WEATHER CLIMATE WATER TEMPS CLIMAT EAU International development cooperation activities and ways for cooperation for climate change adaptation in Asia, a WMO perspective



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WMO OMM

World Meteorological Organization Organisation météorologique mondiale

Outline

- Development partnerships and training
- Assessing Members capacity
- WMO Projects and initiatives in Asia







WORLD METEOROLOGICAL ORGANIZATION

Development Partnerships and Training

WMO Development Partnership Flagship Initiatives

Country Support Initiative & Country Hydromet Diagnostics

Informing and advising hydromet policy and investment decisions with WMO peer expertise

Alliance for Hydromet Development

Building top level trust and commitment

Systematic Observations Financing Facility (Initiative)

Fixing the perennial basic observations problem through provision of sustainable finance

- Interconnected, mutually reinforcing and building on each other.
- To deliver successfully on scale up effective partnerships for investment all initiatives need to succeed.
- They build on and go beyond existing approaches and initiatives to strengthen capacity, including CREWS initiative, the VCP, and WMO Secretariat implemented projects.



Development Partnerships

WMO and the World Bank's (GFDRR) development partners roundtable for Hydromet service investment



2016



South Asia Hydromet Services Forum September 18-20, 2018 Geneva, Switzerland



OVERVIEW AGENDA & SPEAKERS PRESENTATIONS EVENT PHOTO: >>



2018

South Asia Hydromet Forum 2019 November 19-21, 2019 Kathmandu, Nepal

MULTIMEDIA

VIDEO | NOV 19, 2019



SAHFII: Pathways For Regional Collaboration The Work Bank and the Bovenment of Mapal, Instantial pathenthip with the World Meeonogoal Organization, cohestes the second South Asia Hydromet Forum (SAHFII), following the commitments made at the inaquarial SAHFII Geneva, 2018). The Forum witch took pake in stammandu, from November 15:31, Drovit gradente water that of clines associated set from the South Asia Region, including the Heast of the National Networlogical and Hydrological agendes as will all a uservacion representative from water-dependent actions.

Second South Asia Hydromet Forum - November 2019

The second South Aist Hydromet Forum (SAHF) aims to further strengthen regional engagement to deliver reliable and timely weather information that local communities, famers; construction firms, hydropower operators, and other economic sectors can act on. The forum will convene high-level representatives from government agencies and development institutions working on hydromet, disaster warning systems, and climate services.

Following the commitments made at the first SAHF last year, the forum on Nov. 19-21 will explore ways to make weather and river forecasts more

2019

Education and Training & Fellowships

RA-II hosts 11 RTC components

• Other RTCs, such as Russian Federation, Israel, Turkey and Philippines, also serve the region

Fellowships

- More Fellowships are offered in RA-II, with the largest number hosted by China, due to low cost to WMO (tuition free)
- Current partners in RA-II include:

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- NUIST Applied meteorology
- Hohai Hydrology, water resources, agricultural engineering, coastal engineering
- Ewha Climate and energy system engineering
- Kyoto Disaster prevention (research)
- Hohai and NUIST offer online programmes starting 2020
- > IMD, IITR and NWA (India) express interest in hosting Fellowships
- With the movement to increasing online courses, clarification on our willingness to pay for development and delivery is needed, online delivery often takes more "behind-the-scenes" work than classroom training

In 2019, 32 Fellowship requests from RA-II, with 13 awards.





Education and Training & Fellowships

Training

- CMA Meteorology and climate services
- NUIST Periodically offers short courses on various topics*
- IRIMO Meteorology and climate services
- Uzbekistan (THMPC) Meteorology, hydrology, and environmental technicians *
- KMA Specialized topics for short courses (radar, forecasting)
- IITR Hydrology and water resources (university)*
- NWA India Water resources engineering (professional)*
- IMDMTI Meteorology and climate services*
- IMDTC Meteorology specializations (inc. telecoms, satellite and radar, instruments)
- Qatar (QAC) Aviation meteorology and operations
- Iraq (IMO) Short courses in meteorology
- CMA, IMD, and IRIMO are rapidly moving to distance learning delivery (5 courses announced in 2020 by CMA and IRIMO), NWA has offered courses online for many years
- > IMD and IITR contributing to WB Myanmar project. Others?
 - * More oriented to Fellowship-length than short courses

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Fellowship F	Partner	Dat	e	# Fellow s	Status (27 Octobe 2020)	r	2019	
China - Hohai University		01-Oct		2	online		4	
China - NUIST		12-Oct		10	online		8	
Japan - Kyoto U	Japan - Kyoto University			7	postponed		2	
Korea - EWHA	Korea - EWHA			2	postponed		2	
NWP Group Training Course Host		Host	Duration			Start Date		
India - IMDMTI			P 2 months 2021, Onl			ostponed until ine or Blended Delivery Considered		
Training Institution	Event Title						Start Date	Status
China-CMATC	Short-term Climate Monitoring and Prediction in Disaster Prevention and Mitigation							Online
China-CMATC	Basic Principles of Satellite Remote-sensing						22.06	Online
China-CMATC	Installation and Maintenance of Meteorological Observing Instruments						3.08	Online
China-CMATC	Nowcasting Techniques on Severte Convection Weather						15.08	Online
Iran-IRIMO	Thermal and Microwave Remote Sensing: Applications for WaterVapour, Clouds and Precipitation						15.09	Online
Iran-IRIMO	WRF Model Output Visualization Using WRF-Python						26.10	Online
Qatar - QAC	International Workshop on Aviation Meteorology for Forecasters							Cancelled
	22 Co-sponsored Courses offered in 2019, for comparison							



WORLD METEOROLOGICAL ORGANIZATION

Assessing Members Capacity

Members' climate, hydro & early warning capacities

- The 2019 report focuses on agriculture and food security. It reviews countries' priorities on climate services for adaptation, noting that agriculture is one of the highest, and identifies priority capacity needs
- The 2020 report highlights progress made in EWS implementation globally and identifies where and how governments can invest in effective EWS to strengthen countries' resilience to multiple weather, climate and water-related hazards





Status: ASIA Climate services

Gaps:

- Data rescue and data sharing remains a challenge in the region
- M&E is weak worldwide
- More data needed •

Source: Checklist for Climate Services, 18 **RAII** Members





MONITORING AND EVALUATION





- 35% of Members have a MHEWS
- M&E is the component area with the lowest capacity
- 21% of members reported using Commo Alerting Protocol (CAP)
- 35% of Members provided Impact Based Forecasting
- More data needed



Source: CPDB, 19 RAII Members

NA NA

No



WORLD METEOROLOGICAL ORGANIZATION

WMO Projects in Asia

Supporting Members through Projects



Assess **member's priorities** and **capacity** to provide weather, water and climate services



Foster collaboration among **development partners** to ensure the systematic **exchange** of project and programme **information** in order to enhance and **harmonize interventions** at the regional and national levels



Facilitate the alignment of **development partners' objectives** with national and regional **identified priorities** and needs, critical to ensure national ownership of the interventions



Coordinate implementation of projects with national, regional and international partners & ensure projects achieve intended outcomes



Identify post completion **sustainability mechanisms**, as appropriate (for instance, transfer of ownership, maintenance plans, skill transfer, and availability of financing to cover recurrent cost requirements)



Beneficiary Countries in Asia

RAII in numbers

9

Number of Projects Total Value (USD) 22.07M

Current Projects & Initiatives:

Applying seasonal climate forecasting and 1111 innovative insurance solutions to climate risk management in the agriculture sector in SE Asia

> Building Resilience to High-Impact Hydro-Meteorological Events through Strengthening MHEWS in SIDS and Southeast Asia

Afghanistan: Hydromet & Early Warning Services for Resilience - Enhancing learning/Capacity on Weather and Climate Information

Technical assistance for the modernization of the Department of Meteorology and Hydrology

WMO Support to the National Centre for Meteorology in Saudi Arabia

Developing capacities for effective Climate Services in Bhutan

Enhancing the climate science basis of the climate rationale of all GCF funded activities.

Modernization of the Aviation Meteorological Services of Mongolia

Climate Data Rescue in Uzbekistan Phase 2: Digitization



Pakistan and Afghanistan Regional FFGS

Support implementation of Central Asia Hydrometeorology Modernization Project





Canada CREWS Project:

- ü MHEWS assessments completed in Cambodia, Lao, Thailand, Vietnam and the Philippines
- ü Forecast products made available on SWFP web portal to NMHSs in Cambodia, Lao, Thailand, Vietnam and the Philippines
- Development and implementation of a Flash Flood Guidance System for Southeast Asian countries, including Cambodia, Laos, Thailand and Vietnam





CREWS Afghanistan:

- Central Asia and Afghanistan Flood Early Warning System (CAFEWS) project approved to deliver riverine flood, flash flood and landslide forecasting and EWS in the Amu Darya Basin
- Afghanistan Drought Early Warning Decision Support Tool (AF-DEWS) prototype developed. This includes the scale up of the community-based DRM approach to at least 100 communities
- ✓ 3D printers and equipment for 20 stations has been shipped





Environment and Climate Change Canada

Key Achievements

Flash Flood Guidance System:

- Southeast Asia FFGS (SeAFFGS) (under implementation): Cambodia, Lao PDR, Thailand, and Viet Nam;
- ✓ South Asia FFGS (SAsiaFFGS) (operational): Bangladesh, Bhutan, Nepal, Sri Lanka, and India;
- Central Asia Region FFGS (CARFFGS) (operational): Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan;
- ✓ <u>Myanmar Stand-Alone FFGS</u> (operational): Myanmar;
- Pakistan and Afghanistan Regional FFGS (operational): Afghanistan and Pakistan.





IKI DeRisk SE Asia:

- Preliminary case study report showing the value of climate information for rice in Vietnam has been made available;
- Climate change projections for 2020-2049 and 2050-2089 have been developed; and
- A network of sensors, water flow meter and automatic weather station were installed at 3 sites in Vietnam and 1 site in Lao PDR.



Key Achievements

Technical assistance for the modernization of the Department of Meteorology and Hydrology Myanmar:

- WMO is providing technical assistance and advisory services to the Government of Myanmar (Department of Meteorology and Hydrology – DMH).
- Most of the activities are focused on strengthening the capacities of DMH staff in weather, climate and water-related monitoring, forecasting and delivery of services



- WMO and World Bank Group (WBG) have signed a partnership, called "Hydromet Alliance", supporting countries and the World Bank Project Teams for their project implementation. WMO is supporting Hydromet services of Kazakhstan, Kyrgyz Republic, Tajikistan, Turkmenistan and Uzbekistan through the following projects and providing them with technical expertise:
- (a) Central Asia Hydromet Modernization Project (CAHMP)
- (b) Climate Adaptation and Mitigation Program for the Aral Sea Basin (CAMP4ASB)
- (c) Strengthening Early Warning of Mountain Hazards in Central Asia, with financing from the Central Asia Water and Energy Program (CAWEP)







Key Achievements

Developing capacities for effective Climate Services in Bhutan:

The project will strengthen the existing climate services in the country and address current gaps and challenges through the deployment of a customized Climate Services Toolkit (CST) which will support the decision making process in climate sensitive sectors

Modernization of the Aviation Meteorological Services of Mongolia:

- The purpose of the project is to enhance the capabilities of the National Agency for Meteorology and Environmental Monitoring of Mongolia (NAMEM) in aviation meteorological services.
- The project will install the backup Automated Weather Observing System (AWOS) at the new Ulaanbaatar International Airport

Climate Data Rescue in Uzbekistan Phase 2: Digitization:

- The project aims to transform the rescued data (electronic image copies of the paper data) into the computer readable formats
 - The project also supports a modern Climate Data Management System (CDMS) for an efficient management of the Uzbekistan national hydrometeorological data records



Korea Meteorological Administration







Pipeline Projects





Regional Office for Asia and the South-West Pacific Key partners





Key Takeaways

Lessons learnt

- Government buy in is essential, without it can be very difficult to make a project successful and sustainable
- ✓ Human resource capacity of NMHSs needs to be factored by Donor and Partner leads
- Regional technical institutions play a key role in project implementation and are a valuable knowledge source
- ✓ Sustainability of resources goes beyond the project lifetime and needs to be sourced





Recommendations

- ✓ Establish a Development Partner coordination mechanism (piloted in Africa)
- National Met Services require a range of sustained support which should be built into project design
- ✓ Leverage the existing strong peer to peer support in the region
- ✓ Connect project initiatives to NMHS strategies and national plans
- Leverage on existing development projects and Programmes; transfer knowledge and technology with public and private institutions



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