



## **Effects of global change in the Czech Part of the River Elbe Basin and adaptation options**

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In Integrated Water Resources Management planning the effects of changing natural conditions (natural water availability) and socio-economic development (water demand) must be taken into consideration. Climate change will influence the water availability. In some sectors, e.g. agricultural irrigation, also the water demand is influenced by climatic conditions. Both, the development of natural water availability and water demand, are connected with certain levels of uncertainty. Therefore, scenarios of socio-economic development and climate change are required for Integrated Water Resources Management planning.

The river Elbe basin (catchment area approximately 150,000 km<sup>2</sup>) is located in central Europe. The river Elbe basin is a trans boundary river basin. One third is located in the Czech Republic upstream of Germany, where two thirds of the basin is located. Therefore, inflows from the Czech part are important for instance for navigation in the German part. For navigation an inflow to Germany of 100 m<sup>3</sup>/s is required. Due to climate change the inflows are expected to decline.

In the project GLOWA-Elbe a water management model for the whole river Elbe basin was developed. The model for the Czech part includes among others 52 reservoirs, 20 thermoelectric power plants, 70 hydroelectric power plants, 30 industrial users, 15 agricultural irrigation users, 40 public water utilities, and 160 waste water treatment plants. Two global socio-economic trends are renationalized and used in the simulations. Renationalized climate data are used to simulate the effects of climate change on natural discharges. Using the water management model the effects of global change on inflows from the Czech Republic to Germany are simulated. Using this model it is analyzed, if reservoir management in the Czech part can sustain a required inflow of 100 m<sup>3</sup>/s to Germany.