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KlimaKonform – An interdisciplinary project to support smaller communities in climate change adaptation

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How do we succeed in supporting climate adaptation also outside of the large urban areas? Which measures for mitigating do we need to deal with the consequences of climate change? What support and which tools do smaller communities need in planning and implementing necessary measures? What is specific for low mountain ranges? To answer these questions a targeted process was initiated by researchers and practitioners from three German federal states (Saxony, Saxony-Anhalt and Thuringia), working together in the interdisciplinary project KlimaKonform within BMBF RegIKlim.

The model region covers three counties in the catchment area of the *Weiße Elster*. The low mountain region is typical for large parts of Germany and other Central European countries. Thus, the approach, experiences, methods and products are easily transferable to other low mountain ranges. Small and medium-sized municipalities have to deal often with limited budgets, as well as limited technical and administrative capacities. Community income is mainly generated by agriculture and forestry, small businesses and partly tourism. At the same time, the challenges posed by the increasing intensity and frequency of extreme events such as flash floods, water shortage, heat waves and storms are similar to large cities with much higher capacities in personnel and finances.

Unfortunately, adaptation to extreme weather and climate change often comes only after a damaging event, for example after extreme precipitation destroyed the municipal water infrastructure (paths, sewer network, and waste water treatment plants). KlimaKonform supports communities to become active before damage occurs and thus foster the move from event-related to preventive and strategic action. Therefore, KlimaKonform offers new concepts and customised tools to assess the impacts of climate change, determine their capacities for adaptation and derive appropriate measures. The tools will consider the needs in the model region and address the uncertainties related to future climate change and climate model output.

Examples are given for various foci of the project. One focus of KlimaKonform involves the

interdisciplinary assessment of extreme events by coupled model chains ranging from climate change ensembles to third order impact models. Hazards as heavy rainfall and floods with their impacts are incorporated. The location in the low mountain range requires high-resolution climate input data for modelling due to corresponding high flow velocities. These data are not sufficiently available for regional climate impact modelling. In cooperation with the project NUKLEUS and hydro-impact modellers in RegIKlim, approaches like bias adjustment of climate model outputs are tested for applicability. The aim is to reduce uncertainties in model application while increasing the effectiveness of precautionary and adaptation measures. Another focus of KlimaKonform is the systematic identification of vulnerable infrastructure during heat waves. In this context, urban climate simulations are used to assess the potential of green infrastructure to reduce outdoor and indoor heat stress conditions. All results of KlimaKonform will be available free of charge and in a comprehensible form via a freely accessible internet platform. Here, the already existing and well-received Regional Climate Information System ReKIS will be expanded to provide guidance for smaller communities.