

## **Impact of climate change on river discharge in the Teteriv River basin (Ukraine)**

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The problem of water resources availability in the climate change context arises now in many countries. Ukraine is characterized by a relatively low availability of water resources compared to other countries. It is the 111th among 152 countries by the amount of domestic water resources available per capita.

To ensure socio-economic development of the region and to adapt to climate change, a comprehensive assessment of potential changes in qualitative and quantitative characteristics of water resources in the region is needed. The focus of our study is the Teteriv River basin located in northern Ukraine within three administrative districts covering the area of 15,300 km<sup>2</sup>. The Teteriv is the right largest tributary of the Dnipro River, which is the fourth longest river in Europe. The water resources in the region are intensively used in industry, communal infrastructure, and agriculture. This is evidenced by a large number of dams and industrial objects which have been constructed from the early 20th century.

For success of the study, it was necessary to apply a comprehensive hydrological model, tested in similar natural conditions. Therefore, an eco-hydrological model SWIM with the daily time step was applied, as this model was used previously for climate impact assessment in many similar river basins on the European territory.

The model was set up, calibrated and validated for the gauge Ivankiv located close to the outlet of the Teteriv River. The Nash-Sutcliffe efficiency coefficient for the calibration period is 0.79 (0.86), and percent bias is 4,9% (-3.6%) with the daily (monthly) time step.

The future climate scenarios were selected from the IMPRESSIONS (Impacts and Risks from High-End Scenarios: Strategies for Innovative Solutions, [www.impressions-project.eu](http://www.impressions-project.eu)) project, which developed 7 climate scenarios under RCP4.5 and RCP8.5 based on GCMs and downscaled using RCMs. The results of climate impact assessment for the Teteriv River basin will be presented.