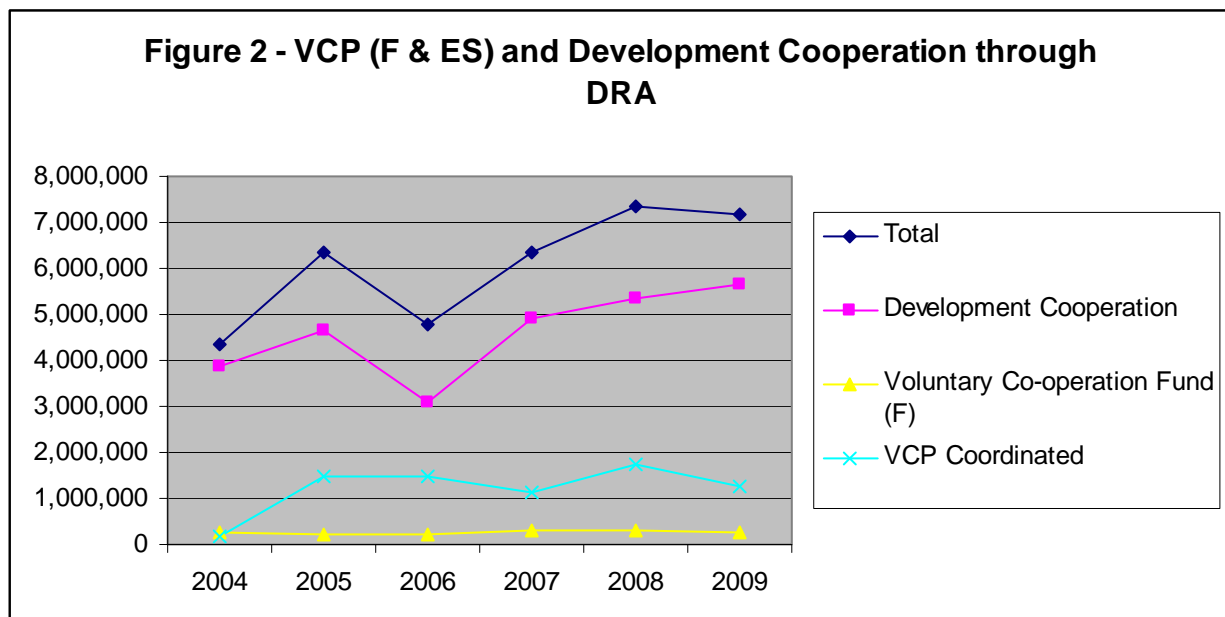
## 2.7 Trends in Contributions to WMO VCP Programme

The trends in contributions to VCP – F over the past five years indicate a fairly constant (and therefore possibly declining in real terms) support of the VCP – F and a general increase in support to VCP ES through the WMO (Table 9). This is illustrated below in Figure 1 in relation to 2004 to 2008 period where contributions over the period through the VCP (F & ES) Programme indicate a fairly constant (and therefore possibly declining in real terms) support of the VCP (F and ES) mechanism as indicated below but trending upward for VCP-ES.

**Figure 1. VCP F and ES 05-09**



However, this is compensated to an extent by the very positive move towards support by members for major development programmes (Table 8) and a generally increasing trend in other technical cooperation trust funds as Figure 2 chart below illustrates.

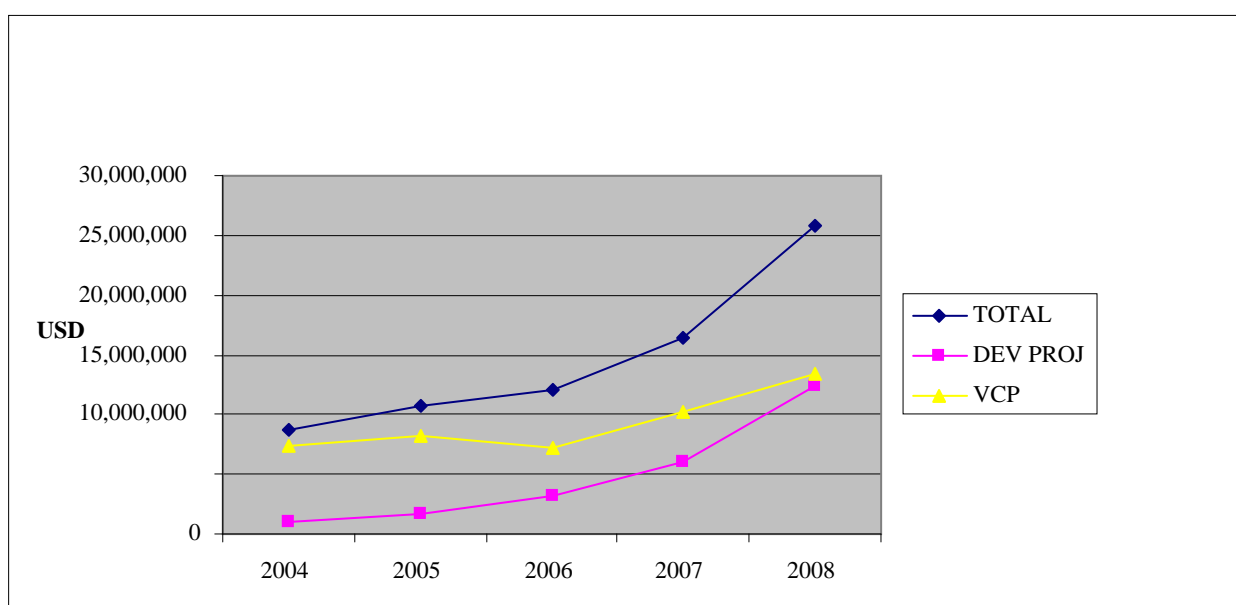


Overall in any given year, four to five countries account for over 90% of the VCP-Funds contribution as illustrated in Table 9 below. This poses the risk of over reliance on a small number of donors, which may impact on overall delivery objectives for VCP. An increased participation from other countries to diversify the base of the programme is highly desirable.

In terms of total contributions (VCP-F, VCP(ES) and Reported Contributions (Table 10) the trend is somewhat similar with the main donors being Aus, NZ, US, UK, Japan, and Korea.

## 2.8 Trends in overall Extra-budgetary funding.

**Figure 3 - Development Cooperation Financing 04-08 VCP (F & ES and Bilateral Reported), Regional Projects and Technical Cooperation Activities.**



**Table 9 - VCP-F and VCP Coordinated Delivery 2005 to 2009**

Donor Member	2009			2008			2007			2006			2005		
	VCP(F)	VCP(ES)	Total	VCP(F)	VCP(ES)	Total	VCP(F)	VCP(ES)	Total	VCP(F)	VCP(ES)	Total	VCP(F)	VCP(ES)	Total
		Equipment & Services through WMO			Equipment & Services through WMO			Equipment & Services through WMO			Equipment & Services through WMO			Equipment & Services through WMO	
Argentina														2,000	2,000
Australia	50,000	147,700	197,700	50,000	87,000	137,000	50,000	238,350	288,350	40,000	216,600	256,600	30,000	82,000	112,000
Chile															
China	10,000		10,000	37,000	47,148	20,000	10,000		10,000	10,000	103,650	113,650	10,000	65,050	75,050
Finland		7,343	7,343												
France		4,479	4,479												
Germany								14,800.00	14,800.00						
Ireland	9,555		9,555	8,760		8,760	7,500		7,500	8,270		8,270	7,692		7,692
Italy					0	0		160,000	160,000						
Japan	91,000	105,000	196,000	106,000	22,000	128,000	178,000	17,000	195,000	144,000	69,500	213,500	145,000	82,000	227,000
Kenya							9,792		9,792						
Kingdom of Saudi Arabia					13,579	13,579									
Maldives	10,000		10,000	1,000		1,000	1,000		1,000	1,000		1,000			
Mauritius	1,460		1,460	2,685		2,685				2,175		2,175	1,250		1,250
Myanmar				972		972							500		500
New Zealand															
Norway	70,000		70,000	54,852		54,852	50,000		50,000		84,309	84,309		81,833	81,833
Pakistan				978		978	499		499	499		499	1,022		1,022
Republic of Korea	27,700		27,700	27,500		27,500	10,000	100,000	110,000	10,000		10,000	5,000		5,000
Russian Federation					10,000	10,000					25,000	25,000		32,750	32,750
Spain		243,500	243,500		443,312	443,312		331,000	331,000		335,000	335,000		432,300	432,300
South Africa														4,500	4,500
Switzerland		9,734	9,734								352,308	352,308		120,000	120,000
UK		71,000	71,000					19,000	19,000		40,431	40,431		136,000	136,000
USA		654,912	654,912		1,096,180	1,096,180		230,000	230,000		230,000	230,000		428,685	428,685
Total	269,715	1,243,668	1,513,383	289,747	1,719,219	1,944,818	317,791	1,110,150	1,426,941	215,944	1,456,798	1,672,742	200,464	1,467,118	1,667,582



**Table 10 Total VCP Financing 06-09 (VCP-F, VCP(ES) and Bilateral Reported**

	<b>2009</b>	<b>%</b>	<b>2008</b>	<b>%</b>	<b>2007</b>	<b>%</b>	<b>2006</b>	<b>%</b>	<b>2005</b>
Argentina					23,600	0.22		0.00	8,300
Australia	798,200	9.55	509,000	7.11	682,250	6.45	560,000	5.93	482,400
Canada	710,000	8.50	450,000	6.29	550,000	5.20	600,000	6.36	868,000
Chile				0.00	0	0.00	0	0.00	29,320
China	10,000	0.12	988,224	13.81	10,000	0.09	812,110	8.61	471,265
Finland	775,843	9.29		0.00	0	0.00	1,488,947	15.78	875,000
France	945,983	11.32		0.00	1,453,364	13.73	2,183,098	23.14	1,177,369
Germany	804,838	9.63	696,900	9.74	592,700	5.60		0.00	
Hong Kong, China				0.00	0	0.00	29,000	0.31	55,000
Ireland	9,555	0.11	8,760	0.12	7,500	0.07	8,270	0.09	7,692
Italy			250,000	3.49	160,000	1.51	0	0.00	
Japan	446,000	5.34	378,000	5.28	445,000	4.20	428,000	4.54	477,000
Kenya				0.00	9,792	0.09	249,251	2.64	152,946
Kingdom of Saudi Arabia			13,579	0.19		0.00		0.00	
Maldives	10,000	0.12	1,000	0.01	1,000	0.01	1,000	0.01	1,250
Mauritius	1,460	0.02	2,685	0.04	1,000	0.01	2,171	0.02	
Myanmar			972	0.01	0	0.00		0.00	500
New Zealand			1,200,000	16.77	1,436,560	13.57	0	0.00	199,091
Norway	70,000	0.84	54,852	0.77	50,000	0.47	0	0.00	81,833
Pakistan			977	0.01	499	0.00	10,000	0.11	1,022
Philippines				0.00	0	0.00	4,673	0.05	6,125
Republic of Korea	240,200	2.88	322,800	4.51	1,346,919	12.72	202,412	2.15	143,000
Russian Federation			10,000	0.14	0	0.00	105,769	1.12	72,780
South Africa				0.00	0	0.00	0	0.00	5,500
Spain	562,797	6.74	443,312	6.20	331,000	3.13	707,000	7.49	783,638
Switzerland	9,734	0.12		0.00	0	0.00	0	0.00	120,000
UK	1,075,529	12.87	727,816	10.17	1,602,685	15.14	163,291	1.73	1,791,000
USA	1,884,600	22.56	1,096,180	15.32	1,881,800	17.78	1,881,000	19.93	1,984,000
<b>Total</b>	<b>8,354,739</b>		<b>7,155,057</b>		<b>10,585,669</b>		<b>9,435,992</b>		<b>9,794,031</b>

## 2.8 Education and Training Fellowship Activities

### Placements

2009 was another busy year for the WMO Fellowship Programme. A total of 112 fellows were in place during the year with 65 of them on long term (greater than 6 months) placements. In addition to the countries in the below list other countries such as Pakistan and Spain have provided long term education activities for Members however we do not have the data to include the activities within the table. Table 11 shows the host countries where fellows were studying, the number of fellows and the man \* months of study for the year as a function of budget source. More than 50% of the fellows were placed in one of three countries (China 24, Russian Federation 10 and the United States 23). The fellows in China and the Russian Federation were undertaking long term study and all but one in the US were on four month placements. Seventy-nine of the fellows were studying at WMO Regional Training Centres demonstrating that good use is being made of the RTCs. 326 requests for fellowships were received for study commencing during the year. The total number of fellows and the man \* months are slightly down on previous years.

**Table 11: Host countries where fellows were studying, the number of fellows and the man \* months of study for the year as a function of budget source.**

HOST Country	No. Fellows	RB	TF	VCP	RB/VCP
Algeria (RTC)	10	97.7			
Australia	1	10.9			
Barbados (RTC)	8	56.6			
China (RTC)	24				223.4
Costa Rica (RTC)	1	12.0			
Egypt (RTC)	6	6.9	14.7	1.3	
France	1			3.7	
Germany	1	6.0			
India (RTC)	3	26.1			
Kenya (RTC)	7	63.0			
Madagascar (RTC)	2	16.0			
Mexico	1	2.9			
Netherlands	1	2.5			
Niger (RTC)	2	18.9			
Nigeria (RTC)	1	5.1			
Philippines (RTC)	5	28.6			
Russian Federation (RTC)	10	79.7			
South Africa	1		5.9		
Switzerland	1	0.3			
Tanzania, United Rep. of	1	12.0			
United Kingdom	2	8.9		8.9	
United States of America	23	16.0		77.0	
<b>Totals</b>	<b>112</b>	<b>470.2</b>	<b>20.7</b>	<b>91.0</b>	<b>223.4</b>

VCP (F) funds continue to be used to support participant travel to very short term training activities offered by Member countries such as China, Hong Kong China, Israel and Turkey and also for short term fellowships / training where Members such as Austria, Germany and Romania have accepted secondments in areas such as bio-meteorology, satellite meteorology and use of radars in nowcasting. At 1 March 2009 less than CHF 10,000 of the allocated CHF 140,000 of funds had been used however it is anticipated that the majority of the funds will be used by the end of the year.

**Table 12** provides details of the countries that had fellows in study during the year. Lesotho had nine (9) fellows in study during the year using their trust fund. In response to Tropical Cyclone Nargis Myanmar had five fellows in study in the Philippines. Zambia had fellows in the US, China and Kenya. Mali had fellows in Algeria, France, Russia and the US. Fifty-six (56) countries had fellows in study in 2009. Twenty-four of the countries were Least Developed Countries (LDCs). Swaziland has recently set up a trust fund with WMO along similar lines to the Lesotho Trust Fund to assist them to train their staff. C/FEL has been encouraging other Least Developed and Developing countries to follow suit.

**Table 12 Details of the countries who had fellows in study during the year 2009.**

COUNTRY	No. Fellows
Argentina	1
Bahamas	1
Benin (LDC)	1
Bhutan (LDC)	3
Bolivia	1
Brazil	1
Burkina Faso (LDC)	3
Burundi (LDC)	1
Cayman Islands	2
Central African Republic (LDC)	2
Chad (LDC)	3
Colombia	3
Comoros (LDC)	2
Congo	1
Congo, Dem. Rep. (LDC)	4
Cote d'Ivoire	2
Dominica	1
El Salvador	1
Ethiopia (LDC)	3
Fiji	1
Gabon	1
Gambia (LDC)	4
Guinea (LDC)	3
Guinea-Bissau (LDC)	1
Guyana	2
Jamaica	2
Kenya	1
Lesotho (LDC)	9
Liberia (LDC)	2
Lithuania	1
Mali (LDC)	5
Mauritania (LDC)	3
Mongolia	1
Mozambique (LDC)	3
Myanmar	5
Namibia	2
Nigeria	1
Panama	1
Papua New Guinea	1
Paraguay	1
Peru	1
Rwanda (LDC)	2
Saint Lucia	2
Sao Tome & Principe (LDC)	3
Senegal (LDC)	2
Sierra Leone (LDC)	2

South Africa	1
Sudan (LDC)	1
Tajikistan	1
Tanzania, United Rep. of (LDC)	2
Uganda (LDC)	3
Uzbekistan	1
Zambia (LDC)	5
	112

**Table 13. Fellowships requested and provided by Regional Association 05-09**

	2005		2006		2007		2008		2009		Total Awards
	Request	Award	Request	Award	Request	Award	Request	Award	Request	Award	
I	33	26	80	34	90	28	87	23	65	18	129
II	14	14	32	25	45	39	3	2	18	4	84
III	14	14	10	8	10	7	12	10	5	3	42
IV	13	11	13	11	11	6	10	7	1	1	36
V	6	4	4	0	12	8	3	1	7	4	17
VI	6	5	8	3	4	3	3	1	4	1	13
	86	74	147	81	172	91	118	44	100	31	321

## Future plans

In line with the movement of WMO to Results Based Management the Fellowship Programme wishes to support the high priority areas for the next financial period through offering a small number of fellowships each year in the key universities in developed countries such as Australia, Canada, France, Germany, Spain, the United Kingdom, the United States in the high priority areas such as Climate and Climate Change, Disaster Risk Reduction and Hydrology. Noting the anticipated funding situation for the next financial period it will not be possible for WMO to fully fund fellowships in these countries as well as continue the current level of support for capacity building activities, thus WMO is seeking partnerships with Members (NMHSs or other funding agencies groups within the countries) to co-sponsor these fellowships. Ideally the total cost to WMO per fellow would be less than CHF 30,000 to keep the costs equivalent to placements in the normal range of institutions used by the fellowship programme. In September 2009 the Secretary-General wrote to all Members seeking information from them regarding alternative funding opportunities within their countries to enable this initiative to go ahead. Whilst the number of responses to the circular letter was acceptable no firm funding partners have yet been identified. Assistance from the IPM is requested to further this initiative.

The Fellowship Division plans to continue the practice of the Secretary-General providing, on at least an annual basis, a letter to Members regarding the upcoming fellowship opportunities.

## Staffing movements

In 2009 Mr. Momadou Saho moved from the position of Chief of the WMO Fellowship Division to Chief of the Training Division. Dr Yinka Adebayo took over as Chief of the Fellowship Division. The Fellowship Officer, Dr Cyril Gwam who was on two years leave of absence, resigned effective 1 January 2009 and it has not been possible to replace him so far. This continues to have a negative impact on the planning and day to day work in the Fellowship Division.

## 2.9 Enhancement VCP Coordination

A new VCP Brochure is under development and also a new website. RMO-VCP has also secured two new associates to support VCP and Technical Cooperation Activities:

- Mr. Tom Butcher of The Met Office joined the RMO April 19<sup>th</sup> on a one year secondment.
  - Ms Sala Himberg will join the VCP programme on June 1<sup>st</sup> as a JPO supported by the Finnish Government.
-

## Appendix 1

### VCP (F) Activities Supported in 2009

	VCP (F) Activities Supported in 2009	USD
<b>1</b>	<b>Expert Missions</b>	<b>33,343</b>
	Expert mission Restructuring of NMS of Mali (4 to 8 May & 29 June - 3 July 2009)	2,509
	In-country assessment of NMS capacity Azerbaijan (21 to 25 April 2009).	1,701
	WMO mission undertaken ICAO European officer for establishment of a functioning cost recovery and QMS system for the provision of meteorological services to international civil aviation. (Tbilisi, Georgia, 30 March - 2 April 2009).	2,241
	Expert Advisory Mission to the Dept of Meteorology, Cambodia, 6-7 April 2009.	1,376
	Strategic Plan Development Senegal	3,144
	Expert services for installation of hardware, software and training with Bangladesh Met Department	16,555
	Financial support for the organization of 13RMSD, Nadi, Fiji, 4-8 May 2009 (and for consideration of AUSAID Pacific Climate Change Adaptation Project).	4,577
	Expert Support to the 41st session of the Typhoon Committee, Chiang Mai, Thailand, from 19 to 24 January 2009.	1,239
<b>2</b>	<b>Project Development</b>	<b>34,649</b>
	CAC Regional NMHS Modernization Plan Development Meeting Consultation Tashkent	9416
	Lake Victoria NMS Food Security Project and Maritime Safety Project Development Consultations	4,797
	Project Development Meetings "Weather Info for All" project with Global Humanitarian Forum (GHF): Ericsson, Zain, WMO, and East Africa Food Security and Maritime Safety Project (WB) with target countries Kenya, Uganda and Tanzania and EAC. (PRs and / or representatives funded to participate).	5,193
	Coordination Meeting of the CAC Disaster Risk Management Project, Geneva, Switzerland, from 20 to 22 January 2009	5,827
	South African Weather Service (SAWS) and Meteorological Association of S Africa. Finalization of Regional Plan and MASA Constitution and presentation as Ministerial Meeting.	9,416
<b>3</b>	<b>Fellowships and training activities</b>	<b>133,530</b>
	Ms. NAZARETH ROJAS, International Training Course on Climate Change and Desertification Processes, Tel Aviv, Israel, 22 June to 10 July 2009 -	2,445
	MS. SHMAKOVA ALEXANDRA, International Training Course on Climate Change and Desertification Processes, 22 June -10 July 2009, Tel-Aviv, Israel	863
	BAGALE LEKHA NATH, International Training Course on Climate Change and Desertification Processes, Tel Aviv, Israel, 8-26 June 2009	1,678
	NDINIZARA NEWSMAN DE PRISCOFE, International Training Course on Multi Hazard Early Warning, Nanjing, China, 8-26 June 2009	2,043
	SEUSEU SUNNY (SAMOA), Quality Management Services, Noumea, New Caledonia, 9-12 June 2009	3,017
	RUIAFISO SEGATO, Quality Management Services, Noumea, New Caledonia, 9-12 June 2009	3,017
	MR. POLESI TITUS, - Quality Management Systems Training, Noumea, New Caledonia, 9-12 June	1,770
	MR. IRIASIA DAVID - Quality Management Systems Training, Noumea, New Caledonia, 9-12 June	2,624
	PERSAUD MICHAEL, International Training Course on "Automated Weather Observing Systems", Alanya, Turkey, 8-12 June 2009	3,631
	MR. KEITA AMADOU, five-month Course on Meteorological Instruments and Electronics, Toulouse	8,780
	MR. S.K. BAIDYA, To attend the International Training Programme "Climate Change Mitigations & Adaptation" held in Norrköping, Sweden from 2 to 27 March 2009.	2,265
	MR. CORNELIS BECKER, To attend a Workshop to be held in Fortaleza, Brazil, from 2 to 5 March 2009, on the Concept of a Virtual Centre for the severe weather phenomenon in the North of South America.	1,971

KEITA MR. AMADOU Approved at FELCOM 15 for CHF to pursue a five-month Course on Meteorological Instruments and Electronics to be held in Toulouse, France.	11,042
LIUKAITYTE MS. JUDITA, Approved at FELCOM 14 for CHF32,377. To pursue a six- month Biometeorology Course at the Deutscher Wetterdienst, Freiburg, Germany. This requisition is rectified in view of the change in Euro currency for stipend.	30,487
Mr Samuel SENKUNDA, Uganda, International Training Course on Agrometeorology, Nanjing, China, 16 Nov. – 4 Dec. 2009	2,261
Ms Christine AMBENJE, Kenya, International Training Course on Agrometeorology, Nanjing, China, 16 Nov. – 4 Dec. 2009	1,442
Ms Susan FLORES, International Training Course on Agrometeorology, Nanjing, China, 16 Nov. – 4 Dec. 2009	803
Mr Ofa TAUMOEFOLOU, Tonga, International Training Course on Agrometeorology, Nanjing, China, 16 Nov. – 4 Dec. 2009	2,801
Ms Junushova GULNARA, Kyrgyzstan, International Training Course on Agrometeorology, Nanjing, China, 16 Nov. – 4 Dec. 2009	960
Ms Sayyora ABDULLAEVA, Uzbekistan, International Training Course on Agrometeorology, Nanjing, China, 16 Nov. – 4 Dec. 2009	1,053
Mrs Lia MEGRELIDZE, Georgia, Tuition fee EUMETCAL NWP Course, Helsinki, Finland, 24 Oct. – 4 Dec. 2009	711
Mrs Lia MEGRELIDZE, Georgia, EUMETCAL NWP Application Course, Helsinki, Finland, 27 Oct. – 4 Dec. 2009	1,878
Mr Guillermo GALLARDO, Ecuador, WMO Symposium on Meteorological Services in Support of Decision-making and field study, Beijing, China, 13-22 Oct. 2009	2,067
Mr Juan Carlos FALLAS, Costa Rica, WMO Symposium on Meteorological Services in Support of Decision-making and field study, Beijing, China, 13-22 Oct. 2009	1,788
Mr Steve PALMER, UK, WMO Symposium on Meteorological Services in Support of Decision-making and field study, Beijing, China, 13-22 Oct. 2009	2,392
Mr Ricardo LOZANO, Colombia, WMO Symposium on Meteorological Services in Support of Decision-making and field study, Beijing, China, 13-22 Oct. 2009	1,863
Mr Emmanuel MOOLCHAN, Trinidad and Tobago, WMO Symposium on Meteorological Services in Support of Decision-making and field study, Beijing, China, 13-22 Oct. 2009	471
Mr Irakli MEGRELIDZE, International Training Course on Multi Hazard Early Warning, Nanjing, China, 8-26 June 2009	1,183
Ms Turiongo Akavaanga, Training on analysis of climate data record for Cook Islands, Auckland, New Zealand, NIWA, 24-28 August 2009	1,260
Mr Lawrence POLOGNE, Weather Research and Forecasting (WRF) Model Tutorial, Colorado, USA, 19-25 July 2009	2,792
LETUKA, Fellowship	1,102
<b>4 VCP Spares/shipping of equipment</b>	<b>281,782</b>
Purchase of Electricity Generator for NMS of Zambia.	27,307
Purchase 5 HF SSB Radio Transceivers for the Bangladesh Meteorological Department	11,770
8 Automatic Weather Stations for Bangladesh, Yemen, Seychelles and Haiti	236,098
ARGIS - Cyprus for Climate Data Management	6,607
<b>6 Internet connection services for Afghanistan Met Authority</b>	<b>6,258</b>
<b>7 Support to Upper Air Station Guinea (with additional funds from US)</b>	<b>18,851</b>
<b>8 Support to CDMS and climatological activities</b>	<b>38,473</b>
Provision of a CLIDATA software license for Cyprus NMHS including training and installation	29,659
CD Rescue Projects in Nicaragua, El Salvador, Malí, Niger, Senegal, Kenya,	8,814
<b>9 VCP Management (Website Update, Brochure, Communication-Visibility Actions)</b>	<b>17,288</b>
<b>7 TOTAL</b>	<b>564,173</b>

## Appendix 2

### Haiti Emergency Support Package

#### WMO Immediate initiatives to support basic services of Haiti Meteorological Service

(22.04.2010)

	Donor	Action	Status	Contact Point	Comments
1	VCP / EAF / Japan	Procurement 7 AWS for dispatch in May to Haiti.	Underway	M. Power F. Villalpando	Ready to be shipped
2	WMO	WMO Assessment mission to Haiti carried out from 4 to 10 April 2010	Done	R. Masters F. Villalpando O. Arango	Mission report and project proposal are to be submitted by the end of April 2010
3	Multi	Forecasting products available from France, Canada, USA, Cuba, Dominican Rep., Martinique and Guadeloupe	Side meeting at Hurricane Committee to focus on coordination of inputs. Confirmed	P. Chen, WMO	
4	UK	<ul style="list-style-type: none"> <li>Possible deployment of four mobile GSM enabled weather stations and also technical support.</li> <li>Secondment of Expert (French speaking) Forecaster</li> <li>Use of 28,000€ of VCP held at WMO</li> </ul>		Steve Palmer, UK	
5	USA	2 EMWIN systems and technical support and training and other support (software, computers)	Confirmed / underway	D. Thompson, USA	
6	Canada	<ul style="list-style-type: none"> <li>9 laptops and 6PCs (post Olympic stock)</li> <li>in-house built weather stations</li> <li>Secondment of Expert (French speaking) Forecaster</li> </ul>	PCs / Laptops confirmed Seconded Expert under consideration	Abdoulaye Harou	Confirm needs with PR of Haiti
7	France	Coordination of forecasting products available from France, Canada, USA, Cuba, Dominican Rep., Martinique and Guadeloupe.	Underway	Jean-Noel Degrace Marc Gillet	
8	Finland	<p>Immediate help:</p> <ul style="list-style-type: none"> <li>planning and purchase of mobile weather station(s) (from VAISALA) equipped with SMS transmission and automated rain gauge(s) (VAISALA VRG101 weighing gauge), number of stations tbd according to the overall need</li> </ul>	Underway	Martti Heikinheimo martti.heikinheimo@fmi.fi	



Donor	Action	Status	Contact Point	Comments
	<ul style="list-style-type: none"> <li>- installation of weather station(s) and data handling software</li> <li>- training of local technical staff and meteorologists</li> </ul> <p>Longer term (in 1-2 years time) via the planned ICI-projects, could be extended to cover:</p> <ul style="list-style-type: none"> <li>- more permanent installation of weather stations with additional sensors e.g. to serve aviation, agriculture and marine transport</li> <li>- consultation and training to establish a quality system for an aeronautical meteorological service</li> <li>- installation of a meteorological workstation, SmartMet, at the weather service.</li> <li>- training of meteorologists in English/French.</li> </ul>			
9	Sutron			
1	ATS			
0	Services Limited (Canada)	<p>– possible rehabilitation of existing equipment</p> <p>- would like to offer Haiti any ATS Technology meteorological instrumentation that the WMO deems useful at payment in an amount equivalent to our manufacturing costs.</p>	To be confirmed	<p>Olivier Lundqvist Météorologue/Climatologue en chef Chief Meteorologist, Climatologist ATS Services Limited Tel: (418) 932-4277 <a href="mailto:olundqvist@atsservices.ca">olundqvist@atsservices.ca</a></p>
1	Barrons	Weather Radar and maintenance (estimated by Barrons at around \$35K annually), and the use of existing personnel in Haiti to run the system.		
1				



## **ANNEX IV**

### **BILATERAL TECHNICAL COOPERATION ACTIVITIES IN 2009**

## **Australia**

In 2009, Australia's total contribution to the WMO Voluntary Cooperation Programme was \$197,700, being:

- VCP(F): \$50,000
- VCP(ES) through WMO:
  - Contribution to World Climate Conference-3: \$93,900
  - Data Buoy Cooperation Panel (DBCP) trust fund: \$16,200
  - GCOS secretariat: \$23,500
  - RA V Technical Conference: \$14,100

In addition, Australia's total contribution to technical cooperation by bilateral and other arrangements was \$600,500, being:

- Contribution to OceanObs09 Symposium: \$4,700
- Contribution to GEO secretariat: \$57,800
- Contribution to GEO 1-day workshop on data assimilation: \$2,000
- Contribution to NZ-US-Australia Pacific Islands Technical Support Program (TSP): \$86,000
- SWFDDP support: \$20,000
- Support for the UNESCO Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System (ICG/IOTWS) Secretariat: \$430,000

Significant Regional capacity-building is also being undertaken through a number of major AusAID-funded projects:

- Pacific Islands Climate Prediction Project, aimed at enhancing Pacific Island Countries capacity for climate prediction (\$2.4M over 5 years, managed by Bureau of Meteorology)
- Capacity assessment of 14 Pacific Island Countries for tsunami warning and mitigation (\$600K over 2 years, managed by Bureau of Meteorology)
- South Pacific Sea Level and Climate Monitoring Project (\$7.5M over 5 years, managed by Bureau of Meteorology)
- Pacific Climate Change Science Program (\$18.5M over 3 years, managed by Department of Climate Change)
- Secondment of Australian meteorologist to RSMC Nadi in support of capacity building for TC warning (\$148K, managed by Bureau of Meteorology)

In 2010, Australia will continue its contributions to the WMO VCP(F) and VCP(ES), as well as specific activities such as the TSP, ICG/IOTWS and all five of the current Aus-AID-funded projects described above.

## **Canada**

### **Activities in 2009**

#### Direct Financial Support

Canada continued its contribution to Trust Funds<sup>2</sup> that help support scientific and technical capacity building activities in developing countries.

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<sup>2</sup> Trust fund contributions for 2009 include - DBCP (\$20k), AMDAR (\$10k), GEOSS (\$38k), Thorpex (\$50 k), WMO ET Hazards (\$20k), EC PORS (\$50k), IPY (\$30k), IPCC (\$150k), Brewer (\$30k)

### Expert Services & Training

In 2009, Canada held a workshop to transfer expertise on methodologies to analyse climate at the regional level in Ouagadougou, Burkina Faso. This included preparations of publications. Canada will complete its project with the Agrhymet Regional Centre in Niamey in February 2010 but continues to seek financial resources and is assisting with project plans with the Canadian International Development Agency (CIDA).

Canada made available Green Kenue™ an advanced data preparation, analysis, and visualization tool for hydrologic modellers. The software is available at: [http://chc.nrc.gc.ca/Numerical/Downloads/Green\\_Kenue\\_e.html](http://chc.nrc.gc.ca/Numerical/Downloads/Green_Kenue_e.html).

### Other

Canada concentrated efforts to improve understanding of polar influences on Earth's climate through building legacy programmes to the Third International Polar Year (IPY) and support to the EC Panel on Polar Observations, Research and Services, a legacy project of the IPY. The Sustaining Arctic Observing Network initiative undertaken under the auspices of the Arctic Council and Canada's proposal for a High Arctic Research Institute should help build capacity for monitoring in the Arctic.

Total disbursements for 2009 were approximately USD 700,000. It should be noted, however, that although these initiatives represent Canada's interests in building capacity with WMO Members, no contributions were profiled through the VCP fund or identified as a VCP project.

### **Initiatives for 2010**

Of immediate concern is the situation in Haiti. The earthquake of January 12<sup>th</sup>, 2010 caused immense physical damage to Port-au-Prince, a high number of victims and left the Meteorological and Hydrological Service of Haiti seriously damaged and limited to carry out its normal functions. The international community is supporting the needs of response and relief operations in Haiti and we are collaborating on means to recover their operations before the 2010 hurricane season. We are investigating also how the MSC could take on a longer term initiative to support renewal of the Haitian weather service working with our partners on the WMO Task Team.

Canada will continue to contribute to Trust Funds. Canada will concentrate efforts on dealing with aviation forecaster qualifications by assisting with the work of the RA IV Task team and CAeM initiatives. We have assigned an expert to work with the WMO Department of Education and Training to develop the compliance kit to assist WMO Members demonstrates that their aviation meteorological forecasters meet the new competencies. Furthermore, we are investigating other training requirements in RA IV, for example RADAR Training for Caribbean Members, modules and trainers for Marine meteorology and assistance on QMS implementation are under consideration.

### **Remarks**

The initiatives taken by the Management Groups of Technical Commissions on capacity building is encouraging for they have a proven track record on mobilizing resources. Nevertheless, improved coordination and focus are required on activities within WMO with particular emphasis on partnership with International Organizations (World Bank, IOC, GEO, WMO, UNEP). Critical to this enterprise will be improved communication on the socio-economic benefits and valuation of the data, products and services provided by NMHSs cast in light of human security. We need to concentrate some effort on capacity building for climate services in light of the outcome of the World Climate Conference-3 (WCC-3) and the development of the Global Framework for Climate Services. The Commission for Climatology has developed a strategy and we must work closely with the High Level Task Force further develop the concept. Canada is interested to have the EC Working Group on Capacity Building become more proactive and engaged in these discussions and acquire a presence.

**Canada Table Contributions  
2009 – 2010**

<b>Contribution to Capacity Building Activities Calendar Year 2009 Canada</b>	
<b>Item</b>	<b>Value USD</b>
GCOS Central America and Caribbean Regional Action Plan Implementation & CARICOM Community Climate Change Centre	50,000
Agrhymet Regional Centre	40,000
Earth Observation initiatives (e.g. SAR Workshop)	100,000
Other planned Bilateral activities	50,000
Trust Funds <sup>3</sup>	398,000
ODA portion of WMO Assessed Contribution (4%)	72,000
<b>Total Contributions</b>	<b>710,000</b>

<b>VCP F</b>	<b>VCP ES - WMO</b>	<b>VCP ES - Bil</b>	<b>Sub Total</b>	<b>Total</b>
Nil		710,000	710,000	710,000

<b>Estimated Contribution to Capacity Building Activities Calendar Year 2010 Canada</b>	
<b>Item</b>	<b>Value USD</b>
Agrhymet Regional Centre	TBD
Haiti NMHS	50,000
Aviation Forecaster competencies and QMS	50,000
Other Training Activities	50,000
Trust Funds (AMDAR, CAEA, GAW, GEO, IPCC, THORPEX)	400,000
ODA portion of WMO Assessed Contribution (4%)	72,000
<b>Total Contributions</b>	<b>672,000</b>

<b>VCP F</b>	<b>VCP ES - WMO</b>	<b>VCP ES - Bil</b>	<b>Sub Total</b>	<b>Total</b>
Nil	Nil	672,000	672,000	672,000

<sup>3</sup> Trust fund contributions for 2009 include - DBCP (\$20k), AMDAR (\$10k), GEOSS (\$38k), Thorpex (\$50 k), WMO ET Hazards (\$20k), EC PORS (\$50k), IPY (\$30k), IPCC (\$150k), Brewer (\$30k)

## China

### 1. Summary of China's Contribution through the WMO VCP Programme and Bilateral Arrangements in 2009

Item	Descriptions of Projects		Project number	Total cost (USD)
1	Study Tour	Symposium on Meteorological Service in Support of Decision-making and Field Study (China, 13-22 October 2009)		90,000
2	Training And Fellowships	International Training Course on Coastal Zone Multi-Disaster Warning Techniques(Beijing Component of RTC-Nanjing, 3 – 22 December 2009)		2,500
		International Training Course on Weather Modification(Beijing Component of RTC-Nanjing, 6–17 July 2009)		26,000
		International Training Seminar on Climate and Climate Change (Beijing Component of RTC-Nanjing, 12 October to 8 November 2009)		187,550
		International Training Course on Multi-hazard Early Warning( 8 to 26 June 2009, RTC-Nanjing)		57,037
		International Training Course on Agrometeorology (16 November to 4 December 2009, RTC-Nanjing)		48,888
		International Training Course on Meteorological Information Service(12 October to 8 November 2009, RTC-Nanjing)		133,333
		Two-year( 2010-2011) Master degree training for ten students from Pakistan Meteorological Department under bilateral agreement		46,222
3	Donation Of Instruments And Equipment By Bilateral Arrangements	Donation the MICPAS software to Pakistan Meteorological Department		4,074
4	VCP(F)	VCP (F), IPCC Trust Fund, WIS Fund and THORPEX Trust Fund		37,000
	<b>Total</b>			<b>632,604</b>

## **2. Expected Contributions of China to the WMO VCP in 2010**

### **(a) Study Tour**

The 39<sup>th</sup> China Study Tour will be organized from 6 to 15 May 2010. Seventeen participants have confirmed their participation in the study tour.

### **(b) Training and Fellowships**

1. International Training Course on Multi-hazard Early Warning (10-28 May 2010, RTC-Nanjing)
2. International Training Course on Meteorological Information Service(7 June to 4 July 2010, RTC-Nanjing)
3. International Training Course on Numerical Weather Forecast and the Application of its Products (RTC-Nanjing, 12-29 September 2010)
4. International Training Course on Satellite Meteorology(Beijing Component of RTC-Nanjing, 22 June -2 July 2010)
5. International Training Course on Agrometeorology (RTC-Nanjing, 23 August to 3 September 2010)

### **(c) Donation of Instruments and Equipment**

1. Provision of meteorological equipment to the Department of Meteorology and Hydrology of Lao
2. Provision of meteorological equipment to the State Hydrometeorological Administration of DPRK
3. Provision of meteorological telecommunication equipment to the National Agency for Meteorology, Hydrology and Environment Monitoring, Mongolia
4. Upgrade the FENGYUNCast user stations in DPRK, Kyrgyz, Lao, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Tajikistan, Uzbekistan, Viet Nam, Indonesia, Iran, Mongolia and Pakistan at the end of 2010 or beginning of 2011.

### **(d) Donation of fund**

1. USD10,000 to IPCC Trust Fund
2. USD10,000 to WMO Trust Fund for Voluntary Cooperation Program
3. USD12,000 to WMO THORPEX Fund
4. USD5,000 to WMO WIS Trust Fund



## **Finland**

### **Training (formal and “on-the-job”)**

Finland is responsible for the international EUMETNET training project *Eumetcal* and has organised courses within the scope of the project for a European audience.

The FMI organised an international workshop on Verification Methods in June 4-10 with participation from developing countries with additional funding.

Training in FMI bilateral development cooperation projects is detailed in the section *Expert Services*.

### **Expert Services**

#### *Pacific Island Countries*

A 3-year bilateral development cooperation project between the FMI and SPREP was signed in June 2009. The project budget is 500,000 € over 2009-2012. The project will focus on supporting the implementation of a QMS for aviation weather services in the PIC NMSs and supporting SPREP in reviewing the regional strategies and development plans. First QMS workshop was carried out in September 2009 in Apia, Samoa.

#### *Peru*

A bilateral development cooperation project between FMI and SENAMHI of Peru was signed in August 2009. The project aims to address the challenges from new operating environment for SENAMHI and to build capacity in order for SENAMHI to be able to modernise its services and improve visibility in the Peruvian society. The project will include various forms of training both in Finland and in Peru over 2009-2011. Total project budget is 500,000 €. In 2009, an initial facts finding mission was carried out and detailed project plans drawn for the continuation of the project.

#### *Central Asia*

In the Central Asian countries (Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, Tajikistan), the MFA co-funded a feasibility study for the improvement of regional cooperation and meteorology across the five countries. A workshop was held in Kazakhstan with participation from the surrounding countries. MFA has allocated resources for a regional development project in the region for 2010.

#### *SADC Countries (Southern Africa)*

The Inception Phase of a SADC Meteorology project funded by the MFA started in November 2009 following planning and discussion between the Government of Finland and the SADC. The project will produce a comprehensive implementation plan for an infrastructure project in the SADC countries and includes training workshops in QMS, strategy and weather radar. A permanent Project Manager will work from Pretoria to collect information and draw up plans for a following implementation project. In 2009, the project planning was carried out and initial planning made.

#### *Viet Nam*

Planning for a capacity building project in Viet Nam funded by the MFA was completed in 2009 with planning missions to Ha Noi and the region. The project is expected to start in 2010 with a focus on weather radar data distribution, automated observation data and modernisation of services.

## *Sudan*

In 2009, planning missions were made to Sudan to prepare a project document for the MFA. Project planning is expected to continue in 2010.

## *Caribbean*

In the Caribbean, several projects have been planned with future funding by the MFA. In 2009 the project planning missions were carried out and project plans finalised. Three smaller projects in Barbados, Jamaica and Trinidad & Tobago will include follow-up training to the past MFA project in the region. A larger project for the Caribbean region will include a comprehensive feasibility study for the development of meteorology in the region and also include training to the countries.

## *India*

MFA funds a research-oriented project between Finland and India on the research of air pollution and air quality in India. The project is managed by the FMI and involves the research teams on aerosols and air pollution. The project has been granted continuation until 2012. A supplementary EU project also led by the FMI addresses some of the same issues in India.

## **Secondments**

In 2009 Finland did not have secondments.

## **Summary 2009**

Financial sum of all projects funded by the Ministry for Foreign Affairs of Finland was **277,464.00 EUR**. In addition, an EU Twinning project in Croatia in the field of air quality was implemented during 2009 with total value of 291,797.26 EUR.

## **Plans for 2010**

Total MFA funding for 2010 to FMI managed projects in the field of meteorology is estimated at **2,082,322.00 EUR**.

List of projects in 2010:

- Pacific Island Countries
- Peru
- Nepal
- Viet Nam
- Sudan
- SADC Countries (Southern Africa)
- Caribbean (ACS)
- Barbados
- Jamaica
- Trinidad & Tobago
- India

Project Proposals in planning for

- Colombia
- Ecuador
- Indonesia
- Central Asia

MFA funding for a JPO position at the WMO Resource Mobilisation Office for two years will be available from April 2010.

Additional funding to reconstruction projects in Haiti from the MFA will be available to international project consortiums lead by an international agency. Total for all projects directed to Haiti is estimated at 5.6 M€.

Funding from the EU into Air Quality projects will continue with the project in Croatia and new projects in FYR Macedonia and in Kosovo.

## **France**

In 2009 France contributed 941,486 Euros to both VCP-*Equipment and Services* and to VCP-*Training and Fellowships*, through bilateral agreements.

### ***Equipment and services through bilateral agreements:***

- **Experts services:** in 2009, 13 Météo-France experts carried out technical assistance missions in several countries including Algeria, Bulgaria, Morocco and China, for an estimated cost of 96,079 Euros.
- **Training and fellowships:** In 2009 Météo-France welcomed 89 trainees and scientists from countries such as Algeria, Benin, Burkina Faso, Congo-Kinshasa, Ivory Coast, Madagascar, Morocco, Mozambique, Niger, Poland and Senegal for an estimated cost of 845,407 Euros.

In 2010, Météo-France will maintain its contribution to both VCP-*Equipment and Services* and VCP-*Training and Fellowship* through bilateral agreements at the same level as in 2009.

In 2010 Météo-France will also fund the installation of new equipment required by the transition of our satellite data and products broadcasting service (previously known as RETIM) over to the EUMETCast broadcasting system of EUMETSAT for ACMAD, Belgocontrol, and 10 NMS users of the former RETIM system.

France also mobilized significant resources for the launching or follow-up of other technical cooperation operations, in particular:

### ***Support to training activities in RA V***

In 2009, the Regional Service of Météo-France in French Polynesia organized, in cooperation with WMO, a workshop on severe weather situations for forecasters from the Pacific Meteorological Services. In 2010, a workshop on tropical meteorology will be organized by the Regional Service of Météo-France in New Caledonia. These workshops are co-funded by the French Economic Social and Cultural Co-operation Fund for the Pacific Region (FFP) and Météo-France.

### ***Support to the WMO activities and programmes through Trust Funds***

In 2009, France made the following contributions:

- World Climate Conference-3 (WCC-3) Trust Fund: 68,362 Euros
- Intergovernmental Panel on Climate Change (IPCC) Trust Fund: 180,000 Euros
- THORPEX Programme Trust Fund: 25,000 Euros
- AMDAR Programme Trust Fund: 21,000 Euros.

### ***Support to the ACMAD Centre (Niger)***

In 2009, The French Ministry of Foreign and European Affairs continued its support to the ACMAD Centre with a contribution of 220,000 Euros covering the salary of the technical assistant and the implementation of the 2009 working plan. Meteo-France also provided scientific, technical and financial support to the organization of ACMAD's PRESAO activities.

***African early Warning and Advisory Climate Service (ViGIRisC Afrique)***

France (FFEM, AFD, Ministry of Foreign and European Affairs) contributed 2,845,000 Euros to this three-year project which started its activities in 2009 under the coordination of the ACMAD Centre. It aims to support the development of products and pilot services of vigilance related to climate risk in different areas of high vulnerability. A technical assistant was appointed in 2009 and a kick-off workshop took place in Addis Abeba, Ethiopia, from 24 to 25 March 2010.

***ACClimate project on capacity building in climate change adaptation for the countries of the Indian Ocean Commission***

France (FFEM, French Ministry of Foreign and European Affairs and the Region "La Reunion") provides a financial support of 3,645,000 € to this project which started its activities at the end of 2008. An ETCCDI workshop on climate data and homogenization and climate change indexes was held in Vacaos, Mauritius from 19 to 23 October 2009. The results of this workshop which gathered experts from COI countries and ETCCDI scientists will serve as a basis for the implementation of the future activities of the project.

***Hycos***

In 2009, France (IRD) continued providing support for the implementation of the WHYCOS programme and of its regional components, in particular CARIB-HYCOS:

The project undertook its operational activities in 2009 with the launch of calls for tender for hydrological and computing equipment. The project has obtained a financial contribution of 802 000 € from the new Caribbean INTERREG IV programme (confirmed in January 2010). This will allow including three other Caribbean Islands in the project (Dominica, Saint Lucia and Antigua and Barbuda). The project also plans to provide Haiti with at least 3 hydrometric stations and the necessary hydrological equipment to begin rebuilding its national hydrometeorological network.

***Support to the Haitian National Meteorological Service in 2010***

Météo-France is working with WMO and RA IV Members to provide urgent assistance to Haiti after the earthquake which devastated the country in January 2010.

As part of this assistance, Météo-France, in coordination with its partners, is developing a dedicated Extranet website in French to assist Haitian forecasters in their production of daily forecasts and warnings during the rainy and hurricane seasons.

1) Contribution from France to the VCP in 2009:

Donor Member	VCP (F)  Euros	VCP/ES				Total Contribution  Euros
		Equipment and Services through WMO	Equipment and Services by bilateral agreements	Training/fellowships	VCP(ES) including fellowships Sub-total	
France		0	96 079	845 407		941486

2) In 2010, France will maintain its contribution to both VCP-Equipment and Services and to VCP-Training and Fellowships, through bilateral agreements, at the same level as in 2009.

## **Germany**

### **Review of Contributions to the VCP in 2009 and Expected Contributions in 2010**

In 2009, Germany's total contribution to the WMO Voluntary Cooperation Programme was 804.838 US\$, consisting of 519.758 US\$ for bilateral arrangements and 285.080 US\$ for training and fellowships.

#### **Training:**

Germany has continued to provide assistance in education & training and fellowships, mostly on a bilateral basis. Assistance was especially provided on a cost-sharing basis for short-term fellowships in the field of research and development.

Germany has also continued its efforts in organizing training courses in support of the National Meteorological Services of developing countries or of Eastern European Countries. In April 2009, an "Advanced EUMETSAT/CM-SAF Training Workshop" for the use of satellite data for climate purposes was held at the DWD's Meteorological Training and Conference Centre in Langen. In September 2009, the DWD supported a Nitrogen Oxides (NO<sub>x</sub>) GAW Workshop held at DWD's Observatory at Hohenpeißenberg.

For all seminars held at the DWD Meteorological Training and Conference Centre, accommodation expenses are reduced for participants from developing countries and countries with economies in transition.

In connection with the CM SAF (Satellite Application Facility on Climate Monitoring), Germany supported a CLIPS showcase (WMO's Climate Information and Prediction Services) at the Armenian National Meteorological Service.

With its support for the GAWTEC (Global Atmosphere Watch Training and Education Centre), Germany contributed to the continuous WMO quality assurance programme. Two courses were financed during 2009 with the aim to provide technical assistance and training to station personnel from all WMO regions, whereby almost 50% of the participants came from countries in the WMO regions Africa, Asia and South America. In the same context Germany also continued to support the GAW Training and Education Centre at Hohenpeißenberg.

In August 2009, the International German Summer School of Hydrology (IGHS) was held at the Ruhr University of Bochum. The IGHS is a platform for conveying hydrological knowledge in two-week courses with annually changing topics. The course 2009, which focused on tracer techniques in groundwater and water and solute transport modelling and was supported by the German IHP/HWRP National Committee, was attended by representatives of China, Ethiopia, India, Kosovo, Nigeria, Senegal, Syria, Turkey, Vietnam and Zambia. Another project of the German IHP/HWRP National Committee provides e-learning modules on water related issues and water balance as a new topic in 2009.

#### **Expert services:**

The DWD supports 26 developing countries and countries with economies in transition in the operational use of the DWD's NWP model by providing them with the corresponding boundary data and training.

The GTZ (German Agency for Technical Cooperation) and DWD carried out a joint project to reduce vulnerability to severe weather by improving weather forecasting in Mozambique. This project was based on the implementation of the DWD's NWP model at the Meteorological Service of Mozambique (INAM) and included the procurement of the necessary hardware, its installation on the sites and the training of the staff members.

Within the framework of bilateral arrangements, Namibia and Germany discussed a Technical Co-operation in Meteorology, targeting on the improvement and modernization of the Namibian Weather Service. In September 2009, DWD experts made a fact finding mission to Windhoek and assisted the Namibian colleagues in formulating the project proposals.

Germany continued its support of the WMO RA VI Regional Dobson Calibration Centre at Hohenpeißenberg.

### **Infrastructure:**

Germany was able to contribute to GCOS through the GCOS Co-operation Mechanism by providing the Armenian State Hydrometeorological and Monitoring Service with radiosondes for the GUAN station Yerevan Arabkir.

Similar to former years Germany contributed to Trust Funds that help support scientific and technical capacity building activities, (e.g. AMDAR, WIGOS) and in 2009 Germany was able to support the GCOS Secretariat.

Furthermore, Germany supported the establishment of a radio station network in Mali to assure a reliable transfer of data and the distribution of weather and climate information.

In co-operation with the Meteorological Institute Mozambique (INAM), Germany supported the establishment of a basic flood warning system for the river Rio Save and provided appropriate training.

### **Plans for 2010**

In July 2010, Germany will conduct the next Regional Numerical Weather Prediction and Data Assimilation Training Workshop at the DWD's Meteorological Training and Conference Centre in Langen.

The 2010 International German Summer School of Hydrology (IGHS) will again be held at the Ruhr University of Bochum with the main focus on groundwater issues. The e-learning modules of the German IHP/HWRP National Committee are to be extended by a new module on Integrated Water Resources Management (IWRM) focusing on Africa (including native African languages).

As from 2010 the DWD will act as an associated partner of the project for the establishment of a Regional Science Service Centre (RSSC) aiming at sustainable land management and adaptation to climate change in the Southern African sub-region, The DWD's contribution will be to provide expertise and consulting.

The IPM VCP 2010 meeting was informed that Germany will continue to provide technical assistance, mostly on a bilateral basis and taking into consideration the relevant recommendations of WMO bodies. In addition, emphasis will be placed on supporting the WWW System Support Activities by means of seconded experts, training, etc.

## ***Japan***

### **1 Direct Financial Support**

In 2009, Japan made a cash contribution of US \$91,000 to the VCP (F) and VCP-related activities through the WMO. Further to its budgetary contribution, Japan provided training activities to the value of US \$250,000 and several types of in-kind support by Japanese manufacturers during the year.

## **2 Training issues**

The Japan Meteorological Agency (JMA) conducted a three-month Group Training Course in Reinforcement of Meteorological Services with funding support from the Japan International Cooperation Agency (JICA). The course was offered to eight participants from eight countries (Bangladesh, Bhutan, Cambodia, Fiji, Iran, Mongolia, Myanmar, and Sri Lanka) from 24 September to 14 December 2009. This course aimed at promoting activities to reinforce the meteorological services of each country applying meteorological data/products such as numerical weather prediction, satellite images, and climate information.

On-the-job training for typhoon forecasters, funded by the Typhoon Committee, was offered to two forecasters from China and Malaysia at RSMC Tokyo Typhoon Center from 22 to 31 July 2009.

Training Seminar on Climate Information and Forecasting has started since 2008. The second seminar was conducted at Tokyo Climate Center from 1 to 4 December 2009, offered to participants from 11 countries (Bangladesh, Indonesia, Lao DPR, Malaysia, Mongolia, Pakistan, Papua New Guinea, Philippines, Sri Lanka, Thailand and Vietnam).

## **3 Infrastructure**

In 2009, Oriental Electronics, Inc. Japan generously offered in-kind support through the VCP to enforce establishing the connectivity between the GTS Message Switching System at the Storm Warning Center of the Bangladesh Meteorological Department and the Domestic Meteorological Information Network System developed under the Comprehensive Disaster Management Programme which is promoted by the Ministry of Food and Disaster Management to optimize the reduction of long-term risk and to strengthen the operational capacities for responding to emergencies and disaster situations.

## **4 Expert Services**

JMA bilaterally offered training events to Chile in the field of ozone observation, to Philippines in the field of seasonal forecast, and to Malaysia in the field of NWP. JMA also sent experts for technology transfer to Brazil in the field of climate and to Malaysia in the field of marine meteorology.

## **5 Grant Aid Projects**

Two Grant Aid Projects were completed in Bangladesh. One project (total \$15 million) was to establish radar systems at Cox's Bazar and Khepupara completed in February 2008. The other project (total: \$9 million) was to establish another radar system at Moulvibazar completed in March 2009.

A Grant Aid Project was completed in Sri Lanka for the improvement of the meteorological and disaster information network. The project aimed to install 38 automated weather stations (AWS). Some follow-up training events have been conducted on the management of the weather stations and the application of these AWS data to weather forecast.

A Grant Aid Project (total: \$29 million) was launched in November 2009 in the Philippines for the improvement of the meteorological radar system. Three radar systems at Vlrac, Aparri and Guiuan and data satellite communication system will be installed under this project.

A Grant Aid Project (total: \$8 million) is going to be launched in 2010 in Samoa for Improving the Weather Forecasting System and Meteorological Warning Facilities. Seven AWS, one airport

observation system, one wind profiler system and data communication systems will be installed under this project.

## 6 Technical Cooperation Projects

Technical cooperation projects for China-Japan Weather Disaster Research Center (December 2005 - February 2010), Meteorology Training for Fiji and neighbouring countries (July 2007 - February 2010) and Enhancement for Adaptation to the Impact of Climate Change in Argentina (June 2008 - June 2009) were successfully completed.

A technical cooperation project on developing human resources for meteorology and hydrology in Lao PDR started in July 2006. This project followed the two-year Grant Aid Project for installation of a meteorological radar system and an MTSAT data-receiving/analysis system. This technical cooperation project is scheduled to continue until the beginning of 2011.

A technical cooperation project in Bangladesh on development of human capacity on operation of weather analysis and forecasting was launched in 2009. This is to follow-up the Grant Aid Projects for the improvement of the meteorological radar system mentioned above.

A technical cooperation named Disaster Management Capacity Enhancement Project Adaptable to Climate Change in Sri Lanka was launched in November 2009. This is to follow-up the Grant Aid Project for the improvement of the meteorological and disaster information network mentioned above.

A technical cooperation project for supporting enhancement for adaptation to the impact of climate change in Yucatan Peninsula in Mexico was conducted from June 2009 to June 2010.

A technical cooperation project is now being launched in Myanmar for developing early warning systems for Cyclone Nargis affected areas. In association with this project, an expert has been dispatched to the Department of Meteorology and Hydrology in Myanmar to investigate and analyze its capacity for disseminating cyclone advisories and warnings.

## 7 Plans for 2010

In 2010, Japan will continue to support the improvement and enhancement of meteorological and hydrological services of NMHSs, particularly in developing countries through the VCP and related activities including training/fellowship, in-kind contributions by private companies in Japan, and bilateral cooperation under the Official Development Assistance scheme.

**Japan's contribution to the WMO Voluntary Co-operation Programme in 2009 (US\$)**

Donor Member	VCP(F) (US\$)	VCP(ES)				Total Contribution (US\$)
		Equipment and Services through WMO	Equipment and Services by bilateral arrangements	Training/ Fellowships	VCP(ES) including fellowships Sub-total	
JAPAN	91,000	105,000		250,000	355,000	446,000



## **Republic of Korea**

### **Contributions in 2009**

#### **1) Estimated Financial Value of Contribution of ROK in 2009:**

VCP(F)	VCP(ES)	Bilateral		Total
		ES	E&TR	
USD27,700	Nil	USD600,000	USD212,500	USD840,200

#### **2) Equipment and Services by Bilateral Arrangements:**

The Korea International Cooperation Agency (KOICA) contributed a total of USD 600,000 to WMO through an arrangement between the two organizations to conduct the following projects:

- Regional Climate Framework in Eastern Africa to Support Adaptation to Climate Change (USD400,000);
- Weather and Climate Impact on Community Health and Public Health Services (USD 200,000).

#### **3) Education and Training by Bilateral Arrangements:**

With the sponsorship of the Korea International Cooperation Agency (KOICA), the Korea Meteorological Administration (KMA) provided Training Courses on:

- Information and Communication Technologies for Meteorological Services (USD 93,200);
- COMS (Communication, Ocean and Meteorological Satellite) Data Analysis (USD 64,200);
- Improvement of Meteorological Disaster Responsiveness for African Countries (USD 55,100).

### **Prospects for 2010**

KMA plans to increase technological support activities funded by its own budget from 2010.

#### **1) Technical Support to the National Hydro-Meteorological Service of Viet Nam**

KMA will support the National Hydro-Meteorological Service (NHMS) of Viet Nam in the modernization of its services. Activities will include:

- Three-month secondment program for two NHMS typhoon experts at the National Typhoon Center of KMA for the improvement of the typhoon analysis and prediction system of NHMS;
- Expertise support by a KMA expert to NHMS for three to six months on NWP or observation networks enhancement;
- One-year consultation by a KMA retiree at NHMS for planning of NHMS services modernization;
- On-the-job training for six NHMS experts for one week on forecast system, applied meteorological services and climate data rescue.

#### **2) Technical Support to the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)**

KMA will send a retired expert to PAGASA for six months to give lectures and to provide research and development expertise.

#### **3) Training Courses through KOICA**

KMA will continue to conduct the following KOICA-sponsored courses in 2010:

- Information and Communication Technologies for Meteorological Services;
- COMS (Communication, Ocean and Meteorological Satellite) Data Analysis;
- Improvement of Meteorological Disaster Responsiveness for African Countries.

#### **4) ASEAN-ROK Training Workshop on NWP**

A two-week training workshop on NWP will be jointly organized by KMA and the ASEAN Sub-Committee on Meteorology and Geophysics under the auspices of the ASEAN-ROK Special Fund.

#### **5) KOICA Project**

KMA will provide expertise support for the KOICA project – Establishment of Early Warning and Response System for Disaster Mitigation in Metro Manila (Pasig-Marikina River Basin). This 300M\$ project will be implemented from 2010 to 2012 with a view to modernizing the flood forecasting system and early warning system for the capital and the surrounding region.

## **New Zealand**

### **(a) 2009 Country Report**

The New Zealand (NZ) contribution to the VCP (at least US\$1.2 million) during the 2009 calendar year is nearly all bilateral in nature via a mix of direct NZ government overseas development assistance and joint programmes and activities with other development partners, the Met Office UK, US NOAA Global Climate Observing System (GCOS) Programme and the Australian Bureau of Meteorology being the primary ones. The goal of NZ and its partners' assistance is to further enhance the capacity of NMHS of Small Island Developing States of the South Pacific (Pacific SIDS) to operate and manage their own meteorological and hydrological affairs. Funding from NZ comes out of the NZ Ministry of Transport (MOT) contract, managed by MetService and the NZ Climate Change Development Fund, managed by NZ Ministry for the Environment (MfE). Priority areas of assistance include;

- Ensuring the continuing quality and integrity of data gathered in Pacific SIDS are in accordance with the Global Observing System (GOS) of the World Weather Watch;
- Ensuring the continuing quality and integrity of climate data gathered in Pacific SIDS as part of the GCOS programme;
- Providing facilities for the Global Telecommunications System (GTS) via maintaining a Regional Telecommunication Hub (RTH) on the GTS for the purpose of relaying observations to and from Australia and Pacific SIDS National Meteorological Centres; (NMCs) and other islands and relaying forecasts, analyses and other messages to and from Australia and the Pacific SIDS NMCs;
- Hosting and operating the HF/RANET Pacific Regional hub in Wellington;
- Providing backup service to the Regional Specialised Meteorological Service (RSMC) Nadi/Fiji Meteorological Service (FMS) during the tropical cyclone season;
- Hosting the WMO Severe Weather Forecast Disaster Risk Reduction Project (SWFDRR) for the South Pacific;
- Implementing the NZ climate change development assistance programme;
- Managing Trust Funds as agreed from time to time with other organisations funding Pacific SIDS weather and climate data acquisition, data management, and telecommunication systems;
- Climate monitoring and research in NZ and Pacific SIDS.

### **Highlights from 2009**

#### **NZ Ministry of Transport (MOT) contract**

- Technical assistance and advice via in-country visits and remotely were provided to Kiribati, Tuvalu, Samoa, Tokelau, Tonga, Niue, Fiji, Pitcairn Island and the Cook Islands. MetService undertook GSN inspections, calibrations and maintenance in Fiji, Samoa, Solomon Islands, Vanuatu and Tuvalu.

- MetService upgraded a number of inactive Global Surface Network (GSN) stations in Kiribati with assistance from WMO and Australian Bureau of Meteorology. Seven in-country inspection and calibration visits were completed in 2009.

### **NZ Climate Change Development Fund (CCDF)**

- Travel support for young scientists from the Pacific region to participate in the 9<sup>th</sup> International Conference on Southern Hemisphere Meteorology and Oceanography (held in Melbourne, Australia in February 2009), and travel support for a Pacific based scientist to participate in the scoping meeting for the IPCC Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.
- Completion of the Pacific Island Data Rescue project. This project, implemented by the National Institute of Water and Atmospheric Research Ltd (NIWA) and Pacific Geosciences Commission (SOPAC), was funded for a total of four years. Under the project historical climate data from Kiribati, Tuvalu, Tokelau, Tonga, Cook Islands, Samoa, Niue and Pitcairn Island has been rescued and digitised.
- Development of a scoping study on Pacific climate change hazards. This project, implemented by NIWA, will enable the development of a programme to provide robust scientific support for predicting specific climate hazards, and mitigating these, in the Pacific.
- Support for UNFCCC education, training and public awareness activities for Small Island Developing States.

### **Island Climate Update (ICU) bulletin**

This multi-national project funded by NZAID and US NOAA GCOS and coordinated by NIWA continued in 2009. It provides seasonal forecasts for Pacific SIDS as well as analyses of the state of ENSO and tropical cyclones. Twelve issues were published in 2009.

### **Pacific HYCOS Project**

Project implementation continues in 2009. The project is funded by the European Union (EU), managed by SOPAC with technical scientific advice provided by NIWA.

### **Global Climate Observing System (GCOS) Upper Air Network (GUAN)**

#### **(i) Joint NZ (MetService) and Met Office UK Pacific Fund (PF) Trust Fund**

MetService and Met Office UK continued to provide ongoing financial, administrative and technical assistance and advice to GUAN stations in Tarawa (Kiribati), Funafuti (Tuvalu) and Rarotonga (Cook Islands). Assistance includes provision of funding for day to day operation, procurement and supply of consumables, spare parts, financial management, reporting, remote support and in-country technical preventative and restorative maintenance visits. The programme also provided telecommunication (HF/RANET) and computer systems to the participating Pacific SIDS. Direct financial assistance to upgrade and refurbish local Met Service offices in Funafuti and Tarawa were provided under the PF.

#### **(ii) Joint NZ (MetService) with the US NOAA GCOS Programme - Technical Support Programme for the Pacific (TSP)**

A joint partnership project, under the New Zealand/US Climate Change Partnership bilateral agreement, between MetService and the US GCOS Programme (based at NOAA's National Climatic Data Centre) on establishing a regional TSP on behalf of supporting GCOS systems in the region started in 2004. The goal of the programme is to provide a technical support and programme management solution to ensure that upper air programmes that are part of the GUAN, as well as some GCOS Surface Network (GSN) sites and operated in Pacific SIDS are effective. The TSP is modelled on existing support programmes that MetService provides for other GUAN programmes in the Pacific (e.g. Met Office Pacific Fund (PF)). Like the PF, the TSP provides day-to-day operation, procurement and supply of consumables, financial management, reporting,

remote support and in-country technical preventative and restorative maintenance visits to those Pacific SIDS GUAN stations (Port Moresby (PNG), Bauerfield (Vanuatu), Honiara (Solomons) and Nadi (Fiji) and Rarotonga (Cook Islands) not covered under the Met Office UK PF and NZ PAC contract. Four administration and routine preventative maintenance in-country visits to Port Vila, Port Moresby, Rarotonga and Honiara were completed in 2009.

### **Procurement of Proton for Port Moresby GUAN programme**

Procurement of the hydrogen generator "Proton" for upper air programme at Port Moresby finally got off the ground with Australian Bureau of Meteorology (BoM) and US NOAA GCOS TSP funding. Implementation began in late 2009. Installation and commissioning is expected to be completed before June 2010. The Port Moresby GUAN programme has been silent since September 2008 when their hydrogen generator reached its used by date.

### **Uganda Department of Meteorology (UDM)/US NOAA/NZ (MetService) GCOS and RANET Joint Technical Support Project for Arica**

This project is modelled on the Pacific TSP and PF. It provides direct funding to UDM to service GCOS and RANET equipment in Africa, monitor GUAN/GSN Network performance, assess country needs and provide training where appropriate to advance activities of GCOS and RANET in Africa. The project is funded via the US RANET Program Manager at NOAA who is supported by USAID, and works closely with the US GCOS Program.

### **(b) 2009/10 VCP Plan**

New Zealand will continue its commitment to programmes described above. Funding is expected to remain static in 2010/11 fiscal year. The projects we expect to support include:

- A continuation of the support NZ currently provides to Pacific SIDS (Kiribati, Tuvalu, Samoa, Tokelau Islands, Tonga, Niue and Cook Islands) under the New Zealand MOT Contract
- A continuation of the support NZ provides to the GUAN stations at Funafuti (Tuvalu), Tarawa (Kiribati), Rarotonga (Cook Islands), Port Moresby (PNG), Honiara (Solomon Islands), Bauerfield, Port Vila (Vanuatu) and Nadi (Fiji) (with Met Office UK PF and US NOAA GCOS TSP Programme)
- Continuing support to Kiribati Met Service to restore and upgrade their GSN observing and telecommunication (HF/RANET) networks (with US NOAA TSP, Met Office UK and the Australian Bureau of Meteorology)
- In-country training and technical support will be provided to the observers and operators of the GSN, GUAN and RANET systems in selected Pacific SIDS.
- Installation and commissioning of the Port Moresby hydrogen generator 'Proton'
- Implementation of the NZ MfE funded CLimRAP project.
- Restoration of the Niuatoputapu Meteorological Service' facilities destroyed by the September 29th Pacific tsunami. The project is a joint initiative by US NOAA International Affairs Division, WMO VCP, MetService and Tonga Meteorological Service.
- Tonga Early Warning System (RANET) project
- Training attachment for Kiribati Met Service technician to MetService's engineering lab in late 2010
- GCOS RANET technical support for Africa with Uganda Department of Meteorology (UDM) Island Climate Update (ICU)
- South Pacific Rainfall Atlas (SPRAT)
- Pacific Islands Data Rescue and Greenhouse Trace Gas Measurements Experiment.

## **Russia**

In 2009 estimated investment by Russian Federation in VCP activities was US\$ 151,000. This includes costs associated with training and retraining of overseas students and specialists at the WMO Regional training Centre (US\$100,000) and equipment purchased through technical cooperation channels (US \$51,000). As part of VCP Roshhydromet also purchased and delivered automated forecasting systems for Armenia and Kazakhstan and METEOGAMMA for Belarus. The new version of CLIWARE data management software was installed in Kazakhstan.

## **Spain**

### **Activities in 2009**

In 2009 Spain contributed by means of three specific Trust Funds that had been built within the WMO by Spain, to several multi-lateral or bi-lateral co-operation projects supported by WMO and related to the goals of VCP. Spain also mobilized resources in favour of development projects and technical assistance. Training activities for staff of NMHSs of other members also continued in 2009.

#### **1. VCP Trust Fund**

There were no direct contribution to the VCP, all the activities have being managed through agreements with WMO and the receptor countries.

#### **2. Multilateral activities in Regional Associations III and IV financed through bi-lateral agreements with WMO**

Spain established in 2006 a Trust Fund in WMO to finance the activities of the "Ibero America Co-operation Programme" agreed with 20 NMHSs of Latin America and Portugal. The contribution to this fund was of **1.707.552 USD** in 2007 and of **1.740.803 USD** in 2008, although this amount was received by the WMO in January 2009. No further contribution had been made since. Contributions for this Trust Fund are envisaged to be made for 2010, but overall economical evolution may jeopardize this prospect. The Trust Fund is kept at WMO for financing present and future activities.

The highlights from activities implemented during 2009 were:

- Design, operation and maintenance of the web page of the Directors' Conference ([www.meteo-iberoamericana.com](http://www.meteo-iberoamericana.com))
- CLIBER ("Clima Iberoamericano") project for studies of current situation and development of NMHSs infrastructures, in Colombia. Presentation to the corresponding authorities of the Projects CLIBER-Uruguay and CLIBER-Paraguay
- Design and pilot implementation in the NMHS of Uruguay of a hydro-meteorological database administration system of common use for the SMHI that would be interested in it, with non-charge licenses.
- Meeting held between End Users and the NMS of Panama for the implementation of a pilot scheme for practical learning regarding the relations between the Meteorological Service and a key Users Sector (Rice Agriculture) in Panama
- Support to the pilot schemes for practical learning regarding the relations between the Meteorological Services and Key Users Sectors in Chile (salmon industry, transport and agriculture) and Peru (health and agriculture).
- Funding of the Fortaleza ( Brasil, March 2-5) meeting between the members of the Virtual Center for the Prevention of Severe Phenomena in the South East of South America; impulse to a new Virtual Center for Central America, Caribbean and Northern South America.
- Funding the attendance of the Latin American NMHSs representatives to 3rd World Conference on Climate.
- Funding of PROHIMET network Conference on coastal floods, held in El Salvador, November 30 to December 4.

- Funding of a workshop celebrated in Brasilia (March 2 to March 6) regarding the installation of a communication system within the AR III based on internet VPN technology.
- Support to the Central America and South America climate forums and support to horizontal cooperation between the Latin American NMHSs by funding 5 visiting scientist among the NMHSs for different activities.
- Training activities in South and Central America: Satellite Meteorology 7th edition, Use of NWP products 4th edition, Seasonal Forecasting 2nd edition, Climate Change scenarios 3rd edition, other specialized Workshops (in Uruguay, Costa Rica, Ecuador, Cuba Colombia, Chile and Venezuela). A distance workshop on strategy management. Spain has financed the training of around 300 students, including travel, daily allowance, local organization etc.

The expenditure from the Trust Fund during 2009 can be estimated around 800.000 Euros. In addition, Staff from AEMET and other Spanish institutions has been involved in all these activities

The Spanish Cooperation Agency supported directly the daily maintenance of delegates and local cost for the training activities being held in their Training Centers of Antigua (Guatemala) and Cartagena de Indias (Colombia), with a direct cost of 9.961 USD.

### **3. Multilateral activities in Regional Association I (Africa) financed through bi-lateral agreements with WMO**

The meeting of Directors of the NMHSs of the North and West African countries, held in Las Palmas de Gran Canaria (Spain) from 17 to 19 October 2007, approved the Las Palmas Action Plan aimed to develop and implement development activities in meteorology and related activities. To support these activities, Spain established in 2007 a Trust Fund in WMO to finance the activities of the "West Africa Co-operation Programme".

In 2008 Spain had contributed to that Trust Fund with **2.249.100 USD**, although this amount was received by the WMO in January 2009. As did happen with the Iberoamerica Trust Fund, no further contribution had been made since. Contributions are envisaged to be made for 2010, but same considerations on economy evolution must be made as to the Ibero American TF. The Trust Fund is kept at WMO for financing present and future activities, specifically the activities programmed in the meeting of Directors of the NMHSs held in November 2008 through the Niamey Action Plan.

The highlights from the activities implemented in West Africa during 2009 were:

- Continuing the implementation of the ongoing agrometeorology project (METAGRI), consisting on Roving Seminars for farmers participants: Phase I consequence of the Las Palmas Action Plan: Burkina Faso, Mali, Mauritania, Niger and Senegal and METAGRI Phase II consequence of the Niamey Action Plan: Benin, Burkina Faso, Cape Vert, Guinée-Bissau, Guinée-Conakry, Mali, Mauritania, Niger, Senegal, The Gambia and Togo. The funds allocated in 2009 since Niamey meeting amounted to 372,415.00 EUR.
- Ongoing marine meteorology project in the West African Coast. Countries involved in pilot phase: Cape Vert, Gambia, Mauritania, Senegal. The funds allocated since Niamey meeting amounted to 569,106.00 EUR
- Urgent needs projects for Least Developed Countries: Côte d'Ivoire, Guinea Bissau, Sierra Leone, Togo, Liberia and Guinea. Funds allocated since Niamey meeting: 257,508.00 EUR
- Climate-Health Viability activities Workshops in Niamey Countries: Burkina Faso, Niger, Mali. Funds allocated since Niamey meeting: 35,000.00 EUR
- MANAGEMENT Workshops, West Africa Directors meetings in (Banjul. The Gambia) Management training Workshops, Monitoring / Planning, Promotion / increase on visibility. Funds allocated since Niamey meeting: 163,460.00 EUR
- Administration of the programmes, maintenance of a web page, etc. Funds allocated since Niamey meeting: 2,800.00 EUR

Spain contributed with 262.909 USD Through the specific WMO Trust Fund for financing the African Centre of Meteorological Application for Development (ACMAD), in particular capacity building, research and general operations.

#### 4. Training Fellowships

During 2009 nine students from Iberian America continued their participation in the two-year international Course on Applied Meteorology organized by AEMET in Madrid until end of July. Estimated costs including fellowships granted to the students were 273.424 USD.

#### 5. Other technical activities

The Izaña Atmospheric Research Center (AEMET) commissioned two experts to the Tamanrasset-Assekrem Global Atmospheric Watch (GAW) station, from 9 to 16 February 2009, in order to calibrate the AERONET sun photometer improving the aerosol optical depth program. This station plays a key role, due to its strategic location in the core of the Sahara desert, for the World Meteorological Organization GAW program and within the WMO Sand and Dust Storm Warning Advisory and Assessment System (SDS-WAS). The cost of the mission was 3,825.69 euros.

AEMET continued the cooperation with the Argentinean Meteorological Service within the Ushuaia-Izaña GAW stations twining collaboration. The ozonesonde equipment at Ushuaia provided by AEMET was used to monitor the evolution of the ozone layer in this sub-Antarctic site throughout the year, and to monitor the ozone hole during the austral spring. Furthermore AEMET provided 16 ozonesondes to support the ozone monitoring, with an estimated total cost of 16,000 euros.

#### Outlook for 2010

During 2010 the highlight will be the use of the remaining funds for the two main co-operation programs in Iberoamerica and in West Africa. As of 1<sup>st</sup> January 2010 approximately 1.415.000 EUR (**1.900.000 USD**) were available in the Iberoamerica Trust Fund and 2.070.000 EUR (**2.790.000 USD**) in the West Africa Trust Fund (WMO figures). The amount still available for ACMAD was **284.549 USD**.

Further financial contributions of Spain to the WMO cooperation activities could be approved. However the final figures will depend on the availability of remaining funds during 2010 and, therefore, the decision would be taken later in the year.

The training activities for staff of less developed Members will continue through a new long-term training course which started in January 2010. The collaboration of the Spanish International Cooperation Agency for Development (AECID) will also continue with the support from their Training Centers in Iberoamerica.

#### Summary of expenditure 2009

	2009	
	EURO	US DOLLAR (approximately)
<b>From voluntary contribution (Trust funds)</b> (as declared by the Finance department WMO)	<b>1.684.698 €</b>	<b>2.274.000 USD</b>
Ibero America Cooperation Program	762.728 €	1.029.500 USD
West Africa Cooperation Program	741.620 €	1.001.000 USD
ACMAD - African Centre of Meteorological Application for Development	180.350 €	243.500 USD
<b>Other Spanish donors</b>	<b>6.776 €</b>	<b>9.147 USD</b>
Training courses Spanish International Cooperation Agency for Development (AECID)	6.776 €	9.961 USD
	<b>1.691.474 €</b>	<b>2.283.961 USD</b>

Other 2009 expenditure			
Equipment and Services(IZANA)	Training/Fellowships		Total
26.765 USD	273.424 USD.		<b>300.189 USD</b>

## **United Kingdom**

The main UK contribution to WMO VCP is funded as part of the UK Public Weather Service (PWS) which sets some priorities:

- Improved protection of life and property of British Citizens overseas through the provision of sustainable public weather services by developing country National Meteorological and Hydrological Services (NMHSs).
- Sustained, and optimally improved, levels of observation data available on the WMO Information System.
- Increased access to forecast and observational data from developing country NMHSs via the World Weather Information Service.
- Ensure the continued unrestricted exchange of data and products, and effective results of WMO Programmes.

In addition, the Met Office seeks to mobilise resources from other donors.

### **3.1 Highlights from 2009**

#### **Observations**

- Continued support was provided to the GUAN stations at Seychelles and Gough Island and funds were provided to GUAN stations on Pacific Islands through the Pacific Fund managed by MetService New Zealand.
- Following the closure of the station at Penrhyn, Cook Islands, the radiosonde equipment was transferred to Rarotonga, and routine TEMP observing started on 2 July.
- Responsibility for the GUAN station at St Helena was assumed by the UK VCP on 1 April. Since then much effort has gone into negotiations with the Government of St Helena and its Dependencies for a sustainable arrangement for this station.
- By mutual agreement, the sonde observing programme at Seychelles was reduced to one sonde per day, with two during the Tropical Cyclone season.
- Funding was provided for a GUAN training event; this has been postponed.

#### **Forecasting**

- Support continued to be provided to the WMO SWFDP, through participation in the management teams for both RA-I and RA-V and implementation planning for the RA-V project. There was continued supply of MOGREPS products for SWFDP-RAI and commencement of MOGREPS for RA-V. Financial support was provided for in-country training for participating Small Island Developing State met services in RA-V.
- GRIB data from the Africa LAM continued to be disseminated via the EUMETCAST system and by website as graphical products. Preparation started for a 12Km version.
- ATD Lightning data over Africa continues to be disseminated by website.
- The annual Met Office WMO Aviation Seminar was developed and delivered to twenty delegates from RA-I, RA-II and RA-VI by the Met Office at RTC Alanya, Turkey, with facilities and support provided by the Turkish State Meteorological Service.



## **Climate Services**

- Further development of the Climsoft climate data management system was undertaken. A developers' workshop was held in Lusaka in April, which agreed on priorities for development. These priorities are feeding into work on Climsoft Version 3. Work continues on data inventory and reports for GIS compatibility.
- Two e-SIAC courses were delivered to about 80 delegates, with UK VCP support for 14 of these. Developments to the e-SIAC course are being considered for improved language support.
- A project was funded and implemented in Malawi to set up a Climsoft database with direct input from AWSs and for data rescue. This links to a World Bank project on food security insurance and a McKnight project on agricultural development.
- Work continued with ACOPS (Advisory Committee On Protection of the Sea) and Cambridge University on data and metadata availability in Africa, with pilot studies in Ghana and Uganda. These were reported at a conference on Water Resources in Africa in September (funded by the Gordon & Betty Moore Foundation). A project proposal "Ghana Sustainability, Climate Knowledge & Data Exchange Centre" is now being developed for funding under ClimDevAfrica.

## **IT and communications**

- A "localisation" project has continued in Uganda, implemented with Climsoft on second-user PCs supplied by Computer Aid International, who also raised matching funds. Significant progress with historical and current data entry has been made, especially for temperature data which is required for crop modelling. This links to a much larger regional project with funding through ASARECA (Association for Strengthening Agricultural Research in East & Central Africa) on using climate data in agricultural research.

## **Service Delivery**

- Support continued for users of the WeatherEyePC package for TV weather presentation graphics, including through a website. Hardware support also continued with replacement of components at a number of sites.
- The studio system in Rwanda was finally made operational, and TV presentations started. This is now working well, using WeatherEyePC.
- Guyana Hydromet and Guyana TV were assisted to set up a TV weather presentation service, with on-site training in weather graphics, WeatherEyePC and presentation skills. The British High Commission provided funding for chromakey equipment and a second training visit.
- A visit by the Met Office PWS Assurance Manager to Mauritius Met Service was arranged. This was to take forward recommendations in the WMO report into a flooding event, for improved training of forecasters in disaster preparedness, warning and response.

## **Human Resources Development**

- Delegates from Tanzania and South Africa successfully completed their studies for an MSc at the University of Reading. One MSc Fellowship was awarded to a delegate from South Africa (co-funded with SAWS) beginning in September 2009.
- Delegates in Rwanda and Uganda continued with local MBA courses.
- A delegate from Rwanda is being funded for a distance-learning MSc in Climate Change and Sustainable Development.
- Co-funding continued with the Royal Meteorological Society to provide paper copies of journals to RTCs in addition to the on-line access already provided to all developing country NMHSs.
- A further run of the course in Management by e-Learning was done, with 26 students. This aims to provide an introduction to relevant management tools for middle-level managers in NMHSs of developing countries. An evaluation of this course is being undertaken.

## Finance 2009

Contribution:	Total:	Total USD:
VCP(F)	Nil	Nil
Equipment and Services through WMO	£45,000	\$71,100
Equipment and Services through bilateral agreement	£515,593	\$814,637
Training and fellowships	£120,185	\$189,892
<b>Grand Total:</b>	<b>£680,778</b>	<b>\$1,075,629</b>

Using exchange rate of £1 = \$1.58 (average over 2009)

### 3.2 UK VCP Plan for 2010

The UK will continue its commitment to the targets outlined above; the overall funding available is expected to be slightly increased. The UK VCP contribution is gaining new visibility as part of the Met Office's Corporate Responsibility recognising our global community. Projects we expect to support include:

#### Observations

- UK support will continue to the GUAN stations at St Helena, Seychelles, Gough Island (with SAWS), Funafuti, Tarawa and Rarotonga (with New Zealand MetService). Implementation of BUFR reporting from these stations is expected. The future of Gough Island from 2012 should be agreed.
- Other support to GCOS observing will be provided, particularly through technical advice.

#### Forecasting

- Support to the SWFDP in Southern Africa and the Pacific will continue, with the operational supply of MOGREPS products and the Africa LAM.
- Support will be given to the SWFDP for East Africa through the supply of products, training and organisational support, to strengthen the interaction between forecast offices and disaster planners and responders. This includes NWP forecaster training in East Africa, and an upgrade to the Africa LAM.
- The Met Office WMO Aviation Seminar will be delivered in East Africa during October. Development of a Training and Assessment package is being supported, and this will be trialed.

#### Climate Services

- The Met Office / DFID Climate Science Research Partnership will be supported through advice and complementary activities, particularly on climate data and applications.
- Climsoft will continue to be developed in association with WMO, ACMAD and the Statistical Services Centre at the University of Reading. Version 3 of the package is expected to be implemented. This will be coordinated with the BoM / AusAid project for the South Pacific island states.
- Financial support will be provided to facilitate the delivery of an e-SIAC course in April, which will include preparatory activities for a proposed Caribbean e-SIAC later in the year. The e-SIAC materials are being improved with support for learners for whom English is a second language, and more on temperature data.

#### IT and communications

- Follow-up activities to the project on localisation of data input and use in Uganda will be supported; a similar localisation project in Zambia is being implemented.
- Support for plans to implement TDCF and WIS connectivity will be supported, though these are poorly defined at present.

## **Service Delivery**

- Further training and maintenance support will be provided to the operators of the Media Weather Presentation Systems. The development of the WeatherEye-PC software package will continue, with a training course for the Francophone Africa countries being held in Senegal, and continuing on-line advice, support and training materials.
- Some support will be provided to implement TV weather presentation in more countries, possibilities include Comoros, CAR, and countries in the South Pacific.

## **Human Resources Development**

- Continuing support will be provided to current Masters level students; one or two further students will be funded during the next academic year.
- The 'Management by e-learning' training course is being evaluated, it is expected to be revised and another run delivered during the year.

## **Disasters**

A forecaster is expected to be seconded to support Haiti. Other disaster assistance will be provided where possible.

## **Resource Mobilization**

There is a significant opportunity to assist WMO with resource mobilization activities, so a staff member is being seconded to WMO to help develop fundable projects.

## ***United States of America***

The United States provided \$1,884,600 to the WMO VCP in 2009. The U.S. contribution is coordinated by the National Oceanic and Atmospheric Administration, National Weather Service (NOAA/NWS).

### **Direct Financial Support**

The United States provided \$654,912 in direct financial support to the WMO VCP. This included funds to:

#### Promote tropical cyclone preparedness and disaster risk reduction:

- RA IV Hurricane Committee (\$64,200)
- RA IV Hurricane Attachment (\$40,660)
- Typhoon Committee, ESCAP (\$27,820)
- RA IV DRR Pilot Project (\$100,000)
- Internet Website Hosting for Caribbean (\$46,010)

#### Provide technical assistance and training to improve forecasting capabilities (see "Training"):

- International Training Desks (\$46,742)
- Workshop on Societal Benefits (Health) of Met Services (\$58,850)

#### Support observation and communication capacity building (see "Infrastructure"):

- JCOMM Workshop on Marine Instrumentation (\$18,190)
- EMWIN Upgrades in SW Pacific (\$53,500)
- ISCS Workstation Maintenance and Upgrades (\$53,500)

## **Training**

The United States provided \$729,628 in VCP funds to support training and technical assistance to improve forecasting capabilities, including hands-on fellowships for meteorologists from Africa, Central America, the Caribbean, South America, and the Southwest Pacific at the NWS National Centers for Environmental Prediction and the NWS Pacific Region (\$214,000). Other training support included:

- Hydromet Forecasting Workshop (\$21,000)
- Integrated Water Management for Climate Adaptation Workshop in Peru (\$30,000)
- Flash Flood Guidance Training for Mexican Forecasters (\$20,000)
- Aviation Forecaster Training Module (\$142,000)
- Workshop on Societal Benefits (Health) of Met Services (\$58,850)
- Translation of COMET modules into Spanish (\$165,138)
- JCOMM Workshop on Marine Instrumentation (\$18,190)
- Tsunami Early Warning Workshop (60,500)

### **Infrastructure**

The United States provided \$148,000 in support for infrastructure including upgrades to EMWIN stations in the SW Pacific (\$53,500), ISCS Workstation Maintenance and Upgrades (\$53,500), and pilot demonstration of GEONETCast Workstations in Costa Rica (\$41,000).

### **Expert Services**

The United States provided \$415,105 in expert services including support for the adaptation of a hydrograph model for Central America, for Aviation QMS in RAIV, and for an AMDAR pilot observing project in cooperation with Mexico. These funds included \$80,000 for data rescue in Africa and Central America and \$30,000 for the GCOS Technical Support Program. \$161,665 was provided to help assess communications requirements among RA IV and RA III NMHSs and another \$46,010 was provided to support NMHS websites in the Caribbean.

### **Secondments**

None

### **Other**

The United States provided \$100,000 from its 2009 VCP contribution to complete work on the Flash Flood Early Warning System Reference Guide developed in collaboration with COMET.

### **Plans for 2010**

NOAA/NWS anticipates that \$2,050,000 will be contributed by the United States to the WMO VCP in 2010. Approximately half of these funds will support International Training Desks and Direct Financial Support for such programs as tropical cyclone preparedness and disaster risk reduction. The remaining funds will be allocated following a call for proposals and review of proposals by a NOAA/NWS interdisciplinary panel of experts.

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## **ANNEX V**

### **MAJOR REGIONAL DEVELOPMENT PROGRAMMES 2009**

## Strategic Partnerships and Major Development Projects

DRA recognises that the optimal situation in terms of extra-budgetary support to NMHS and the Secretariat is for programmatic rather than project funding and preferably in respect of regional development programmes as it will be impossible to service developing countries needs comprehensively on a one-to-one basis. Whilst this is the ultimate aim of the RMO the current situation is a mix of project and programmatic funding with the trend still being towards project support but increasingly we are securing regional multi-annual programmes.

### Summary major programmes / projects below – others in **Appendix 1**

- The 1<sup>st</sup> Phase of the joint initiative with World Bank / UNISDR / WMO (with support of Finland) for S. Eastern Europe was completed in 2008 with the publication of a series of assessment reports on: Disaster Risk in SEE, Risk Insurance Markets, and Status and Investment Plan of Hydrometeorological Services ([www.wmo.ch/pages/prog/rp/RegionalActivitiesRAVI.html](http://www.wmo.ch/pages/prog/rp/RegionalActivitiesRAVI.html)) Based on these assessments several countries directed WB Loans to investment in HydroMet (Albania, Croatia, Montenegro, Moldova, and Macedonia). WMO-RMO Office successfully submitted a proposal to European Commission DG Enlargement. This project is implemented by Office for Europe in partnership with UNDP (each responsible for 1M€ of funds). The project has completed many of the planned activities but implementation period has been extended Dec. 2011. An Inter-Agency Coordinating Committee has been established to synergize on activities comprising WMO, WB, UNISDR, UNDP and EC-DG/E.

In 2009 RMO and ROE worked closely with DGE regarding funding for Phase II of this project. WMO is now considered a major partner in the region by DGE and is at the table to assist DGE plan the next IPA<sup>4</sup> Programme for SEE for the 1012-1015 period which puts us in an excellent position to ensure that NMS priority areas are included including DRR and Climate Change and related issues (floods, forest fires, drought etc).

- Similarly a Phase 1 Assessment was completed for Central Asia and Caucuses Region funded by the WB Global Facility for DRR. The Coordinating Committee for SEE now covers this region also. WB and Finland Foreign Affairs has already committed to some investments in the region pending these assessments. An MOU has been signed between 4 of the 5 CA countries for implementation of regional scale activities and regional cooperation. The intention is to have this endorsed by IFAS<sup>5</sup> Governing Body in June with a Secretariat for Regional Programme implementation established in the CA Institute for Hydrology under IFAS. Efforts will be made to secure additional funds for regional activities.
- Along the above lines a similar partnership programme and assessment activity is underway for South East Asia WB SE Asia Office. This Assessment and Investment Plan should be available by end of 2010.
- Finland continues to support NMHS Development Activities. The Pacific Capacity Building is being implemented with WMO and SPREP as partners. A new Capacity Building project in support to NMHSs of the Caribbean in partnership with the Association of Caribbean States is ongoing. A similar programme is being implemented in SADC region.
- The Spanish support to the Programme of Cooperation for the Ibero American countries has continued with a focus on capacity development, operational activities and training, and in parallel preparation of development projects for most countries. The annual budget allocated to this programme in the past three years has been of 1.1 million Euros on

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<sup>4</sup> Instrument for Pre Accession (to European Community)

<sup>5</sup> International Fund for Aral Sea.

average. A 12-18 month plan of activities is discussed and approved by the Conference of 21 Directors of Iberoamerican NMHS. The last meeting of Directors of Iberoamerican NMHSs adopted a Declaration stressing the need to intensify and promote climate services, following the framework proposed at the World Climate Conference-3. Furthermore, the Declaration consider that climate services must be one of the inherent and essential activities of the SMHIs and state that the SMHIs must make every possible effort to participate activities in designing strategies related to climate change adaptation and mitigation.

- The Spanish Programme of Cooperation with West African countries has continued its implementation. The focus of activities is on Marine meteorology, Agricultural Meteorology, Health and climate, Development Financing for Countries Emerging from Conflict or disasters (Sierra Leone, Liberia, Guinea, Guinea Bissau, Togo and Ivory Coast), Capacity Building in Political Advocacy and Resource Mobilization and other activities as agreed between participant countries and the donor. The fund currently stands at more than 2.0 M€ for the various activities agreed with the NMHS Directors at Programme Planning Meeting in Banjul, Gambia in Feb 2010. The Programme is managed jointly by the Regional Office for Africa and AEMET.
- The Korea ODA Agency (KOICA) funded (US \$600,000) projects<sup>6</sup> commenced in 2009 and have already resulted in increased support to IGAD Region and ICPAC with the recent signing at the African Ministerial Conference of an MOU between ICPAC and KMA for an ongoing programme of expertise and technology transfer to develop ICPAC further as a Regional Climate Centre. This MOU was signed between ICPAC, KMA and the PRs of IGAD countries (Uganda, Tanzania, Eritrea and Ethiopia).
- A Financing Agreement was recently signed with World Bank for a new 3 year programme (750,000 USD) for Lake Victoria Region (Uganda, Kenya and Tanzania) “Weather and Climate Service Delivery in the Lake Victoria Region. The focus is on agricultural meteorology and improved early warnings for maritime safety (fishers) as the fatality rate on the lake amongst fishing community is disastrously high (6-8,000 per year). This is predominantly seed funding for the SWFDP for Lake Victoria. This project links to plans for development of a Maritime Communications Centre and Search and Research Service on the Lake. RMO is on the development committee for the latter also as NMHS will have a key role to play servicing this critical sector and will likely need investment in expanded observation systems and improving forecasting capacity.
- Regarding the above and more generally WMO is working closely with Ericsson Communications to develop applications for weather and climate information to be carried over mobile networks targeting farmers and fishers in East Africa as a demonstration of how innovations in communications technology can in reality make weather information readily available to everyone, even in remote communities.
- WIFA, the “Weather Info for All” project (partnership between WMO, Ericsson, Global Humanitarian and Zain Africa) continues without great impact but indications are that pipeline funding may become a reality soon. However the recent demise of the GHF requires a re-think of the management structures and implementation plan for this initiative which has not got good brand identity in East Africa and Africa generally despite slow progress. Positive indications from Govt of Norway and Gates Foundation for financial support.
- The Rockefeller Foundation is supporting a programme (350,000) to improve integration of weather information in agricultural extension services in Ethiopia. This is their first engagement with WMO but will hopefully be the commencement of a strong partnership as

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<sup>6</sup> “Regional Climate Framework in Eastern Africa to Support Adaptation to Climate Change” and “Weather and Climate Impact on Community Health and Public Health Services

RF has very active programme in East Africa in support of agricultural development and Risk Index Insurance for farmers.

- An Agreement was signed between Government of Greece and WMO in New York at the UNGA in support of a 2M€ package to support Climate Change Adaptation and Improved Climate Services in Sub-Saharan Africa. Unfortunately the funds have not yet transferred and the current financial situation in Greece would indicate it is unlikely these funds will arrive in the near future.
- AECID (Spain) is supporting the SDS and GAW projects in Northern Africa and indicated interest in supporting a project on disaster risk management in Haiti and Dominican Republic developed under the Programme of Cooperation for Iberoamerican NMHSs. Discussions are underway seeking support to projects in other countries in Africa and the Americas region.
- US NWS continued its capacity building programme through WMO covering a range of existing and new activities; Training Desks; Fellowships; support to WIS; Socio-economic benefit areas; Climate Data Recovery programmes etc.
- The NMS of Mexico requested the assistance of WMO to carry out a diagnostic and the development of a strategic plan for the NMS of Mexico, aimed at its strengthening and modernization. A WMO mission was organized with the collaboration of consultants released by AEMET – Spain, FMI – Finland from 12 to 21 October 2009. The Strategic Development Plan was presented to the NMS of Mexico in February 2010 in a meeting chaired by the Director-General of the National Water Commission with the attendance of national institutions associated to the NMS. The Plan includes four strategic lines of action: 1) *institutional development*; 2) *strengthening of meteorological observing networks*; 3) *development of products and meteorological services*; and 4) *development of infrastructure for climate services*. The Strategic Plan also includes a 10-year implementation plan with an estimated budget of 100 USD million. The Government of Mexico is supporting the implementation of the Plan recommended by WMO with an initial allocation of 14 USD million in 2010.

## **In the pipeline**

- Development projects for the NMHSs of Panama, Costa Rica and El Salvador, prepared under the Programme of Cooperation for Iberoamerican NMHSs were submitted for consideration to national and international funding agencies based in these countries. Panama would support its own project, while the project in El Salvador will be supported using funds from a FAO project that addresses the same subject and complemented by national funds. AECID and NOAA have considered some support to the project in Costa Rica. Development projects were also prepared for the NMHS of Colombia, Dominican Republic, Honduras, Nicaragua, Ecuador, Paraguay and Uruguay. WMO/AEMET missions were organized to these countries in 2008 and 2009 seeking support from international agencies and national governments for the implementation of these projects. The Spanish International Development Agency for Cooperation (AECID) has offered to consider possible support to projects in Dominican Republic and Uruguay in particular, while the Inter-American Development bank (IDB) offered support to the project in Paraguay.
- Discussions recommenced with Ireland (Irish Aid) for possible support to activities in support of Change and Food Security in East and Sub-Saharan Africa that will hopefully bear fruit in the coming months.
- A meeting with the Spanish International Development Agency for Cooperation (AECID) is being organized by AEMET and WMO aimed at discussing further joint cooperation in



support to Iberoamerican and West Africa countries, targeting climate change, disaster risk reduction, climate and health and food security, among others.

- Discussions continue regarding a possible programme of support to Democratic People's Republic of Korea from the from Korea using WMO channels and funded by the Ministry of Unification but talks have stalled several times due to external factors.

**Appendix 1 DEVELOPMENT AND REGIONAL ACTIVITIES DEPARTMENT (DRA)**  
**Resource Mobilization Office**  
**(2007-2009)**

<b>Development Projects Funded</b>					
<b>Activity/Project</b>	<b>Beneficiary Country/Region</b>	<b>Amount</b>	<b>Equivalent in CHF*</b>	<b>Funding Agency</b>	<b>Remarks</b>
1. <i>Pilot Project for the Implementation of an Early Warning System to contribute to disaster risk reduction in Bolivia</i>	Bolivia	415,000 €	622,500	AECID	Funds negotiated by RMO and approved by AECID. Administered by UNDP Office in Bolivia.
2. <i>Regional Cooperation in South Eastern Europe for meteorological, hydrological and climate data management and exchange to support Disaster Risk Reduction</i>	Croatia, Turkey FYR Macedonia, Albania, Bosnia and Herzegovina, Montenegro, Serbia	2,000,000€	3,000,000	EU-COM DG-Enlargement	2M € committed. Two components at 1M € each. 1M€ to be implemented by WMO and 1M€ by UNDP.
3. <i>Rehabilitation of the Iraqi Meteorological Organization</i>	Iraq	5,285,000€	7,927,500	Government of Italy	5M€ Soft Loan to Iraqi government. 285,000€ to WMO for Tech Support
4. <i>Global Atmospheric Watch in the Magreb-Sahara Region</i>	Magreb-Sahara Region	340,000 €	510,000	AECID	Funds negotiated by RMO and transferred to WMO. Project under implementation by ARE
5. <i>Sand and dust Storm (SDS) Early Warning System in the Maghreb Region</i>	Maghreb Region	184,000 €	276,000	AECID	Funds negotiated by RMO and transferred to WMO. Project under implementation by ARE
6. <i>Food Security project in Africa- Flood and Drought</i>	Mali	300,000 €	450,000	Government of Italy	Funds transferred to WMO. Project under implementation by AGM
7. <i>Review of Delivery of Weather and Climate Services and Related Warning Services in the Area Served by the Fiji Meteorological Service</i>	Pacific Region	80,000 AU	85,000	AUSAID	RMO secured funds from AUSAID – transferred through BOMA to Pacific Islands Forum for project management
8. <i>Understanding the Findings of the IPCC Fourth Assessment Report “Climate Change 2007” – Integrating Climate Change Adaptation and Mitigation in Development Planning</i>	Africa	1,000,000€	1,500,000	EU-COM DG Environment	Implemented by IPCC-WMO

<b>Development Projects Funded</b>					
<b>Activity/Project</b>	<b>Beneficiary Country/Region</b>	<b>Amount</b>	<b>Equivalent in CHF*</b>	<b>Funding Agency</b>	<b>Remarks</b>
<i>9. USA – NOAA Technical Cooperation Programme: Various Activities</i>	ALL	1,096,180 USD	1,260,607	US State_ NOAA	
<i>10. Operational Observing and Forecasting System in the Caspian Sea for the Protection of Infrastructures and the Environment- Preparatory Phase</i>	Caspian Sea	45,000 €	67,500	NATO	In association with Ente per le Nuove tecnologie, l'Energia e l'Ambiente – ENEA. Dpt ACS, Spezia Italy
<i>11. Regional Climate Centres and Climate and Health</i>	East Africa	600,000 USD	690,000	KOICA Korea Int. Aid Agency	Commitment given for 3 projects which are under discussions internally
<i>12. Assessment of NMHS Capacity in Central Asia and Caucuses meteorological, hydrological and climate data management and exchange to support Disaster Risk Reduction</i>	Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan, Armenia, Azerbaijan, and Georgia	150,00 €	225,000	GFDRR / UNISDR / Finland	
<i>13. Development of Hydrometeorological Services in Pacific Islands Region</i>	Pacific Islands	500,000 €	750,000	Govt Finland	FMI/ SPREP/WMO
<i>14. Strategic Plan for development of the National Meteorological Service of Mexico</i>	Mexico	14,160,0000 USD	15,151,000	Govt. of Mexico	The 10 -year Strategic Plan for the NMS of Mexico was prepared by WMO with assistance of AEMET and FMI in 2009. Estimated total budget of 100 million USD
<i>15. Strengthening hydrometeorological operations and services in the Caribbean SIDS (SHOCS)</i>	Caribbean NMHSs	500,000 Euros	675,000	Govt. of Finland	FMI/ACS/WMO
<i>16. Institutional development of the NMS for improvement of the meteorological services and information in support of socioeconomic sectors of Uruguay</i>	Uruguay	500,000 USD	535,000	Govt. of Uruguay	Development project under Iberoamerican Programme AEMET- Spain/WMO
<i>17. Towards a Regional Framework for Weather and Climate Services for food aid, food security, maritime transport safety contributing to disaster risk reduction In Lake Victoria region</i>	Uganda, Tanzania, Kenya	750,000 USD	802,500	World Bank	

Development Projects Funded					
Activity/Project	Beneficiary Country/Region	Amount	Equivalent in CHF*	Funding Agency	Remarks
<i>18. Training Seminars on Weather and Climate Information and Products for Agricultural Extension Services in Ethiopia</i>	Ethiopia	350,000 USD	374,500	Rockefeller Foundation	
<b>Total</b>			<b>34,902,107</b>		

## Projects in Pipeline

<b>ACTIVITY/PROJECT</b>	<b>Beneficiary country/region</b>	<b>Estimated budget</b>	<b>Potential funding agency</b>	<b>Remarks</b>
1. <i>Establishment of a Hydro meteorological Early Warning System in Dominican Republic</i>	Dominican Republic	3,800,000 USD	AECID and national funds	Project being implemented partially with national funds. AECID support is being sought
2. <i>Project for development of an Hydrometeorological Early Warning System for Haiti</i>	Haiti	1,500,000 USD	Gov. of Finland AECID	Project prepared in 2008. A WMO mission is assessing the short and medium term needs after the earthquake in Haiti and an updated project proposal for the NMHS of Haiti will be available in due course.
3. <i>Improvement of the early warning system for disaster risk reduction and climate change impact in Costa Rica</i>	Costa Rica	3,500,000 USD	AECID, NOAA	Project presented to national authorities and funding agencies in Costa Rica in Oct 2008
4. <i>Development of the early warning system for disaster risk reduction of hydrometeorological events in El Salvador</i>	El Salvador	4,300,000 USD	FAO and national funds	Project presented to national authorities and funding agencies in El Salvador in 2008. Partial funding coming from FAO and national funds
5. <i>Development of INETER in support to disaster risk reduction and impacts of climate change in Nicaragua</i>	Nicaragua	2,300,000 USD	Govt. of Finland AECID	
6. <i>Development of the NMS in support to the integrated disaster risk reduction and climate change in Honduras</i>	Honduras	2,000,000 USD	CIDA, IDB	Project to be presented to the NMS and new government in May 2010
7. <i>Development Project for enhancing the Capacity Building of SENAMHI contributing to Disaster Risk Reduction in Bolivia</i>	Bolivia	500,000 USD	World Bank	Negotiations with WB in Bolivia. Funds in process of approval.
8. <i>Strengthening and Modernization of the NMHS of Panama</i>	Panama	3,200,000 USD	Govt. of Panama	Project will be funded mostly by national funds.
9. <i>Institutional development of the NMS for improvement of the meteorological services and information in support of socioeconomic sectors of Uruguay</i>	Uruguay	2,000,000 USD	AECID Govt. of Uruguay	Government of Uruguay approved an initial allocation of 500,000 USD for the project.
10. <i>Institutional strengthening of the NMHS to support the socioeconomic development of Paraguay</i>	Paraguay	3,000,000 USD	IDB, AECID	Project submitted to Ministry of Planning. IDB offered support to some project components
11. <i>Implementation of a Hydrometeorological Early Warning System for Disaster Risk Reduction in Ecuador</i>	Ecuador	4,914,000 USD	Ecuadorian Planning Agency	SEMPLADES (Planning Agency of Ecuador) is considering the support for the project.

<i>12. Strengthening of IDEAM in support to disaster risk reduction and climate change in Colombia</i>	Colombia	4,600,000 USD	Gov. of Colombia	Ten additional meteorologists were approved to IDEAM as part of the project.
<i>13. WCC 3 participation by LDC</i>	TBA	45,000 USD	Asia Pacific Network	1 <sup>st</sup> Stage accepted 2 <sup>nd</sup> Stage Submitted and request for additional information answered.
<i>14. Pacific RCOF 2009</i>	Pacific Region	45,000 USD	Asia Pacific Network	1 <sup>st</sup> Stage accepted 2 <sup>nd</sup> Stage Submitted and request for additional information answered.
<i>15. WCC 3 participation by LDC</i>	TBA	29,000 GBP	Commonwealth Secretariat	1 <sup>st</sup> Stage Submitted
<i>16. Sub-Saharan Africa: Climate Change and Food Security</i>	Sub-Saharan Africa:	TBA	Govt Ireland	Under discussion

## **ANNEX VI**

### **CAPACITY BUILDING IN THE WMO SYSTEM PRIORITIES FOR 2010 AND BEYOND**

## 1. Introduction

This document outlines the issues and priorities for capacity building of the developing country Members for 2010 and beyond as offered by various WMO Technical Programmes: Observing and Information Systems (OBS), Global Climate Observing System (GCOS), Climate Database Management Systems (CDMSs), Climate Prediction and Adaptation (CLPA), Least Developed Countries and Small Island Developing States (LDCs and SIDS) and Education and Training.

In view of the recent trends of WMO programme priorities and of requests for technical assistance from NMHSs, special attention should be given in 2010/11 to what as stated by Congress; the focus of the VCP shall comply with the WMO Strategic Plan 2008-2011 and contribute to all of the expected results areas, with particular focus on Expected Result 9 "Enhanced capabilities of NMHSs in developing countries, particularly LDCs, to fulfil their mandates" on weather, climate and water.

## 2. Observing and Information Systems (OBS)

### Strategic documents to be used for VCP planning

Implementation Plan for the Evolution of the Global Observing System ([http://www.wmo.int/pages/prog/www/OSY/WorkingStructure/documents/ET-EGOS\\_ImplPlan1.6.doc](http://www.wmo.int/pages/prog/www/OSY/WorkingStructure/documents/ET-EGOS_ImplPlan1.6.doc)) together with the Statements of Guidance (<http://www.wmo.int/pages/prog/sat/RRR-and-SOG.html>) and the Vision for the GOS in 2025 ([http://www.wmo.int/pages/prog/www/OSY/WorkingStructure/documents/CBS-2009\\_Vision-GOS-2025.pdf](http://www.wmo.int/pages/prog/www/OSY/WorkingStructure/documents/CBS-2009_Vision-GOS-2025.pdf)) should be used as strategic planning documents for observing systems. They clearly describe the gaps in the global observing systems and should be used as guidance for VCP. These strategic documents support major WMO initiatives, such as QFCS, WIGOS and DRR.

### Priorities

#### *Marine and Oceanographic Observation (MOO)*

a) Highest priority should be given to projects aiming at improving and developing in situ ocean observing systems (data buoys) in data sparse regions, especially the Gulf of Guinea, and/or the Western Indian Ocean.

#### *Aircraft Observations (AMDAR)*

(a) Highest priority should be given to extend AMDAR coverage to developing countries, LDCs and SIDS to supplement scarce upper-air observations or to provide a cost-effective alternative to countries that cannot afford costly upper-air sounding systems.

(b) Priority should also be given to the development of a generic software solution applicable for any aircraft brand and model, including regional aircraft, to eliminate the risk of data gaps due to the phasing out of AMDAR compatible aircraft and introducing new non-compatible ones for which a dedicated software solution would need to be developed. It is envisaged that with this development any NMHS would have the ability to work with their national airline to activate an aircraft for AMDAR



reporting without any major and costly software development that would be borne by the NMHS.

## **Immediate capacity building proposals**

### **GOS**

Development of a simple PC based software tool to assist countries and regions in designing their national and regional networks. This tool would also allow for harmonizing the criteria for inclusion of new stations in the regional networks, classification of existing stations according to their information weights (meteorological and economical impacts) and estimating the degradation of networks in the case of removal of existing operational stations from regional networks. The principle of the computation should be to quantify the amount of information which is brought by any network of observation sites to a background information  $X_b$  whose uncertainty is typical of the uncertainty of a Numerical Weather Prediction (NWP) field. This uncertainty can be defined quantitatively by a global field of NWP background standard deviation error Std (lat, long), and by some scalar values defining the horizontal correlation scale of the background error. Then by adding or subtracting observation sites to a reference network, one can optimise the evolution of the network, identifying the configurations bringing a maximum of information (resp: losing a minimum of information).

### **IMOP**

- (a) Provide support to trainees from national calibration laboratories to visit RICs for extended period of time to be trained in calibration procedures and practices by working together with the RIC staff.
- (b) Build a fund enabling Regional Instrument Centres to provide support to other countries, by covering the shipping of instruments from the national calibration laboratories to the RICs and back and, in case the transport of the instruments to the RIC is not possible, to support the travel of RIC staff to carry out calibrations in countries of the Region with travelling standards.

### **MOO**

Development of a regional pilot project for the deployment and operations of a limited number of wave observing buoys, including satellite data telecommunication, near the coasts in support of marine safety services for issuing forecasts and warnings of important wave variables (e.g. significant wave height and dominant wave direction). In situ wave observations are used for assimilation into wave forecast models; validation of wave forecast models; and calibration / validation of satellite wave sensors. Wave observations are also useful for ocean wave climate and its variability on seasonal to decadal time scales; and to estimate the role of waves in coupling. While wave products can be made available by developed countries to the developing countries, there is a need for in situ observations to improve reliability of those products in the regions of interest to developing countries. Considering that extreme wave and wind gusts events significantly constrain shipping and other marine operations, wind observations should also be collected in conjunction with wave observations. Wave data from the pilot project would also contribute to the DBCP-ETWS Pilot Project for wave measurement evaluation and testing where inter-comparison of wave buoy observations from different regions is being conducted.

## **AMDAR**

Due to the scarcity of upper-air observations over Northern Africa and Western Asia, it has been proposed by the AMDAR Panel that a new regional AMDAR pilot project that would encompass these areas be instigated. This project would involve examining training, implementing and/or extending the national/regional efforts with the aim of developing a Regional AMDAR Programme. This project would have the potential to produce reliable, cost effective upper-air observations that would have significant impact on NWP products and improve operational forecasting. AMDAR observations from major airports in the region would make a significant contribution to the frequency and vertical resolution of upper-air observations on which NWP products and operational forecasters are so reliant.

## **VCP Contribution**

### **Priorities:**

1. Ensure that interim mechanisms, mostly via Internet, can be made available during periods of technology transition as occurred in some Regions (e. g. forced migration from Frame Relay to MPLS in RA II and V). This would also apply to solve specific shortcomings.
2. Capacity building on new ICT technologies targeting implementation of WIS Part A and B.

## **3. Global Climate Observing System (GCOS)**

For GCOS, 2009 was a year of some successes but also some failures. Several station renovations were completed and some stations received supplies of radiosondes. One of the major disappointments however was the failure to establish a Technical Support Project (TSP) in Southern Africa. First private companies were invited to bid. Several were invited but only one bid was received. WMO did not want to award a contract based on a single bid. So in coordination with WMO procurement officials it was decided to also invite the met services in the region. Only one Met service responded along with two companies. Unfortunately the bids were not acceptable and the procurement was cancelled. This is very unfortunate for the region as several member countries have needed technical support. This has required several 'sole source' contracts with equipment suppliers to travel to stations for repairs. This is exactly why the TSP was needed.

Another disappointment was the planned GUAN Upper Air Observing workshop in India in March 2009. We planned to focus on correct observing techniques, including hydrogen generator safety. All GUAN stations in the region were to be invited, as well as all interested vendors. The workshop was organized by the World Weather Watch (WWW) and GCOS, and the instructors were to be provided by the UK Met Office (UKMO). Unfortunately almost no one registered for the workshop and it was cancelled. It is not clear why so few participants registered. There is still some interest in hosting this workshop but first we need to determine the cause of the poor registration.

A workshop for the preparation of CLIMAT reports and the use of the software CLIREP was planned last year in the Pacific. WWW, WCP, and GCOS were intending to support the workshop but budget reductions at WMO resulted in the cancellation of that workshop as

well. Discussions are on going with WWW, WCP, GCOS and Australia BOM in hope of rescheduling this workshop.

The Technical Support Project (TSP) for the Americas continues to function well and in fact has been extended for an additional 6 months. Funding for this TSP was provided by the United States and Canada. The contractor has visited nearly every country in the region.

A coordination meeting/workshop of the 9 CBS lead centers for GCOS was held in WMO in November 2009. These Lead centers interact directly with member countries to improve the quality and quantity of the essential reports, the CLIMAT, SYNOP, and TEMP. They use the variety of performance reports and contact the countries usually through the designated GCOS National Focal Points. This bi annual meeting is funded through the GCOS Trust Fund since no routine budget has been established.

Regarding station maintenance / upgrades:

- Radiosondes were provided to the GUAN stations at Dar es Salaam, Vacoas, Mauritius, San Cristobal, Galapagos, and Harare, Zimbabwe. These were funded by Switzerland and Spain.
- Germany was able to contribute to GCOS through the GCOS Co-operation Mechanism by providing the Armenian State Hydrometeorological and Monitoring Service with radiosondes for the GUAN station Yerevan Arabkir.
- Support was provided to several GUAN stations that experienced equipment failures. Replacement parts and actual repair missions were provided to Galapagos, Dar es Salaam, and Harare.
- The surface stations (4) in Uruguay and in Angola (8) were provided with replacement instruments. These renovations were funded by Spain and Switzerland.

### **Issues**

- Continuing support for important GUAN stations is still a major issue. Almost all of the GUAN stations are capable of operating but several are silent because they lack consumables (balloons and radiosondes) It costs \$50K-\$60K USD per year to support the operation of an upper air station. Some of the most important stations such as those in Galapagos, Yerevan, Costa Rica, Peru, and Gan are silent because they simply lack supplies and cannot purchase for themselves. (Actually Gan was recently resupplied by the UKMO) Usually we can obtain good consistent prices at the WMO, in fact often better than the country itself can obtain. But we need to find a way to address this continuing need in a systematic way
- Hydrogen generators are still a major problem as the first generation of units are now 30 years old and failing. There are few current suppliers and their units have had a poor performance record and they are technically difficult to support. In Africa, many of the support staff are apprehensive even after several bouts of training. Replacement parts are expensive also.
- As funds are less than in previous years GCOS is addressing surface station renovations more than upper air as they are much cheaper cover but do require much more input on GCOS part to define specs and evaluate bids. Assistance from members in this regard, managing projects for us is therefore invaluable. Currently

UKMO and NZ provide support in this way. [Ideally support could also come from US, Brazil, India, Russia, Japan, and China, as language and technical issues like manuals and equipment displays in these languages often pose problems to GCOS].

- The WMO procurement function has become very problematic. It is very difficult to buy some items competitively, such as radiosondes for specific systems, support for name brand units, and equipment that is standard in a particular country. Our attempts to justifying sole source in such cases have generally failed.

### **Priorities**

- The priorities for the coming year include the renovation of the upper air station at Luanda, Angola and the renovation of the 10 GSN stations in Madagascar. These are the highest priorities assigned by the GCOS advisory board if funds can be found.
- Additional training/workshops including training on hydrogen safety and balloon handling is needed as is training on the preparation of the CLIMAT reports. These topics have apparently never been taught. Considering that there have been a few fatal accidents, instruction in the area of hydrogen safety this is an important area where WMO can help its Members and CIMO agrees.

## **4. Climate Data Management**

### **4.1 Climate Data Management Systems (CDMSs)**

There has been an increased engagement of Members in implementing various aspects of climate data management and the increased assistance provided through WMO-VCP or bilateral collaboration to developing and least developed countries in acquiring and operating modern Climate Data Management Systems. However these activities still need further efforts by the Members to accelerate the modernization of Data Archiving systems and methods.

The Commission for Climatology identified the future work on Climate Data Management Systems (CDMS) including the following main components:

- Provide guidance on Model of Description for CDMSs describing the main functions of the CDMSs based on existing database management standards and protocols to help the providers of these systems to adequately describe them to and the potential users to make an informed choice of the CDMSs;
- Produce a minimum set of functions that CDMSs should offer based on a new evaluation of the existing and future CDMSs;
- To conduct a comprehensive survey on the degree of operational use of the already installed CDMSs in the developing and Least Developed Countries (LDCs) which benefited from the various capacity building mechanisms e.g. training workshops, bilateral collaboration and the WMO Voluntary Cooperation Programme (VCP). The result of the survey should lead to revisit the ongoing capacity building strategy to ensure that the CDMS implementation should have a positive impact on producing CLIMAT reports and their exchange in addition to the improved historical data digitization in the countries.

→ VCP would help in hiring a consultant to carry out part of these activities in close connection with CCI Experts ( **30.000 CHF** )

#### **4.2 Climate Data Rescue**

Congress, EC and the Commission for climatology considered that data rescue and digitization of old climate records is still a challenging topic for many NMHSs in developing and least developed countries and needs further attention by the Members. They requested Members to increase their support to safeguard the old climate records and make them available for research and applications in the digitized electronic format. They urged Members and the Secretariat to continue the support given to the developing and least developed countries to implement DARE.

→ VCP would help in buying DARE equipment and support expert field mission to 6-10 developing countries in West Africa, South America and South East Asia to assist in organizing old archives, installing DARE equipment and onsite training ( **60.000 CHF** )

#### **4.3 Operational implementation of Climate Watches**

Several actions were agreed during the First Workshop on climate monitoring and climate watch systems in RA-III held in Guayaquil, Ecuador in December 2008. We plan to start a regional process to move into the operational phase in implementing climate watch system in RA-III.

→ VCP would help in carrying out an RA-III expert workshop ( **54.000 CHF** ) with the following objectives:

- To design a coordinated system based on NMHSs, under coordination of CIIFEN to disseminate regional and sub-regional climate watches operationally in RA-III,
- To provide training on useful tools to improve climate watches such as GIS and climate Analysis and assessment tools such as RClimdex,
- To process for RA III a high quality Climate Change Indicators that enable NMHSs in the region to make a valuable and scientific sound contribution to the upcoming IPCC AR5.
- The proposed workshop is two-weeks duration with 25 participants from NMHSs and user sectors and could be organized on the third quarter of 2010 in CIIFEN Headquarters.

### **5. Climate Prediction and Adaptation (CLPA)**

#### **Agricultural Meteorology Programme**

##### **Issues**

- Improving Capacity for Agricultural Meteorology in RA V

In April 2010, there were discussions with the WMO Agricultural Meteorology Programme and the WMO Office for the South-West Pacific on the status of agricultural meteorology in RA V.

The WMO Office indicated that several of the Least Developed Countries in the Region need to increase their agricultural production and therefore need increased capacity to provide better agrometeorological information to their agricultural sector. During these discussions, it was proposed that a introductory Training Workshop on Agricultural Meteorology be organized focusing on the Least Developed Countries in the Region (Kiribati, Samoa, Solomon Islands, Tuvalu, and Vanuatu) Participants from the NMHSs and Ministries of Agriculture would be invited. The purpose of the workshop would be to introduce basic agrometeorological concepts, increase communication between the NMHS and the agricultural sector, and provide a brainstorming session for developing future agrometeorological projects in the region.

- Meteorological Support for Desert Locust Monitoring and Control.

In 2005 and 2006, WMO and FAO co-sponsored Regional Training Workshops on Meteorological Information for Locust Monitoring and Control for Francophone and Anglophone Countries. These workshops were in response to the 2003-04 Desert Locust outbreak in Africa and stressed the need for better collaboration between the NMHSs and the National Locust Control Centres (NLCCs) for Desert Locust Monitoring and Control.

- Roving Seminars on Weather, Climate, and Farmers in Latin America and West Asia

The Roving Seminars on Weather, Climate and Farmers started as a pilot programme of the WMO Agricultural Meteorology Programme which funded Roving Seminars in Ethiopia and India in 2007. In 2008 and 2009, the State Meteorological Agency of Spain (AEMET) funded over 100 Roving Seminars in eleven West African countries (Benin, Burkina Faso, Cape Verde, Gambia, Guinée, Guinée-Bissau, Mali, Mauritania, Niger, Senegal, and Togo). These seminars, with technical coordination from WMO, strived to secure rural farmers' self reliance in West Africa by informing them about effective weather and climate risk management and the sustainable use of natural resources for agricultural production. The seminars also provided crucial feedback from rural agricultural community to the National Meteorological and Hydrological Services so that they can improve their services and products to this important sector. More information can be obtained on the web page: [http://www.wmo.int/pages/prog/wcp/agm/roving\\_seminars/index\\_en.html](http://www.wmo.int/pages/prog/wcp/agm/roving_seminars/index_en.html) . While the Roving Seminars have been successful, they have been limited to Africa and parts of Asia. There is considerable interest in Latin America and West Asia regions to organize these seminars for the benefit of their farmers.

### ***Priorities***

- Support is being requested for the organizing a RA V Training Workshop on Agrometeorology for Least Developed Countries. The estimated cost is CHF 30,000.
- Support is being requested for the secondment of an NMHS staff member for a period of about six months to one year from a Desert Locust affected country (North, West, and East Africa, and Southwestern Asia) to FAO Headquarters and the estimated cost is € 35,000.
- Support is being requested to expand the Roving Seminars to Latin America/West Asia in 2009-10 and the estimated cost of organizing 25 seminars is US \$50,000.

## **World Climate Applications and Services Programme (WCASP) and Climate Information and Prediction Services (CLIPS)**

### ***Issues***

The World Climate Applications and Services Programme and the CLIPS Project have fostered development of climate capacity in NMHSs and in Regional Climate Centres, and have promoted increasing focus on development of climate information for practical application by users for decisions related to Climate Risk Management and adaptation to climate change. The efforts to develop guidance on best practices in climate activities, and for building capacity in both professional and technical staff, and in the systems themselves, need to be reinforced, to underpin the implementation and efficient operation of the Global Framework for Climate Services (GFCS). In this regard, activities related to Regional Climate Outlook Forums, Regional Climate Centres, climate and related training, and product development need to be urgently accelerated.

### ***Priorities***

- Development of capacity and skill in, and improved techniques for, seasonal to inter-annual prediction, through Regional Climate Outlook Forums (RCOFs). Funding is requested to help support training in essential skills for seasonal prediction including the use of products disseminated by Global Producing Centres for Long Range Forecasts (GPCs) and Regional Climate Centres (RCCs), developing a regional consensus and coordination process through RCOFs. Requested funding support for 2010-11 is US\$ 50,000
- Implementation of Regional Climate Centres (RCCs). Funding would help support potential developing country institutions to augment their operational capabilities and demonstrate the mandatory functions for the designation as WMO RCCs, within the overall implementation plan as agreed by the concerned Regional Associations. For 2010-11, funding of US\$ 50,000 is requested.
- Training workshops to develop national climate services. Funding would help organize training sessions, focusing on developing and least developed countries, to build the required expertise to take up climate services at the national level and meet the sector-specific needs for climate information. Interpretation of global and regional products (accessed through GPCs, RCCs and RCOFs) in the national context and also effectively participating in the two-way feedback mechanism will be some of the main aspects in the proposed training sessions. Estimated cost of organizing these training workshops in 2010 -11 is US \$50,000.
- Development of climate curriculum and relevant training modules for online, RTC and National training programmes. Funding would accelerate development of a WMO climate curriculum, along with a certification process for climate specialist activities including climate prediction, climate product development, user-focused services etc. This would be required to ensure the professional and technical skills and capabilities are in place for establishment and operation of the GFCs. The curriculum would be tested and finalized with the assistance of RTC trainers, in a 'train-the-trainers' sessions. Estimated cost of development of the curriculum and all components needed for a permanent training and certification programme, and the training workshop is \$200,000.
- Development of a range of climate products including statistical analyses, indices, information on extremes, predictions, outlooks, and longer term projections, for Disaster Risk Management, and for the agriculture/food security and water resources sectors. Funding would ensure development of a 'prototype' product suite for a

sector, that would develop the tools, formats, outreach examples, methods etc., along with Guidance on 'best practices' to ensure that the approach could be applied to other important sectors. Estimated cost of development of the product suites, including expert meetings with regional and sectoral representation, software development, and appropriate Guidance materials is \$ 150,000.

## **6. Education and Training**

The Education and Training Office have been very pleased with the support Members are providing to the Education and Training Programme. This support comes in many forms such as: additional funds (UK), secondment of personnel (Canada), participation in groups such as the EC Panel (14 Members), running active RTCs or training institutes and waiving or reducing fees (Algeria, Australia, China, Egypt, Russian Federation), hosting training events or fellows (many Members) and providing free access to high quality training material (US and others) however more needs to be done.

In 2008 the UK Met Office developed a Management by e-learning course in English. It has been successfully run a number of times and the UK are considering running an advanced course. The ETR Office would welcome support from the IPM to have a number of Members work together to review the contents of the UK course and develop and run a similar course in French and Spanish for RA I, RA III and parts of RA IV. This consortium based approach is being used in a number of areas in the Education and Training Programme. Without the assistance of a group such as the IPM it will be very difficult to get this initiative off the ground.

## **7. Least Developed Countries and Small Island Developing States (LDCs and SIDS)**

### ***Issues***

Based on ongoing experiences, new developments and lessons learnt, the following issues should be addressed:

- (a) Meeting, including through GFCS, special and urgent needs of NMHSs for infrastructure and operational facilities development and for service delivery relevant to national policy and programmes of LDCs and SIDS;
- (b) Enhancing advocacy on the actual and potential contribution of NMHSs products and services in achieving the MDGs, particularly poverty reduction, economic growth and climate change adaptation;
- (c) Improving management and planning skills of administrators and managers of NMHSs.

### ***Priorities***

- (a) Development of pilot and demonstration projects on socio-economic benefits valuation adapted to LDCs and SIDS. Funds from the WMO regular budget have so far been used for the formulation phase of such projects. However, extra-budgetary resources are required to support the implementation of the various related project activities;



- (b) Organization of management and planning workshops for senior and middle level managers, including training by e-learning. This requires extra-budgetary resources.
  - (c) Support for the effective preparation of modernization and development plans of NMHSs to meet special needs of LDCs and SIDS, including expert services and the organization of national coordination and strategic planning seminars/workshops to underpin national ownership.
  - (d) Mobilize additional resources both from internal and external sources to implement the NMHSs development plans prepared.
  - (e) Publication of the pamphlet on the “Role of WMO and NMHSs in the achievement of the MDGs” and training on its use.
-