



## **Use of treated wastewater in agriculture: effects on soil environment**

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Disposal of treated sewage, both from industrial and domestic origin (herein referred to as treated wastewater [TWW]), is often considered as an environmental hazard. However, in areas afflicted by water scarcity, especially in semi-arid and arid regions, where the future of irrigated agriculture (which produces approximately one third of crop yield and half the return from global crop production) is threatened by existing or expected shortage of fresh water, the use of TWW offers a highly effective and sustainable strategy to exploit a water resource. However, application of TWW to the soil is not free of risks both to organisms (e.g., crops, microbiota) and to the soil. Potential risks may include reduction in biological activity (including crop yield) due to elevated salinity and specific ion toxicity, migration of pollutants towards surface- and ground-water, and deterioration of soil structure. In recent years, new evidence about the possible negative impact of long-term irrigation with TWW on soil structure and physical and chemo-physical properties has emerged, thus putting the sustainability of irrigation with TWW in question. In this presentation, some aspects of the effects of long-term irrigation with TWW on soil properties are shown.