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Water supply management in Cyprus under climate uncertainty

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ABSTRACT

Climate change and improved life quality have increased water demand, while water supplies are shrinking. The increasing water demand in combination with extensive dry periods due to climate change has decreased water resources. The primary goal of this study was to suggest measures that can be taken to resolve the water supply insufficiency in Cyprus. Those measures should be as friendly as possible to the environment, so no further vulnerabilities are caused to the environment by treating the current ones. Reviewing the measures that have been taken to resolve the insufficiency of water resources in Cyprus, numerous dams were originally constructed to store water, followed by the construction of the "Southern Conveyor Pipeline" and finally desalination plants. Desalination facilities provided sufficiency of water but at the same time introduced further impacts on the environment, such as increase in greenhouse gas emissions, because of their power demand, and saline density increase, due to the rejection of residual salt back to the sea. The economic effect in conjunction with the environmental impact of desalination units on various sections is presented, taking into account greenhouse gas emissions and the Kyoto protocol. The study concludes with the pursuit of new more advanced technologies on renewable energy sources and environmentally friendly methods from around the world that could be applied in Cyprus for its economic benefit and satisfaction of public water supply.

Keywords: Water supply; Water deficit climate change

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