ECOSi

Partner Institutions

Πανεπιστήμιο Κύπρου
University of Cyprus

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HSM HydroSciences Montpellier

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Research team and experts

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Involved Institutions (Research, development, and civil society)

Ministry of Agriculture, Water Resources and Fishery (DG/GREE, INSTM) • Ministry of Environment and Sustainable Development (ANPE, CITET, DG/EQV, ONAS) • Ministry of Public Health (ANSCEP, DHMPE) • Ministry of Higher Education and Scientific Research (INRAP) • NGOs (AED, SOS BIAA, WWF North Africa).

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http://en.unesco.org/emerging pollutants

United Nations Educational, Scientific and Cultural Organization · International Hydrological Programme

Sida Swedish International Development Cooperation Agency

UNESCO Project

Emerging Pollutants in Wastewater Reuse in Developing Countries

Implemented under
UNESCO-IHP International Initiative on Water Quality (IIWQ)

International Initiative on Water Quality

Funded by
the Swedish International Development Cooperation Agency (Sida)

ECOSi

Contaminants of Emerging Concern in Oued Souhil area, Nabeul, Tunisia : occurrence in Irrigation water and implications

2015 - 2018

The UNESCO Project "Emerging Pollutants in Wastewater Reuse in Developing Countries" is implemented under UNESCO-IHP International Initiative on Water Quality (IIWQ). It is fully funded by the Swedish International Development Cooperation Agency (Sida) for the period 2015 - 2018. The project aims to support UNESCO Member States, like Tunisia, to strengthen their scientific, technical and policy capacities to manage human health and environmental risks caused by the Contaminants of Emerging Concern (CECs) in water and wastewater by improving water quality and wastewater management and promoting safe reuse of wastewater. The project comprises three main components:

1. Strengthening scientific research and policy.
2. Promoting scientific exchange and collaboration.
3. Capacity building and awareness raising.

(adopted from UNESCO-Sida project, 2015)

The project "Contaminants of Emerging Concern in Oued Souhil area, Nabeul, Tunisia: occurrence in Irrigation water and implications" (ECOSI) is one of the successful case studies selected to deal with CECs in water resources in Tunisia.

Background

The use of reclaimed water (RW) is an old practice in Tunisia dating back to the 60's. RW has been playing a crucial role for maintaining agricultural activity in the irrigated area of Oued Souhil during more than 30 years, especially for smallholders. Farmers are currently facing serious water shortage due to depletion and pollution of groundwater caused by overpumping and mismanagement of RW.

In Tunisia, little research exists on the long-term environmental impacts of the use of RW in irrigation, especially with respect to the occurrence of Contaminants of Emerging Concern (CECs) as they are expected to escape the secondary treatment process and find their way into soil, groundwater, and even in crops, with unknown risks on health and environment.

Objectives

To address the occurrence of CECs in irrigation water (reclaimed wastewater and groundwater) and soil in Oued Souhil area, Nabeul, Tunisia. More specifically, to investigate the relevance of detected CECs in these matrices based on available data and literature, with respect to their fate, behaviour, and risks to the ecosystem.

Methodology

The project is based on:

1. Collection of existing data published at the national and international levels.
2. Generation of new data through:
   - Sampling campaign and analysis, and
   - Survey carried out about CECs in water resources/environment.

Experimental site

Oued Souhil area expands over around 280 ha and is exploited by about 300 farmers. RW is used for irrigation since the 80's. RW is a secondary processed effluents deriving from domestic, industrial, and tourism activities. Cultivated crops allowed by national regulation are mainly fruit trees, forage, and industrial crops. Surface irrigation is practiced and groundwater is sometimes used conjunctively with RW for irrigation either to improve its quality and/or to increase water availability, since no alternative water resources exist in the area.

Expected results

- Description of the current status of wastewater reuse in Tunisia with a focus on Oued Souhil area.
- List of CECs detected in irrigation water (reclaimed water and groundwater) and irrigated soils in Oued Souhil area.
- A "Watch List" of relevant CECs to be monitored in future research programs.
- Evaluation of available analytical capacities and technical skills.
- Assessment of knowledge gaps on CECs and related risks.
- Enhanced cooperation and strengthened ties among scientific communities in North-South countries and across the Atlantic through the identification of new opportunities of joint research projects.
- Linkage between on-going (NEREUS COST Action ES1403) and previous (EMPOWER Tunisia) projects.