



SECOND SAHF EXECUTIVE COUNCIL MEETING

19-20 SEPTEMBER 2022, BANGKOK

Summary of SAHF Regional Approach

Dr K J Ramesh
Senior Adviser(RIMES)



EUROPEAN UNION



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



RIMES



SOUTH ASIA
HYDROMET FORUM



GFDRR
Global Facility for Disaster Reduction and Recovery



Foreign, Commonwealth
& Development Office



GFDRR
Global Facility for Disaster Reduction and Recovery



Foreign, Commonwealth
& Development Office

Targets set by SAHF-III (November 2021)

Resolved to meet the explosive growth in demand for weather and climate data products and services through collaborative efforts and pooling resources

- **systematic increase in expansion of critical observing system networks and rapid exchange of observational data and forecast products by establishing a robust regional Data Exchange mechanism**
 - **establish an institutional framework to connect NMHS and sector institutions for co-production of IBF services integrating geospatial and socio-economic data with real-time weather data and its exchange for improved IBF , development of Decision Support Systems (DSSs) for risk informed resilience development**
 - **design and implement a capacity development calendar across all components of the information value-chain.**
-



GFDRR
Global Facility for Disaster Reduction and Recovery



Foreign, Commonwealth
& Development Office

Priority	Targets	Time Frame	Considerations for implementation
<p>Enhance observations sharing & integration into forecasting</p>	<p>Exchange of observations between NHMS-ECMWF to be scaled up.</p>	<p>6- 9 months</p>	<p>Mechanism of feedback for improving medium range skill (3–5-day lead) of extreme weather prediction will be established for performance evaluation - Completed Performance Evaluation for 2015, 2020 and 2021 Monsoon Rainfall (Day 1-5)</p>
	<p>Real-time data exchanged within the region: 15% improvement</p>		<p>RIMES data exchange platform is already operational. Countries will be pursued to meet the targets - All countries are committed to share; sharing of data is gradually increasing</p>
	<p>Historical observation data: 20% improvement.</p>		<p>Historical data of extreme events for past 5-years will be used - to evaluate global severe weather forecasts - show value of additional data improving past country level severe weather predictions - Actively pursued</p>

Priority	Targets	Time Frame	Considerations for implementation
Address user needs through tailor-made products leveraging collective strengths	<p>Forecast Accuracy: 10% improvement</p>		<p>By using real time data from countries for continuous assimilation at 3Km grid scale for SAHF countries NWP needs - IMDs WRF FCSTs will be shared through DATAEx Soon</p>
	<p>Establish Regional Cloud computing, storage, and networking services infrastructure with investment by pooling of resources.</p> <p>Scaling up existing DATAEx Platform to acquire, host and share new and additional global and regional digital ensemble prediction products</p>		<p>Under SAHF implementation knowledge platform will be operational within 1 year - Ready for Launch tomorrow</p> <p>Scaling up of platform resources is planned under the current phase for sustaining activities beyond 2022</p>

Priority	Targets	Time Frame	Considerations for implementation
IBF- An integrating approach for better service delivery	National institutional mechanisms involving User Sector institutions established on lines of BANCCA (Bangladesh), IRU (India) & SNCCA (Sri Lanka) for co-production of Services in all other 6 SAHF countries	1 Year	<p>Initial steps to be taken to interface with relevant sectoral partners - Active implementation of sector specific DSS in two states of India</p> <p>Multi-seator data and products integration involving DoM, Sri Lanka to be launched soon</p> <p>Other follow up activities to be pursued beyond the current SAHF implementation</p>
	IBF/DSS implemented for at least 3 sectors – Agri, DRM and Water	2 Years	<p>All activities to be pursued beyond the current SAHF implementation</p>

Priority	Targets	Time Frame	Considerations for implementation
Capacity development is the backbone	At least 30% of the NMHS operational staff trained	2-3 Years	All necessary efforts to be taken in working group activities and continue beyond current SAHF implementation
	At least 20% Staff of user sector institutions trained	2-3 Years	All necessary efforts to be taken in working group activities and continue beyond current SAHF implementation

Vision

Capacitate NMHSs to provide user demand-driven hydromet services through integration of state-of-the-art science & technology advancements across all elements of the hydromet service delivery value chain targeting protection of lives, safeguarding livelihoods and economic opportunities of citizens, and fostering sustainable development

STRATEGIC OBJECTIVES OF THE SAHF REGIONAL APPROACH TO STRENGTHEN HYDROMET SERVICES VALUE CHAIN

- **Prioritize regional actions based on assessed gaps in key components of operational hydrometeorological service delivery value chain at national and regional levels**
- **Build core strengths within NMHSs and allied agencies contributing to the hydromet service delivery value chain through regional trainings for capacity enhancement across key components of prioritized regional actions**
- **Facilitate provision of best possible global and regional resources through easy access to data and analytics, building upon regional exchange of data and information, to enable detection, monitoring, and early warning of extreme weather and climate events**

•

Strategic Objective 1:

- Through facilitated discussions across the four SAHF Working Groups, the SAHF Members States have identified several priorities- not just at the national level but also at regional level.
- The regional priorities identified are vital considering the fast-paced evolution and innovations anticipated across all areas of hydromet services, to address the diverse socioeconomic needs.
- Among the most immediate and specific priorities – at a regional level – **are the improvement of forecasts of extreme events, both in terms of intensity and lead time anticipation, using ensemble prediction systems, impact-based forecasting, and user-specific advisory services.**

Focus areas:

- Enhanced observational data from robust observation networks for monitoring and assimilation into Numerical Weather Prediction (NWP) systems
- Higher-resolution, more localized and relevant NWP forecasts that provide users improved decision support
- Adding value through Impact-based Forecasting (IBF)

Approach for Implementation:

- **Efforts would aim to develop capacities for need-based design and upgradation of observational systems and networks leveraging regional cooperation while addressing national requirements.**
 - **For example, a coordinated RADAR scanning protocol enables regional synthesis to achieve better severe weather warning across the region.**
 - **The regional approach would encourage data exchange, of regionally relevant weather and climate data to improve forecast verification, bias correction, and assessment of confidence levels through Knowledge Hub platform components.**
 - **SAHF would ensure development of co-produced hydromet services by utilizing commonalities in regional requirement. Possible approaches for multi stakeholder engagement for IBF in the region .**
-

Strategic Objective 2 - Focus areas:

- **Enhancing capacities of NMHS' technical personnel** across the hydromet value chain to provide demand-driven services to user sectors leveraging the training resources from ongoing projects in the region, University Corporation for Atmospheric Research Cooperative Program For Operational Meteorology, Education And Training (UCAR-COMET) online resources, WMO Global campus, UKMET office and other similar knowledge resources.
- Structured regional training modules will be designed for improved knowledge and understanding on concepts and fundamental principles vital for provision of hydromet services at Basic/Intermediate/ Advanced levels in a phased manner
- Structured regional training modules for **access, use and interpretation of NWP products for forecasting and early warning of severe weather phenomena; Data Assimilation; Ocean state and coastal hazard services; Advanced NWP; IT and Data Analytical Tools; Sensor calibration and maintenance; Hydrological Services; Aviation Services; GIS & Remote Sensing**
- Secondment of identified staff to training centers in **Pakistan (Pakistan Meteorological Department), India (Indian Meteorological Department and The International Training Centre for Operational Oceanography (ITCOcean) (ITCO Ocean)) and RIMES Program Unit in Bangkok.**

Strategic Objective 3 - Focus areas:

- Scalable Hierarchical Data Exchange platform to provide digital access to short, medium range and extended range forecast products (deterministic and ensemble prediction). System and facility management protocols development along with state-of-the-art archival and retrieval system to be ensured.
- DataEx platform to provide NMHSs daily guidance for monitoring, detection and risk based warning of hazardous weather conditions and weather-related hazards - **keeping in mind the limited bandwidth of many NMHSs - easily download/visualize for specific areas as per the prioritized needs.**
- SAHF knowledge hub to enable NMHSs in SAHF region to systematically collaborate with other operational users or experts from the region and discuss operational and distinct aspects of changing weather/ climate characteristics for effective provision of hydromet services within their countries, leveraging regional knowledge and resources

Approach for implementation:

SAHF will support regional consultations to develop mechanisms for scaling up of the cloud resources, communication channel bandwidth for sustaining operations of the Regional DataEx Platform, Knowledge Hub, among others as per the emerging needs.

FINANCING THE REGIONAL STRATEGY

- While national investments are driven by the NMHSs individually, and are tailored to their specific priorities and needs, regional investments are far and few between them so far - **Knowledge Hub and Data Ex are ready for launch now.**
 - The SAHF being an established regional mechanism in South Asia initiated and supported by the WBG and WMO to be governed by the EC.
 - The forum under the guidance of EC shall convene dedicated sessions during SAHF Annual Conferences to evolve and update appropriate financial mechanisms to prioritize investments in coordination with other development partners.
 - 2nd EC Session to decide on
 - Date and Venue of SAHF - IV Session
 - Date and Venue of 3rd EC Session
-

Theme 1: Observing Systems	Theme 2: Forecasting & NWP	Theme 3: Application and IBF	Theme 4: Capacity Enhancement & Training	Additional Service Delivery Demands	Afghanistan	Bangladesh	Bhutan	India	Maldives	Myanmar	Nepal	Pakistan	Sri Lanka
				Snowpack accumulation/ablation monitoring and snow/glacier hydrology- Glacier mass balance need to be built with 15-day updating mechanism and GLOF early warning systems	√		√				√	√	
				EWS for Coastal hazards, inundation and impacts including sub-km scale wind and swell wave/tidal action along with tools for ocean data and ocean state forecasting products					√				
				Multi-hazard EWS, location-specific, with actionable emergency response guidance								√	
				Lightning EWS		√	√			√	√		
				Commissioning Aviation Weather Observing Systems in major Airports. Full suite of Aviation Forecasting services to be implemented using METCAP	√					√	√		
				Drought monitoring system to be made operational			√						
				Monitoring drivers of climate variability and change along with scenario development							√		
				Doppler Weather Radar scanning strategy, interpretation and utilization	√	√	√	√	√	√	√	√	√
				Calibration of Manual, Automatic Observing networks of AWS and ARG	√	√	√	√	√	√	√	√	√
				Introduction of Pilot Wind GPS Sonde observing stations (Cost Effective option for expensive GPS Sonde)	√	√	√	√	√	√	√	√	√
				Observing system data acquisition and visualization system to be built						√			
				Wave rider buoys and other met-ocean buoys as per the needs to be set up					√				
				Strategies for Observation system network expansion and sensor calibration are to be evolved (surface and upper air; radar)								√	
				Review of Reference/Baseline/ comprehensive networks at national and local level need to be undertaken								√	
				DWR scanning strategy and regional DWR mozaic along with tools for radar Data processing and application							√		
				Satellite derived products access and utilization system		√							
				Inner nest of WRF/HWRF need to be customized at 1Km X1Km					√				
				Nowcasting tools involving AWS, ARG, Satellite and Radar products					√				
				District level extreme weather warning up to 3-days using WRF, ECMWF and GFS forecasts to be customized						√			
				High resolution coastal and ocean state forecast services						√			
				Probabilistic severe weather services using Ensemble Prediction products							√		
				Multi-model Ensemble prediction system for short range							√	√	
				Seasonal and sub-seasonal outlook development							√		
				Nowcasting products from satellite and radar sources are to be made accessible								√	
				Hydrological and Hydrodynamic flood routing modeling systems development								√	
				Strategy for extracting useful information related to severe weather conditions through integration of IMD and state government networks for nowcast and IBF services				√					
				Medium range Agro-met advisory services							√		
				Climate services for various sectors of economy							√		
				Training and capacity development in respect of High performance computing, networking and storage infrastructure		√				√		√	√
				Competency Assessment system for operational forecasters					√			√	



SOUTH ASIA
HYDROMET FORUM

PROGRAM TO SUPPORT SOUTH ASIA REGIONAL DEVELOPMENT IN
OPERATIONAL FORECASTING AND SERVICE DELIVERY
