WATER CONVENTION

Global Workshop on Water, Agriculture and Climate Change

17-18 October 2022, Geneva and online

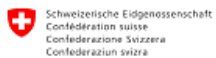# Climate-resilient transboundary flood risk management in the Drin/Drim River Basin

Bojan Kovacevic, Regional Project Manager
Istanbul Regional Hub/UNDP

UNDP
Empowered lives.
Resilient nations.

Ministry of Infrastructure and Water Management

UNECE

Schweizerische Eidgenossenschaft
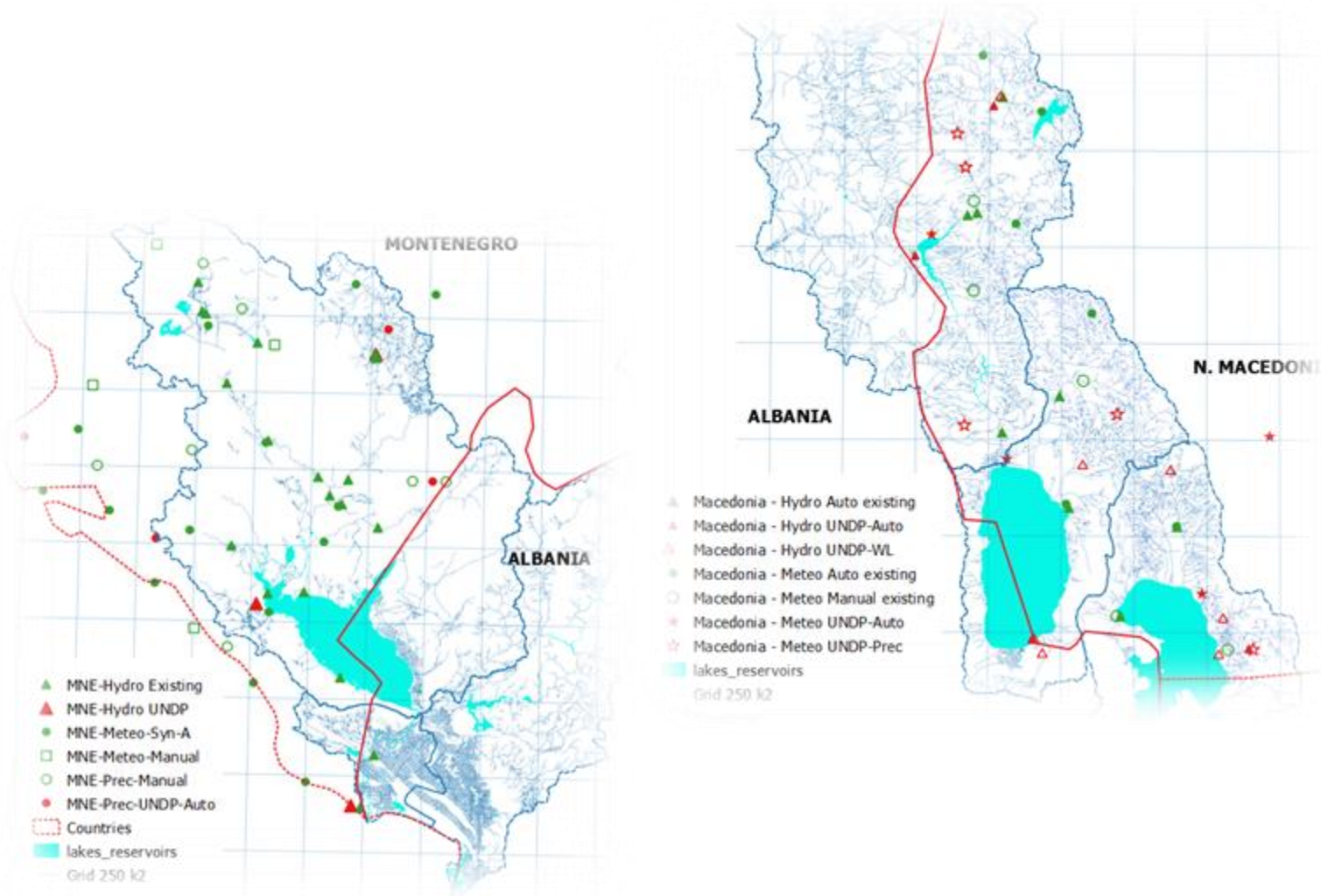Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Umwelt BAFU
Office fédéral de l'environnement OFEV
Ufficio federale dell'ambiente UFAM
Uffizi federal d'ambient UFAM

ADAPTATION FUND

FAO
FIAT PANIS

INTERNATIONAL NETWORK OF BASIN ORGANIZATIONS

iWMI
International Water Management Institute

Strengthening riparian states' hydro-meteorological monitoring systems for enhanced FFEWS

- National hydromet networks assessed
- National hydromet institutions assessed on the networks O&M
- Optimized basin hydrometric network plan developed
- Increased networks coverage through procurement and installation of automatic hydrological and meteorological stations and equipment
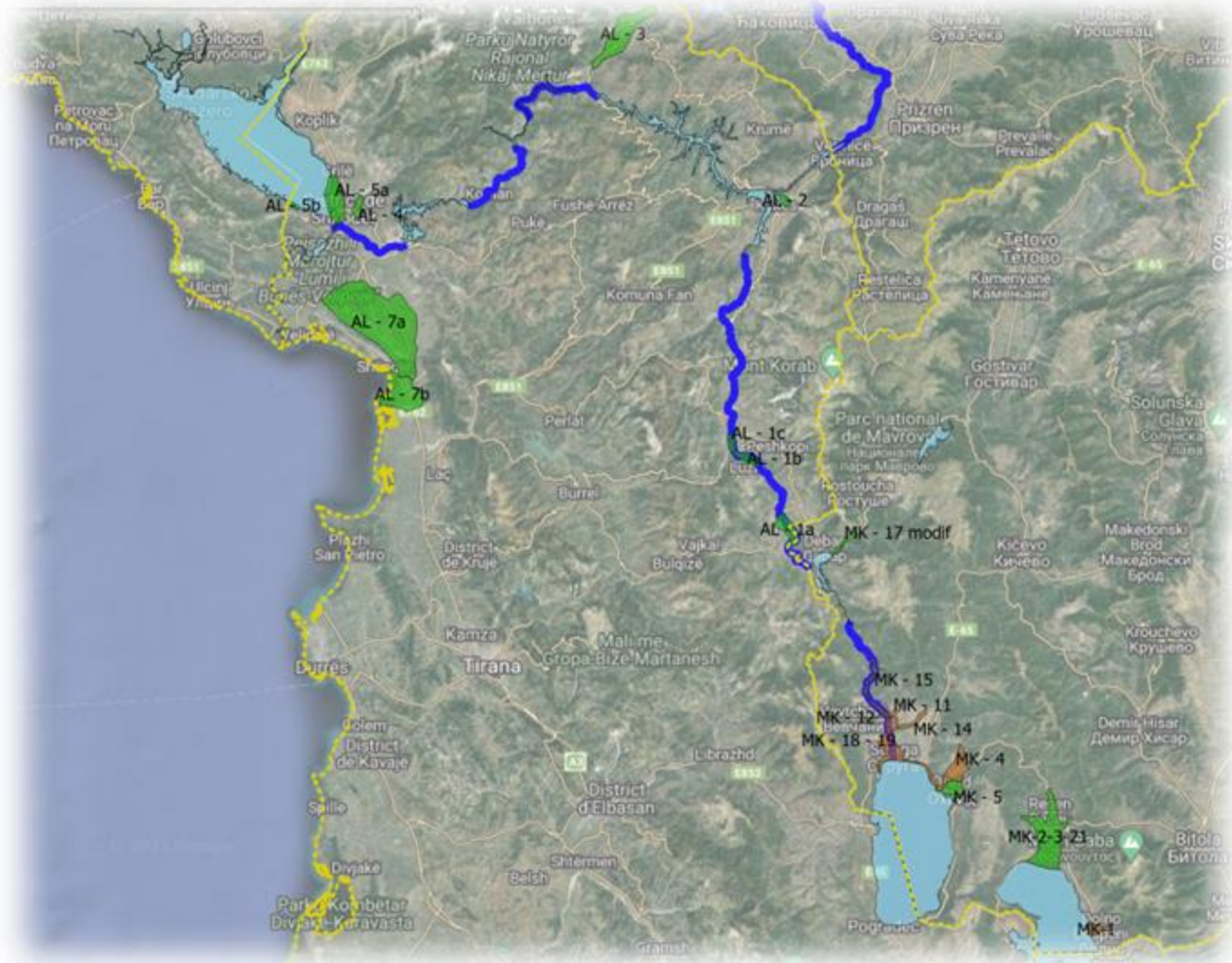
Basin-wide hydrological model developed for mapping purpose
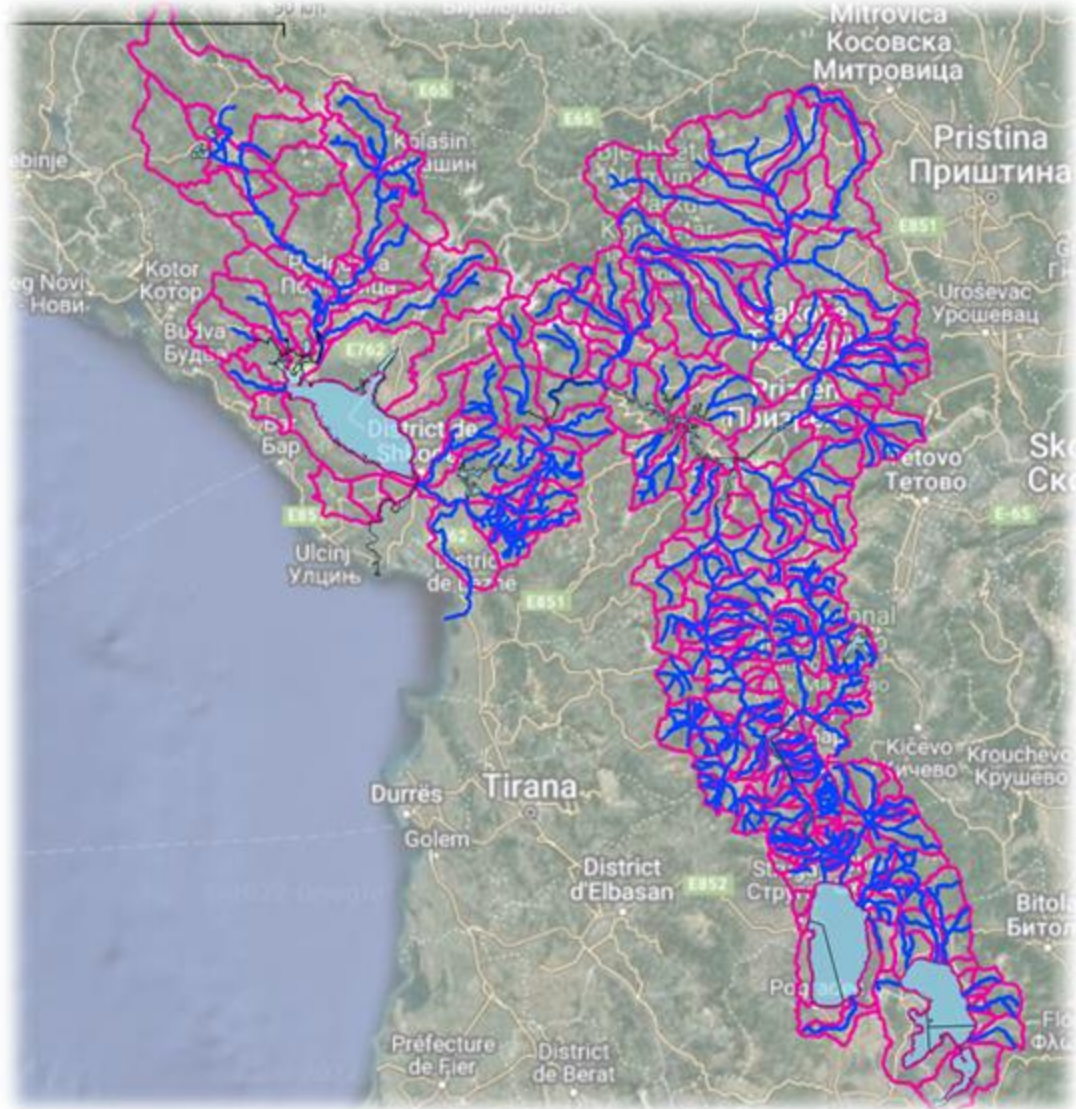
283 modelled watersheds for Drin/Drim and Tributaries

Detailed flood hazard modelling for the Areas of Potentially Significant Flood Risk (APSFRs)

- APSFRs identified through Preliminary Flood Risk Assessment (PFRA), which had not been modelled by other projects or national institutions
- Hi-res DTMs acquired by LiDAR or other contemporary surveillance methods
- Geodetically surveyed riverbed structures for improved accuracy
- Flood marks collected in the field for model verification

GIS-based risk prioritization model and socio-economic data gathering through ground truthing in communities at risk – flood risk mapping
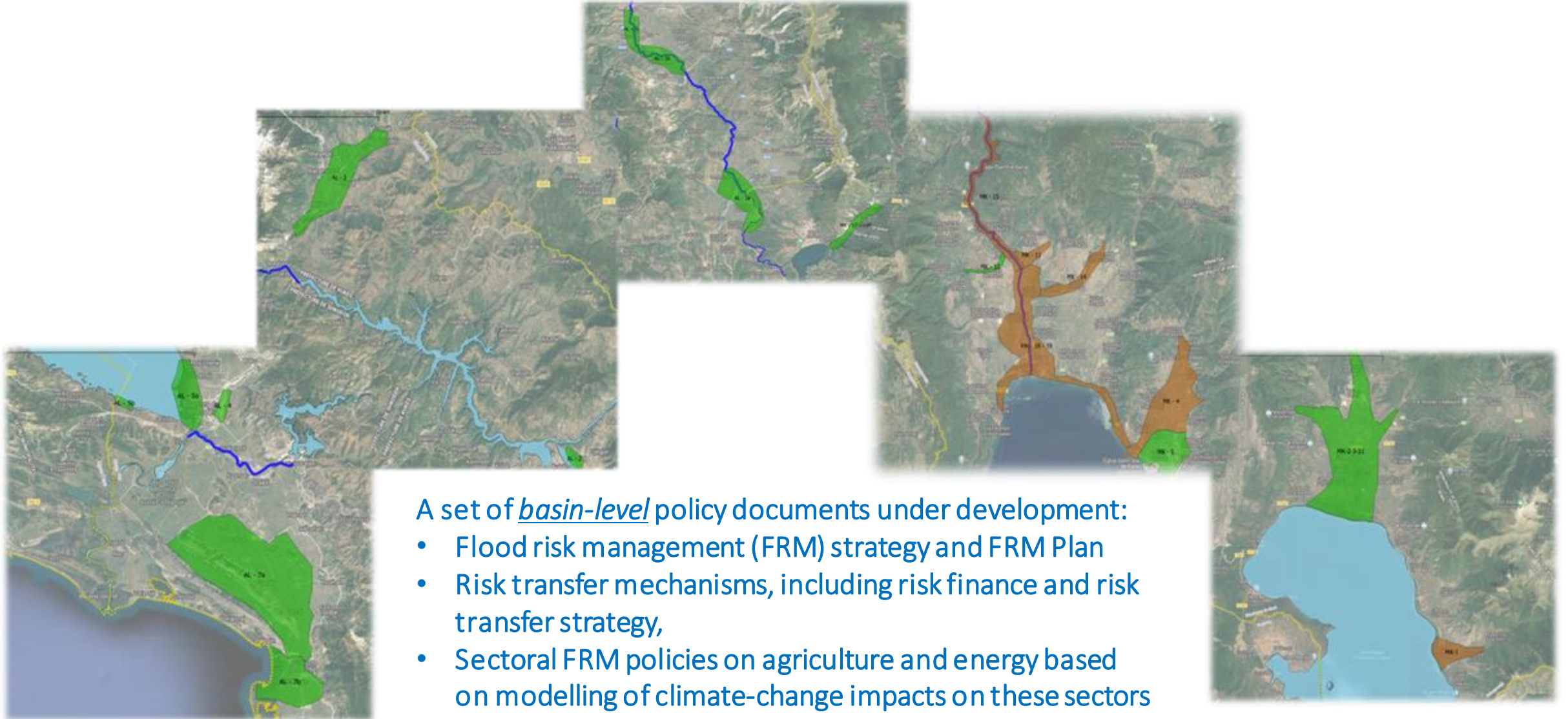
A set of *basin-level* policy documents under development:

- Flood risk management (FRM) strategy and FRM Plan
- Risk transfer mechanisms, including risk finance and risk transfer strategy,
- Sectoral FRM policies on agriculture and energy based on modelling of climate-change impacts on these sectors

Developing sectoral FRM policy on agriculture and implementing (non)structural flood protection measures

- Agriculture throughout the basin is largely family-scale subsistence cultivation of crops and raising livestock. It is most important in Albania where it contributes 23% to GDP and employs 42% of the labor force (more than 50% women). In Montenegro and North Macedonia, agriculture contributes 10% or less to GDP and employs 8% or 17% of the labor force, respectively
- Agricultural land being especially at risk from climate change impacts such as flooding, based on modelling of those impacts on the agriculture sector, the project will:
  - Conduct detailed study, develop and codify detailed methodologies for incorporating climate-change responsive flood risk considerations into risk assessments, strategies, policies and plans for the agriculture sector
  - Develop and finalize robust sector FRM policy and any necessary enabling guidelines and/or tools for effective implementation of new policies
- Structural and non-structural measures under implementation will contribute to reduction in agricultural land losses

Lessons learned

- Providing excessive number of hydrological or meteorological stations found to be counterproductive due to the lack of technical staff, competencies and funds at the national hydromet services. Thus, there is a need for improvement with perennial financing and staffing arrangements

- Temporal and spatial intermittency in the historical data series obtained from national hydromel services, which limited data quality for assessment and modelling purposes, was addressed by the project by using satellite imagery that provides for the climate parameters assessment for creating virtual rain/snow gauges over the DRB at various time steps and preparing long time series with enough data to be processed and calculate both statistical rainfall values at virtual gauges and variograms related to rain heterogeneity, depending on the altitude and the distance to the sea. Rainfall values of recent flood events gathered this way are to be used for validation of hydrological and hydraulic models.

Thank you

Email address: bojan.kovacevic@undp.org

Website: Europe and Central Asia | United Nations Development Programme (undp.org)