Climatic Changes and Wastewater Reuse Challenges in the Mediterranean Region

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Continuous population growth increases the demand for water which, in arid and semi arid regions like the Mediterranean region is considered as a limited resource. Future demands will not be met by traditional water resources like surface and ground water. In order then to handle increased water demand, the treated wastewater originating from municipal wastewater treatment plants has to be developed and offered to farmers for agricultural irrigation and not only.

Climatic changes increase sea level, and at the same time higher carbon dioxide concentrations in the atmosphere create higher temperature, increase water use, creating a balance favoring salt water intrusion. The use of treated wastewater to enrich groundwater resources in the Mediterranean region is now a necessity in order to overcome this issue.

Wastewater effects on the quality of soil are investigated, in terms of profile investigations and comparing the results to similar profiles irrigated with groundwater. Salinity does not result from wastewater applications, but on the contrary, wastewater application enriches the poor in nutrients and organic matter soils of Cyprus. A complete overview of wastewater reuse in Cyprus is presented in view of good policies and practices in water resources protection, restoration, utilization, conservation, seawater intrusion prevention, and management. Small desalination units produce wastes which still remain a serious issue.

Results suggest that general problems detected are manageable and may be handled with proper policy and techniques. Drop irrigation minimizes problems due to salinity and EU directives in this direction are proved effective.

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