

# **MontanAqua. Approaching water stress in the Alps – Water management options in the Crans-Montana-Sierre Region (Valais)**

Research project within the framework on National research program NRP 61 *Sustainable water management* of the Swiss national foundation (SNF) – 2010-2014 / [www.nrp61.ch](http://www.nrp61.ch)

**Beginning** 1.2.2010

**Duration** 36 mois

**Research team:**

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- University of Berne, Centre for Development and Environment (CDE) (resp. Dr Stefan Rist)
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## **Abstract**

Water resources are of central importance to the prosperity and development of a society. However, climate change and socio-economic changes are bringing about pronounced changes in both water supply and water consumption. In future, critical areas might be e.g. inner alpine dry valleys like Valais in Switzerland or Inntal in Austria.

The main objective of the proposed transdisciplinary study is to develop strategies moving towards more sustainable water resources management in the Crans-Montana-Sierre region (Valais), together with actors involved. The study will be based on in-depth evaluation of the impacts of the climate/environmental and socio-economic changes on water resources, and on a detailed survey of water use and of current water management systems at a regional scale. This objective will be addressed through three main research axes – water resources, water use, and socio-economic structure – on different temporal and spatial scales. The study region is situated in the driest part of Switzerland and has been subject to dynamic economic, tourism and urban development during the last decades. Water demand is growing and vulnerability to water stress is increasing. Due to the influence of multi-level social, economic and political institutions and the persistence of ancient management rules, water management is very complex. In this context, the expire date of the hydropower concession in 2037 will be a distinct breakpoint.

The research project will be implemented through three work packages (WP) and one synthesis package (SP): "Evaluation of the water resources" (WP1), "Study of the water use systems and their interaction" (WP2), "Assessment of the socio-economic and institutional setting" (WP3), and "Water Management Options - Multifunctionality of the landscape in the context of hydrological, land use and institutional change" (Synthesis Package). Each work package will analyse the present system and develop scenarios for the future in the form of PhD theses. The year 2050 will be considered as a target for climatic scenarios, while the socio-economic scenarios will be built based on active consultation with a regional stakeholders support committee REG-AQUA.

The WPs combine quantitative, qualitative and cartographic (GIS) methods and modelling. The project will identify strengths and vulnerabilities of the present system approaching water stress and - based on the concept of the multifunctionality of the landscape - will propose innovative solutions for a future sustainable water management in the Crans-Montana-Sierre region. The expected benefits are obvious for the local and cantonal authorities. The recommendations issued from this research project are expected to be used as guidelines for future management both at the regional and cantonal scales. A second stakeholder group TRANSFER will ensure the transfer of the project findings in comparable regions facing similar problems within Switzerland and beyond.

The project will enhance the competence of inter-university collaboration and of inter and transdisciplinary research both between the natural and social sciences as well as between research and practice. And it will help to create a platform enabling the integration of stakeholders beyond current fragmented settings as a prerequisite for a new integrated water demand management scheme.

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# Aquamontana

**Original-Titel** AQUA MONTANA: Anticiper le stress hydrique dans les Alpes – Scénarios de gestion de l'eau dans la région de Sierre-Crans-Montana (Valais).

**Titel in Englisch** AQUA MONTANA: Approaching water stress in the Alps – Water management options

in the Crans-Montana-Sierre Region (Valais)

**Beantragter Beginn** 1.1.2010

**Gewünschte Dauer (Mte)** 36

**Forschungsbereich** Mathematik und Naturwissenschaften

**Weitere**

**Forschungsbereiche**

Geisteswissenschaften

Sozialwissenschaften

**Haupt-Disziplin** 20705 Hydrologie, Limnologie, Glaziologie

**Neben-Disziplin(en)** 10206 Human- und Wirtschaftsgeografie, Humanökologie

20701 Bodenkunde

20704 Klimatologie, Atmosphärenphysik, Aeronomie

20709 Andere Gebiete der Umweltwissenschaften

## Résumé

**Zusammenfassung** Water resources are of central importance to the prosperity and development of a society. However, climate change and socio-economic changes are bringing about pronounced changes in both water supply and water consumption. In future, critical areas might be e.g. inner alpine dry valleys like Valais in Switzerland or Inntal in Austria. The main objective of the proposed transdisciplinary study is to develop strategies moving towards more sustainable water resources management in the Crans-Montana-Sierre region (Valais), together with actors involved. The study will be based on in-depth evaluation of the impacts of the climate/environmental and socio-economic changes on water resources, and on a detailed survey of water use and of current water management systems at a regional scale. This objective will be addressed through three main research axes – water resources, water use, and socio-economic structure – on different temporal and spatial scales. The study region is situated in the driest part of Switzerland and has been subject to dynamic economic, tourism and urban development during the last decades. Water demand is growing and vulnerability to water stress is increasing. Due to the influence of multi-level social, economic and political institutions and the persistence of ancient management rules, water management is very complex. In this context, the expire date of the hydropower concession in 2037 will be a distinct breakpoint.

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