



Project Information Document/ Identification/Concept Stage (PID)

Concept Stage | Date Prepared/Updated: 17-Oct-2019 | Report No: PIDC204281



BASIC INFORMATION

A. Basic Project Data

Project ID	Parent Project ID (if any)	Environmental and Social Risk Classification	Project Name
P172563		Low	Operationalizing the South-East European Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A)
Region	Country	Date PID Prepared	Estimated Date of Approval
EUROPE AND CENT	Europe and Central Asia	17-Oct-2019	
Financing Instrument	Borrower(s)	Implementing Agency	
Investment Project Financing	European Centre for Medium-Range Weather Forecasts (ECWMF)	European Centre for Medium-Range Weather Forecasts (ECWMF)	

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PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	0.32
Total Financing	0.32
Financing Gap	0.00

DETAILS

Non-World Bank Group Financing

Trust Funds	0.32
Global Facility for Disaster Reduction and Recovery	0.32

B. Introduction and Context

Country Context

In May 2014, Bosnia and Herzegovina, Serbia and Croatia faced severe flooding, which in some places was the worst in 120 years. The floods caused approximately 80 fatalities, affected the lives of nearly three million others, and caused an economic loss to the region estimated at EUR 3.3 billion. The floods also exposed gaps in hydrometeorological warning systems across the region that resulted in confusion for the



local populations around what flood levels were expected and what actions they needed to take to remain safe. This was particularly evident in the border regions, where data and warning exchange between the different National Meteorological and Hydrological Services (NMHS) was sub-optimal.

Regional capacity shortcomings were made more specifically clear during the August 2016 flash floods in Skopje, North Macedonia. While the authorities were aware of potential extreme weather in the region, insufficient information was available nationally to act in a timely and targeted manner. While meteorological infrastructure and numerical forecasts in the region monitored and predicted the specifics of the extreme weather cells, this information was not rapidly transmitted to the North Macedonian hydrometeorological and disaster management agencies.

Sectoral and Institutional Context

NMHSs in the region have recognized the need for improvement of cross-border cooperation to support the decision making related to hydrometeorological hazards at national level. The South-East European Directors of NMHSs have expressed their willingness to work together and cooperate with relevant centers of excellence and regional projects to improve the situation. As a conclusion of the 15th Session of the Informal Conference of South-East European Directors of NMHSs (ICSEED15, 2016, in Croatia), and reinforced at ICSEED16 (2017 in Serbia) and ICSEED17 (2018 in North Macedonia), National Permanent Representatives to the World Meteorological Organization (WMO) and Directors of the NMHSs strongly supported the establishment of a regional multi-hazard early warning advisory system.

To therefore strengthen early warning in the region, the South East European Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A) is being pursued. SEE-MHEWS-A aims to strengthen regional cooperation through leveraging of national, regional and global capacities to develop improved hydrometeorological forecasts, advisories and warnings which will save lives and reduce economic losses and damage. It will also make regional and sub-regional observing, monitoring and forecasting tools and data available to all participating countries and other beneficiaries; harmonize forecasts and warnings among NMHSs especially in transboundary areas of the SEE region; and, increase the operational forecasting capabilities of NMHS staff.

With USAID, GFDRR and EU IPA funding, SEE-MHEWS-A's analytical and design preparatory work has been mostly completed. Co-coordinated by the WMO, the currently 18 participating countries have agreed a development and implementation plan for establishing and operationalizing SEE-MHEWS-A. GFDRR BETF funds (TFOA6171) and EU IPA funds under the Western Balkans DRM Program (P165377) have and will continue to support coordination, system analytics and design, with the former focusing on technical assistance for meteorological and hydrological forecasting and the latter focusing on data sharing issues.

The involved countries are ready to begin implementing the pilot system. This includes developing a virtual centralized observational database (CODB) and archiving software; installing numerical weather prediction models already run by individual countries in a regional high-performance computing environment; and



installing and calibrating hydrological modelling systems for selected pilot river basin(s) (selection is ongoing). The outputs from this system will be available to all participating countries in real-time.

Relationship to CPF

The Bank's regional strategy for Europe and Central Asia (ECA) seeks to strengthen resilience. Among other priorities, this will be accomplished by building capacity to adapt to the changing climate, which this project supports. The Bank's 2019 ECA regional update highlighted that resilience to short-term shocks is critical to achieve regional goals, and all CPFs of the involved countries emphasize the need for socioeconomic stability and resilience. This project is strengthening such resilience and coping capacity.

The project directly supports implementation of the Bank's ECA Climate Change Action Plan 2017-2020. The Bank committed to support the poorest and most vulnerable, particular related to poor people's exposure to climate shocks and their lower capacity to cope with such events. Specifically, the Bank committed to continue to promote better access to hydromet information and early warning systems in ECA, which is the focus of this project.

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C. Project Development Objective(s)

Proposed Development Objective(s)

To improve weather and flood forecasting capacities in participating countries by setting up a pilot operational meteorological modelling system for the region and hydrological modelling system for selected river catchment(s).

Key Results

The project will deliver two key results:

1. Weather and flood forecasting in SEE will be improved in terms of lead-time, resolution and accuracy through the operationalization of a regional system for shared monitoring and forecasting of severe weather and floods (the latter on selected pilot basin(s)). This will subsequently improve the timeliness and targeting of national early warning.
2. NMHSs and experts from the region who have committed to support the system will be capacitated to operate, maintain and improve the system going forward.

These results will be delivered in tandem with the ASA supporting system coordination and design (P165608).

D. Preliminary Description



Activities/Components

The project will consist of two components:

Component 1: Setting up the SEE-MHEWS-A data sharing and storage, numerical weather prediction and hydrological modeling system.

Installation and customization of a pilot version of the virtual centralized observational database (CODB) at ECMWF as a tool to support the envisaged suite of the coupled meteorological, hydrological and marine/oceanographic models, their verification, calibration of hydrological models and further post-processing. In parallel, setting up the limited area weather prediction models and selected catchment hydrologic model(s) in ECMWF's high-performance computing environment and performing cascading forecasts with multiple numerical weather prediction models at global, regional (and local) scales. Outputs include:

- Establishment of a secure IT environment including a workspace for SEE-MHEWS-A.
- Establishment and initial populating of a pilot version of the virtual CODB and archiving software utilizing existing data management systems of ECMWF.
- Installation of relevant country-operated/owned numerical weather prediction models in ECMWF's high-performance computing environment.
- Installation and calibration of the selected hydrological model(s) in the ECMWF IT environment.
- Recalibration of the European Flood Awareness System (EFAS) for the SEE-MHEWS-A region.
- Establishment of the chain of numerical weather prediction and hydrological models to run in near real-time.
- Verification of the cascading forecasting system for both weather and hydrology (for selected pilot river basin(s)).
- On-the-job coaching and training workshops for the involved regional NMHSs and experts to support the above.

Component 2: Strengthening short-range forecasting of high impact weather

Given both the technical challenges and urgent needs of participating countries to have robust short-term weather forecasts (0-48 hours), the well-tested INCA software (*Integrated Nowcasting through Comprehensive Analysis*) will be integrated in the SEE-MHEWS-A system at ECMWF and set-up for pilot basin(s). Outputs include:

- Installation of INCA in the SEE-MHEWS-A operational environment at ECMWF.
- Setting up of data flows such that relevant shared meteorological observations and numerical weather model outputs are ingested by INCA.
- Connecting INCA outputs to the hydrological models of the selected river basin(s).

Provision of INCA outputs to a pilot visualization and dissemination platform.



Environmental and Social Standards Relevance

E. Relevant Standards

ESS Standards		Relevance
ESS 1	Assessment and Management of Environmental and Social Risks and Impacts	Relevant
ESS 10	Stakeholder Engagement and Information Disclosure	Relevant
ESS 2	Labor and Working Conditions	Not Currently Relevant
ESS 3	Resource Efficiency and Pollution Prevention and Management	Not Currently Relevant
ESS 4	Community Health and Safety	Not Currently Relevant
ESS 5	Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Not Currently Relevant
ESS 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources	Not Currently Relevant
ESS 7	Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8	Cultural Heritage	Not Currently Relevant
ESS 9	Financial Intermediaries	Not Currently Relevant

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Legal Operational Policies

Safeguard Policies	Triggered	Explanation (Optional)
Projects on International Waterways OP 7.50	No	
Projects in Disputed Areas OP 7.60	No	

Summary of Screening of Environmental and Social Risks and Impacts

All of the proposed activities under the two components are virtual. They will utilize the existing facilities and computational establishment of the ECWMF and there are no works envisaged for supporting the activities such as setting up server rooms or separate computing facilities. As such, there are no associated environmental impacts or risks identified at this stage. The purpose of the activity is to improve weather forecasting in particular in the context of flood prediction that would lead to an improved preparatory response on the ground. All of the activity support will be channelled through organizational support and virtual modelling system. The implementing agency has no appointed environmental specialist, but taking into account the lack of environmentally risky activities, this is acceptable. The only outcome from this activity is better response to potential floods and could only result in positive indirect environmental impacts.



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