



## **Willingness to pay for more efficient irrigation techniques in the Lake Karla basin, Greece.**

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Thessaly, the second largest plain of Greece, is an intensively cultivated agricultural region. The intense and widespread agriculture of hydrophilic crops, such as cotton, has led to a remarkable water demand increase, which is usually covered by the overexploitation of groundwater resources. The Lake Karla basin is a prominent example of this unsustainable practice.

Competition for the limited available freshwater resources in the Lake Karla basin is expected to increase in the near future as demand for irrigation water increases and drought years are expected to increase due to climate change. Together with the Unions of Agricultural Cooperatives, the Local Organizations of Land Reclamation is planning to introduce more efficient, water saving automated drip irrigation in the area among farmers who currently use non-automated drip irrigation, in order to ensure that these farmers can better cope with drought years and that water will be used more efficiently in crop production. Saving water use in irrigated agriculture is expected to be beneficial to both farmers and the restoration of Lake Karla and its wildlife like plants and birds.

The aim of this study is to understand and record the farmers' opinions regarding the use of irrigation water and the restoration of Lake Karla, and to extract valuable conclusions and perform detailed analysis of the criteria for a new irrigation method.

A general choice experiment with face-to-face interviews was conducted, using a random sample of 150 open field farmers from the study area. The farmers, who use the non-automated drip irrigation method and their farms are located within the watershed of Lake Karla, were interviewed regarding their willingness to switch to more efficient irrigation techniques, such as automated and controlled drip irrigation. The most important benefits of automated drip irrigation are an increase in crop yield, as plants are given water in a more precise way (based on their needs during the growing season) and a saving in water use.

The choice experiment displays to the farmers two possible options for automated drip irrigation, described in terms of expected increase in crop yield, expected water saving, the duration of the restoration of Lake Karla to its original state before it was drained in the 1960s and the corresponding investment cost.

The survey results show that socio-demographic factors and the average annual income influence the criteria and the views of farmers on a possible investment in the new method of automated drip irrigation. Moreover, there is a positive demand and willingness to pay for automated drip irrigation from the farmers in order to increase crop yield and speed up restoration of Lake Karla, considering that they are highly dependent on it.