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| **WORLD METEOROLOGICAL ORGANIZATION****COMMISSION FOR BASIC SYSTEMSOPAG on DPFS****MEETING THE REGIONAL SUBPROJECT MANAGEMENT TEAM (RSMT) OF THE SEVERE WEATHER FORECASTING DEMONSTRATION PROJECT (SWFDP) IN SOUTHEAST ASIA**Ha Noi, Viet Nam, 20-23 November 2017 |  | WDS-DPFS/RAII/SeA-SWFDP-RSMT/Doc.9.1(15.XI.2017)\_\_\_\_\_\_\_Agenda item: 9.1ENGLISH ONLY |

**SWFDP Training Aspects**

*(Submitted by the Secretariat)*

##### Summary and purpose of document

This document provides information on specialized training programmes organized for capacity development of the NMHSs of SWFDP participating countries.

##### Action Proposed

The meeting is invited to review the document and consider the information to review and update the training component of Regional Subproject Implementation Plan (RSIP) for SWFDP- Southeast Asia.

**Reference(s):** - SWFDP Guidebook on Planning Regional Subprojects (2016)

**SWFDP Training Aspects**

Capacity development of the NMHSs of SWFDP participating countries through specialized training programmes on NWP, EPS and satellite products and their interpretation and use in making forecasts of impending severe weather and issuance of warnings for associated hazardous hydrometeorological conditions is one of the key elements of SWFDP development and implementation in various regions. So far based on the regional and national needs, the following approach has been followed for planning and designing of the SWFDP training programmes:

1. *Two-week SWFDP training workshops*

Subject to the regional requirements and available resources, the two-week SWFDP training workshops are held preferably on yearly basis and rotated among the participating countries of a SWFDP regional subproject so that maximum staff can be trained in each of the participating country. Such workshops are mainly conducted for forecasters of the involved NMHSs with combined responsibilities for preparing forecasts and warnings, as well as public weather services (PWS) staff of the NMHSs. The training workshops are organized with involvement of WMO’s Global Data Processing and Forecasting System (GDPFS) and PWS programme and through collaboration from other relevant programmes, such as Tropical Cyclone Programme (TCP), Marine Meteorology and Oceanography (MMO), Hydrology and Water Resources (HWR) and Agricultural Meteorology (AgM) Programmes as appropriate.

The two-week training workshops generally consist of training on the use of NWP, EPS and Nowcasting guidance products for severe weather forecasting including for tropical cyclones/typhoons and flash flood forecast guidance as appropriate and relevant to a sub-region, forecast verification and on aspects related to required tasks for the NHMSs in their SWFDP participation, which are described in the relevant Regional Subproject Implementation Plans (RSIPs). In week-2 of the workshop public weather services (PWS) aspects are covered e.g. delivery of warning services to key users (e.g. disaster management offices, media, farmers and fishers, agriculture and water sectors etc.) in the context of emergency preparedness and response. The host NMHS is always encouraged to invite representatives of its users to enhance engagement of the NMHS with users for delivery of more understandable and efficient warnings. This contributes to effective communication of severe weather forecasts and delivery of warnings for improved decision making and response system processes to minimize the losses and damages from weather related hazards. The week-2 also emphasizes on impact based forecasts and risk based warnings.

The NMHSs of SWFDP participating countries in Southern Africa, Eastern Africa, Southeast Asia and Bay of Bengal regions benefit from such training workshops.

1. *RSMC Training Desk*

The establishment of a training desk at RSMC Pretoria has been adopted for SWFDP-Southern Africa since 2013. For this purpose, two forecasters from NMHSs of participating developing or least developed countries are invited to work with the RSMC forecasters for two weeks duration. RSMC training desk mainly serves two objectives: firstly, to improve the skills of invited forecasters by engaging them in the process of NWP, EPS and satellite products inference and analyses to develop RSMC Daily Guidance towards the participating NMHSs; and secondly to provide opportunity for the RSMC forecasters to gain local knowledge from the invited forecasters through discussion in order to improve RSMC Daily Guidance for the benefitting countries. Two forecasters from Malawi and Mozambique and two forecasters from Lesotho and Swaziland attended the RSMC training desks in 2013 and 2014 respectively.

1. *Global Guidance Service*

Global guidance service involves daily video conferencing among the participating global, regional and national centres especially during rainy season in order to have discussions on current weather, synoptic analyses and inference from the NWP model products and satellite information to identify areas of potential severe weather in short- and/or medium-range. The objective of this guidance service is to improve the regional centre’s Daily Guidance Product issued towards the benefitting NMHSs. In addition, an expert from a global centre can also be invited to visit the RSMC/RFSC for short duration to help the forecasters in developing regional Guidance. This approach was adopted for SWFDP-Eastern Africa during 2012, 2013 and 2014.

From 2014, this service has been in place in the region with participation of regional and national centres only.

1. *In-country Training*

In-country training approach has been adopted for the SWFDDP-Southwest Pacific because of the nature of the region which involves relatively small NMHSs of nine Small Island Developing States (SIDSs) in Southwest Pacific Ocean.

1. *Training at Global and Regional Centres*

A number of participants from SWFDP participating countries are also supported and sponsored for NWP and EPS products interpretation and high resolution limited-area NWP Modelling trainings offered by various global and regional NWP centres as mentioned below:

* ECMWF (annual trainings for WMO Members)
* DWD (annual training on COSMO aligned with SWFDP)
* RTCs (training programmes on forecasting aligned with the SWFDP requirements)
* NOAA/NCEP Desks
* On-line courses (e.g. COMET MetEd website:

<https://www.meted.ucar.edu/training_detail.php>

**Training activities for SWFDP-Southeast Asia**

Since inception of the SWFDP-Southeast Asia in 2010, following two-week training workshops have been conducted for the benefitting countries of the subproject:

* SWFDP-SeA Training Workshop in Hong Kong, China (4-15 July, 2011)
* SWFDP Training Workshop in Macao, China (8-19 April, 2013) which was jointly organized for the NMHSs in Southeast Asia and the Bay of Bengal regions
* SWFDP-SeA Training Workshop in Quezon City, Philippines (2-13 June 2014)
* SWFDP Training Workshop in Bangkok, Thailand (14 to 25 September 2015) which was jointly organized for the NMHSs in Southeast Asia and the Bay of Bengal regions

In 2013, 33 participants from 16 countries of Southeast Asia and Bay of Bengal regions benefitted from the SWFDP training workshop in Macao. The training workshop in Philippines in 2014 was attended by 42 participants from 5 countries of Southeast Asia (including 34 participants from the host country). The training in Thailand in 2015 was attended by 51 participants (including 28 participants from the host country and 14 additional participants from seven countries in South Asia).

For 2017-2018, following training activities have been planned:

* A Training Desk has been scheduled in Ha Noi, Viet Nam tentatively during 4-15 December 2017 (pending approval by Viet Nam). Two senior forecasters (one from each of Philippines and Thailand) will attached to work with RFSC forecasters.
* A two-week SWFDP-SeA Training Workshop has been planned in Ha Noi, Viet Nam from 19 to 23 March 2018.

**Additional relevant Information**

As per SWFDP Guidebook (2016), the ‘cascading forecasting process’ concept has been evolved, and the expected outcomes now include:

* Enhanced capability for NMHSs to forecast severe weather and issue warnings at the national level, including improved accuracy and longer lead-times;
* Established warning processes agreed with national disaster management and civil protection authorities, along with planned responses for protection of lives and property;
* Established forecast processes and Quality Management Systems (QMS), and strengthened forecast capabilities in support of other user sectors in society (such as water, DRR, agriculture and food security, aviation, marine safety and transportation, etc.) at the national level;
* Raised awareness of the value of NMHSs with national governments and their agencies, leading in the long-term to greater national support and investment and leading, in turn, to improved supply of observations and feedback into the GDPFS; and
* Reduced loss of life and damage to property and infrastructure, and contributions to the UN 2030 Agenda for Sustainable Development (Sustainable Development Goals) and Sendai Framework for DRR in achieving their respective goals and targets.

**Conclusion**

The SWFDP training programme has proven to be successful in capacity development of the involved NMHSs in each sub-region including Southeast Asia. However, the meeting is invited to review the SWFDP-Southeast Asia training design and program based on future regional and national needs as well as to reflect the latest topics and information to contribute to the expected outcomes of SWFDP’s ‘cascading forecasting process’ as envisioned in the SWFDP Guidebook. The meeting may also consider this information to appropriately review and update the Regional Subproject Implementation Plan (RSIP) for SWFDP-Southeast Asia focussing especially its training component.