



Partnering for Change: Link Research to Societal Challenges

Video Transcript

Tackling water scarcity – part 2: actors and context

[PD Dr. Flurina Schneider] Crans-Montana is one of the most arid regions in the Swiss Alps. Sustainable water governance is an important topic here. Our transdisciplinary case focuses on this concern. Let us now investigate the context and the stakeholders that are relevant for our query.

For centuries, water has been a crucial issue for the people living in this region, it was the subject of struggles and competition when groups tried to increase their share of water. The problem is less that water would be scarce everywhere than that it occurs in irregular quantities. In fact, in the higher mountains and during some periods of the year, water is abundant. However, there are huge discrepancies between high elevations and the valley bottom.

In the high mountains, rains are quite common. In the valley, on the other hand, showers are rare. And due to the higher temperature, a lot of water is also evaporating. In the high mountains, precipitation ranges between 2,500 to 4,000 millimetres per year. On the valley bottom, it is at 600 millimetres per year. As a result, the valley bottom and the slopes where people live and work are very dry. In other words, water is there, but not at the places where it is most needed nor at the times it is required. Consequently, the need for drinking and irrigation water has always been an important concern.

Documents from the 14th century report the huge efforts made to divert water from the water-rich mountain areas to the farming villages on the dry slopes. They also describe the measures taken to store the precious good. Today, the increasing water use of diverse stakeholders shapes the water shortage problem. While agriculture lost its economic importance in recent years, farmers still need a lot of water for irrigation, in particular viticulture and livestock production.

From the 1960s onwards, sports tourism and population growth fuelled a construction boom that led to a substantial increase of household water consumption. Tourism activities, such as golf and ski, further contributed to the raise in water use: golf courses need to be irrigated, and artificial snow production has become an essential prerequisite for winter tourism. The far biggest water user, however, is hydropower production. About half of the regional water resources are used in order to generate electricity. Last but not least, water is also used by the various ecosystems of the region.

In the very recent years, the development of tourism and the energy market underwent substantial changes. Therefore, it is quite difficult to predict how social and economic factors will develop in the next

decades. Nevertheless, the question, how water availability will evolve, is a main concern for the people in the region. In late summer, precipitation is generally low, and water demand is high.

The glacier Plaine Morte discharges meltwater that is an important resource during this season. Climate change scenarios indicate that it is unsure how long the glacier will still exist and serve as a natural water reservoir. Thus, we face a problem that has two conflicting drivers. On the one hand are the rising water demands, and on the other hand is the insecurity of future water availability and need. Water governance then becomes a crucial issue.

In Switzerland, all administrative levels are involved in water governance. There are three: the communes, the cantons, and the confederation. In our transdisciplinary case, the 11 communes covering the area we studied had all their own water management system. These systems included public legislation, private property rights, several hundred ancient water rights going back to the 14th century, and a multitude of formal and informal agreements that are often taken ad hoc. While there were two intercommunal water management organisations and several traditional water user associations, there is no formal institution that unites water governance arrangements of all communes.

Summing up, climate change and socioeconomic development might both significantly modify the future water supply and consumption of water. We need to assume that the general water supply in the region will become even scarcer and that its seasonal distribution may change significantly. These circumstances may fuel existing conflicts of interest or create new ones. Thus, water management practices and strategies need to be fundamentally revisited.