

**WORLD METEOROLOGICAL ORGANIZATION**

**Final Report**

**INFORMAL PLANNING MEETING OF THE**

**VOLUNTARY COOPERATION PROGRAMME**

**Luosto, Finland, 17 - 20 April 2018**

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**Summary of Discussion**

# OPENING OF THE MEETING

The Informal Planning Meeting (IPM) of the Voluntary Cooperation Programme (VCP) was held in Luosto, Finland, from 17 to 20 April 2018 with the host of the Finnish Meteorological Institute (FMI).

The meeting was chaired by Ms Karen McCourt (UK Met Office) and attended by participants from China, Finland, France, Germany, Japan, Norway, Republic of Korea, Sweden, United Kingdom, and the WMO Secretariat. The list of participants is given in [Annex I](#_Annex_I).

Mr Matti Eerikäinen gave the opening remarks on behalf of FMI. He welcomed the participants to Finland and Luosto, Sodankylä, highlighting his expectations for the meeting, and the importance of IPM to FMI.

On behalf of WMO, Mr Jean-Paul Gaudechoux, Senior Programme Manager, Office of Development Partnerships, thanked FMI for hosting IPM, underlining that WMO acknowledges the importance of IPM for developing cooperation network necessary for promoting VCP. He also took the opportunity to introduce Mr Kuniyuki Shida as the new VCP Manager within WMO.

The Chair, Ms McCourt proceeded to also give her warmest welcome to the participants and shared her expectations of an interactive and successful meeting.

# ADOPTION OF THE AGENDA

The meeting adopted the agenda, given in [Annex II](#_Annex_II).

# REPORT OF THE VCP(F) AND VCP COORDINATED ACTIVITIES in 2017

The meeting was informed of the different mechanisms under VCP, and the activities being supported at national levels in developing and least developed countries, through the WMO VCP Fund (VCP(F)) and through coordinated activities of the VCP Equipment and Services (VCP(ES)) function.

In 2017, the Secretariat received twelve (12) requests for support from twelve (12) Members. Of these, nine (9) VCP requests were supported through VCP(F).

Overall, 90% of all new requests were given positive responses. The unsupported projects were outside of the financial frame of WMO VCP projects.

Five (5) Members, namely China, Japan, Maldives, Mauritius and Republic of Korea made cash contributions to VCP(F) amounting to USD 92,500. In addition to major regional development projects administered through WMO, USD 37,954,121 equivalent was provided through the VCP overall. This figure is comprised of USD 58,964 from the VCP(F) and the remaining through bilateral and VCP coordinated support. The details of VCP(F) and its coordinated activities in 2017 are provided in [Annex III](#_Annex_III).

After a continuing decrease in the financial contributions to VCP(F), 2017 saw a first increase in the contribution. The Secretariat continues to underline the importance of increasing the funding for VCP(F), as the financial value of VCP requests that meet the criteria for support, is still higher than the available financial means.

The low availability in VCP(F) mechanism is of serious concern as the VCP provides a very important rapid response mechanism and is a valuable element of the WMO support to LDC and SIDS Members. The Secretariat encouraged all participants to consider utilizing this mechanism in even more effective manner since the mechanism relies on financial support directly from NMHSs.

# REPORT ON PROJECTS

## Overview of projects under development by WMO Secretariat

The Secretariat provided an overview of the projects under development (preparation or identification). These projects would cover Africa, Asia, South America and the South-West Pacific. Some of the projects would be global by definition like the EU-funded GFCS-ACP Programme. The special attention was paid to the new WMO projects in preparation which are in the Adaptation Fund pipeline, under the programme for regional projects, including the Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation for the Volta Basin project and the Enhancing Adaptive Capacity of Andean Communities through Climate Services (Chile, Colombia and Peru) project.

## Overview of bilateral technical cooperation activities by Members

The IPM shared information on a broad range of development assistance provided through bilateral projects and programmes to improve the delivery of weather, climate and water related service of Members in developing countries. The presentations included the efforts of China, Finland, France, Germany, Japan, Norway, Republic of Korea, Sweden and United Kingdom. The details of these activities are provided in [Annex IV](#_Annex_IV).

The discussions that followed the presentations on WMO major regional development projects and bilateral projects highlighted the following;

1. Donor coordination on national level in countries where more than one development projects are taking place can be further enhanced and IPM can be an important mechanism to increase awareness on coordination opportunities within the network;
2. Through increased coordination, IPM should not seek to overwhelm staff of beneficiary NMHSs;
3. When possible, development projects should seek to use open-source software to increase the sustainability of the investment;
4. The relatively short length of development projects is a threat to the sustainability of the investments – increasing the length of a project from 3 to 5 years would make a difference;
5. There is an opportunity for strengthened collaboration on strategic planning;
6. The Secretariat will facilitate the development of an overview of the key competencies of each participant as a reference document.

# HORIZONTAL SCANNING

To assess future/current impacts on potential activities, and how we work, the Chair introduced a PESTLE Exercise, to identify Political, Economic, Social, Technological, Environmental and Legal aspects affecting NMHSs and development cooperation for Members, by Members. The identified influencing factors are given in [Annex V](#_Annex_V).

# SOCIO-ECONOMIC BENEFIT STUDIES

Mr Eerikäinen, on behalf of FMI, made a presentation on the value of Socio-Economic Benefit of hydro-meteorological services for service development. In most countries, hydro-meteorological data is considered to be public goods. The presentation showed that by understanding how the economic benefits of hydro-meteorological services are generated, and how a larger share of the potential benefits can be realized, NMHSs can embark in a systematic process of product and service improvement with higher paybacks to NMHSs and society at large.

# PUBLIC PRIVATE ENGATEMENT AND SECOND DEVELOPMENT PARTNERS CONFERENCE

The Secretariat presented elements on the global thinking of WMO on Public-Private Engagement, including the critical need to engaging with private sectors in a constructive way for positive outcomes. The establishment of a Global Weather Enterprise (GWE) Forum is seen as a good concrete step and would need to be used for collaboration with private sectors and academia.

The Secretariat proceeded to give an overview of the outcomes of the Second Development Partners Conference: Strengthening and Sustaining National Meteorological and Hydrological Services – Beyond Business as Usual, Closing the Capacity Gap, which was held in March 2018 at the WMO headquarters. This Conference brought together representatives from the global hydro-meteorological communities, including NMHSs, multilateral development banks, Green Climate Fund (GCF), UN organizations, bilateral development cooperation institutions, and global and regional knowledge partners.

The main outcomes of the Conference included exploring the possibility of developing a global support mechanism for scaled-up, coordinated, sustained and impactful investments in NMHSs and early warning services, scaling-up programmatic approaches including for the provision of climate finance, scaling-up provision of expert services, and developing web-based information platform providing value to the whole hydro-meteorological communities moving beyond current country profile database.

# WMO DEVELOPMENT PARTNERSHIPS AND NMHSs; HOW TO MOVE FORWARD

The Secretariat informed IPM of the organizational changes within WMO; the Office for Resource Mobilization and Development Partnerships (RMDP) changed its name to the Office of Development Partnerships and the new Office will formally report to the Director, Cabinet and External Affairs (CER). Implementation of VCP will continue to be administered by the Development and Regional Activities (DRA) Department. The IPM raised the concern on the future development and visibility of VCP under the WMO organizational changes.

The Secretariat outlined the scaling-up of support to developing countries, based on a clear value proposition, including strengthening WMO delivery capacity through a WMO country support expert team which would support WMO in fulfilling its mandate, in particular the implementation of its Strategic Plan 2020-2023. The expert team would leverage WMO weather, climate and water expertise (both WMO staff members and the wider WMO community including WMO Technical Commissions experts) in an efficient and effective way. A new sustainable “cost-recovery” WMO business model would be introduced.

# OTHER BUSINESS

Ms Claudia Rubart (Germany) informed the participants that the annual meeting of the European Meteorological Society (Hungary, 3-7 September 2018) will have a session on cooperation with weather and climate services in developing countries. The session will be of WMO’s concern as it will have the common aim with IPM to create a platform for exchanging know-how on effective development cooperation and to foster the exchange of experience on planned and ongoing projects. The outcome of the session is expected to be shared at future IPM meetings.

The IPM noted that there should be a discussion on what to include in the reporting at the next IPM since some differences were found at reports of each participant (e.g. hydro-meteorological development projects outside of NMHSs should be included or not). It was agreed that it is desirable for IPM to know which donor country is active in which area - as a whole. The IPM therefore considered that it should continue informing each other in the country report about all activities from which NMHSs in developing Members benefit. For these activities in which the national donor NMHSs are not directly involved, it was suggested to have a new category “Other relevant projects" so that the voluntary contributions from donor NMHSs to NMHSs in the developing Members can be clearly identified.

The IPM was shared with the proposal to promote VCP in plenary, as well as having a VCP-focused side event, at the next WMO Congress in 2019 aiming at (i) clarifying and propagating the nature of VCP as a rapid response mechanism, (ii) inviting Members to provide really in-need requests and (iii) strengthen the collaboration with WMO Regional Offices.

# DECISIONS FOR THE NEXT IPM

In addition to including the overview of VCP(F), it is requested that future reports include the balance of the fund. The Secretariat suggested providing a full financial statement at the next IPM. Timely submission of reports by IPM participating Members will enable an effective discussion at the next IPM. IPM are encouraged to share their experiences of implementing projects with the network. The next IPM will take place in Regional Association II (Asia) in March/April 2018. The further details will be provided at a later stage.

# CLOSURE

The meeting closed at 14:00 on 19 April 2018.

# Annex I

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# Annex II

**Agenda**

1 Opening of the meeting

2 Adoption of the agenda

3 Report of the VCP(F) and VCP coordinated activities in 2017

4 Reports on projects

4.1 Overview of Projects under Development by WMO Secretariat

4.2 Overview of Bilateral Technical cooperation activities by Members

5 Horizon Scanning

6 Socio-economic Benefit studies

7 Public Private Engagement and second Development Partners Conference

8 WMO development partnership and NMHSs; How to move forward

9 Other Business

10 Decisions for the next IPM

11 Closure

# Annex III

**VCP Trust Fund and Coordinated Activities in 2017**

**1. Management of the Voluntary Cooperation Programme**

**1.1 VCP Management Activities in 2017 focused on:**

* Raising awareness of the importance of the VCP;
* Raising funds for the VCP (F) Trust Fund;
* Ensuring the cost-effective and efficient management of the VCP Programme and the timely distribution of the relevant information to Members;
* Connecting VCP requests with relevant development projects;
* Rapid response to VCP Members’ requests for emergency assistance;
* Strengthening working relationship with Scientific Departments and Regional Offices for support of VCP projects.

**1.2 Report of the 2017 Informal Planning Meeting on the VCP and related Technical Cooperation and the Development Partners Round Table**

The Informal Planning Meeting (IPM) of the Voluntary Cooperation Programme (VCP) met in Melbourne, Australia, 4-6 April 2017. The IPM was hosted by the Australian Bureau of Meteorology (BoM).

The meeting was chaired by Mr Jon Gill (BoM) and attended by representatives of China, Finland, France, Germany, Japan, Norway, Republic of Korea, Sweden, United Kingdom, United States of America, COMET and the VCP Secretariat.

Mr Jon Gill gave the opening remarks on behalf of Sue Barrel, the PR of Australia. Mr Gill welcomed the participants to Melbourne and expressed that he was pleased that through hosting the IPM, BoM could be re-engaged in the network.

On behalf of WMO, Mr Jean-Paul Gaudechoux, Acting Director, Resource Mobilization and Development Partnerships thanked BoM for hosting the IPM, underlining that WMO acknowledges the importance of the development cooperation the network provides.

The IPM members shared information on a broad range of development assistance being provided through bi-lateral means to improve the delivery of climate, weather and water related services in developing country member states. The discussions that followed the presentations on WMO major regional development projects and IPM Member bilateral projects highlighted the following: i) Donor coordination on national level in countries where more than one development project is taking place needs to be enhanced; ii) The importance of ensuring that NMHSs in developing countries have their NMHS Strategic Plan in place before embarking on major development projects; iii) Needs assessments in line with the strategic plans of the recipient NMHSs are essential; iv) The importance of human capacity development; v) The need to build in maintenance costs where there is investment in equipment.

**2 WMO Voluntary Cooperation Programme – Activities supported in 2017**

The number of requests for assistance received in 2017 was slightly lower than previous years. In 2017, the VCP Secretariat received twelve requests for support ([Appendix 1](#_Appendix_1:_VCP)) from twelve Members. From the requests received nine were given a positive response for support through VCP (F). Among the remaining requests, one request was withdrawn, and one request will be further developed with Climate Risk and Early Warning Systems (CREWS). Requests were circulated directly to WMO Technical Departments, potential donors and IPM members through VCP (ES) Coordinated process. Overall, 90 % of all new requests were given a positive response. The unsupported projects were outside the financial frame of WMO VCP projects.

In summary, the trend of VCP requests shows a continued priority towards strategic planning documents, climate data rescue, and management, and public weather services.

**2.1 VCP (F) Supported Activities**

The following projects were supported through the VCP (F) in 2017 (including outstanding activities from previous years):

*Expert Missions and services (predominantly Cost Recovery and Business Plan development)*

* Climate data rescue in Guinea
* In-country training in Kiribati
* Uzbekistan climate data rescue project
* Cote d’Ivoire climate data rescue

*VCP Equipment*

* *GTS/MSS at NAMEN (Mongolia)*

*Public Weather Services in Africa*

* *TV Weather Presenter Workshop in Congo*

*Short Term Fellowships and Training Activities*

* *Uganda: Support for QMS training in Egypt*

*Education and Fellowship Activities*

*See section 2.8*

**2.2 VCP(F) Expenditure**

Full details on VCP(F) expenditure for 2017 are provided in [Appendix 2](#_Appendix_2:_VCP) and summarized in Table 1 below.

**Table 1 - VCP(F) Activities Supported in 2017 (USD, incl. requisitions)**

|  |  |  |
| --- | --- | --- |
| 1 | Expert services | 29,280 |
| 2 | Fellowships & Training activities | 9,504 |
| 3 | VCP Spares and Equipment | 16,424 |
| 4 | Public Weather Services | 3,756 |
|  | Total | 58,964 |

In 2017, an amount of USD 58,964 was spent from the VCP(F), with most of the expenditure provided to Expert Services (50%) and VCP Spares and Equipment (28%). The trend of VCP(F) expenditure over recent years shows a stable investment in soft activities related to expert services, project development and training activities as well as a remaining focus on the needed equipment for data rescue and management and public weather services.

Table 2 indicates VCP(F) expenditure trends over the period from 2013 to 2017.

**Table - 2 VCP(F) Expenditure 2013-2017 (USD)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Activity Area | 2013 | 2014 | 2015 | 2016 | 2017 |
| Project Development Activities | 79,475 | 7,049 |  |  |  |
| VCP spares/shipping/equipment | 32,584 | 15,822 | 11,559 | 42,509 | 16,424 |
| Expert services | 38,040 | 84,929 | 27,588 | 10,138 | 29,280 |
| Group Training Activities |  | 13,559 |  |  |  |
| Support to CDM / DARE | 7,881 |  |  |  |  |
| Internet capabilities | 20,769 |  |  |  |  |
| Public Weather Services |  |  |  |  | 3,756 |
| Fellowships & Training activities | 199,319 | 97,799 | 38,160 | 40,664 | 9,504 |
| Total | 378,824 | 219,158 | 77,307 | 93,311 | 58,964 |

**2.3 VCP(ES) Coordinated**

Following the VCP requests from Liberia and Sierra Leone, the Nigerian Meteorological Agency (NIMET) continues to provide assistance to Liberia and Sierra Leone for the provision of TV Weather Forecasts.

WMO has signed Memoranda of Understanding with seven NMHS to facilitate on-going and future cooperation between WMO and the NMHS. The MoUs will serve as a platform for WMO to engage more easily in joint proposals, projects and programmes. It is expected that further MoUs will be signed in 2018.

*GCOS*

The GCM is the system improvement and resource mobilization activity of the GCOS programme. It has been established following a decision by the UNFCCC SBSTA in 2004 (UNFCCC Decision 5/CP.5) in order “to enable developing countries to collect, exchange, and utilize data on a continuing basis in pursuance of the UNFCCC”. Since then, more than 3 million USD was raised to accomplish projects dedicated to improve climate observation systems. The following projects have been completed in 2017, or are still on-going:

* Engagement of a consultant based in Harare, Zimbabwe, to work part-time (50%) in the support of GCOS projects in RA-I. The focus of the work is to re-establish surface climate stations in Chad and Mali using funds provided by Greece.  New Instrumentation, incorporating a non-mercury temperature solution, has been delivered and implemented in Chad;
* Support for the operations of the GUAN station at Yerevan, Armenia was sponsored by Japan in 2016, with a new competitive tender for 400 units each of radiosondes and balloons, managed by GCOS. Unfortunately, the installed Hydrogen Generator became unserviceable in 2016 and further funds from Japan was necessary for the repair, service and local staff training, which was completed in April 2017;
* Support for the operations of the GUAN station at Nairobi, Kenya was sponsored by Switzerland since 2016, with a new competitive tender for 800 units of radiosondes (including a new supplier, ground-system and local staff training) and 400 balloons, managed by GCOS;
* Support to the CATCOS project (Switzerland), through a fund (CHF 20,000) made available to support ongoing operations and emergency maintenance. The agreement between WMO and CATCOS will be signed early in 2018 and will be in-force for 2 years.

**2.4 Emergency Assistance**

In 2017 WMO did not receive any requests for emergency assistance.

**2.5 Members Related Technical Cooperation Activities**

See Annex III.

**2.6 WMO Voluntary Cooperation Programme – Total 2017 Financial Contributions**

The total Members’ contributions to the WMO Voluntary Co-operation Programme in 2017 are shown in Table 3 below in terms of VCP (ES) and VCP (F) and reported bi-lateral supports.

In 2017, 5 Members (China, Japan, Republic of Korea, Maldives and Mauritius) made cash contributions to the VCP Fund (VCP(F)), amounting to **USD** **92,500** while **USD** **1,277,888** and equivalent support was provided to VCP Coordinated Projects through WMO; some **USD** **30,214,769** equivalent through bi-lateral arrangements, giving a total investment of **USD 31,595,157**. This number, reported by Members to the WMO Secretariat, may not represent full value of WMO inter-Member cooperation support. Reported bi-lateral figures are of course very indicative. There are some difficulties with representing “Reported” figures and it is likely that not all IPM members have reported similar activities under this section. See table 5 for the trend of Bilateral VCP Support (2014-2017).

**Table 3 - Total VCP Contributions in 2017 (USD)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Member | VCP(F) | VCP(ES) | Bilateral  (as reported) | Total |
| Australia |  |  | 5,600,000 | 5,600,000 |
| Canada |  |  | 5,078,050 | 5,078,050 |
| China | 10,000 |  | 3,525,966 | 3,535,966 |
| Hong Kong, China |  |  | 41,500 | 41,500 |
| Finland |  |  | 700,000 | 700,000 |
| France |  |  | 617,000 | 617,000 |
| Germany |  | 383,000 | 7,551,000 | 7,934,000 |
| Japan | 50,000 | 323,768 | unknown | 373,768 |
| Maldives | 1,000 |  |  | 1,000 |
| Mauritius | 1,500 |  |  | 1,500 |
| New Zealand |  |  | 374,000 | 374,000 |
| Nigeria |  | 571,120 |  | 571,120 |
| Norway |  |  | 650,000 | 650,000 |
| Republic of Korea | 30,000 |  | 2,376,000 | 2,416,000 |
| Saudi Arabia |  |  | 20,000 | 20,000 |
| Spain |  |  | 507,457 | 507,457 |
| Sweden |  |  | 2,829,000 | 2,829,000 |
| Switzerland |  |  | 5,461,300 | 5,461,300 |
| UK |  |  | 1,183,496 | 1,183,496 |
| US |  |  |  |  |
| Total | 92,500 | 1,277,888 | 36,514,769 | 37,895,157 |

**2.7 Trends in Contributions to WMO VCP**

After three years where two countries accounted for over 90% of the VCP(F) contribution, 2017 represents an important increase in contributions to the VCP(F) as illustrated in Table 4 below.

The risk of over-reliance on a small number of donor’s remains, which may impact on overall delivery objectives for VCP persists. A continued increased participation from other Members to diversify the base of the programme is highly desirable.

As in previous years, the situation remains that the value of the contributions is smaller than the value of requests received. This is partially compensated by the continued support by Members for major development programmes and a generally increasing trend in other technical cooperation trust funds. This shows the strong commitment from WMO Members to provide extra-budgetary funding for specific projects and programmes. However, the limited funding to the VCP(F) comes with challenges related to the uncertainty to mobilize voluntary contributions over time and difficulties to hire project staff.

The VCP(F) is a very important rapid response mechanism and the Secretariat will make a continued effort for replenishment of the VCP Trust Fund in 2018 and beyond and would encourage all IPM Members to consider contributing.

**Table 4: Total investment (VCP (F&ES)) 2013 – 2017**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **2017** | | | **2016** | | | **2015** | | | **2014** | | | **2013** | | |
| **Member** | **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** |
| **Australia** |  |  |  |  |  |  |  |  |  |  |  |  | 50,000 |  | 50,000 |
| **Canada** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **China** | 10,000 |  |  | 10,000 |  | 10,000 | 10,000 |  | 10,000 | 10,000 |  | 10,000 | 10,000 |  | 10,000 |
| **Finland** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **France** |  |  |  |  |  |  |  |  |  |  |  |  | 24,700 |  | 24,700 |
| **Germany** |  | 383,000 | 383,000 |  | 32,500 | 32,500 |  | 33,000 | 33,000 |  | 33,000 | 33,000 |  |  |  |
| **Japan** | 50,000 | 323,768 | 373,768 |  | 261,437 | 261,437 |  | 392,027 | 392,027 |  | 380,341 | 380,341 |  | 278,050 | 278,050 |
| **Maldives** | 1,000 |  | 1,000 | 1,000 |  | 1,000 | 1,000 |  | 1,000 | 1,000 |  | 1,000 | 1,000 |  | 1,000 |
| **Mauritius** | 1,500 |  | 1,500 |  |  |  | 1,500 |  | 1,500 | 1,500 |  | 1,500 | 1,500 |  | 1,500 |
| **Myanmar** |  |  |  |  |  |  |  |  |  |  |  |  | 375 |  | 375 |
| **Nigeria** |  | 571,120 | 571,120 |  | 571,120 | 571,120 |  | 285,560 | 285,560 |  |  |  |  |  |  |
| **Norway** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Pakistan** |  |  |  | 500 |  | 500 |  |  |  |  |  |  |  |  |  |
| **Republic of Korea** | 30,000 |  | 30,000 | 30,000 |  | 30,000 | 30,000 |  | 30,0000 | 30,000 |  | 30,000 | 31,731 | 1,310,000 | 1,341,731 |
| **Spain** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Switzerland** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **UK** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **US** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Total** | 92,500 | 1,277,888 | 1,360,388 | 41,500 | 865,057 | 906,557 | 42,500 | 710,587 | 753,087 | 42,500 | 413,341 | 455,841 | 119,306 | 1,588,050 | 1,707,356 |

**Table 5: Bilateral VCP support (2014-2017)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Member** | **2014** | **2015** | **2016** | **2017** |
| **Australia** |  |  | 2,632,000 |  |
| **Canada** | 10,289,243 | 1,534,500\*\* | 2,155,366\*\* | 5,078,050 |
| **China** |  |  | 3,372,007 | 3,525,966 |
| **Hong Kong, China** | 27,200 | 1,632,460 | 25,800 | 41,500 |
| **Finland** | 1,814,370 | 2,200,000 | 2,390,000 |  |
| **France** | 1,788,000 | 457,000 | 409,500 | 617,000 |
| **Germany** | 2,570,640 | 3,987,000 | 6,334,000 | 6,366,500 |
| **Japan** | Unknown | 392,027 | Unknown | unknown |
| **Maldives** | 1,000 |  | 1,000 | 1,000 |
| **Mauritius** | 1,500 | 1,500 |  | 1,500 |
| **New Zealand** |  | 306,500 | 754,000 | 374,000 |
| **Norway** | 800,000++ | 800,000++ | 650,000++ | 650,000 |
| **Republic of Korea** | 3,726,000 | 4,539,445 | 2,187,000 | 2,187,000 |
| **Spain** | 412,906 | 419,050 | 304,198 | 850,579 |
| **Sweden** |  | 2,211,000 | 2,080,000 | 2,080,000 |
| **Switzerland** |  | 2,476,700 | 2,316,600 | 2,316,600 |
| **UK** | 1,427,767 | 1,230,875 | 1,129,259 | 2,129,259 |
| **US** | 4,500,000 | 4,500,000 | 7,000,000 |  |
| **Total** | **27,356,126** | **26,707,115** | **33,740,730** | **26,218,959** |

Amount listed includes contributions for Equipment & Services and Fellowships & Training and Development Projects, as reported by the Members

**2.8 Education and Training Fellowship Activities**

The WMO fellowship programme continues to evolve in order to better meet the changing needs of WMO Members. The WMO Regular Budget has been the primary source of fellowship funds, complemented by considerable in-kind resources from partners. WMO now has 11 MoUs for cost sharing cooperation with different fellowship partners. Partner contributions range from full scholarship including air ticket to tuition fee waive or reduction, and/or other support for the fellows in the form of accommodation, work experience etc. Four MoUs were reviewed in 2017 out of which two have been signed.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | MoU or agreement | Host Member | Year of signature | Major | Comments |
| 1 | Ministry of Education, China | China | 2018 (TBD) | Meteorology and Hydrology | 15 full scholarship BSc MSc and PhD |
| 2 | Nanjing University of Information Science and technology | China | 2016 | Meteorology | 15 full scholarship MSc and PhD |
| 3 | Hohai University | China | 2016 | Hydrology | 20 full scholarship MSc |
| 4 | DPRI, Kyoto University | Japan | 2017 | Meteorology, research oriented | 3 full scholarship including airfare for up to 6 months |
| 5 | ENM | France | 2014 | Meteorology | Mainly for francophone Members |
| 6 | Ewha Womens University | Republic of Korea | 2016 | Meteorology | 3 MSc fellows, waive tuition fee |
| 7 | Leibeniz University Hanover | Germany | 2012 | Hydrology | Up to 2 MSc  Review in progress |
| 8 | IHE Delft | Netherlands | 2017 | Hydrology | Up to 3 MSc, tuition waive |
| 9 | RSHU | Russian Federation | 2016 | Meteorology, Hydrology, and Environment | Up to 5 BSc, MSc tuition waive |
| 10 | ECMWF | United Kingdom | 2014 | Meteorology, research oriented | Attachment work up to 1 year |
| 11 | University of Reading | United Kingdom | 2017 | Meteorology | Up to 5 MSc 10% tuition reduction |

Through a concerted effort to reach out to partners, and as a result of increased confidence in the work of WMO, it has been possible to leverage more bilateral resources for funding of fellowships activities in least developed and developing countries. This support not only increases the number of fellowships awarded, but very importantly contributes to the diversity of courses on offer, and promotes gender equality. However, due to the large number of Members that depend on Fellowship support, there remains a need to enhance WMO’s support, especially to the least developed countries.

UK Met Office contributes to WMO Fellowship & Training Fund to cover about 1.5 fellows going to the University of Reading in addition to RB. Météo France contributes to Fellows to cover short term training courses held in École Nationale de la Météorologie. Additionally, development projects have been developed as a result of actions from the Office for Resource Mobilization and Development Partnership, which could be better linked to Fellowship and short term training opportunities.

**2.8.1 US VCP Training Desks**

During 2017 the arrangements through the USA VCP Fund enabled WMO to support a total of 29 including 5 one-week hurricane training course from 25 countries; the total amount to cover the students was of CHF200,264.

|  |  |  |
| --- | --- | --- |
| 4805 - International Training Desks - Tropical Desk and South America Desks | | |
| Beneficiary | Cost (CHF) | Remarks |
| Peru | 6,981 |  |
| Argentina | 19,662 |  |
| Trinidad and Tobago | -9 | Included in 2016 |
| Paraguay | 7,033 |  |
| Saint Lucia | 7,110 |  |
| Chile | 6,861 |  |
| Belize | 14,934 |  |
| Bolivia | 6,706 |  |
| Jamaica | 6,758 |  |
| USA - RAIV Hurricane Attachment |  |  |
| Belize | 1,553 |  |
| France | 3,002 |  |
| Mexico | 2,175 |  |
| Barbados | 2,010 |  |
| Canada | 798 |  |
| Sub-Total | 85574 |  |

|  |  |  |
| --- | --- | --- |
| 4806 - International Training Desks - Africa Desk | | |
| Beneficiary | Cost (CHF) | Remarks |
| Mauritania | 8,578 |  |
| Ghana | 8,709 |  |
| Mali | 8,384 |  |
| Kenya | 1 | Included in 2016 |
| Cote d'Ivoire | 9,126 |  |
| Djibouti | 14,513 |  |
| Nigeria | 16,327 |  |
| Zambia | 8,152 |  |
| Congo | 10,175 |  |
| Mozambique | 9,730 |  |
| Uganda | 12,090 |  |
| Tunisia | 8,905 |  |
| Sub-Total | 114690 |  |
| Grand Total | 200264 |  |

**2.8.2 Global Campus**

A feasibility study of a WMO Global Campus was recommended by the WMO Executive Council EC-66 in June 2014 in order to assist, by enabling collaboration and cooperation, the increasing and the changing needs for education and training of Members. The goal is to make human resources capacity development more efficient and effective by sharing resources and expertise, and by promoting new partnerships in education and training. The initiative is overseen by the WMO ETR Office and the Global Campus Working Group of the EC Panel of Experts on Education.

2017 saw the implementation of the WMOLearn portal to host WMO Global Campus information and to point to external tools and resources, where appropriate. This portal resides on the WMO public website at http://learn.wmo.int. Additional accomplishments include the following.

* A Global Campus Roadmap has been drafted. This Roadmap outlines the background to the effort, benefits to Members, priority areas for development, and linkages to the WMO Service Delivery and Capacity Development strategies, as well to external organizations and standards. In addition, it provides a status report of the feasibility study priority activities.
* In mid-2017, the WMOLearn Events Calendar, hosted by WMO RTC Barbados, CIMH, was made operational, and was further refined into 2018. This calendar is currently being promoted to training providers to ensure a wide collection of upcoming events.
* The WMOLearn Resource Catalogue is currently discussion with PMD, the service provider that hosts the WMO E-Library: https://library.wmo.int/.
* Climate Services and Aeronautical Meteorology training events and learning resources, as initial priority areas, are being actively sought for inclusion in the Events Calendar and soon for Resource Catalogue.
* Quality assurance processes are in place for the Events Calendar, and draft processes have been documented for the resource Catalogue.
* A variety of promotional materials have been proposed, including articles for WMO publications, a brochure or flyer, and announcements via widely disseminated letters.
* A mechanism for using open digital badges as a consistent method to recognize achievement of education and training in qualification and competency areas is being explored.
* Other mechanisms for promoting collaboration and sharing best practices in education and training innovations are under discussion, including publications and a database of experts.

**Collaboration and resources required for a WMO Global Campus**

The WMO Global Campus Feasibility Study has been made possible through the collaboration and contributions of many WMO Members. NOAA NWS, Met Office, the COMET Programme, all members of the EC Panel of Experts in Education and Training, WMO RTC Directors, CIMH Barbados, KMA, and many others have especially provided strong assistance to the WMO Secretariat in the study. Long-term resourcing to ensure a vibrant Global Campus will be required, but much effort is being placed in working to keep the required resources low, and the ongoing collaboration high.

**Appendices**

**Appendix 1**: VCP (F) requests received in 2017

**Appendix 2**: VCP (F) Expenditure in 2017

# Appendix 1: VCP(F) requests received in 2017

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MEMBER** | **Project TITLE** | **Status** | **Donor** | **Remarks** |
| Panama | Validación del marco conceptual, legal, técnico, tecnológico, y financiero del nuevo Instituto Hydrometeorológico nacional | No support |  | The request was later withdrawn after change of PR |
| Cameroon | Densification du réseau d’observations par l’installation de deux cent nouveau postes pluviométriques au Cameroon | Completed | VCP(F) | The support was reduced to 100 raingauges due to budgetary restrictions |
| Uganda | Support for QMS Training in Egypt | Completed | VCP(F) |  |
| Kenya | Request for Assistance to Repair Picarro Instrument at Mt Kenya GAW Station | Request |  | The request has been circulated. |
| Mongolia | GTS/MSS at NAMEM | Completed | VCP(F) |  |
| Cabo Verde | Development of a strategic plan | In process | VCP(F) | The consultant is identified. On-going discussions with INMG |
| Uzbekistan | Uzbekistan Climate Data Restoration | On-going | VCP(F) |  |
| Madagascar | Appui pour les activités Climat et Santé à Madagascar | Request | VCP(F) |  |
| Curacao and St. Marteen | Strengthening the EWS in the Dutch Caribbean | Request |  | In discussions to integrate in Caribbean CREWS initiatives |
| Cote d’Ivoire | Préservation, sauvegarde, et numérisation des donnés climatologiques (2éme phase) | On-going | VCP(F) |  |
| Comoros | Connaisance des ressources en eau de l’Union des Comores : Mise en place d’un réseau pilote de suivi | Request | VCP(F) | Will be supported in 2018 |
| Trinidad and Tobago | Consultancy to develop a framework for cost recovery for the aviation industry | On-going | VCP(F) | Resubmitted, will be implemented in 2018 |

# Appendix 2: VCP (F) Activities Supported in 2017 (USD)

|  |  |
| --- | --- |
| **Expert Services** |  |
| BARRY, Mr Mamadou Aliou - 01/12/2016-31/01/2017; To assist the Direction nationale de la météorologie, Conakry, Guinea, to consolidate the paper archives and image paper records | 302 |
| CAMARA, Mr Naby - 01/12/2016-31/01/2017; To assist the Direction nationale de la météorologie, Conakry, Guinea, to consolidate the paper archives and image paper records. | 590 |
| KUMAR (Mr), Narend - VCP mission to provide in-country training, Tarawa, Kiribati, 13 -26 March 2017 - Ind travel | 2,099 |
| PRATAP (Mr), Harish (Expert) - VCP mission to provide in-country training, Tarawa, Kiribati, 16-24 May 2017 - Indiv. travel | 1,635 |
| Mr BARRY Saikou Oumar - 18 Sep-15 Dec 2017 | 599 |
| Mr CISSE Mohamed Fanta -18 sep-15 Dec 2017 | 599 |
| TAKAHATA, TAMURA, Naomi, EXPERT, to undertake a WMO mission to restore the GTS/MSS at NAMEM, Ulaanbaatar, Mongolia, 10-19 October 2017 - individual travel | 3,740 |
| FUJII, Yuji, EXPERT, to undertake a WMO mission to restore the GTS/MSS at NAMEM, Ulaanbaatar, Mongolia, 10-19 October 2017- individual travel | 3,660 |
| HAYASHI, Yuji, EXPERT, to undertake a WMO mission to restore the GTS/MSS at NAMEM, Ulaanbaatar, Mongolia, 10-19 October 2017- individual travel | 3,660 |
| TV Weather Presenter Training Workshop, Brazzaville, Congo, 13-17/3/2017, Brazzaville, Congo, 13-mar-2017, 17-mar-2017 | 4,128 |
| Mr Patrick (Lecturer) TV Weather Presenter Training Workshop, Brazzaville, Congo, 13-17/3/2017, Brazzaville, Congo, 13-mar-2017, 17-mar-2017 | 3,360 |
| MUSANGANIRE, Mrs Alphonsine (Lecturer) TV Weather Presenter Training Workshop, Brazzaville, Congo, 13-17/3/2017, Brazzaville, Congo, 13-mar-2017, 17-mar-2017 | 3,141 |
| Others | 350 |
| **Sub total** | **29,280** |
| **Fellowships and Training Activities** |  |
| NYAMUJUNGA, Festus, Alex, EXPERT, Initial Training on Quality Management Systems in Cairo at WMO RTC, Cairo, Egypt, 21 May - 6 June 2017 - individual travel | 466 |
| TINDAMANYIRE, Teddy, EXPERT, Initial Training on Quality Management Systems in Cairo at WMO RTC, Cairo, Egypt, 21 May - 6 June | 466 |
| DSA Mr Alexis Nyamujunga's, Cairo, Egypt, 24-may-06-jun-2017 - Ind travel | 4,213 |
| DSA Ms Teddy Tindamanyire's, Cairo, Egypt, 24-may-06-jun-2017 - Ind travel | 4,213 |
| TER on Ms Teddy Tindamanyire's bank account, Cairo, Egypt, 24-may-06-jun-2017 - Ind travel Cairo, Egypt, 24-may-2017, 06-jun-2017 | 146 |
| **Sub total** | **9,504** |
| **VCP Spares and Equipment** |  |
| Purchase of PC Dell, Monitor Dell, and UPS APC to NAMEN, Mongolia | 12,133 |
| Purchase of Microsoft Windows Servers to NAMEN, Mongolia | 2,090 |
| Procurement of two PCs for the NMHS of Guinea | 2,171 |
| **Sub total** | **16,424** |
|  |  |
| **PWS in Africa** |  |
| TV Weather Presenter Workshop Brazzaville, Congo 13-17 March 2017 | 3,756 |
| **Sub total** | **3,756** |
|  |  |
|  |  |
| **Grand Total** | **58,964** |

# Annex IV

**Reported Bilateral Technical Cooperation Activities in 2017**

# Annex IV-1 (Australia)

|  |  |  |
| --- | --- | --- |
| **1. Country** | | |
| Australia | | |
|  | | |
| **2. Overall national contribution in 2017** | | **3. Overall estimated national contribution in 2018 (in USD)** |
| ~$5.6M | | Similar |
|  | | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | | **5. Source of Funding (USD):** |
| * Climate and Oceans Support Program for the Pacific (COSPPac) in collaboration with Geoscience Australia, SPC, and SPREP:   + Pacific Sea Level Monitoring network – Calibration, maintenance and network upgrades including installation of Tuvalu sea level station.   + Seasonal forecasting system extended with drought monitoring capability.   + Monthly climate monitoring bulletin.   + Ocean Portal informing Pacific stakeholders in fisheries, shipping, environmental management and tourism.   + A traditional knowledge monitoring and database system in four countries.   + Climate Data for Environment (CliDE) – database and hardware installed and maintained in 14 Pacific Island countries.   + Capacity Development and Communication – workshops and training in COSPPac products and services and communication. | | $4.188M  National Government – DFAT |
| * CLiDE WMO Global Climate Forecast Services (GFCS) Project. | | $207K  National Government – DFAT |
| * Ayeyarwady Basin (Myanmar) water management plans. | | $340K (2016/17) and $190K (2017/18)  National Government – DFAT |
| * BoM's in-kind contributions to WMO CHy:   + Seasonal hydrological prediction guidelines.   + HydroSOS – project steering committee representation, water forecasting work package leadership.   + Support to pilot projects in South Asia (river basins in India, Bangladesh, Nepal and Tibet) and Africa (Lake Victoria). | | $20K (in-kind)  National Government – BoM |
| * Capacity building in water forecasting services in India – A collaboration between the Indian Ministry of Water Resources and Australian Government led by BoM. | | $100K  National Government – DFAT |
| * Support for UNESCAP Drought Mechanism and Pilot of Australian Tools-Led Capability –eWater, BoM and Geoscience Australia. | | $600K  National Government – DFAT |
| * Assistance for Papua New Guinea NWS, under Australia-PNG MOU for Cooperation in the Transport Sector, to strengthen meteorological services for aviation and marine (DoT; DFAT). | | $265K  National Government – DFAT |
|  | | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** | |
| * Resource challenges related to the difficulty of securing technical experts to undertake international projects. * Ensuring alignment between potential projects and strategic directions of BoM and Australian Government. * Ensuring BoM internal processes are streamlined to enable the efficient adoption of international projects. * Hosting capacity building workshops with partner organisations in foreign countries. * Hosting colleagues from partner countries in Australia on secondment to BoM. | * Continuation of COSPPac into Phase Two as part of DFAT-funded Australia-Pacific Climate Change Action Program (APCCAP). COSPPac2 seeks to sustain Australia's engagement and support for core climate information services across the Pacific. Expected budget of $17.471M (2018-22). * Green Climate Fund:   + With WMO (Proposal submitted): CliDE database maintenance in Timor-Leste and addition of hydrological variables in CliDE for Melanesia and Timor-Leste.   + With SPREP (Partnership Agreement under review): Climate Information Services for Resilient Development (Vanuatu). Updated climate change data and tropical cyclones portals, data rescue, seasonal impact forecasts for priority sectors and operationalised CLEWS. * CREWS (through DFAT):   + PNG seasonal prediction project (CREWS\_PNG project approved and expected to run July 2018 – June 2021 with allocated budget of $650K aiming to strengthen capacity of PNG NWS in seasonal prediction, including drought.)   + SW Pacific EWS project. * BoM, World Vision Australia and partners to lead a 4.5-year project to improve Early Warning and Response Systems in the Solomon Islands. Conducted in collaboration with World Vision Solomon Islands and The Solomon Island Meteorological Service. Funded by DFAT through the Australian Humanitarian Partnership. | |
|  | | |
| **8. Opportunities for more cooperation with other Members / organizations** | | |
| Cooperation opportunities through above-mentioned activities, with global, regional and donor country partners and with WMO initiatives such as GDPFS, ECMWF, UK MetOffice and Regional Centres in India and Kenya envisaged. | | |

# Annex IV-2 (Canada)

|  |  |  |
| --- | --- | --- |
| **1. Country:** | | |
| Canada | | |
|  | | |
| **2. Overall national contribution in 2017** | **3. Overall estimated national contribution in 2018 (in CAD)** | |
| $6,394,028 CAD | Canada’s goal is to maintain the 2016/2017 national contribution. | |
|  | | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | | **5. Source of Funding (CAD):** |
| Support for the WMO Secretariat for the Global Framework for Climate Services (GFCS) to enhance global capacity, integrity and delivery of climate services. | | $200,000  (ECCC: Environment and Climate Change Canada) |
| To promote global Aircraft Meteorological Data Relay (AMDAR) development to enhance the upper air component of WMO’s Global Observing System of the World Weather Watch. | | $13,580  (ECCC) |
| To support the Executive Council Panel of Experts on Polar and High Mountain Observations, Research and Services (EC-PHORS) as input into the sessional meeting and workshops, to interact and communicate with other international institutions/bodies and to fund travel of experts to participate at meetings. | | $50,000  (ECCC) |
| Contribution to the Brewer Trust Fund to assist developing countries to provide timely and accurate data to the Global Atmospheric Watch (GAW) and the World Ozone and Ultraviolet Radiation Data Centre (WOUDC). | | $37,500  (ECCC) |
| Contribution to the Global Integrated Polar Prediction System Trust Fund (GIPPS) to prepare documents, interact and communicate with other international institutions and bodies, and cover the costs of material arrangements and travel expenses of committee members for official meetings. | | $50,000  (ECCC) |
| Support to Polar Observation, Predictions and Climate Services advance scientific knowledge such that society, both within and outside of the Arctic, may benefit through applications of improved weather and climate services. | | $45,000  (ECCC) |
| **Project 2: Group on Earth Observations (GEO) activities to engage scientists and technologists from developing countries** | | |
| Funds to support the GEO Secretariat in fulfilling the work program of the International Group on Earth Observations (GEO) with the aim of providing comprehensive coordinated Earth observations to support decision making. | | $100,000  (ECCC) |
| **Project 3: Institutional Capacity Development for CNM (Haiti)** | | |
| Haiti Weather System Program: Climate Services to Reduce Vulnerability in Haiti ($6,500,000 over 7 years, 2012-13 to 2019-20) to rehabilitate Hydro-meteorological Agencies for the delivery of quality weather, climate and hydrological services, including early warnings. | | $928,571 (Notional Figure)  (ECCC) |
| Contributions to support the Haiti Weather Services web site: Canada maintained the web site by updating our server allowing the Centre National Météorologique de l’Haïti to publish warnings and alerts and to provide the population with public and marine forecasts along with current conditions. | | $20,000  (ECCC) |
| **Miscellaneous** | | |
| Official Development Assistance portion of WMO assessed contribution (4%).  $2,392,555 assessed contribution | | $95,702  (ECCC) |
| To implement GFCS at regional and national scales ($6,138,000 over 6 years, 2012-13 to 2017-2018). Contributions support building resilience in social, economic and environmental systems to climate variability and climate change, through the development of effective and sustainable Regional and National Frameworks for Climate Services under the GFCS. | | $1,023,600 (Notional Figure)  (ECCC) |
| Canada’s contribution to the Intergovernmental Panel on Climate Change (IPCC) supports the ongoing operations of the organization, helping to ensure the continued development of policy-relevant scientific information on climate change. Canada’s contribution is directed towards supporting the participation of scientists from developing countries in the work of the IPCC. | | $300,000  (ECCC) |
| The InterAmerican Institute for Global Change Research (IAI) supports global change research and capacity building in the Americas. Canada’s contribution to the IAI supports the core budget of the organization, including IAI directorate salaries that enable scientific and capacity building initiatives in the Americas. | | $190,575  (ECCC) |
| Support to the development and delivery of education and training material and courses through contributions to the University Corporation for Atmospheric Research for Cooperative program for Operational Meteorological Education and Training (COMET) (1) available on the MetEd Internet site for use by the international meteorological, hydrological and climate community (2) through the delivery of the Winter Weather Course given onsite in UCAR/COMET and (3) by the translation and quality control of specific modules into French (these included 3 modules related to Forecast uncertainty, ensemble prediction system products and communication) available to the international community. | | $540,000  (ECCC) |
| Participation in WMO activities in Education and Training, including the facilitation of Trainer capacity building and WMO Online Course for Trainers, participation in Global Campus Coordination and related activities and support to the planning and delivery of SYMET.  Participation in drafting Guidelines on Climate Risk Management and related supporting activities.  Support to USAID Weather Ready Nations initiative : $7,000 | | $35,000  (ECCC) |
| Building seamless multi-hazard early warning system under Climate Risk Early Warning Systems (CREWS) initiative.  This project is expected to reduce human and economic losses associated with meteorological, hydrological and climate-related hazards in South East Asia (SEA) and Small Island Developing States (SIDS), through strengthening weather, climate and water impact-based decision support services to stakeholders, socio-economic sectors, and communities. | | $2,694,500  (ECCC) |
| Through this contribution, the World Climate Research Programme (WCRP), sponsored by the World Meteorological Organization, will enable international climate science coordination in support of global and regional research and assessment projects for the Intergovernmental Panel on Climate Change, Arctic Council and the World Meteorological Organization. WCRP will advance the state of knowledge on climate which guides national climate policy on mitigation and adaptation, including for Canada. | | $30,000  (ECCC) |
|  | | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| * Environment and Climate Change Canada does not have a mandate to provide overseas development assistance. * Overall, resource mobilization is constrained by the need for a balance between the Government of Canada’s international and domestic responsibilities. * Due to the need to deliver on domestic priorities, experts may have budget and time constraints. * Continued scrutiny of international travel and travel budgets have resulted in reduced participation at some educational and training activities. * Long lead times are required to complete the paperwork and seek approval for grants and contributions. These are not always well-factored into the funding profiles, particularly for the first and last years of funding agreements. * Lack of mechanism to donate old monitoring equipment which is no longer used for domestic monitoring but still operational or useful for spare obsolete parts to WMO Members. | | * To be determined |
|  | | |
| **8. Opportunities for more cooperation with other Members / organizations** | | |
| The following areas have been identified as potential opportunities for more cooperation with other Members and organizations; execution is highly dependent on available resources and capacity:   * Participate in capacity building/development workshops for WMO Members; * Donation of monitoring equipment to WMO Members; * Provide training on the use of instrumentation to WMO Members; * Work with industry to develop simpler and more affordable weather-related instrumentation; * Additional work on the Global Campus initiative; * Additional capacity building / development activities related to GFCS implementation and the development of Regional Climate Centres and Regional Climate Outlook Forums. | | |

# Annex IV-3 (China)

Summary of China’s Contribution through WMO VCP Programme and Bilateral Arrangements in 2017

| Item | Descriptions of Projects | | Total cost (USD) |
| --- | --- | --- | --- |
| 1 | Study Tour and Workshop | 1. 47th China Study Tour (11-16 September 2017) to promote Urumchi Initiative on Meteorological Disaster Prevention and Mitigation and Response to Climate Change in Central Asia, signed in 2015 | 85,937.5 |
| 2 | Short-term training and long-term fellowships\* | 1. Seminar on the Early Warning of Meteorological Disasters for Developing Countries (RTC-Nanjing, April 5-25, 2017) | 59,506.28 |
| 1. Seminar on Meteorological Forecasts for Developing Countries (RTC-Nanjing, April 14-28, 2017) | 53,595.93 |
| 1. Seminar on Management for Meteorological Officials from Developing Countries, (RTC-Nanjing, May 3-23, 2017) | 83,748.16 |
| 1. Seminar on Climate Change and Climate Information Service for Developing Countries, (RTC-Nanjing, May 5-25, 2017) | 132,598.49 |
| 1. Training Course on the Use and Maintenance of Meteorological Instruments for Developing Countries (RTC-Nanjing, June 2 - 29, 2017) | 139,004.36 |
| 1. Training Course on Radar Meteorology for Developing Countries (RTC-Nanjing, June 9 - July 6, 2017) | 89,252.05 |
| 1. Seminar on International Cooperation in Coping with Climate Change for English-speaking Countries in Africa(RTC-Nanjing, June 16 - July 6, 2017) | 80,989.47 |
| 1. Seminar on Prevention and Recovery from Meteorological Disasters for the Bahamas(RTC-Nanjing, July 10 – 30, 2017) | 83,531.38 |
| 1. Training Course on Agro-meteorology for Developing Countries (RTC-Nanjing, Sep. 1-28, 2017) | 66,290.05 |
| 1. International Training Course on Tropical Cyclone (RTC-Nanjing, Nov.13-24,2017) | 17,737.33 |
| 1. International Training Course on Numerical Weather Forecast (RTC-Nanjing, Nov. 20-Dec. 1, 2017) | 34,937.02 |
| 1. The 3rd International Training Course on Global Framework for Climate Service(RTC-Beijing) | 27,219 |
| 1. The 10th International Training Course Application of Meteorological Satellite Products(RTC-Beijing) | 31,360 |
| 1. The 6th International Training Course on Aeronautical Meteorology Service Training(RTC-Beijing) | 33,244 |
| 1. The 1st International Training Course on the Adaptation to Climate Change (RTC-Beijing) | 132,965 |
| 1. The 2nd International Training Course on the Adaptation to Climate Change (RTC-Beijing) | 99,587 |
| 1. The 6th International Training Course on CMATC Pre-post Forecaster Training Course for WMO Fellowship Students (RTC-Beijing) | 6,797 |
| 1. CMA Typhoon Forecaster Training Programme (NMC-Beijing) | 13,593.75 |
| 1. Long-term WMO/China government scholarship | 1,582,697 |
| 3 | Donation of Instruments  and Equipment through Bilateral Arrangements | 1. Provision of 3 sets of video studio to Pakistan and Laos | 412,500 |
| 1. Provision of 3 sets automatic weather station to Uzbekistan | 171,875 |
| 4 | VCP(F) | VCP (F),GFCS Trust Fund, IPCC Trust Fund, WIS Trust Fund and WIGOS Trust Fund | 87,000 |
|  | Total |  | 3,525,966 |

\*In 2017, a total number of 375 foreign experts participated in the short-term training courses organized by WMO Regional Training Center in Nanjing and Beijing. There were 195 scholarship students (including WMO/China scholarship) studying in 2017.

**Expected Contributions of China**

**to the WMO VCP in 2018**

***1. Tour Study***

48th China Study Tours will be organized for PRs or senior officials from developing NMHSs in September/October 2018.

***2. The Second China-ASEAN Meteorological Forum***

It will be organized in September 2018 to promote the regional meteorological cooperation with ASEAN countries.

***3. Meteorological equipment and instrument and technology transfer***

* On-site technical training and system maintenance of Integrated CMACast and MICAPS System in surrounding countries will be conducted.
* Provision of a set of video studio and a CMACast System to Pakistan
* Provision of 2 sets of road transportation weather station to Kazakhstan

1. ***International Training Courses***
2. Workshop on High-level Administration for Meteorological Officials from Developing Countries(RTC-Nanjing) \*
3. Seminar on Climate Change and Climate Information Service for Developing Countries(RTC-Nanjing) \*
4. Seminar on Mitigation and Rescue of Meteorological Disasters for Developing Countries(RTC-Nanjing) \*
5. Seminar on Meteorological Disaster Management and Emergent Information Service for Countries along the Belt and Road (RTC-Nanjing) \*
6. Seminar on Meteorological Forecasts for Countries along the Belt and Road (RTC-Nanjing) \*
7. Training Course on the Use and Maintenance of Meteorological Instruments for Developing Countries (RTC-Nanjing) \*
8. Seminar on Technological Transfer in Coping with Climate Change for Developing Countries (RTC-Nanjing) \*
9. International Training Course on the Impacts of Climate Change on Agriculture (RTC-Nanjing)
10. International Training Courses on the Application of Radar Data in High-impact Weather Nowcast (RTC-Nanjing)
11. International Training Course on Nowcasting Techniques on Severe Convection Weather for ASEAN Countries（RTC-Beijing, 2018）
12. International Training Course on Aeronautical Meteorological Services (RTC-Beijing, June 2018)
13. International Training Course on the Application of Meteorological Satellite Products (RTC-Beijing, October 2018)
14. CMATC Pre-post Forecaster Training Course for WMO Fellowship Students (RTC-Beijing, August-December 2018)
15. On-line Training Course on the Maintenance of Meteorological Observation Instrument for countries along the Belt and Road(RTC-Beijing, 2018)
16. The 5th International Training Course on the Adaptation to Climate Change(RTC-Beijing, 2018)

\* Those 8 training courses are sponsored by Ministry of Commence of China and hosted by WMO RTC Nanjing. Application will be made through Chinese embassies.

1. ***Long-term Scholarships in 2018***

* *China Scholarship Council: BSc (5 years) and MSc (2 to 4 years) programme, total number: 20*
* *Nanjing University of Information Science and Technology(RTC-Nanjing): MSc Programmes (2 years) and PhD Programs (3 years), total number: 15*
* *Hohai University: MSc or PhD Programme(3 years), total number:10*
* *Ministry of Commerce: MSc (3 years) programme, total number:20*

1. ***Tropical Cyclone Forecaster Training Programme***

* *Operational Forecasting Training for Typhoon Committee Members in National Meteorological Center of CMA in 2 groups*

# Annex IV-4 (Finland)

|  |  |
| --- | --- |
| **1. Country** | |
| Finland | |
|  | |
| **2. Overall national contribution in 2017 (estimate in USD)** | **3. Overall estimated national contribution in 2018 (in USD)** |
| 700 000 USD | 900 000 USD |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Sources of Funding** |
| Kyrgyzstan – FINKMET Continuation phase | Ministry of Foreign Affairs of Finland ICI- funding instrument |
| Nepal – FNEP III preparation |
| Sudan and South Sudan – FISU II |
| Tajikistan – FINTAJ Continuation phase |
| Vietnam – SmartMet | Finnish Concessional Credit |
| Sri Lanka – SSWSS | Tekes – the Finnish Funding Agency for Innovation |
| Caribbean SIDS – COPS | Finnish Trust fund in WMO |
| Balkans WMO |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| After the Government change in Finland in 2015, the Government budget for development co-operation has been cut due to the economic recession in Finland. No new ICI- projects for meteorology were launched in 2017.  From 2018 onwards, the ICI funding is slowly increasing and FMI will be launching some new projects. | Finland has launched a new Public Sector Investment Facility funding instrument in 2017, which can potentially fund also meteorological development projects. |
|  | |
| **8. Opportunities for more cooperation with other members / organisations** | |
| In Nepal, the FMI has a long-lasting presence, also 2018 onwards as the System Integrator in the World Bank “Building Resilience against Climate Hazards” project, and as a partner with DHM. The FMI is in a good position to organize and co-organize any activities related to meteorological capacity building in Nepal. The World Bank funded project is scheduled to finish by the end of 2018, however FMI presence in Nepal will continue by new ICI project that will be launched this year.  In Vietnam, the FMI has a long-lasting presence. From 2017 onwards, Vaisala and FMI have started to run a project funded by the Concessional Credit program of Finland. In this project, Vaisala will install and upgrade the NHMS’s Weather Radar and lighting location network, and FMI will install and give training for the SMARTMET. This infrastructural modernization will be complemented later by new ICI project.  The FMI has installed SMARTMET also in Bhutan in 2017 through UNDP funding and further capacity building will be given 2018. Integrating data flows from any new systems to the SMARTMET should be ensured.  In the Caribbean SIDS and the Pacific SIDS, the FMI has a long-lasting regional presence which ended to year 2017. Most notably, the FMI has installed its weather information system SMARTMET, including forecaster workstations in several countries in these regions; integrating data flow from any new systems to these workstations should be ensured.  In Sudan and South Sudan, the FMI is running an ICI- project for 2016-2018. The FMI is in a good position to organize and co-organize any activities related to meteorological capacity building in these countries.  In Kyrgyzstan and Tajikistan, the FMI has good ties with the local hydrometeorological agencies and FMI has just begun implementing new ICI projects in the countries. The FMI is in a good position to organize and co-organize any activities related to the development of these agencies. | |

# Annex IV-5 (France)

|  |  |
| --- | --- |
| **1. Country** | |
| France | |
|  | |
| **2. Overall national contribution in 2017** | **3. Overall estimated national contribution in 2018 (in USD)** |
| 617,000 USD | Unknown |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Source of Funding (USD):** |
| Fellowships, training, courses and visits:  Météo-France organizes training courses in French and English language.  Financial supports were granted for a lot of continuing education ENM training, and also for initial and specialised ENM training. We wish to highlight the "Meteo Africa" ENM training course, which for the first time provided information to practice meteorology in sub-Saharan Africa, including forecasting. There were also customized trainings or visits for specialized needs, in particular in the field of the bilateral cooperation with Maghreb. Training "Workshop WMO Information System and metadata Management", on techniques and tools of the WIS, was jointly organized at Toulouse by UKMetOffice and Météo-France. 12 trainees of which 5 got a financial support, took part. 9 trainees of which 8 got a financial support, attended the Lannion course "Remote detection from space" where a global view of the satellite instruments, measurements , products and applications”, was given, with practical work dedicated to the open source QGIS software, for determining the risk of submerging coastal seas. 10 trainees attended the training course on tropical cyclones and Public Weather services 2017 at La Réunion. In the framework of the Attachment training (WMO), for the first time, 3 trainees were welcome at La Réunion in immersion for 2 weeks.  [376,000 USD] | WMO / Météo-France |
| Expert missions:  [95,000 USD] |  |
| Algeria: following the retirement of many meteorologists, there was a strong need for training.  There was two training sessions, one of a week in capacity building in aeronautical forecasting, and another of two weeks in general forecasting with last prediction methods/ management of alerts/satellite meteorology. | ONM (Algeria NMS)/Météo-France |
| Morocco: two training sessions in marine forecasting on the theme of fog and phenomena of visibility reduction, one in aeronautical forecasting,  Mission on the "Regulation of the Single European Sky",  Mission to sensibilize on the importance of the Network security policy,  Mission for implementing an operational plan for GISC Casablanca back up. | French Embassy in Morocco / DMN (Morocco NMS) / Météo-France |
| Tunisia: training session in observation | French Embassy in Tunisia / INM (Tunisia NMS) / Météo-France |
| Other regional activities: |  |
| Madagascar  End of the work on Data Rescue & CDMS Madagascar project: Historical research, valuation and data rescue mission and software test  [17,000 USD] | WMO/Météo-France |
| West Africa  Publication of the book “”Meteorology of tropical West Africa, The forecasters’ handbook” (in French)  [14,000 USD] | Eumetsat/Météo-France |
| Follow-up to support to Haïti:   * Support for SIMEX Hurricane Exercise (scenario, charts, bulletins) * Support on operational activities   [8,000 USD] | WMO/Météo France |
| SWFDP-Eastern Caribbean:  Martinique has been designated as one of the regional centers for the project:   * Development of the RSIP (implementation Pan) * In-house project management and organization * Co-organization of the workshop in May 2017 in RSMC Miami   [30,000 USD] | WMO / Météo France |
| Extension of the domain of AROME Antilles to cover Haïti and all the countries/territories involved in SWFDP-EC  [35,000 USD] | Météo-France |
| Production of a Caribbean radar image (made with radar information from Guyana, Trinidad, Barbados, Cayman Islands, Guadeloupe, Martinique, French Guyana, Belize) available for the NMHS of the region  [3,000 USD] | Météo France |
| Support to preparation of seasonal forecast for CARICOF  [27 000 USD] | Météo France |
| Contribution to AMDAR Trust Fund  [12,000 USD] | Météo-France |
| Twinning project for modernizing INM (Tunisia) – Fully funded by the European Union | EU |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| * Budgetary reductions impact Météo-France’s level of investment in cooperation * Difficulty with staff availability for setting up projects and expert missions * Workload for RFSF Martinique with the SWFDP-EC is a challenge in the global context of HR constraints. | * Launch of the project CREWS Burkina * Signature of a MoU with the Pakistan Meteorological department * Project in the Caribbean in the CREWS pipeline |
|  | |
| **8. Opportunities for more cooperation with other Members / organizations** | |
| * Draft of a MoU with Seychelles and provision of AROME-Indian model output * Draft of MoU with Mauritius Meteorological Service and provision of AROME-Indian model output * SWFDP in Western Africa: proposal of Météo-France to act as a global centre for strengthening NMS capacity in issuing warnings for severe weather * Dialogue with Belhydromet for strengthening Belarus NMS capacity * Dialogue with DNM for sharing good practices with Mali * Dialogue with the Indian services in charge of the maritime security for SMDSM in Indian ocean * Dialogue with the ministry of emergencies of Armenia * Provision of NWP for UHM Haiti ( MOU to come) * Preparation for the inclusion of more radars in the Caribbean composite radar image: Jamaica, Puerto Rico (USA) and Sint-Maarten * Dialog with Sint-Maarten for a potential cooperation about MHEWS and radar | |

# Annex IV-6 (Germany)

|  |  |
| --- | --- |
| **1. Country** | |
| Germany | |
|  | |
| **2. Overall national contribution in 2017 (in USD)** | **3. Overall estimated national contribution in 2018 (in USD)** |
| Total: 7,934,000 $ Equip & Services through WMO: 383,000 $ Equip & Services bilateral: 7,301,000 $ Fellowships & Training: 250,000 $ | [unknown] |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Source of Funding (\*)** |
| **Regional NWP model COSMO** and boundary data based on forecasts of its global model ICON (free of charge) to support 15 NMHSs in the introduction of regional numerical weather prediction. Two training workshops in February and March 2017: Enabling scientists to implement and run the COSMO model at their home institutes. 117,000 $ | DWD |
| **Training programmes/fellowships in Germany** at its own offices or abroad for staff members of NMHSs of developing countries, esp. from African countries. 56,200 $ | DWD |
| **Data and product provision:** Free provision of CM SAF data for African partners. Under the RCC: support for the provision of RCC products for developing countries in RA VI. 82,200 $ | DWD |
| **Data rescue:** Digitization of historical handwritten records of climate data from 1550 overseas stations of the Deutsche Seewarte Hamburg (German Marine Observatory). In 2017, the data from 33 stations (7 in Equatorial Guinea, 8 in Mozambique, 8 in Namibia and 10 in Peru) were digitized manually and quality controlled. The handwritten records are scanned. 111,600 $ | DWD |
| **StratoClim project** (Stratospheric and upper tropospheric processes for better climate predictions)  2017: Radiosonde measurements were carried out in Nepal as a supplement to aircraft measurements. Primary aims of GRUAN Lead Center in Lindenberg/Germany: performing comparative measurements in a subtropical region using different Vaisala radiosondes and finding cooperation partners for a permanent GRUAN station each in Nepal and India. Intense cooperation with the Meteorological Forecasting Division of the Department of Hydrology and Meteorology (DHM) in Nepal and the university ETH Zurich. 113,400 $ | DWD |
| Germany continued to support the **WMO RA VI Regional Dobson Calibration Centre** at Hohenpeissenberg (Dobson campaigns, etc.) 71,300 $  By supporting the GAWTEC (Global Atmosphere Watch Training and Education Centre), Germany also contributed to the WMO quality assurance programme.  Two courses were financed during 2017 to provide technical assistance and training to station and central facilities personnel. 136,400 $ | DWD  BMU/  DWD |
| **GIZ/DWD Project: "Enhancing Climate Services for Infrastructure Investments (CSI)"** International Climate Initiative (IKI).  The project goal is to enable government agencies and decision-makers in developing countries to use climate services for planning resilient infrastructure in the selected countries (Brazil, Costa Rica, Vietnam and the Nile riparian countries). The project aims to improve climate services of NMHS’s and government agencies in order to better integrate climate risks into infrastructure planning. DWD is a cooperation partner of GIZ; the project is based on funding by BMUB, two scientists are working at DWD. 2017: Cooperation with NMHSs focused on the development of an assessment framework and an inquiry tool for the evaluation of existing climate services and their use by infrastructure sectors in the partner countries.  Overall investment 2017: 1.2 million EUR. DWD’s contribution 42,200 $ | BMU/GIZ/DWD |
| **GIZ/DWD Project PrAda:**  “Adaptation of agricultural value chains to climate change (PrAda)” in Madagascar. Overall goal: increasing the stakeholder capabilities in selected agricultural value chains that are particularly vulnerable to climate change. One project component specifically seeks to strengthen agrometeorological service capacities at national and regional level.  The National Meteorological Service of Madagascar (Direction Générale de la Météorologie, DGM) is the most important national partner for one of three components of the project. DWD is a cooperation partner of GIZ.  2017: Beginning of technical evaluation of the use of DWD’s agrometeorological model AMBER in Madagascar  Overall investment in 2017: 700.000 EUR. DWD’s contribution 28,100 $ | BMZ/GIZ/DWD |
| **SASSCAL** (Southern African Science Service Centre for Climate Change and Adaptive Land Management): Joint initiative of Angola, Botswana, Namibia, South Africa, Zambia and Germany.  Deutscher Wetterdienst contributes to the project by cooperating with the National Meteorological Services (NMSs) in the improvement of climate data management.  Two scientists (funding of BMBF) working at DWD to support the local teams of the NMSs in the installation and use of Climsoft, a Climate Data Management System. Support and guidance for Data Rescue activities.  DWD provides general expertise to SASSCAL, related to access to climate data, by contributions to the organization of workshops, coordination of the cooperation with relevant international activities, e.g. of WMO and UK MetOffice. Overall Investment 2017: 5.67 Mio EUR DWD’s contribution: 162,100 $  Development of permanent monitoring structures and monitoring networks, research capacities and infrastructure, development of climate services as well as scientific training and capacity development in Africa. | BMBF/DWD  BMBF |
| **WASCAL:** (West African Science Service Center on Climate Change and Adapted Land Use): Joint initiative of Benin, Burkina Faso, Côte d‘Ivoire, The Gambia, Ghana, Mali, Niger, Nigeria, Senegal, Togo and Germany. West African partners: the NMS of Benin, Burkina Faso, Ghana, Côte d‘Ivoire, Mali and Togo.  Development of permanent monitoring and monitoring networks, research capacities and infrastructure, development of climate services as well as scientific training and capacity development in Africa. | BMBF |
| **German IHP/HWRP Secretariat**: Organization of the Workshop „Risk-based Hydrologic Engineering Design Standards: Adapting Hydrologic Engineering, Planning and Evaluation Procedures for Infrastructure Design under Climate Uncertainty“. Supporting the Summer School “Plastics in Marine and Freshwater Environments”, in Koblenz, Germany.  Supporting the 11. International German Summer School on Hydrology (IGSH) 2017 – “Groundwater and Energy” in Bochum, Germany.  Contribution to Workshop “Monitoring Programme and Network Design for Surface Water Bodies”, UN Environment GEMS/Water, Nairobi.  The ICWRGC (International Centre for Water Resources and Global Change) has been entrusted with the coordination of the Global Terrestrial Network - Hydrology (GTN-H), which operates under the auspices of the WMO and GCOS. 🡪 established a project group together with the Federal Institute of Hydrology (BfG) and the DWD with the aim of joint product development from data of the Global Precipitation and Climate Centre (GPCC), the Global Runoff Data Center (GRDC) and GEMS/water Data Centre. | IHP/HWRP |
| **CAWa project** ( **(www.cawa-project.net) and GFZ project “Global Change Observatory Central Asia”** ([http://www.gfz-potsdam.de](http://www.gfz-potsdam.de1)): Another automated station established at the western shore of Lake Issyk Kul;  CAWa supports the maintenance of all stations (maintenance visits, hands-on briefings for hydromet specialists). Several workshops and training courses.  3rd project phase (2015-2017): CAWa supports the national hydrometeorological services of Central Asia by helping them to improve seasonal precipitation and runoff forecasts (lead time of forecasts and forecast accuracy).  MODSNOW tool for operational snow cover monitoring implemented at the hydrometeorological services of Turkmenistan and Kazakhstan.  CAWa scientists continued to contribute to the annual glacier mass balance measurement campaign in the framework of the CATCOS project. | GFZ /AA |
| **CREWS** works to strengthen multi-hazard EWS in SIDS and LDCs. It aims to help ensure that targeted countries have at least moderate early-warning system and risk-information capacities. Investments have been made into projects with Burkina Faso, the DRC, Mali, Niger and the Pacific (Fiji, Kiribati, Niue, Cook Islands and Tuvalu). Joint initiative of WMO and UNISDR | German Climate Fund |
| **Brazil:** Atmospheric Tall Tower ATTO: Improved measurements of greenhouse gases and atmospheric processes. Implementation: Max Planck Institutes for Chemistry and Biogeochemistry. | BMBF |
| **IWRMIS Zambia:**  Climate Monitoring and Early Warning System for Weather-related Disasters: German Development Cooperation supports the establishment of an Integrated Water Resources Management Information System (IWRMIS). Funds come from the German Energy and Climate fund. Phase I of the IWRMIS project was completed in 2017.  The overall activities included:  Construction of 65 automatic hydrological stations including data transmission facilities operated by WARMA (Water Resources Management Authority, one of the recipients of the IWRMIS) and digitization of historical precipitation data for more than 1,100 voluntary rainfall stations of the Zambia Meteorological Service. | GDC/KfW |
| **Climate change adaptation in the western Balkans** (Albania, Kosovo, Macedonia, Montenegro): Long- and short-term consultancy, professional education and training measures, provision of equipment and materials (in particular hydrometeorological measuring stations). Main aim: strengthening the management of increasing flood risks in the Drin catchment area. Main implementing organisations (among others): NMHSs of the countries concerned | BMZ/GIZ |
| **Nicaragua:**  Programme for improving the efficiency of drinking water supply and sanitation (PROATAS): Main aim: establishment of a network for water status monitoring. The programme provides the municipalities in the project region with advice on collecting and evaluating basic data and on setting up meteorological stations and a flood early warning system. | BMZ/GIZ-EU |
| **Uzbekistan:** Cross-Border Water Management in Central Asia:  Overall objective: contribution to sustainable rural development in Uzbekistan in the context of climate change. Specific objective: improvement of water management and water resources management at national, catchment and peasant levels (by means of improved data analysis and data delivery). Partner: Uzbek Hydromet Service. | AA/GIZ - EU |
| **Vietnam**: Wastewater Management in Provincial Cities in Vietnam: The risk of damage from floods or heavy rains caused by rivers or heavy rain is reduced in mid-provincial Vietnamese cities through improved wastewater planning, early warning systems and risk maps. Partners: National Meteorological and Hydrological Service Vietnam. | BMZ/GIZ |
| **Kazakhstan, Kyrgyzstan, Tajikistan:** Ecosystem-based Adaptation to Climate Change in the High Mountain Regions of Central Asia):  Aim: integration of experience-based approaches to ecosystem-based climate change adaptation into climate-relevant politics and future planning of all three target countries. Localized climate projections for planning processes are obtained from the national hydrometeorological services in the target countries. An expert at the Kyrgyz hydrometeorological service supports the development of these services. | BMU/GIZ |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | |
| DWD is subordinate to the Federal Ministry of Transport and Digital Infrastructure and has no funds of its own for development cooperation 🡪 capacity development activities are only possible through the collaboration with project partners and external/third party-funded resources. Limited human resources in the DWD’s international and scientific/technical departments for development and cooperation activities. | |
|  | |
| **7. Opportunities for Increased Activity for your Activities / Projects / Events** | |
| Development of a strategic collaboration of DWD and GIZ (German agency for development cooperation); cooperation as project partners (BMZ and BMU funded; GCF?). Two exemplary projects started in 2017.  Closer collaboration with other national development cooperation organizations.  Capacity development is mentioned in the DWD strategy and will be sustained. Coordination with other initiatives in relevant countries/regions. | |
|  | |
| **8. Opportunities for more cooperation with other Members / organizations** | |
| Cooperation and building networks with other donor NMHSs (and WMO) with the aim of e.g. supporting NMHSs in developing countries by helping them with international sources of funding (World Bank, European Commission etc.) and joint projects (such as CREWS etc.)  Identification of similar activities in one and the same region by exchanging information and analysing the country reports. Establishing contacts with stakeholders with a view to take advantage of synergies or, at least, to exchange experience. | |

# Annex IV-7 (Hong Kong, China)

|  |  |
| --- | --- |
| **1. Country** | |
| Hong Kong, China | |
|  | |
| **2. Overall national contribution in 2017 (estimate in USD)** | **3. Overall estimated national contribution in 2018 (in USD)** |
| USD 41,600 | USD 40,000 (preliminary) |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Sources of Funding** |
| 1. WMO VCP Workshop on Implementation of ICAO Meteorological Information Exchange Model (IWXXM) for the Exchange of Operational Meteorological (OPMET) Data was held in collaboration with the International Civil Aviation Organization (ICAO) Asia Pacific Office on 10-12 October 2017, addressing the training and capacity building needs of the participants in the Asia and Pacific region to kick start their own implementation projects. | Government of the Hong Kong Special Administrative Region (HKSARG) |
| 1. A SIGMET Coordination Training Workshop was held for aviation forecasters from all ASEAN countries with Flight Information Region on 4-6 December 2017, furthering the SIGMET coordination initiative in the region. |
| 1. Website of the WMO International Cloud Atlas (ICA) was further enhanced. An online tool was being developed to facilitate translation to different languages by the WMO Publication Division. |
| 1. The World Weather Information Service (WWIS) website was enhanced with current weather, sunrise and sunset time of world cities and global satellite imageries. The Severe Weather Information Centre (SWIC) website was being revamped. |
| 1. An Alert Hub for aggregating warnings issued by Members in Common Alerting Protocol for use in the proposed Global Multi-hazard Alert System (GMAS) was set up. |
| 1. WMO RAII Pilot Project to Develop Support for National Meteorological and Hydrological Services in Numerical Weather Prediction was extended. |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| Hong Kong, China welcomes additional funding from WMO to assist Members in participating in the VCP workshops and pilot projects, if required. | Hong Kong, China will continue to contribute to VCP and take forward pilot projects and relevant training/workshops to assist developing countries. |
|  | |
| **8. Opportunities for more cooperation with other members / organisations** | |
| The VCP Workshop provided a good platform for Members to share their knowledge and experience in the implementation of IWXXM for the exchange of OPMET data. Further exchange of experience within Members is encouraged to facilitate the implementation work.  Hong Kong, China also welcomes greater participation of other Members in the pilot projects, as well as WWIS, SWIC and GMAS to develop the capacity of Members in need in the provision of public weather services. | |

# Annex IV-8 (Japan)

|  |  |
| --- | --- |
| **1. Country** | |
| Japan | |
|  | |
| **2. Overall national contribution in 2017**  **(Mar 2017 to Feb 2018)** | **3. Overall estimated national contribution in 2018 (in USD)** |
| VCP(F) **USD 50,000**  VCP(ES) **USD 323,768**  VCP(ES) Bilateral arrangement **Unknown** | **Unknown** |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Source of Funding (USD):** |
| Contribution to the ESCAP/WMO Typhoon Committee Trust Fund | Japan Trust Fund for Global Frameworks  **(USD 12,000)** |
| WMO/JMA Project for HimawariCast Receiving and Processing System technical assistance services | Japan Trust Fund for Global Frameworks  **(USD 137,438)** |
| Travel costs support for Task Team meeting on Development of Tropical Cyclone Forecast Competency in the ESCAP/WMO Typhoon Committee Region (14-16 Mar. 2017,Guam) | Japan Trust Fund for Global Frameworks  (**USD 16,000**) |
| WMO/ASEAN Training Workshop on Weather Radar Quality and Standardization (5-13 Feb. 2018, Bangkok) | Japan Trust Fund for Global Frameworks  **(USD 95,000**) |
| JMA Tokyo Climate Center (TCC) Training Seminar on Climate System Monitoring and Analysis (Bangladesh, Bhutan, Fiji, Hong Kong (China), Indonesia, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Philippines, Singapore, Solomon, Sri Lanka, Thailand and Viet Nam), (1 Jan. to 2 Feb. 2017,Tokyo) | Japan Meteorological Agency  **(USD 63,330)** |
| WMO/Kyoto University short-term fellowship (Indonesia, Libya, Myanmar) | Kyoto University  (Unknown) |
| JICA Knowledge Co-Creation Program (Group & Region Focus) for Reinforcement of Meteorological Services (Brazil, Iran, Mozambique, Myanmar, Pakistan, Samoa, Tonga, Viet Nam), (13 Sep. - 8 Dec. 2017, Tokyo) | JICA  (Unknown) |
| Grant Aid Projects:   * The Project for Establishment of Disastrous Weather Monitoring System, 2013-2017, Myanmar * The Project for Improvement of Equipment and Facilities on Meteorological and Hydrological Services, 2014-2017, Lao P.D.R. * The Project for Improvement of Meteorological Radar System in Dhaka and Rangpur, 2015-, Bangladesh * The Project for Installation of Weather Surveillance Radar at Karachi, 2015-, Pakistan | JICA  (Unknown) |
| JICA Technical Cooperation Projects:   * The Project of Enhancing Capacity on Weather Observation, Forecasting and Warning, 2014-2017, the Philippines * The Project of Improving of Meteorological Observation, Weather Forecasting and Dissemination, 2014-2017, Sri Lanka * The Project of Reinforcing Meteorological Training Function of FMS, 2014-, Fiji * The Project for the Capacity Enhancement of Meteorological Observation, Weather Forecasting and Warning, 2015-2017, Mozambique | JICA  (Unknown) |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| * Insufficient available experts to dispatch developing countries’ NMHSs for implementation of technical cooperation projects * Need mechanisms to share information on developing countries’ NMHSs between JMA and the donor agency to develop effective and efficient projects * Need more communication between JMA and recipient NMHSs to identify their needs * Insufficiency of support mechanism after termination of projects’ periods (e.g., maintenance of instruments, software updating) | JMA will   * organize trainings/workshops regularly, and * promote informal discussion with the donor agency to enhance synergies between JMA’s activities, ODA projects and WMO activities. |
|  | |
| **8. Opportunities for more cooperation with other Members / organizations** | |
| IPM could be a good opportunity to explore possible cooperation with other Members/organizations if more funding agencies can participate in IPM to share their activities with WMO and developed countries’ NMHSs. | |

(1 US$ = 1 CHF = 100 JPY)

# Annex IV-9 (New Zealand)

|  |  |
| --- | --- |
| **1. Country** | |
| New Zealand | |
|  | |
| **2. Overall national contribution in 2017 (estimate in USD)** | **3. Overall estimated national contribution in 2018 (in USD)** |
| USD 374K | USD 375K |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Sources of Funding** |
| **Observing Programme Support for Pacific Island Countries & Territories**  Provision of technical consultancy and engineering support, on a multi-lateral basis in conjunction with the US NOAA PI-GCOS support programme and the Met Office UK Pacific Fund programme (administered by SPREP). Includes technical support and advice via remote and in-country visits to Cook Islands, Kiribati, Niue, Tonga, Samoa, Tuvalu, Tokelau, Papua New Guinea, Vanuatu and the Solomon Islands.  **US$ 20K** | Meteorological Service of New Zealand Ltd (MetService) |
| **Severe Weather Forecasting and Disaster Risk Reduction Demonstration Project (SWFDDP)** – regional coordination by RSMC Wellington, including maintaining the MetConnect Pacific website and daily production of the South Pacific Guidance.  **US$ 47K** | MetService |
| Operational development of improved Pacific mean sea-level variation forecasts in cooperation with NOAA / East-West Center, University of Hawaii, Bureau of Meteorology, CSIRO **US$ 15K** | National Institute of Water and Atmospheric Research (NIWA) |
| Climate support to the SPC Water Security Project in Cook Islands, Tuvalu, Tokelau, Kiribati and Marshall Islands **US$ 20K** | NIWA |
| Production of the Island Climate Update, development of video-based seasonal forecast, development of new seasonal and satellite-based products (currently for Vanuatu, Solomon Islands and PNG) **- US$ 40K** | NIWA |
| **CLiDEsc –** Continued development of the CLiDEsc climate services product generation tool that links to the CLIDE climate database developed for the Pacific region by the Bureau of Meteorology. **US$ 140K** | NIWA |
| Underpinning ad hoc advice and collegial support to Pacific Island technical staff involved in meteorological and hydrological monitoring in Fiji, Samoa, Cook Islands, Kiribati, Micronesia, Niue Solomon Islands, Tokelau, Tonga and Vanuatu **US$ 15K** | NIWA |
| Chair of the Pacific Islands Climate Services Panel (PICS)  **US$ 10K** | NIWA |
| Technical support to Pacific Island Climate Outlook Forum  **US$ 15K** | NIWA |
| Implementation phase of WMO RA V Pacific Regional Climate Centre (PRCC) Network Plan **US$ 15K** | NIWA |
| Represent NZ at CIMO International Conference on AWS (ICAWS-2017) and workshop **US$ 15K** | NIWA |
| **APN: contributing to CAPaBLE** Assistance to the Asia-Pacific Network for Global Change Research (APN) contributing to the Capacity Development and Enhancement for Sustainable Development in Developing Countries Programme (CAPaBLE). CAPaBLE builds and enhances scientific capacity in developing countries in the Asia-Pacific region to improve their decision-making in target areas related to climate change, water and food security, and global change that are linked directly to their sustainable development. **US$ 22K** | Ministry for the Environment (MfE) |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| Budget restrictions within New Zealand government agencies will continue to put pressure on funding for voluntary support programmes. | Despite these budget restrictions, the recently appointed New Zealand government has said it will invest more in the Pacific. Relevant government budget decisions will be decided in May 2018. |
|  | |
| **8. Opportunities for more cooperation with other members / organisations** | |
| MetService will continue to engage with WMO on possibilities to assist wherever training is required for developing country NMSs. | |

# Annex IV-10 (Norway)

|  |  |
| --- | --- |
| **1. Country:** | |
| Norway | |
|  | |
| **2. Overall national contribution in 2017 (estimate in USD)** | **3. Overall estimated national contribution in 2018 (in USD)** |
| ~ USD 650.000 | ~ USD 750.000 |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Sources of Funding** |
| Met. capacity building projects (supported and funded by NORAD) at:   * BMD Bangladesh: "Institutional support and capacity building for mitigation of weather and climate hazards in Bangladesh" * DMH Myanmar: «Cooperation between DMH Myanmar and Norwegian Meteorological Institute on Capacity Building» * NHMS Vietnam: “Cooperation between the National Hydro-Meteorological Service of Vietnam and the Norwegian Meteorological Institute on Capacity Building”   Focus areas: Strengthen EWS and decision making in the forecasting and warning services, NWP verification, climate services and ocean modelling | NORAD (Norwegian Agency for Development Cooperation). Funding 2017 – 2019.  USD 500.000,- per year. |
| Project: “Technical Assistance Services to improve the delivery of Meteorological Services in Mozambique” at INAM Mozambique.  Capacity building project at INAM in partnership with Met Office (UK), Deltares (NL) and Consultec (MOZ). Funded by Nordic Development Fund (NDF) and World Bank (WB). ~ 2017 – 2020. | Funded by Nordic Development Fund (NDF) and World Bank (WB)  Met Norway part of budget: ~ USD 130.000,- per year. |
| Project “CixPAG” (Climate Extremes, Air Pollution and Agro-ecosystems):  CiXPAG will investigate the complex interactions between climate extremes, air pollution and agricultural ecosystems in India and Nepal. | The Norwegian MFA and The Research Council of Norway |
| Project “PAPILA” (Capacity Building/Cooperation):  MET Norway participates in this project funded through MSCA-RISE, building an air quality forecasting system for Latin America. MET Norway helps in setting up the EMEP air quality model for use in Latin America and will also be involved in the organization of two air quality policy workshops in Chile and Bolivia. 4 year project. | Funded by EU-RISE (EU- Research and Innovation Staff Exchange) / MSCA-RISE  Met Norway part of budget: ~ USD 10.000,- per year. |
| “WCRP/CORDEX-ESD”:  Global network for empirical-statistical downscaling climate information. This activity is in-kind. |  |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| Mainly projects supported and funded by the Norwegian Government like NORAD and The Research Council of Norway. The newest project is funded by NDF/WB. | At the moment close to the limit of engagement in new capacity building projects, but with time possible to expand. |
|  | |
| **8. Opportunities for more cooperation with other members / organisations** | |
| 2018-2019: Possible collaboration with DoM Sri Lanka on capacity building in forecasting visualization tools and interpretation. Funded by The World Bank (WB).  WCRP/CORDEX-ESD: (http://www.cordex.org/index.php?option=com\_content&view=article&id=222&Itemid=714) | |

# Annex IV-11 (Republic of Korea)

|  |  |
| --- | --- |
| **1. Country** | |
| Republic of Korea | |
|  | |
| **2. Overall national contribution in 2017** | **3. Overall estimated national contribution in 2018 (in USD)** |
| 2,416,000 USD | 2,900,000 USD |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Source of Funding (USD):** |
| **[Training 1]** Weather Radar Operation – 16 trainees (Morocco, Togo, Myanmar, Vanuatu etc.) | KMA (88,000$) |
| **[Training 2]** Weather forecasting for operational meteorologist - 10 trainees (Uzbekistan, Mongolia, Afghanistan etc.) | KMA (88,000$) |
| **[Project 1]** Modernization of Forecasting and Warning System for Natural Disaster in Myanmar ('17~'19, 4,000,000$) | KMA (1,336,000$) |
| **[Project 2]** Installation of Automated Weather Observation System in Mongolia ('17~'19, 3,000,000$) | KMA (474,000$) |
| **[Project 3]** Coastal Inundation Forecasting Demonstration Project-Fiji (‘16-’19, 1,200,000$) | KMA (400,000$)  \*Cooperated with WMO |
| **[Project 4]** Modernization of Aviation Meteorological services in Mongolia (‘14~, 530,000$) | KMA  \*Cooperated with WMO |
| **[Project 5]** Climate Data Rescue Project in Uzbekistan (‘13-’18.2, 617,000$) | KMA  \*Cooperated with WMO |
| **[Fund 1]** WMO VCP Fund | KMA (30,000$)  \*Cooperated with WMO |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| * Korea’s budget for ODA has increased constantly, but it’s a little hard to increase KMA’s budget for ODA. It is because developing countries usually request for building roads, dam, school and so on and meteorological projects are not first priority. Hence it’s challenging to secure increased budget from our government. | * Recently, Korean government emphasizes on collaborative projects and offers the ministries more budget. Regarding this, KMA tries to work together with other ministries related disaster prevention to secure more budgets from our government. |
|  | |
| **8. Opportunities for more cooperation with other Members / organizations** | |
| * KMA will make new projects cooperated with WMO, GCF and KOICA. GCF is in Incheon, Korea and the organization is established for mitigating climate change. It’s good chance for KMA to cooperate with GCF, but we have to make suitable project proposals and it will take long time to secure finance from GCF. | |

# Annex IV-12 (Saudi Arabia)

|  |  |
| --- | --- |
| **1. Country** | |
| Saudi Arabia | |
|  | |
| **2. Overall national contribution in 2017** | **3. Overall estimated national contribution in 2018 (in USD)** |
| 20,000 | Unknown |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Source of Funding (USD):** |
| Supporting NWP developments in the Kingdom and Arab States | Saudi Government |
| Initiating a Climate Change Centre in the Kingdom for the benefit of sub-regional countries and geographical coverage of observation systems. |  |
| Introducing National Framework for Climate Services (NFCS) |  |
| Rebuilding Observation Networks in Yemen |  |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| * The funding for voluntary contributions is unclear as its still being determined as a new approach for KSA * Lack of human resources at GAMEP to implement and collaborate on international development and cooperation activities * Lack of an effective mechanism to be able to identify and help to link NMHSs in need with the potential support that can be provided by GAMEP. | * Closer collaboration with other national development cooperation organizations. * Increased coordination with other initiatives in relevant countries/regions. * GAMEP is involved with the National Transformation program of the Kingdom and this includes Modernisation of Services and Operations, including establishing Regional Centres for increased sub-regional, regional and international collaboration. |
|  | |
| **8. Opportunities for more cooperation with other Members / organizations** | |
| * GAMEP is always open to collaborate with other organizationsthrough the exchange of information in order to identify similar projects and activities in one or more countries and regions | |

# Annex IV-13 (Spain)

|  |  |  |  |
| --- | --- | --- | --- |
| **1. Country** | | | |
| Spain  Note: Spain does not carry out technical cooperation activities through VCP. All cooperation activities are bilateral or multilateral. | | | |
|  | | | |
| **2. Overall national contribution in 2017 (in €)** | **3. Overall estimated national contribution in 2018 (in €)** | | |
| **TOTAL: 507,457**  Cash: 124,922 (1) In-Kind: 382,535  ACMAD Cash: 46,909 In-Kind: 0  AFRIMET Cash: 2,363 In-Kind: 17,602  BILATERALS Cash: 0 In-Kind: 5,263  CIIFEN Cash: 0 In-Kind: 5,867  CIMHET Cash: 90,770 In-Kind: 164,863  MEDCOF Cash: 1,434 In-Kind: 46,514  WMO Cash:-16,858(2) In-Kind: 70,656  SDS-WAS Cash: 304 In-Kind: 10,123  OTHERS Cash: 0 In-Kind: 61,647  (1) This expense does not include the AECID support.  (2) WMO’s income due to the Biannual Bulletin translation. | **Total: 615,000**  Cash: 205,000, In-Kind: 410,000 | | |
|  | | | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | | | **5. Source of Funding (€):** |
| A - ACMAD   * Financial support (Job Training, MedCOF, Multi-risks early-warning Conference) | | | Cash In-Kind  46,909 0 |
| B – AFRIMET (West African Cooperation Programme)   * Coordination and management of the Programme * Services (Maintenance of AFRIMET’s website) | | | Cash In-Kind  441 17,602  1,922 0 |
| C – BILATERAL RELATIONS   * Education and Training activities (1 course) | | | Cash In-Kind  0 5,263 |
| D – CIIFEN   * Consultancy (TIC) | | | Cash In-Kind  0 5,867 |
| E – CIMHET   * Financial support (Multi-risks early-warning Conference, LIII Central America Climate Forum, Assistance of an MCH expert in El Salvador, Sub-seasonal to seasonal forecast Course) * Coordination and management of the Programme * Education and Training (5 courses) * Services (Maintenance of CIMHET’s website) | | | Cash In-Kind  20,937 0  13,679 39,310  54,942 125,553  1,212 0 |
| F – MEDCOF   * Coordination and management of the Programme | | | Cash In-Kind  1,434 46,514 |
| G – WMO   * Education and Training (2 courses) * Services (WMO Biannual Bulletin translation) | | | Cash In-Kind  689 13,147  -17,547 57,509 |
| H – SDS-WAS   * Education and Training (1 course) | | | Cash In-Kind  304 10,123 |
| I – OTHERS   * Coordination and management (AEMET’s staff) | | | Cash In-Kind  0 61,647 |
|  | | | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | | **7. Opportunities for Increased Activity for your Activities / Projects / Events** | |
| Increase funds and maintain activities through the cooperation programs in Ibero-america, Africa and the Mediterranean region. | | Application of a WMO Regional Training Center. | |
| Look for the alliance with other SMHNs cooperating in the same fields and geographic areas. | | Participation in the resource mobilization through EUROCLIMA+ (European Commission). | |
| Strengthening of the alliance with AECID through the signature of a MoU. | |  | |
| Reinforcement of on-line training. | |  | |
|  | | | |
| **8. Opportunities for more cooperation with other Members / organizations** | | | |
| MoU with the Direction of the National Meteorology of Morocco | | | |
| MoU with the Direction of the National Meteorology Office of the Islamic Republic of Mauritania | | | |
| MoU with the Barcelona Supercomputing Centre to set up an Early Warning System for Sand and Dust Storms in Burkina Faso (CREWs project) | | | |

# Annex IV-14 (Sweden)

|  |  |
| --- | --- |
| **1. Country** | |
| Sweden | |
|  | |
| **2. Overall national contribution in 2017** | **3. Overall estimated national contribution in 2018 (in USD)** |
| 2 829 000 USD | 3 900 000 USD |
|  | |
| **4. List of Activities / Projects / Events in 2017 related to contribution** | **5. Source of Funding (USD):** |
| ParCur Brazil | Swedish EPA 94 000 |
| Green infrastructure in tropical cities, Brazil | Swedish EPA 59 000 |
| Source to Sea: causes of water quality problems, South Africa | Swedish EPA 176 000 |
| Air quality, South Africa | Swedish EPA 47 000 |
| Cooperation with DEA in Air Quality, South Africa | Swedish EPA 70 000 |
| Cooperation concerning Air Quality, Colombia | Swedish EPA 59 000 |
| HYPE-course for international participants | Swedish EPA 35 000 |
| CORDEX | SMHI 10 000 |
| TEP Hydro | ESA 5 000 |
| Water Rain HIM | SRC 111 000 |
| ESCWA | Sida 103 000 |
| Euphrates & Tigris | Sida 62 000 |
| DWA Botswana | DWA 186 000 |
| WACCA Ethiopia | Sida 2 000 |
| WACCA ITP | Sida 1 613 000 |
| Rwanda | NCF 197 000 |
|  | |
| **6. Challenges in Resource Mobilization for your Activities / Projects / Events** | **7. Opportunities for Increased Activity for your Activities / Projects / Events** |
| * Coordination with other initiatives | * Coordination with other initiatives in relevant regions/countries |
| * Coordination with national resources | * Strategic approach from all partners |
|  | |
| **8. Opportunities for more cooperation with other Members / organizations** | |
| Increased coordination of climate, climate adaptation, water and air information services in countries of interest, such as Kenya, Uganda, Zimbabwe, Ethiopia, Zambia and others. | |

# Annex IV-15 (Switzerland)

|  |  |  |
| --- | --- | --- |
|  | USD 2017 | USD 2018 (Planned) |
| Payments of Switzerland related to CATCOS | **15’750** |  |
| Payments of Switzerland related to CLIMANDES-2 | **1’735’800** | **1’039’000** |
| Payments of Switzerland related to Hydrohub | **926’750\*** | **842’500\*** |
| Voluntary cash contribution to the international part of the GAW Programme: |  |  |
| GAW Quality Assurance and Science Activity Centre (QA/SAC) for ozone, carbon dioxide and methane | **89’000** | **85’000** |
| World Calibration Centre (WCC) for ozone, carbon monoxide and methane | **263’000** | **250’000** |
| GAW Station Mount Kenya, Equipment and personnel expenses including Kenya-Switzerland Trust fund | **198’000** | **235’000** |
| World Radiation Centre (PMOD/WRC), including World Infrared Calibration Centre, World Optical Depth Research and Calibration Centre, and World UV Calibration Center | **1’540’000** | **1’460’000** |
| Support IG3IS Office at WMO |  | **190000** |
| World Climate Conference III follow up, Global Framework for Climate Services (GFCS) | **79’000** | **50’000** |
| SPARC International Project Office | **53000** | **0** |
| WMO-different contributions, CIMO Trust Fund, Translation Cloud Atlas | **168’000** | **100’000** |
| Historical Climate Database Euro-Climhist | **92’000** | **86’000** |
| World Glacier Monitoring Service (WGMS) | **301’000** | **285’000** |
| **Total contributions** | **5’461’300** | **4’622’500** |

\* Information related to HydroHub: equals to total amount committed to the HydroHub programme (CHF 3’370’000.-) assuming equal distribution over 4 years, and converted to USD.

**Report on the VCP and related co-operation activities**

* The Swiss Confederation (funded by the Swiss Agency on Cooperation and Development – SDC) finances capacity-building projects in the areas of weather, climate, and water.
  + CATCOS (concluded in 2017)
  + Climandes – 2 (ends 31st of December 2018)
  + WMO HydroHub (Duration: May 2016 until August 2020)
* Switzerland continuously operates the following central facilities in favour of the GAW Programme:
  + World Calibration Centre and Quality Assurance/Science Activity Centre for ozone, carbon monoxide and methane at the Swiss Federal Laboratories for Materials Testing and Research (Empa, Dübendorf): Empa provides calibration services, station audits, trainings and operational support of the global GAW network (in particular to developing countries)
  + World Radiation Centre in Davos (PMOD/WRC), including the Infrared Radiation Centre (IRC), World Optical Depth Research and Calibration Centre (WORCC) and the World UV Calibration Centre (WUVC). Switzerland is involved with the World Radiation Centre in Davos, which is jointly financed by the Swiss Federal Government, the Canton of Grisons, and the town of Davos.
  + SPARC promote, facilitates and coordinates cutting-edge international research activities on how chemical and physical processes in the atmosphere interact with climate and climate change by bringing together the world’s experts to address key questions in atmospheric and climate research. SPARC also organizes workshops, meetings, and general assemblies. As of this year the SPARC office has been relocated to DLR in Germany.
* Switzerland contributes to the Secretariat of the Global Framework for Climate Services (GFCS) at WMO.
* Switzerland continues to support the operation of atmospheric monitoring stations at Mount Kenya (GHG parameters) and Nairobi (Ozone).
* Switzerland secures the continuous operation of the following International Data Centres (with funding from GCOS Switzerland):
  + Historical Climate Database Euro-Climhist
  + World Glacier Monitoring Service (WGMS)

1. **Capacity Building and Twinning for Climate Observing Systems (CATCOS) – Phase 2**

The project CATCOS (Capacity Building and Twinning for Climate Observing Systems) was established to strengthen the capacities in developing and emerging countries to systematically observe climate relevant data. The measured data from the atmospheric domain (aerosols, greenhouse gases) and terrestrial domain (glaciers) support science-based policy decisions for climate change mitigation and adaptation. CATCOS Phase 1 established a sound basis for systematic climate monitoring in six countries (Chile, Colombia, Ecuador, Indonesia, Kyrgyzstan, Vietnam). In CATCOS Phase 2, demand-driven capacity developing and twinning activities aimed to strengthen knowhow with established and new national partners (Kenya, Peru, Uzbekistan) and to foster regional cooperation.

Results for the third and last year of CATCOS Phase 2 (2016/2017) can be summarized as follows:

Concerning the **High-Quality Data Capacity,** the continuation of twinning activities between Swiss and national partners built the basis for all activities. New high-quality climate observations are available for Kyrgyzstan (Cholpon Ata, greenhouse gas measurements), and Uzbekistan (Barkrak middle, glacier observations). On-site training complemented all implementations. Further core activities comprised station visits and remote support, the training of operators and scientific personnel in workshops, as well as summer schools, contributing to the sustainable monitoring and analysis of data.

Activities regarding the **Cooperation Capacity** included two regional climate services workshops: the ‘Ibero-America Regional Climate Services Workshop’ and the ‘Southern Africa Regional Climate Services Workshop’. Both workshops particularly highlighted the importance of long-term, high-quality climate observations as a prerequisite for reliable climate services.

To strengthen the **User Capacity,** communication efforts, including factsheets, a poster, country visits and a station inauguration in Vietnam added to the project’s visibility as well as raised awareness about the established high-quality data for decision-makers and other stakeholders.

1. **Climate Services with an emphasis on the Andes to support decisions (Climandes 2)**

Project year 2 has seen very good progress in all three modules. Particular focus has been given to the sustainability of the project intervention in at least the following activities:

* The engagement with the end users is based on knowledge gained during the household surveys conducted in November and December 2016 in Puno, and September 2017 in Cusco with a total of over 1’100 small-scale farmers interviewed. The User Interface Platform (UIP) was successfully launched in Puno and includes education and training, monthly climate field forums with continuous interchange between farmers of two pilot communities and meteorologists of the regional SENAMHI Office and other governmental institutions. As a result, weekly weather information and early warnings are now delivered via text messages and a daily weather forecast service is newly being broadcast in Quechua, Aymara and Spanish in the local radio stations La Decana at 7 pm (Juliaca) and Onda Azul (Puno) at 5 am. The process is continuously monitored, evaluated and adapted. In this process the regional SENAMHI Office plays an eminent role by providing weather and climate services to the population through locally anchored experts. Resourcing this office and maximizing coordination with SENAMHI Head Quarters in Lima will be key to sustain the achieved.
* Education and training of students and professionals has been further extended and now has an effective regional reach. This was achieved through intelligently blending online and classroom courses on diverse topics, thus reaching a great number of students and professionals from the majority of the Latin American countries. The e-learning-platform Moodle, implemented by SENAMHI during project year 2, puts them in position to actively and efficiently conduct online courses. An increasing number of such courses, some including interactive elements and forums, have been attended by numerous participants of countries in the region and beyond. Training activities include basic courses, but feature also webinars held by international experts. Specifically, a briefing on seasonal forecasts between the national weather services in the region is being newly held on a monthly basis, furthering the regional exchange on seasonal forecasts.
* SENAMHI strongly promotes popularization of meteorology and climatology as well as education at the primary and secondary school level. Not only are children the future users of climate services, but their ability to share knowledge with their families is an effective way to increasing the number of climate-informed citizens. The production of the necessary teaching material is in the process of being coordinated with the ministry of education and is slightly delayed. In addition, SENAMHI recognizes that their communication strategies need fundamental reconsideration in that it is no longer sufficient to disseminate information. Indeed communication must reach through to the end user and, ultimately to each citizen. Only the can the socio-economic benefits of climate services fully be exploited.
* The basic information obtained from high quality climate data needs to be transformed into user-tailored and actionable climate services. In order to support this challenging task an open source software package (“ClimIndVis”) is being developed, to produce different climate indices relevant for the agricultural sector. The package includes tools to visualize past trends and seasonal forecasts as well as their verification. The focus on user-friendliness will enable SENAMHI, as well as other national meteorological services, to sustain climate services beyond the end of Climandes. New products based on this package join a whole set of improved SENAMHI products as ingredients for increasingly reliable climate services, which will be disseminated through the SENAMHI web platform.
* Systematic verification of the quality of the seasonal forecasts reveals that there is substantial skill for temperature, but only limited skill for precipitation in the Peruvian Andes. However, an analysis conducted within the project indicates a perspective for future improvements based on using large scale weather regimes from the seasonal forecast model to predict local precipitation and drought conditions. The thorough analysis needed to exploit this alternative requires resources beyond the scope of the Climandes project.
* A lively publication activity testifies to the solidity of the scientific and technical achievements. Widespread appreciation in the region of the project is further documented by the large echo to the Climandes Data Management Workshop, which will take place in Lima, 28 May - 1 Jun 2018. On another positive note, in December 2018 the Climandes project set up and results were awarded the annual price of the SFIAR, the Swiss Forum for International Agricultural Research.

Regionalization, or scaling-up, of the results is one of the overarching goals of any intervention like Climandes. The following elements have the strategic quality to enable and support regional or even global scaling-up of the project results and provide the starting grounds for any conceivable follow-on activity. The blended learning approach and the above mentioned monthly briefings already represent good examples of regionalization within the running Climandes 2 project. By the same token, an open source software package is strategic to maximize the distribution and usage of user-tailored climate products. For example, the package facilitates the creation of tailored forecasts in areas where verification showed more promising seasonal forecast skill than in the Peruvian Andes. Finally, the User Interface Platform implemented in Puno can be seen as best practice example and give guidance for implementation in other countries and regions or even on a global scale (best practices being promoted by the WMO-led Global Framework for Climate Services).

In conclusion, SENAMHI in recent years is yielding significant progress in key areas of climate services provision and in the more established role of national meteorological service, including education and training, and assessment of socio-economic benefits of their services. Their plans to submit proposals to the ‘programas presupuestales’, a ministerial funding program, which contains a number of Climandes activities which they plan to settle in their operational portfolio. This funding opportunity constitutes a gateway to institutional strengthening of SENAMHI and is to be highly commended. As a matter of fact, SENAMHI is in the process of acquiring and strengthening competences which makes them fit for taking on a leadership role on the regional level, while Climandes is very happy to play a part in this. Another piece of evidence for this progress is that MeteoSwiss’ role is shifting from that of a co-implementer to that of an expert consultant, leaving the driving seat more and more to SENAMHI.

# Annex IV-15 (UK)

**UK VCP report: January-December 2017**

**1. Country:** United Kingdom

**2. Overall national contribution in 2017 (estimate in USD)**

~$1,183,496 USD

**3. Overall estimated national contribution in 2018 (estimate in USD)**

~$1,565,044 USD

**Funding overview:**

The main UK contribution to WMO VCP is funded as part of the UK Public Weather Service (PWS).

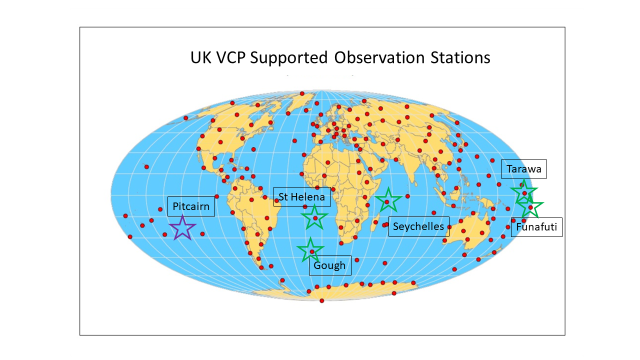
There are also several wider capacity development projects managed by the Met Office, outside of those VCP projects highlighted below, funded via DfID and other Development Partners.

**Project highlights from 2017**

### 1. *Project Area – Observations*

Records of the global climate are essential for monitoring climate change, but maintaining them requires effective observations to be taken all over the world. These observations are also help to improve both local and global weather forecasts. The upper-air component, in particular, can be very expensive to maintain. Recognising this is the case for developing country National Met Services (NMSs), UK VCP continues to work in partnership to help to support and maintain a number of remote sites, and the increased collection of effective observations.

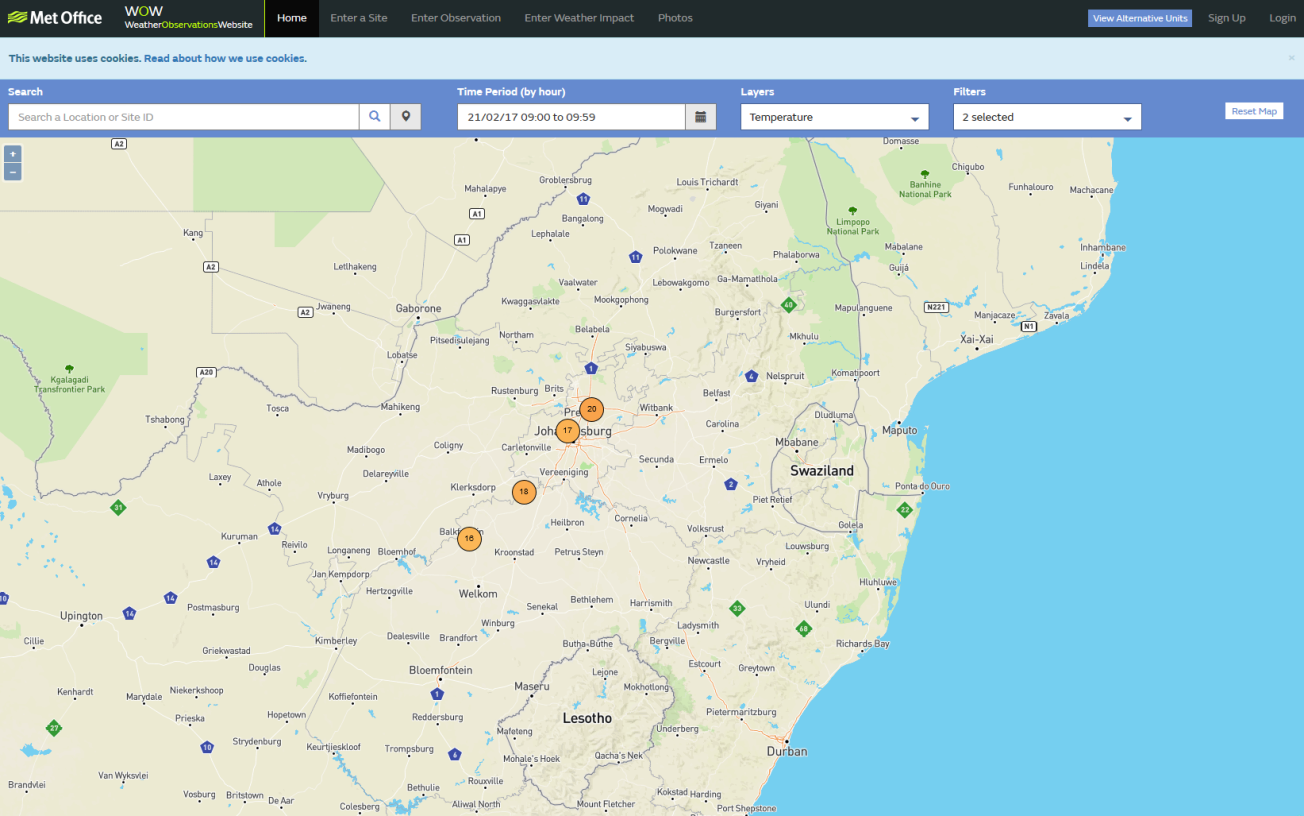
**GCOS Upper Air Network (GUAN)**



* Continued support was provided to the GUAN (GCOS Upper Air Network) stations in the Pacific (including Funafuti and Tarawa) through our ‘Pacific Fund’. UK VCP continues to work with SPREP (Secretariat for the Pacific Regional Environmental Programme) for Management of the ‘Pacific Fund’, and MetService New Zealand for important technical support.
* In cooperation with MetService, the GSN (GCOS Surface Network) AWS on Pitcairn Island was also supported.
* Through provision of consumables, UK VCP continued to support the GUAN site at Gough Island, in cooperation with SAWS (South Africa Weather Service).
* UK VCP continues to support the GUAN station at St Helena through an MOU with the St.Helena Government, including the purchase and erection of new buildings in 2017.
* Support for the GUAN station in the Seychelles continued with the provision of consumables and technical assistance, including maintenance/updates for the hydrogen generator.
* Following a request from CIMH Barbados, a single-cell barometer was provided for RIC intercomparison work.
* Following Cyclone Gita in February 2018, UK VCP is providing emergency assistance to replace important observation equipment.

**Use of the WOW (Weather Observations Website)**

* The collection, display and use of ‘non-traditional’ observations from third party sources is area that provides great potential benefits to NMHSs in terms of nowcasting, potential assimilation into Numerical Weather Prediction, and through increased engagement with stakeholders. In 2018, UK VCP will be exploring further with a number of countries how this Website could be used, and provide benefit.



### 2. *Project Area – Forecast Delivery*

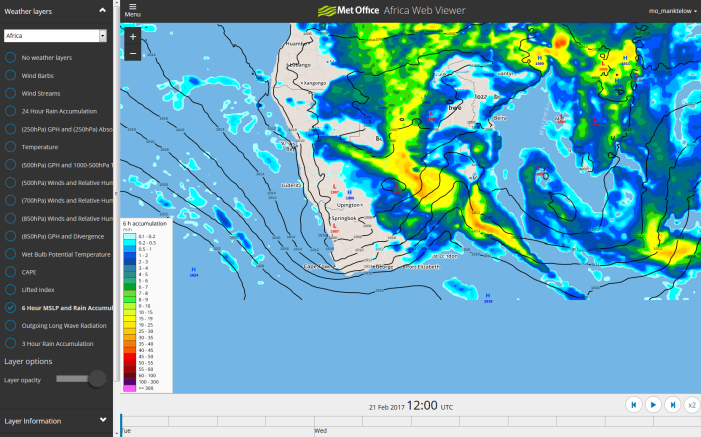
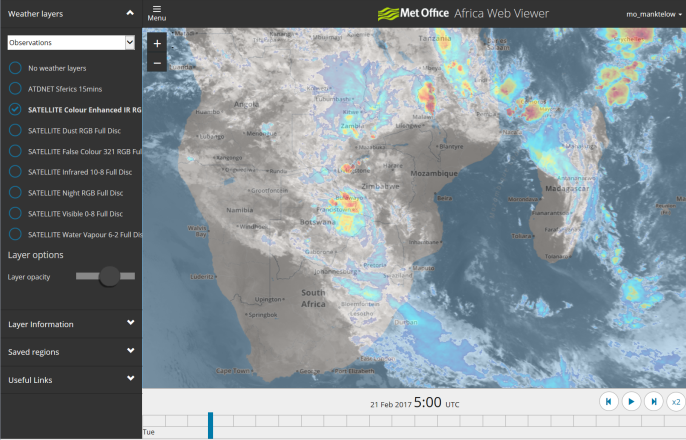
Provision of model data and products, and training of meteorologists in their interpretation and use, is another important element in which UK VCP works in partnership with developing country NMSs, in particular to assist with Disaster Risk Reduction.

**Support to SWFDP (Severe Weather Forecasting Demonstration Project)**

* Continued support was provided to the WMO SWFDP through the delivery of Global Centre products to the Southern Africa, Eastern Africa and Pacific projects.
* New products were created and made available to the Bay of Bengal SWFDP.
* In 2018 support will also be provided to the prospective West Africa SWFDP.

**Display of data and products on the AWV (Africa Web Viewer)**

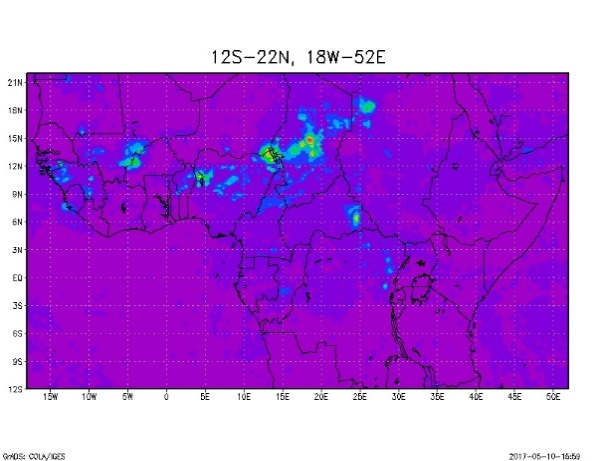
* UK VCP launched the AWV in 2016.This new website displays a range of model fields from an Africa ‘cut-out’ of the Met Office Global Model (at 17km resolution), the 4km model over the extended East Africa Region (including Lake Victoria), output from the ATD lightning product, and a range of (15 minute) satellite imagery. During 2017, and following user feedback, a number of updates were made.
* User numbers have been steadily increasing since 2016 with nearly 50k page views by over 36 countries in Africa in the last year. Festus Luboyera, Executive Director of the Uganda National Meteorological Agency said: *‘I also wish to inform you that our staff in the Directorate of Forecasting Services who have used weather products from this new portal since the testing phase have found it extremely useful.’*

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**Provision of data and products via EUMETCAST Africa**

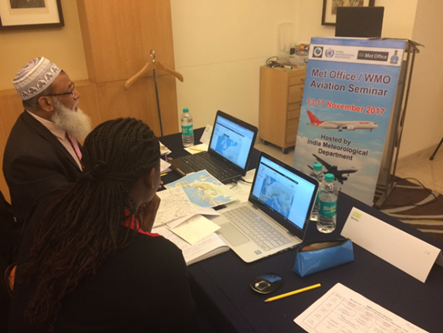
* Following a request for updates from the RAIDEG (RAI Dissemination Expert Group), data from a Global Model ‘cut out’ with increased horizontal resolution (17km) and the 4km East Africa model is now successfully being transmitted and visualised over the EUMETCAST Africa satellite transmission service. The datasets have an increased number of model fields, time steps and length of model run. ATD lightning data (15 minute) continues to be transmitted as GRIB data via EUMETCAST.
* In 2018 UK VCP aims to ensure that African meteorologists continue to have access to the highest resolution NWP data available from the Met Office and will aim to transmit Global model ‘cut out’ at 10km resolution to African users as soon as possible.
* In addition, in 2018 we plan to expand the 4km East Africa model to cover a wider region including central and western Africa; and following this expansion we plan to update the provision of this model on EUMETCAST, as well as on our Africa Web Viewer Website.

*Figure: Expanded ‘Tropical Africa 4km’ model – due to be launched September 2018*



**Met Office/WMO Aviation Seminar**

* The provision of quality aviation services is an important aspect for most NMHSs. In light of this UK VCP is committed to supporting NMHSs to achieve the demonstration of compliance with the BIP-M (Basic Instruction Package for Meteorologists) requirements.
* The overall aim of the annual Met Office/WMO Aviation Seminar is to provide training, guidance and practical examples of key aspects of meteorology and forecasting for aviation to help support meteorologists in this specialised area.
* The 2017 Aviation Seminar was developed and delivered by trainers from the Met Office College and kindly hosted in New Delhi by the India Meteorological Department. The training concentrated on issuing accurate and timely SIGMETs (SIGnificant METeorological information).
* The seminar was well received by the 17 delegates from 12 countries across Africa, Europe and Asia. Stephen Quao, Aviation Met inspector, Ghana said: “*Your ability to adapt to new trends, concepts, models and technologies is overwhelming. You have managed to transform and motivate us through your idealized, influence, intelligence, stimulation and by your excellent leadership style to steer the program to a successful end. Very much appreciative.”*

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### 3. *Project Area – Climate Data Management*

The development of a sustainable, flexible and user friendly Climate Data Management System option, whilst also looking to build a user community of support and IT skills, continued to be the focus of UK VCP support in 2017.

* Support for the development CLIMSOFT continued in 2017 with the aim of launching the open source v4 in April 2018.
* As part of the initial testing, a beta version of CLIMSOFT v4 was installed in Rwanda, in partnership with KMD (Kenya Met. Department), with good feedback. In 2018, installation and training is planned for a number of countries who have requested the software.
* Marcellin Habimana, from Rwanda, continues to provide support from the WMO Regional Office in Kenya, for the coordination of the project, and ongoing assistance to current users, funded by UK VCP.
* Continued support was also provided to the development of R-INSTAT at Reading University. R-INTSTAT can interface with CLIMSOFT and helps to provide more enhanced products and quality control features.

### 4. *Project Area – Media/Communications*

UK VCP continues to recognise the importance for an NMS to have the capability to effectively communicate its forecasts to the public and to key stakeholders.  This helps NMSs to fulfil one of its main Public Weather Service objectives: to protect the life and property of its citizens.  TV presentations can also give the NMS a higher profile and help to raise reputation both with the public and with the government, which in turn can help support further investment. UK VCP continues to support the ongoing TV weather presentation delivery by NMSs in over 40 countries. This includes advice and information for TV users on the e-learning support website.

**Development of updated hardware and software, and inaugural installation in Senegal**

* UK VCP hosted a media experts workshop in early 2017. The workshop helped obtain feedback from experts with regards to our new and enhanced software package, and hardware, that will enable supported studios to provide presentations in widescreen High Definition format.
* Following nearly two years of development, the new hardware and software was launched in January 2018 at ANACIM, Senegal, in partnership with WMO PWS.

ANACIM (Senegal) Director General, Mr Ndao *”‘We are in the digital era and this requires us to update our equipment. This is why through WMO’s VCP Programme the Met Office kindly agreed to help renew this equipment....this will allow us to improve the broadcasting of weather and climate information on all the tv channels.”*



* Further ad hoc equipment and advice was provided to supported studios during 2017 including assistance to the Cook Islands and Uganda.

### 5. *Project Area - Human Resource Development*

**MSc Fellowships**

* Six students (from Tonga, Nigeria, Sri Lanka, Indonesia, Philippines and Ghana) are being sponsored by UK VCP and WMO Education and Training Department (ETR) to undertake the “MSc in Applied Meteorology and Climate with Management” course at Reading University, having started in September 2017. It is recognised that, as well as development of scientific skills, there is also a need to support management training for NMSs, and hence the addition of management into the MSc.
* Four students (from Guyana, Mauritius, Solomon Islands and Zimbabwe) successfully completed the MSc course in September 2017.

**Management e-Learning**

* Since 2008 nearly 200 participants have completed the course. The course material is reviewed and adjusted each year in response to feedback from participants and additional optional courses have been developed to expand on areas that participants believed were important, such as Project Management and Finance.
* Each year, the facilitated, online management training course covers the ‘essentials of management’ in 10 modules over 6 months. The last “Essentials of Management” (EOM) course finished in May 2017. The feedback on the last course was very positive, for example “I would like to thank you for taking an initiative to organise the MeL Essentials of Management 2017-18 Online Course. I wish to say that this training has really helped me to change the way I was operating in all spheres of a team leader. I really enjoyed the course”
* The current EOM started in October 2017, and is due to finish in April 2018.

**West Africa Forecasters Handbook**

* The Handbook was developed and written as a collaboration between ACMAD, the WMO WWRP and the AMMA programme, and has involved discussions and consultation with all of the NMSs in West Africa. In cooperation with the University of Leeds (project coordinators) and the WMO Regional Office, UK VCP funded and organised the delivery of copies of the Handbook to all NMSs in West Africa, as well as to the training centres.

# Annex V

**Summary Results of PESTLE Exercise**

Future/current impacts on potential activities, and how we work.

Political:

* Country stability (affecting ability to work; Development Partner reasoning for investment; infrastructure challenges; etc.)
* Public Private Partnership, and sharing of data
* Potential patent issues (potentially linked with above)
* Greater focus on climate change (and climate services) due to political duty – becoming more legally binding
* Differing points of view on climate change globally (impacting investment, actions etc.)
* Increasing amount of funding available for climate change – but it doesn’t always go to the NMHS (need to raise profile; improve capacity; etc.)
* Change in ODA budgets globally e.g. Korea’s ODA is increasing; other countries e.g. UK are changing focus e.g. fragile states
* Shift in focus of development partner funding e.g. GCF (USA)

Economic:

* Increased need for socio-economic benefit studies and also linking to weather/climate risk and impact
* Public Private Partnership
* Increased need/demand for Monitoring & Evaluation on projects to show benefit/impact
* Value of NMS increasing for economic growth e.g. insurance and forecast based financing
* Future enhanced regionalisation of Met. Provision (need to build reputation, capacity, etc.)
* Copernicus
* Increased international sources of funding (like GCF, AF or WB) – how are these best accessed (links with WMO Expert Framework discussion)

Social:

* Increased need for management skills/strategic planning skills which should also help guide development partner investment/provide confidence
* Increasing need/demand for gender balance in projects
* Need for enhanced ‘last mile communication’ - and focus on traditional knowledge, along with modern forecasting
* Increasing focus/need for Impact Based Forecasting (linked with last mile communication)
* Demographic change in NMHSs – many with older populations and need for more training.
* Need for more ‘Basic’ forecast training (as well as more detailed training e.g. IBF).

Technological:

* Increased use of mobile phones
* Increased Artificial Intelligence
* Mercury thermometers phasing out (2020) and need to replace
* Increased move towards online and blended learning/training
* Fast changes in computing and the need to keep pace e.g. cloud computing
* WIS – gap between developed and developing countries
* Increasing open source technology used
* PPP technology e.g. micro satellites
* ‘Basic’ infrastructural needs – internet/communication
* ‘Non-traditional observations’ and finding quality observations that deliver with less cost/maintenance and resource required.

Environmental:

* Increasing need for MHEWS (Multi-Hazard early Warning Systems)
* Enhanced focus on Impact Based Forecasting
* Increasing extreme weather – need to work more closely with Departments e.g. Disaster Management
* Increasing demand for climate services – and increasing need for effective digitisation and management of climate data for provision to stakeholders

Legal:

* Changes in aviation regulation and potential greater regionalisation (2028) (Need for increased capacity, positioning, profile raising)
* Data policy. Also some development partners need all data from projects to be shared e.g. DFID
* Increase in Open Data
* Development of strategic/business plans – aids development partners with investments
* Position of NMS in Government (need to raise profile)
* BIP-M requirements, and need for enhanced training
* ISO9001 – not just applicable to aviation

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