Fluctuations in potable water quality in Cyprus during the past two decades – the role of seawater desalination

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ABSTRACT

The scarcity of drinking water resources in Cyprus has started becoming a major issue during the past decades, as a result of prolonged draughts and failure to implement a sustainable water conservation and management policy. Cyprus, a semi-arid classified area in the Eastern Mediterranean, has traditionally been relying on water reservoirs for the collection and treatment of rainwater destined for human consumption. Seawater desalination has been introduced during the past 15 years as a means of alleviating the drinking water shortage problem and complementing the dam reserves; however, the usage of desalinated water has not yet been optimized. As a result, desalination plants have been constructed and shut down after only short operation times, some have been built and commissioned only to be put on standby mode soon after, while construction of others was postponed until it was too late to cope with water shortage problems etc. This situation has been creating a series of problems associated with potable water quality in general and other numerous anomalies being observed in the distribution network, the most important of which are the following:

(1) Water shortage during peak periods (e.g. summer months when demand rises sharply due to tourism and irrigation needs).
(2) Blockage at terminal points of the distribution network.
(3) Bad odour and unpleasant smells observed at consumption points.
(4) Elevated heavy metal concentrations in potable water supplies.
(5) Elevated THM’s concentrations in potable water supplies.
(6) Corrosion of metal piping in the distribution network.

This study shall examine these problems in depth and provide suggestions that will help in establishing a truly sustainable drinking water policy on the island.

Keywords: Prolonged draughts; Water conservation; Seawater desalination; Potable water quality; Biofilm formation; Distribution network

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