Enough water in the future? Research identifies solutions to potential user conflicts

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Topics: Drinking Water | Ecosystems | Society

The Swiss water economy is not optimally prepared to cope with the forthcoming changes in terms of climate and society. Nevertheless, the National Research Programme "Sustainable Water Management" (NRP 61) concludes that Switzerland will have enough water if regional collaboration is expanded, if sustainable solutions to water conflicts are found and if water protection efforts are continued.

What will happen to the "water tower of Europe" when temperatures rise and precipitation sinks in the future? Seeking an answer to such questions, the Federal Council mandated the Swiss National Science Foundation (SNSF) to establish a National Research Programme "Sus-tainable Water Management" (NRP 61), which is now summing up its research work over the past five years (*).

Climate change mainly visible in high mountains

NRP 61 expects the most pronounced changes to take place in the high mountains. As a result of increasing temperatures, around 90% of all glaciers, depending on the climate scenario, will have melted away by the end of the 21st century. The snow line will continue to rise. This will fundamentally change the Alpine water economy.

New lakes will take the place of the dwindling glaciers. This will open up new opportunities for the water economy and for tourism. At the same time, the risk of lakes suddenly bursting their banks and subsequent surge waves will increase considerably. Adaptive measures in terms of organisation, construction and spatial planning take time: mountain cantons need to act now and ensure sustainable water management in the long term, for example when issuing water use concessions.

In addition, NRP 61 predicts that water temperatures in rivers will rise by two to four degrees Celsius in Switzerland. Groundwater will also slowly become warmer. This development compounds the pressure already coming to bear on bodies of water due to pollution in settlement areas.

Growing human demand is more significant than climate change

In many areas of Switzerland, socio-economic and technical changes will have a greater impact on the Swiss water sector than climate change. For example, the new agricultural policy will have a stronger influence on the demand for agricultural irrigation in 2050 than the changing climate.

Rising demand due to economic and demographic growth will put increasing pressure on water resources and water bodies. As a result, we will experience more conflicts between different users and interest groups (e.g. urban developments threatening groundwater protection zones). Water and water bodies are not able to provide an unlimited supply of water at all times and in all places to meet the demands of society.

To secure the long-term protection of water and water bodies as well as their essential use, the topic needs to be debated in all areas of politics (e.g. energy or agriculture) at an early stage. Particularly with regard to spatial planning, water issues need to be accounted for more effectively than is presently the case. Because of the longevity of water infrastructures - pipes and hydropower plants are expected

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to last 80 to 100 years - current planning has to take the interests of future generations into account. Factors such as the uncertainty of predictions and the expected increase in extreme weather due to climate change also need to be considered in the long-term planning.

Increasingly important cooperation

NRP 61 concludes that the Swiss water economy is not in an optimal position to tackle the anticipated social, economic and climatic changes. Legal issues relating to water are treated separately. There is a complex division of tasks between the federal, cantonal and local authorities. The structures are fragmented in as much as they fail to reach across communal and cantonal boundaries. There is a lack of overarching visions and strategies, and specific coordination measures between communes and cantons.
A sustainable approach to water as a resource depends on how the scientific, technical and social levels are interlinked and - increasingly - upon mechanisms that could help to solve conflicts between users and interest groups. The research programme's recommendation to the Confederation is to develop a national water strategy that would bring together the existing partial strategies. All relevant actors and the population at large need to be involved in the implementation of such a strategy.
(*)

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National Research Programme "Sustainable Water Management"

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