



South Asia Hydromet Services Forum IV UNLOCKING REGIONAL SYNERGIES

Galle Face Hotel, COLOMBO, SRI LANKA
February 6-8¹, 2024

Background

South Asia is prone to a range of hydromet hazards, and Bangladesh, Nepal, and Pakistan are in the top 10 vulnerable countries to climate change². Between 1990 and 2022, a total of 1,210 meteorological, hydrological, climatological disasters were reported in the region, cumulatively affecting over 1.8 billion people in the nine countries—Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan, and Sri Lanka—and leading to over 420 thousand deaths. The economic damages from the disasters are estimated to be close to US\$ 250 billion³. The changing climate could sharply diminish living conditions for up to 800 million people in a region that already has some of the world's poorest and most vulnerable populations. Importantly, climate change related losses in GDP per capita are projected to be higher than the global average by up to seven percent⁴. Meteorological and hydrological information is required on all time scales, from the immediate impact of a weather event causing floods, landslides or coastal inundation, to adaptation planning with the purpose to mitigate the threat of climate change on society and to maximize productivity of climate sensitive sectors and ultimately create socio-economic benefits.

South Asian (SA) countries are varied in their capacities and access to quality early warning and hydromet services. As different countries make efforts to modernize their systems and transition towards delivery of user-oriented hydro-meteorological and early warning services, often with support from the World Bank or other partners, they face many technical, capacity, sustainability and other challenges which are common across the region. There is a clear understanding of the potential of regional collaboration in this context, not only to manage difficulties in operationalizing technologically complex systems and strengthen capacities while also enhancing service quality, but also to maximize South Asia's capability to become a region of excellence. A recent economic analysis indicates that in Bangladesh \$1 invested in Hydromet at the country level yields \$8.7 in benefits while with regional collaboration, the same \$1 yields \$10.8 in benefits.

The World Bank has been investing in the modernization of hydromet service delivery in several countries including Bhutan, Bangladesh, India, Nepal, Pakistan and Sri Lanka⁵. Recognizing common issues when supporting each of these countries separately and the opportunity for complementary regional strengthening, the Bank along with partners supported the establishment of the South Asia Hydromet Forum as a platform for regional collaboration, capacity and knowledge exchange.

The South Asia Hydromet Forum and its achievements to date

The inaugural event of the South Asia Hydromet Forum (SAHF I) in October 2018 in Geneva, Switzerland was organized by The World Bank, in partnership with the World Meteorological Organization (WMO). The Forum facilitated a dialogue with SA countries on ways to build on linkages and common interests and expressed firm commitment to promoting regional collaboration. It laid out priority actions for regional collaboration towards addressing implementation challenges of hydromet and service delivery modernization efforts.

¹ Representatives from hydromet agencies will stay for an additional day to participate in SAHF internal work sessions on February 9, 2024

² Germanwatch Global Climate Risk Index (2021): The 10 countries most affected from 2000 to 2019 (annual averages)

³ According to the EM-DAT database as of June 30, 2022.

⁴ World Bank. (2021). Climate Change Action Plan 2021-2025: South Asia Roadmap.

⁵ A planned project in Afghanistan was cancelled due to the change in government.

To anchor SAHF institutionally, the SAHF Executive Council (EC) was formed, composed of the heads of the NMHSs of eight SA countries. The SAHF EC is the decision-making body of SAHF supporting the development of strategic plans and plays a leadership role in steering the implementation of the SAHF program. Technical working groups have been established with representatives from all member countries to advance the dialogue on four priority topics, namely observation networks, numerical weather prediction, impact-based forecasting, and capacity enhancement. The Regional Integrated Multi-Hazard Early Warning System (RIMES) serves as the Secretariat and also provides technical inputs to SAHF. Key outcomes of regional collaboration under SAHF fall into three major categories:

- **Strengthened regional dialogue:** To date, three SAHF events have been held to facilitate technical exchange, introduce innovative aspects of hydromet service provision, and discuss opportunities for collaboration, each of which had over 200 participants from all SA countries and key technical and institutional partners. SAHF conferences have been milestones to deepen collaboration: SAHF II was held in Nepal in 2019 and laid the groundwork for regional cooperation through the identification of the four regional collaboration priorities. SAHF III took place virtually in 2021 and expanded on the vision to strengthen key elements of the hydromet services value chain through the development of collective solutions to the meteorological and hydrological service delivery challenges in the region. Collaboration between the member countries has been further enhanced through the SAHF Executive Council meetings and the regular conversations about priority topics in each of the four technical working groups. Bilateral and sub-regional knowledge visits have also supported the dialogue and exchange.
- **Knowledge sharing and strengthening of capacities:** Over 80 weekly forecasters fora (FF) with an average 18 participants have been held since February 2022 in which hydrometeorological patterns and oceanic conditions in the region are discussed, with a focus on extreme weather phenomena. This has resulted in a very successful, continuous exchange of knowledge between forecasters to better understand regional conditions in relation to the situation at national level as well as the applicability of different models and products. In addition, three regional training sessions on impact-based forecasting, attended by 125 participants, were carried out, and two joint learning visits involving Bangladesh, India and Sri Lanka were held to exchange experiences on priority topics, and to identify opportunities for deeper bi-lateral and multilateral collaboration.
- **Platform for data and information exchange - the [SAHF Knowledge Hub \(SAHF KH\)](#).** The SAHF KH facilitates seamless collaboration and exchange across SAHF members by hosting relevant knowledge products and by facilitating data sharing through the Data Exchange Platform (DataEx). The establishment of DataEx has marked a significant milestone for regional collaboration as it allows countries to share real-time meteorological data from nearly 3,000 weather stations with further capability to expand towards other types of sensors and data, provides access to weather forecasts from a series of global and regional providers, and includes a visualization platform to facilitate data usage from forecasters in SAR. The KH is also a repository of knowledge products, event recordings, and other information in the region.

SAHF – Fourth Event

SAHF has made significant progress in strengthening collaboration and coordination for hydromet and early warning services in South Asia over the past few years, creating the required institutional and governance arrangements (SAHF), technological infrastructure (SAHF KH and especially DataEx), and coordination and collaboration mechanisms between the countries (technical working groups, forecasters fora, regional trainings etc.).

SAHF IV aims to define a path towards deepening collaboration and increasing regional synergies and economies-of-scale for improved services for greater socioeconomic benefits in the region.

Forum discussions will focus on four key topics:

- ***Forging a shared vision for building a regional observation network for more efficient weather, water and climate services:*** This session will explore mechanisms that can be applied to sustain and make most efficient use of the existing observations as a region, to achieve high-resolution spatial and temporal observation.
- ***Towards Regional Prediction and Analytics:*** This session will explore requirements, resources, products, models, and coordination mechanisms that can support the strengthening of regional forecasting, analytics and scenario planning including emerging new technologies.

- ***Empowering Communities to make informed decisions***: This session will facilitate an exchange and discussion on digital solutions and last-mile communication needed to enable people to take anticipatory action, and how the region can jointly progress towards action for climate resilience.
- ***Fostering regional collaboration to strengthen the service delivery and impact on public welfare***: This session will discuss opportunities to jointly enhance impact-based forecasting in the region for specific applications such as agriculture, mountain weather, drought and marine services, with a focus on user needs and including key stakeholders for co-production and co-delivery of services.

Participants and Partners

The SAHF conference brings together representatives from National Meteorological and Hydrological Services, Disaster Management Agencies, Agriculture Ministries and Finance/Planning Ministries, as well as regional and global technical and research institutions, development agencies, academia and the private sector.

This conference is a collaborative effort between the World Bank (WB), the United Kingdom Met Office (UK MET), the Regional Integrated Multi-hazard and Early Warning System (RIMES) and the World Meteorological Organization (WMO) with financing from the UK Foreign, Commonwealth and Development Office (FCDO). The Government of Sri Lanka is hosting this significant event.

Agenda

Day 1 – February 6	
8:30 – 9:45 Security Check (registration closes 15min prior to the start of the event) Coffee and Registration	
Session 1 10:00 - 11:00	<p>Opening Ceremony. <i>This session will offer opening remarks and reflections on the relevance of hydromet services for climate resilience as well as the complementarity of national and regional efforts. After the lighting of the lamp, opening remarks will be provided by:</i></p> <p>Karma Dupchu, Co-chair of SAHF and Director National Center for Hydrology and Meteorology, Bhutan</p> <p>Dina Umali-Deininger, Director of the South Asia Region, WB</p> <p>Ranil Wickremesinghe, President of Sri Lanka</p> <p>Andrew Patrick, High Commissioner, UK</p> <p>Carmen Moreno (TBC), Ambassador, EU</p> <p>Cecile Fruman, Director for Regional Integration in South Asia, WB</p> <p>Celeste Saulo, Secretary-General, WMO</p>
Group photo 11:00 – 11:15	
Break 11:15 – 11:45	
Session 2 11:45 – 12:45	<p>Creating value – the role of hydrometeorological services. <i>This session will frame the conference along the value chain and the need for actionable information provided to the right people at the right time to reduce multi-hazard risk and enable socio-economic benefits. <u>Presenters include:</u></i></p> <p>Melanie Kappes, Disaster Risk Management Specialist, WB - Creation of value along the hydromet value chain</p> <p>Nusrat Noman, Joint Secretary, Planning Commission Bangladesh - The role of hydromet services in public investment planning</p> <p>Carlo Buontempo (virtual), Director of the Copernicus Climate Change Service, ECMWF - The role of climate services for climate resilience</p> <p>Abhas Jha, Practice Manager, WB - The value of national hydromet services and the role of regional collaboration</p>
Lunch 12:45 – 14:00	
Session 3 14:00 - 15:30 Chair: David Grimes, SAHF TAG	<p>Forging a shared vision for building a regional observation network for more efficient weather, water and climate services: <i>This session will explore mechanisms that can be applied to expand, sustain and make most efficient use of the existing observations as a region, and steps towards establishing rules of an operational regional basic observation network, to achieve high-resolution spatial and temporal observation. <u>A panel discussion will be followed by a facilitated conversation including the audience. The panelists of the session are:</u></i></p> <p>K. J. Ramesh, SAHF Advisor, RIMES</p> <p>Roar Skålin (virtual), Chair of the EUMETNET Assembly and Director General Met Norway</p> <p>Estelle Grüter (virtual), Chair of Standing Committee on Earth Observing Systems and Monitoring Networks, WMO</p> <p>Anju Gaur, Sr. Water Resource Management Specialist, WB</p> <p>Ashish Raval, President & CEO of Synoptic Data PBC and HMEI Vice-Chair</p>

Break 15:30 – 15:45	
Technical Side Session 15:45 - 17:15 Chair: Ben Churchill, Director, Regional Office for Asia and the South-West Pacific, WMO	Technical side-session: Implement and leverage SOFF from a regional perspective
19:30 Welcome dinner and cultural event Speaker – Dinendra Ruwan Wijewardene (TBC), Sr. Advisor to the President on Climate Change	

Day 2 – February 7	
Session 4 09:30 – 11:00 Chair: Mr. Karma Dupchu, Co-chair SAHF & Director NCHM Bhutan & Ali Shareef, Deputy Director, MMS Maldives	Fostering regional collaboration to strengthen the service delivery and impact on public welfare: <i>This session will explore opportunities to jointly enhance services in South Asia with emphasis on the needs of people in mountain regions, coastal communities, and agriculture. Expertise is scattered throughout the region with limited human resources to develop the required level of services in many countries. <u>A panel discussion will be followed by a facilitated conversation including the audience. The panelists of the session are:</u></i> Nishadi Eriyagama , Deputy Country Mangers, Sri Lanka, International Water Management Institute (IWMI) Faisal Mueen Qamar , Intervention Manager for Resilient River Basin, International Center for Integrated Mountain Development (ICIMOD) Ajay Kumar , Scientist, India National Centre for Ocean Information Services (INCOIS) Temily Baker , Programme Management Officer, United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP) Tshering Wangchen , Principal Agriculture Officer, Ministry of Agriculture, Bhutan
Break 11:00 - 11:30	
Session 5 11:30 – 13:00 Chairs: Abhas Jha, WB and David Rogers, WB	Empowering communities to make informed decisions: <i>This session will facilitate an exchange and discussion on digital solutions and last-mile communication needed to enable people to take anticipatory action, and how the region can jointly progress towards action for climate resilience. <u>A panel discussion will be followed by a facilitated conversation including the audience. The panelists of the session are:</u></i> Ruby Rose Policarpio , Institutional Development Specialist, RIMES Terrence Fernando , Professor, University of Salford Helen Caughey , Deputy Chief Meteorologist, Met Office, UK Madhab Uprety , Sr. Technical Advisor, Red Cross Red Crescent Ginige Prasanna Janaka Kumara , District Secretary, Kalutara District, Sri Lanka
Lunch 13:00 – 14.00	

<p>Session 6 14:00 – 15:30</p> <p>Chairs: K.J. Ramesh, SAHF Advisor, RIMES & Alice Soares, WB</p>	<p>Towards Regional Prediction and Analytics: <i>This session will explore requirements, resources, products, models, and coordination mechanisms that can support the strengthening of regional forecasting and analytics including emerging new technologies. <u>A panel discussion will be followed by a facilitated conversation including the audience. The panelists of the session are:</u></i></p> <p>S. M. Quamrul Hassan, Meteorologist, Bangladesh Meteorological Department and Chair of the SAHF Numerical Weather Prediction Working Group</p> <p>V S Prasad, Head, National Centre for Medium Range Weather Forecasts (NCMRWF)</p> <p>Alan Thorpe, (virtual), SAHF TAG</p> <p>Kirstine Dale, (virtual) Chief AI Officer, UK Met Office</p> <p>Hans Olav Hygen, Head of Climate Services, Met Norway</p>
<p>Break 15:30 – 16:00</p>	
<p>Technical Side Session 16:00 - 17:00</p> <p>Chair: Ashish Raval, vice-chair of HMEI and CEO of Synoptic Data PBC</p>	<p>The role of the private sector to foster innovation and empower hydromet services for providing sustainable systems, actionable insights and early warnings to save lives and protect property. <i>This session will discuss how trust can be established, sustainable projects can be developed and latest technology can be leveraged through public private partnerships.</i></p>
<p>Technical Side Session 17:00 – 18:00</p> <p>Chair: Ben Churchill, Director, Regional Office for Asia and the South-West Pacific, WMO</p>	<p>Early Warnings for All – A Partnership Approach. <i>This session will enable discussion on the UN Early Warnings for All initiative and its enabling mechanisms. The objective is to share experiences and identify opportunities and innovative approaches to fast-track early warning systems that help vulnerable communities adapt to climate change, save lives and livelihoods, and contribute to socio-economic development.</i></p>
<p>Closed Side Event 18:00 – 19:00</p> <p>Facilitator: Abhas Jha, Practice Manager, WB</p>	<p>Reception - Partners meeting on SAHF: Development Partners, RIMES & SAHF EC members</p>

Day 3 – February 8	
Session 7 9:00 – 9:20 Presenter: Tshencho Dorji, RIMES	Setting the scene: <i>This session will provide a summary of key points raised over the last two days particularly as it is linked to the resolution, and a presentation of the draft Conference Declaration</i>
Session 8 9:20 – 10:30 Facilitator: David Grimes, SAHF TAG	Aligning around key outcomes and priorities: <i>In this session participants will discuss in small group to provide their aspirations and priorities for enhanced regional cooperation in South Asia Region, followed by a short plenary to facilitate quick reporting.</i>
Break 10:30 - 10:45	
Session 9 10:45 – 13:00 Facilitator: David Grimes, SAHF TAG and K.J. Ramesh, SAHF Advisor, RIMES	Framing the elements of a SAHF action plan: <i>Aligned with the preceding Session (8) outcomes and the implementation of enhanced regional cooperation among SAHF members, group discussions will aim at identifying key actionable “next steps”. Any addition to the decalaration?</i>
Lunch 13:00 – 14:00	
Session 10 14:00 – 15:00 Chair: Melanie Kappes, DRM Specialist, WB & Jerry Lengoasa, SAHF TAG	Panel Discussion of the SAHF Executive Council and RIMES: <i>Reflections on the conference deliberations and the future direction of SAHF</i>
Break 15:00 – 15:15	
Session 11 15:15 - 16:00 Chair: Athula Karunanayake, Director General, DoM GoSL	Closing session: Presentation of the final draft Declaration Karma Dupchu , Director of the National Centre of Hydrology and Meteorology (NCHM), Bhutan and SAHF Co-chair Chiyo Kanda , Country Manager for Sri Lanka, WB Lisa Whanstall , Deputy High Commissioner, UK Dinendra Ruwan Wijewardene , Sr. Advisor to the President on Climate Change, GoSL Vote of Thanks
Conference Ends “Market Place” of local vendors outside the Banquet Hall	
Closed Side Session 16:30 - 17:30 Chair: Alice Soares	Critical technical and strategic aspects to make best use of NWP data by NMHSs: <i>In this session participants will discuss in small group to address critical technical aspects that allow use of NWP data, including the visualization tools and capacity building requirements. The group will also discuss strategic approaches for the region to overcome the challenges NMHSs face in NWP.</i>

Day 4 – SAHF internal technical meetings