

## Preliminary planning for reclaimed water reuse for agricultural irrigation in the province of Girona, Catalonia (Spain)

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### ABSTRACT

The province of Girona (Catalonia, Spain) is not an area where there is a structural deficit of water. There are certain problems and restrictions connected with climatic conditions and with special seasonal factors related to tourism, particularly in summer. Hence reusing reclaimed water for agricultural irrigation in the province would help to reduce the effect of these restrictions. Despite the apparent benefits of reclaimed water its use for agricultural irrigation, is not yet a widespread practice. This is the background against which a province-wide study has been carried out using a geographic information system (GIS) to set up a digital database containing details of current agricultural reclaimed water reuse in the area. In addition, a visual presentation of the current situation in the province has been developed to make data update easier over time. A questionnaire has been drawn up to determine the views of irrigation communities and farmers that use reclaimed water for agricultural irrigation in the study area. Further, a preliminary plan to reuse reclaimed water for agricultural irrigation in the province has been proposed to achieve a more sustainable water management. The plan was made on the basis of Spanish Royal Decree 1620/2007, which regulates reclaimed effluents reuse. The study shows that the reuse of this non conventional water resource represents a viable method of reducing the competition between urban and agricultural water demands. Implementation of the plan would save about 20% of the conventional water consumed by agriculture, which could be redirected towards satisfying the urban sector's demand for water.

*Keywords:* Reclaimed water reuse; Planning; Irrigation; Girona

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