Hydromet Services in Central Asia

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September 3, 2024

Central Asia Hydromet Modernization (CAHMP)

- Regional Partnership Platform, which fosters transboundary cooperation on forecasting, hydrometeorological services, and early warning
- World Bank supported since 2011
- Technical support from the World Meteorological Organization (WMO)
- Accelerates shifts from hydromet products to climate services for key economic sectors.
- Works with all five Central Asian countries on regional systems
- National improvements in Tajikistan and Kyrgyz Republic

Central Asia Hydrometeorology Improvement Project (CAHMP)

- Financial and technical support from several partners

Central Asia Hydrometeorology Improvement Project

Pillars

- Organized around three pillars:

Funding:

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

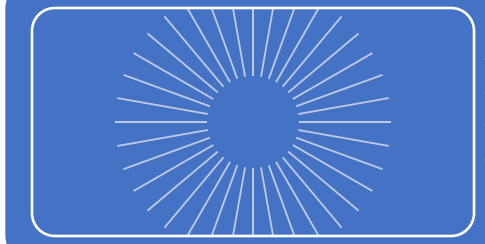
Results Pillar 1: Regional Coordination

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.



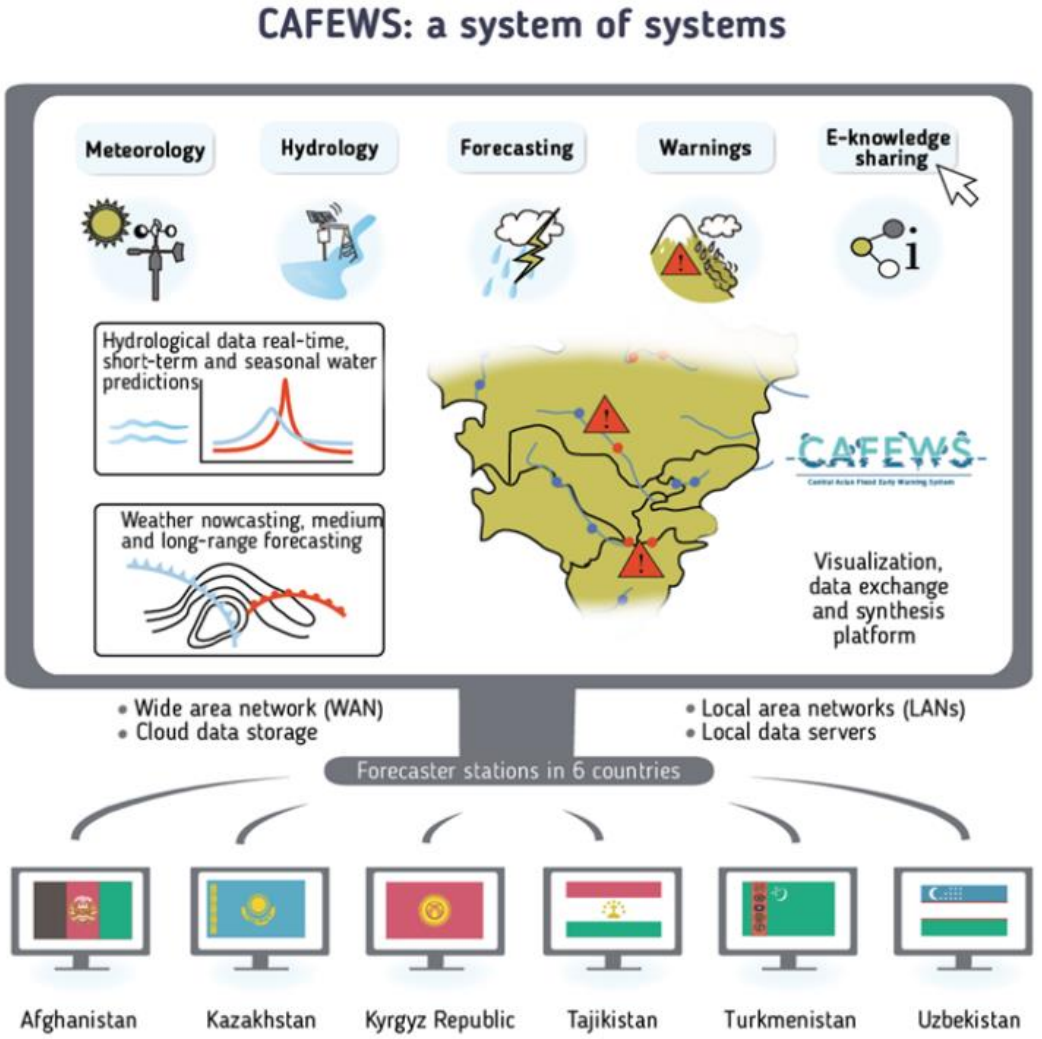
Modernization of the WMO Tashkent Regional Specialized Meteorological Center

- 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.

CAFEWS

Central Asian Flood Early Warning System

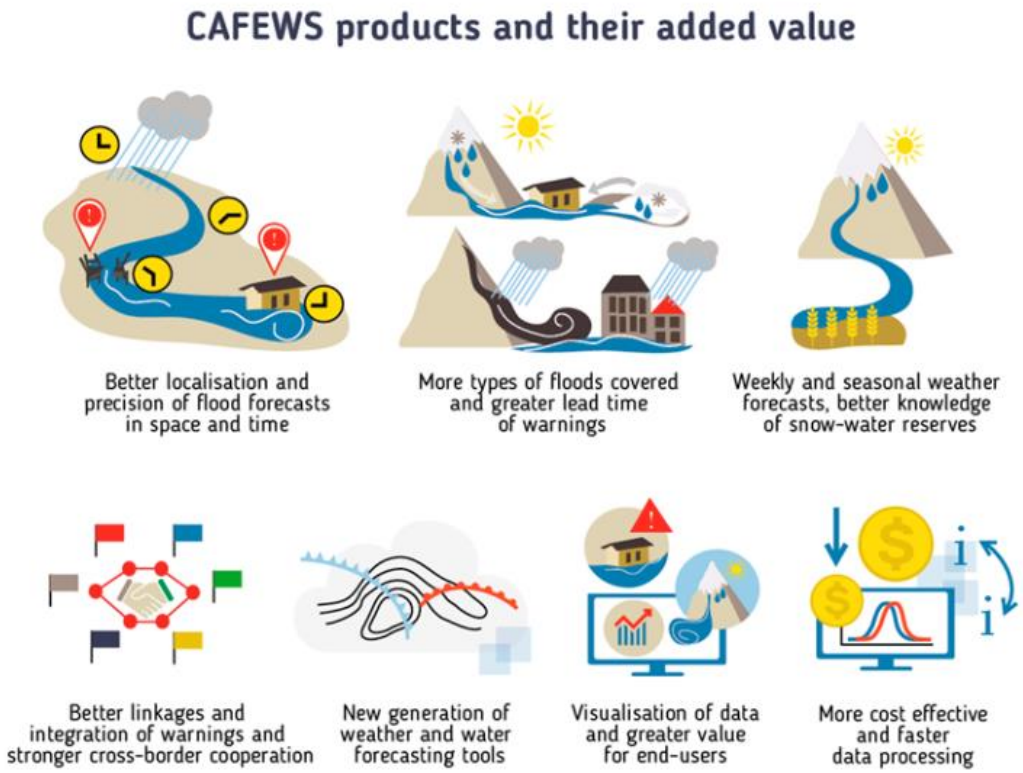
- Flash flood, landslide, riverine routing, and snowmelt guidance
- Shared platform for seamless data exchange among participating countries
- Utilizes advanced weather prediction and applies hydrological modelling for weather and flood forecasting.
- Improves predictions of location and timing for floods.
- Central Asia's regional centers for meteorology and meteorology are involved in CAFEWS



CAFEWS

Central Asian Flood Early Warning System

- Hosted by Uzhydromet with involvement of other regional centers for meteorology and hydrology.
- Leverages modern ICT solutions to provide guidance on transboundary and national hydrometeorological events to forecasters in all CA countries.



Results Pillars 2 & 3: Tajikistan & Kyrgyz Republic

Accuracy and timeliness of hydromet services (e.g. flow forecast, weather forecast) increased by 20%

Numerical Weather Prediction Models improved

Institutional Capacity Strengthened

ICT Infrastructure reinforced

Observation networks improved

Avalanche Monitoring System established

Historical data archived

A Glance Ahead: Plans for the Next Five Years

- Objective: Strengthen regional and national hydrometeorological systems and capacities to deliver **fit-for-purpose services and products** in Central Asia with a focus on Tajikistan and Kyrgyz Republic.

- Funding: US$43 million

- Several technical assessments and high-level regional engagements are on-going, including
  - the **development of a regional roadmap and action plan** to be implemented.
  - **National Capacity Assessment Tool (NCAT) assessments** in all 5 Central Asian countries to map hydrological capacities, capabilities, and gaps for water resources, drought management, and cryosphere monitoring, conducted by WMO.

Considerations for CAHMP Going Forward

- Climate change has increased the vulnerabilities of communities and critical economic sectors such as energy (hydropower), agriculture, and transport.
- Weather, water, and climate do not respect boundaries, so regional collaboration continues to be a priority.
- Need to further transition to demand-driven products and services and enhanced user engagement
  - Strategic, whole-of-government, and community-centered approach.
  - Improved climate services for agriculture, energy and hydropower, water resource management
- Significant technical assistance needed due to the complexity and fast-evolving nature of approaches and IT requirements.
- Design Principles:

Thank you!

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