Analysis of Human Health Risks Linked to Irrigation with Treated Wastewater in Oued Souhil, Tunisia

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Introduction

• Farmers in Oued Souhil, Tunisia, irrigate with treated wastewater because rainwater is unreliable and ground water is contaminated.
• Wastewater treatment plants serving Oued Souhil operate over capacity, thus there are questions of effluent quality.
• Farmers are at risk for intestinal illnesses, skin infections and parasites due to direct contact with treated wastewater.
• A study showed a direct relationship between farmers having direct contact with wastewater and those with skin problems.¹
• Controlling the amount and intensity of exposure to wastewater by wearing boots and gloves can limit the burden of disease.

Objectives

1. To conduct a preliminary risk assessment of the impact of wastewater reuse on human health.
2. To design and implement health education workshops.
3. To evaluate health education and motivation after workshops.

Methods

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• Sample size: 5% of target population, randomly selected.

Results

• No direct relationship between the farmers’ sex or level of education and their knowledge of these risks was found.
• A strong correlation was found between farmers who employ post-irrigation hygiene practices and those who perceive human health risks, suggesting that knowledge of health risks will result in safer practices.
• All participants had a post-workshop awareness of the importance of wearing protective equipment, and 89% considered wearing them.
• In light of few agricultural extension services, farmers expressed interested to have information about the extent of wastewater treatment.

FOAM Framework (adapted from the World Bank):

Focus

• Opportunity
• Ability
• Motivation

Belief and Attitudes

Direct contact with water is unhealthy, but risks are overlooked. Boots perceived as practical; gloves are not. Water has been treated, so it’s safe.

Outcome Expectations

Protective equipment can lower risk for skin infections.

Implications and Broader Impact

• Additional workshops on the proper use of treated wastewater should be conducted in the region.
• There is a need for improved wastewater treatment.
• These measures, especially when combined, can minimize farmers’ health risks in Oued Souhil.

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