DEVELOPMENT AND APPLICATION OF AN AGRO-ECONOMIC MODEL FOR OPTIMAL ALLOCATION OF WATER RESOURCES FOR AGRICULTURE IN CYPRUS

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Abstract

Agriculture in the Mediterranean region (including Cyprus) is constrained by the limited availability of water resources. The allocation of water for irrigation is expected to decrease in most countries, due to the increasing trend of water demand in the domestic sector and tourism. It is therefore important to utilize these resources efficiently so as to achieve maximum economic returns. For this purpose, an optimization model was developed to allocate the available land and water resources of Cyprus in order to maximize the net annual economic benefit of the agricultural sector. Model simulations for different scenarios of climatic conditions show that crop production in Cyprus has a high potential, despite the limited land and water resources. A potential re-allocation of the crops cultivated, and in particular a shift towards rain-fed agriculture under average and dry conditions, will result in higher net economic benefits and sustainable irrigation use.