

- Water management

Nature Strikes Back

Oral Presentation

Adapting water allocation management to drought scenarios

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A number of recent studies have shown that climate change has significant consequences for water resources at the watershed scale. According to these climatic trends, with water becoming scarcer and susceptible to variations, decision-making processes for watershed management need to be reviewed.

This paper describes some issues of a research project, funded in a northern Italian region, to assess the impact of climate change on water resources. It aims to assess, within drought scenarios in the Adda river basin, the effects on the socio-economic system.

According to geographic, environmental and socio-economic features, three main areas can be distinguished within the Adda basin: the upper part that runs along Valtellina, a large Alpine valley floor, the central part, where the river flows into lake Como, and the final segment, that flows from the bottom of the lake into the Po river through a flat plain, which is part of Pianura Padana.

The investigations will be focused on the current allocation balance of the water supplies, either surface water and groundwater, and its capability to satisfy equitably the demand of alternative and competing users that characterize the three different areas of the watershed: it mostly concerns hydroelectric power generation in the upper part versus municipal and recreational use in the lake part, and industrial and agricultural use in the lower part. The existing allocation problem among these different competing users is being exacerbated as water supplies are decreasing.

Different scenarios of scarcity will be analyzed, focusing on the rules now adopted and the consequences on the socio-economic system. In doing this, a quantitative 'cause-effect' correlation will be employed.

The final results will describe a number of supply management solutions that will be employed by the Regional Environmental Protection Agency, in the decision-making support system.