

# Flood protection

Floods are natural phenomena in the hydrological cycle. As we cannot avoid floods the goal is to limit their impacts in urban areas. Therefore, the European Union introduced a Flood Directive requiring the development of flood risk management plans for areas with potential flood risk. First, preliminary assessments based on hydrological/hydraulic investigations have to be carried out to define areas of high risk of flooding. Resulting flood risk maps have to be drawn up. Second, a flood protection concept is developed focusing on prevention, protection and preparation measures for the identified area. The flood management is always based on detailed hydrological data and hydraulic calculations and is taking future development like climate change and land use into consideration.

## Focus of activity

- Flood risk management
- Flood protection concepts
- Flood risk management plans

## Services

- Hydrological simulations (e. g. FLUTER, NASIM)
- 1D- water level/flow simulations (e. g. FLUTER, JABRON)
- 2D- water level/flow simulations (e. g. EXTRAN 2D, HYDRO\_AS-2D)
- Integrated sewer system and surface flooding simulations in urban areas
- Development of flood hazard maps and flood risk maps
- Developing and proofing measures with respect to flood protection
- Cost-benefit-analysis