

Seasonal storage



As a rule, more precipitation falls in the winter than in the summer. More water also evaporates during the summer. As a consequence, water shortages occur in the summer, while winters have water surpluses. Water needs to be fed into urban water systems to compensate for summer shortages. In most cases, that water is of a lesser quality. Storing the winter's water surplus can serve to create a clean water buffer for the drier summer period.

Climate changes will only cause the need for clean water to compensate for water shortages in summer months to increase. The various climate models present a picture of wetter winters and drier summers. All models indicate that summers will become drier. In most locations, the drier conditions will have an adverse impact on water quality: on the one hand because of internal salinisation caused by seepage and on the other as a result of external pollution, including pollution caused by salinisation when water from other areas is fed into the system. The deterioration of the quality of surface water will have a great impact on flora and fauna.

Forms of seasonal storage

Seasonal storage is an additional supply source: the water volume to be stored comes in addition to the volume realised for storing precipitation peaks in the water system. The extra volume can be realised by reserving more space for surface water or by permitting and designing for greater fluctuations in water levels. Greater fluctuations in water levels demand special attention when banks are designed.

Urban green-blue grids

Another variant is to reserve a specific space in addition to the peak storage system to realise seasonal storage. That reservoir is kept empty during summer months and filled in the winter. The dimensions need to be calculated to match summer water shortages. In practice, summer shortages will prove impossible to compensate using precipitation volumes buffered in the winter.

Riverbanks and quays near seasonal storage must be designed for significantly-fluctuating water levels. Options include constructing a stepped quay or creating green embankment zones which are better suited to the changing water levels.