Using Treated Wastewater for Agriculture in Tunisia
Farmers´ and Consumers´ Perspectives

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Problem Statement
- Low expected water availability by 2030: < 350 m³/year/capita (absolute water scarcity: 500 m³/year/capita)
- Agricultural irrigation accounts for more than 80% of total water consumption
- Long history of wastewater reclamation, yet reuse in agriculture still very low (< 7% of treated wastewater)

Research Objectives
- Understanding farmers´ perception and willingness to reuse treated wastewater (TWW) for irrigation
- Understanding consumers´ acceptance to purchase food crops produced with TWW
- Exploring favourable conditions to increase acceptance on farmer and consumer level

Research Questions
- What are institutional, social, economic, and governance drivers pertinent for farmers´ perceptions of TWW reuse?
- What factors affect consumers´ acceptance of food crops irrigated with TWW?

Empirical Approach
1. Extensive literature review
2. 12 semi-structured interviews at national and local levels
3. Focus group with more than 22 participants
4. Consumer survey at local weekly food markets (n=100)

Study location
Island of Djerba and Medenine

Factors influencing farmers’ perception and willingness
- Institutional and coordination deficits due to multiple involved administrations and unclear working rules
- Technical inefficiency of treatment plants leads to poor TWW quality and high contamination risk
- Low trust in treatment plant operators
- Low economic incentives because of irrigation restrictions for cash crops
- Lack of awareness of benefits
- Perception of health risks

Factors influencing consumers’ acceptance
- Mainly disgust & perceived health risks
- Low level of knowledge on TWW irrigation
- Over 20% living near treatment plant
- Most claim land degradation due to effluents out of control
- Against irrigation with TWW
- Distrust towards plant operators and authorities monitoring plants
- 30% would not object irrigation with TWW if safety was guaranteed
- Yet, no efforts made by authorities to inform public about health risks

Results

Conclusions
Farmers’ level:
- TWW-related sectors involve many actors with different perceptions and incentives → complex governance
- Inept coordination and exchange of data between authorities
- Poor technical efficiency of treatment plants as source of insecurity
- Economic uncertainty as result of technical and coordination impediments and restriction for cash crop
- Social, cultural, and religious aspects are of secondary relevance for farmers’ decision

Consumers’ level:
- High resistance to products irrigated with TWW
- Perception of health risks causes insecurity
- Low trust in operators of treatment plants and authorities monitoring plants

Difference between perceptions of TWW:
- Farmers’ attitude is driven by freshwater scarcity and need for alternatives
- Consumers show high level of awareness, perception of health risks, and insecurity about product quality

Policy Recommendations
- Ensuring transparent and reliable communication of environmental, health, and economic aspects to improve farmers’ and consumers’ perceptions of TWW
- Involving the public and farmers in planning, implementation, and monitoring of TWW reuse projects to increase trust in plant operators and monitoring authorities
- Improving TWW quality and removing irrigation restrictions to increase acceptance of TWW reuse by farmers
- Better defining and allocating responsibilities in wastewater management between environmental, health, and agricultural authorities to reduce conflicts, increase TWW reuse rates, and improve governance

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