CENTRAL ASIA HYDROMETEOROLOGY MODERNIZATION PROJECT

WORLD BANK GROUP

Central Asia Hydrometeorology Modernization (CAHMP)

- A regional partnership platform that facilitates transboundary cooperation in forecasting, hydromet, and early warning
- The World Bank has been supporting since 2011
- Technical Support from the World Meteorological Organization (WMO)
- Accelerates the transition from hydromet products to climate services for key economic sectors.
- Works with all five Central Asian countries on regional systems

Central Asia Hydrometeorology Improvement Project

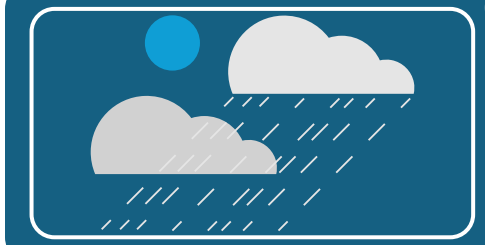
Pillars

- Organized around three pillars:

Funding:

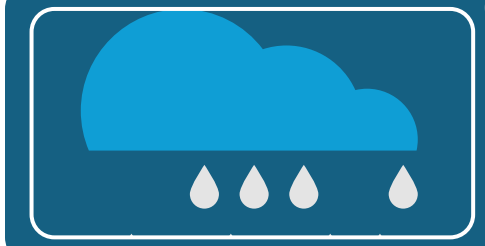
- US$45 million implemented since 2011
- US$43 million planned for 2024-2030

Results Pillar 1: Regional Coordination



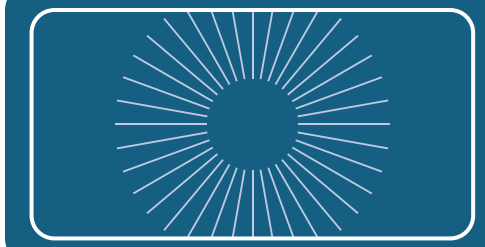
CAFEWS and FFGS

- Central Asian Flood Early Warning System (**CAFEWS**) implemented, hosted by Uzhydromet
  - Early warnings guidance to Central Asia Hydromet Institutes
  - Provides provides flash flood, landslide, riverine routing and snowmelt guidance products across the region.
- Central Asia Regional Flash Flood Guidance System (**FFGS**)
  - Incorporation of modules for landslide/mudflow assessment, riverine routing, and seasonal river forecasting into the existing operational FFGS
  - Kazhydromet is the regional center for FFGS



COSMO-Central Asia

- Development of numerical products by a regional center based in Uzhydromet
- Specific regional forecast with a resolution of 6 kilometers and a national forecast with a resolution of 2.2 kilometers.
- Data is transmitted to national hydromet agencies, which further incorporate these regional trends in their forecast systems.
- Provision of the required licenses for COSMO software for Uzhydromet, Kyrgyzhydromet and Tajikhydromet.
- 60 training events to nearly 800 forecasters and IT specialists.



Modernization of the WMO Tashkent Regional Specialized Meteorological Center

- Equipment and software at the RSMC installed for an enhanced forecasting services of participating hydromet agencies.
- Online operating module created for a remote sensing system, incorporating a high-resolution satellite data acquisition.
- Enhanced exchanges between NMHS CA communication centers.
- Modern visualization system based on GIS-Meteo software installed.

regarding further developments of CAHMP

- Climate change has increased the vulnerability of communities and critical economic sectors, such as energy (hydropower), agriculture, and transportation.
- Weather, water, and climate know no boundaries, so regional cooperation remains a priority.
- Need for further shift towards demand-driven products and services and greater user engagement Strategic, whole-of-government and community-centered approach.
- Improved climate services for agriculture, power & hydropower, water management
- Significant technical assistance is required due to the complexity and rapidly changing nature of IT approaches and requirements. Design Principles:

Plans for the next five years

1

Objective: To strengthen regional and national hydrometeorological systems and capacity for delivering fit-for-purpose services and products in Central Asia with a focus on Tajikistan and Kyrgyz Republic.

2

Financing: $40 million United States

KYRGYZSTAN: $15 million

Tajikistan: $20 million

Uzbekistan: under discussion

Regional component: US$5 million

3

Several technical assessments and high-level regional events are ongoing, including the development of a regional roadmap and action plan for implementation.

4

WMO assessments of the National Capacity Assessment Tool (NCAT) in all 5 Central Asian countries for mapping hydrological capacity, opportunities and gaps in water resources, drought management and cryosphere monitoring.

The draft roadmap and action plan is built on:

- Results and lessons learned from CAHMP-I
- Knowledge gained through ongoing projects (including from other regions)
- Consultations and exchange of ideas with stakeholders in Central Asia (CAHMP II Regional Project Preparation Workshop, Almaty, Kazakhstan, and Samarkand, Uzbekistan - 2024)
- National Capacity Assessment Tool Results (Assesses and validates existing capability and capability of hydrological services in multi-hazard early warning system)

Short-term

(1-2 years).

- Introduction of **WEB-information platform/workstation** for coding, data transmission, data analysis, production of hydrometeorological products
- **Satellite Products**
- Secondment to **learn best practices** in monitoring and maintenance

Mid-term

(2-5 years).

- Development of a unified digital **radar system**
- **Regional numerical model** with assimilation of observational data, meteorological radar data
- Implementation of efficient models and **methodologies for hydrological forecasting** (CARFFG, DWAT, MODSNOW, others)

Long-term

(5-10 years).

- **Expansion of hydrological and meteorological observation network** (co-financing national network development programs)

Strengthening Regional Cooperation in Hydrometeorology (CAHMP-II Component 1)

Sub-component 1.1 - Strengthening Regional Data and Knowledge Sharing

Subcomponent 1.2 - Scaling up Regional Hydrometeorological Services

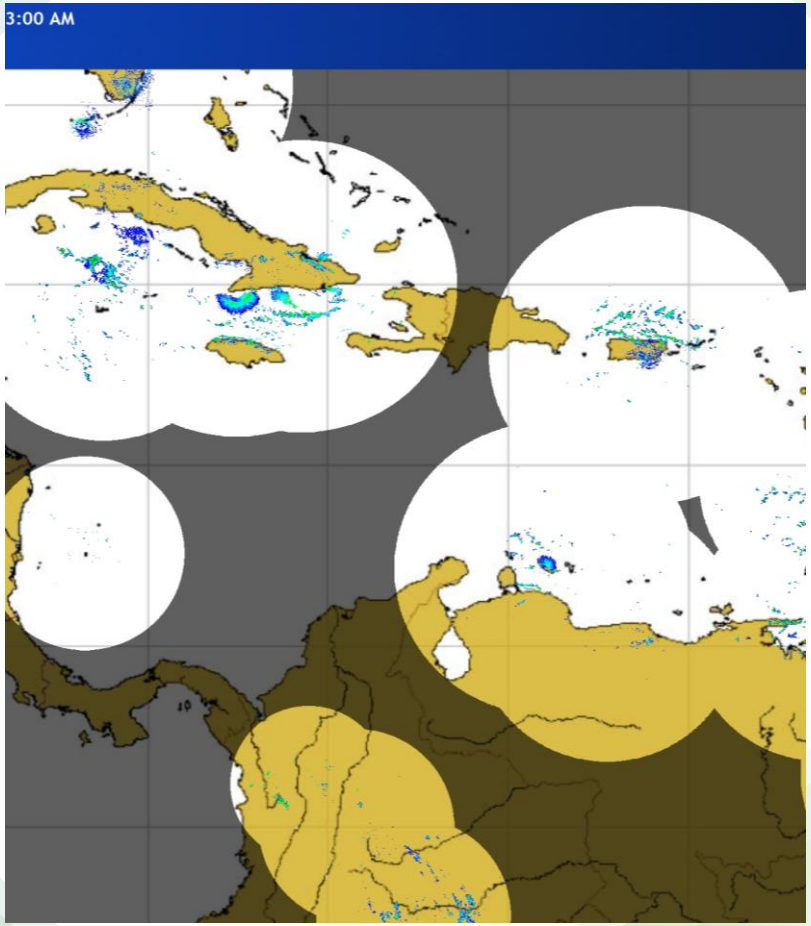
Strengthening regional data and knowledge sharing

- Expand data collection (regional network) and improve harmonization, interoperability and integration of data management systems
- Increased data sharing
- Develop concept note, including proposed institutional coordination arrangements between the Regional Centre for Hydrology (RCH), Regional Specialized Meteorological Center (RSMC) in Tashkent and Regional Center in Astana for the Central Asia Flood Early Warning System/Central Asia Regional Flash Flood Management System, to develop observational and forecasting data-sharing agreements and define data exchange protocols
- Develop (or strengthen existing) data-sharing policies, protocols and agreements among NMHSs in Central Asia
- Establish regional communities of practice and regional consortium to share information for forecasters and others
- Formalize cooperation with universities for capacity building

Scaling up Regional Hydromet Services

- Assessment of regional training needs in line with WMO requirements and development of training program, including face-to-face and online trainings
- Incorporation and adaptation of WMO Global Learning System resources as part of the online tools of the RCP in Tashkent
- Revise the training programs of the RCP in Tashkent to provide training using systems and equipment available to Central Asian workers, introduce new products and tools available to them through global and regional initiatives, and coordinate the deployment of relevant experts that can be deployed nationally for a certain period of time

- Knowledge and experience sharing with neighboring Central Asian countries to acquire new radars by countries that are still not operating such a network (as developed network, under CONOPS regional CONOPS)
- Integration of radar data in Central Asia into a regional radar composite
- Establish a Central Asia Consortium for Digital Modelling and Regional Model Testing and Calibration
- Migration from COSMO to ICON model and further study of ICONIX (ICON-in-a-cloud) model



Strengthening Flood Early Warning System in Central Asia

- Reviewexisting systems and services
- Development and implementation of HydroSOS
- Strengthen the capacity of the Central Asia Region Flood Forecasting System (CAFEWS/CARFFGS) in Astana and transform it into a Regional Specialized Hydrological Center (RSHCF).
- Training on HydroSOS tools and products

Expand and improve existing regional early warning platforms:

- The Central Asia Region Flash Flood Guidance System (CAFEWS/CARFFGS) is a regional system designed to provide flood risk advice and improve forecasting in Central Asia.
- A shared virtual platform for data exchange, weather forecasting, and flooding to better manage transboundary weather, climate, and water risks.
- CARFFGS aims to improve flood forecasting and early warning capabilities in the Central Asia region.

Improved technical skills, regional O&M capacity

- Establishing a Regional Tool Center (RIC) / calibration laboratory to support operations and maintenance through procurement of necessary calibration and related IT equipment and capacity building
- Establish a pool of O&M experts in the region who need to be adequately trained

Improve harmonization of prevention criteria and warning-sharing efforts among Central Asian countries

- Harmonize the warning criteria for hydro-meteorological hazards in the Central Asia region, so that citizens crossing a border can receive the same warnings from one country as other; This will avoid confusion and misunderstandings
- Improve early warning and public outreach by (i) scaling up impact-based warning services and products for inclusion in the public alert application, (ii) strengthening the Central Asia Flood Early Warning System, (iii) enhancing coordination with disaster risk management agencies and rolling out cellular broadcasting using the Common Alert Protocol, and (iv) developing improved client feedback mechanisms
- Hazard, vulnerability, and risk mapping
- Develop and implement impact-based forecasts and risk-oriented warnings
- Develop systematic feedback mechanism

Thank you!

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The World Bank