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Global warming: Water scarcity in the Alps? Uneven distribution of water resources may become exacerbated

Are the Alps as Europe's 'water towers' at risk? Is the discharge rate of the Danube, Rhine, Rhone and Po, the four large rivers originating in the Alps, and which draw about 50 % of their water from the Alpine Rim, in a state of flux? According to experts who met a conference in Bolzano, there is no acute danger of this happening. "Yet the Alpine region must now adapt to existing and future risks of changed water conditions. The key to this is good management structures, effective communication amongst stakeholders, and taking a sober look at the risks", said Benno Hain, Head of the "Climate Protection" Section at the German Federal Environment Agency, which headed the conference.

Yet the critical question in times of global warming is how quickly the conditions are changing in the Alps as water supplier. It is a fact that temperatures are rising. Over the past 150 years temperatures rose by 2 degrees Celsius (°C) across the Alpine region—that is a rate twice as high as elsewhere in the northern hemisphere. Furthermore, the southern Alps have experienced declines in precipitation of 10-20 percent as compared to the 19th century, and this is expected to continue in the next decades, especially in summertime. Owing mainly to an uneven distribution of water resources over space and time, water shortages are already occurring in some regions, say experts. These problems will become more acute in future, since demand for water will increase while supply decreases, particularly in summer. Year round and throughout the Alps, however, there currently is, and presumably will also be in the short-term, an adequate supply of water.

These are the conclusions reached by a 20-member team of experts whom the European Environment Agency (EEA), Copenhagen, commissioned to carry out a study about the water situation in the Alps and develop successful strategies of adaptation to climatic change. Scientists and field workers from eight Alpine states met at the European Academy Bolzano (EURAC) in South Tyrol, Italy, from 23-24 October 2008. Active participants included the General Secretary and Vice General Secretary of the Alpine Convention, the head of department for climate issues at the Austrian Federal Environment Agency, the Head of EURAC's Institute for Remote Sensing, and delegates from the European and Slovenian environmental agencies. The experts base their results and conclusions mainly on an analysis of six case studies in the entire Alpine Rim. This is the first time that the European Environment Agency is taking a look

not only at the state of the environment in all of Europe, but also addresses the problems faced by certain specific regions in the Alps.

The problems experienced in the areas studied in Austria, France, Italy (South Tyrol), Slovenia, and the Wallis region of Switzerland are all similar: although water is generally available according to results from the analysis, it is not always the case at all times or at all sites.

During peak periods, such as when frost-protection sprinkling is done in South Tyrol to protect fruit blossoms in late winter, or in French ski resorts during peak tourist season, demand for water exceeds supply. The problems result from the demands of water's various users: farmers or hydropower plant operators would like to extract as much water as possible, whilst the tourism industry and ecologists call for keeping levels of waste water low.

In the regions studied in the analysis, successful mechanisms for adaptation are already in place, such as water-saving irrigation techniques, water user networks, or water use plans. Yet limited coordination across or even within sectors very often hinders efficient water use and distribution, according to the experts.

The scientists and field workers recommend integrated water resource management that involves all water users; that is, the agricultural sector, tourism, energy suppliers, non-governmental organisations, the media, and last but not least, the population itself. It aims to reduce water losses, to promote saving water, improve water distribution, regulate the decision-making process, and most importantly, to generate more awareness among the public, decision makers, as well as in the scientific community.

The water issues in the Alpine region are a current area of focus for various committees of the Alpine Convention, which is due to publish a report on the state of the Alps with a focus on water in early 2009, and to resolve an action programme on climate protection and global warming in the Alpine region.

A complete collection of the expert group's recommendations is due to be published by the European Environment Agency in a 80-page report in early 2009.

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