



Info-package 5

Consumers and General Public

Fact Sheet 5.1 – Environmental benefits of irrigation with reclaimed water: facts and figures

Environmental benefits of
irrigation with reclaimed
water

Organoleptic studies
of agricultural
products irrigated
with reclaimed water

Public perception and
consumer acceptance

AKIS & Stakeholders
analysis

Communicating the
use of reclaimed
water

SUWANU EUROPE is a H2020 project aiming to promote the effective exchange of knowledge, experience and skills among practitioners and relevant actors on the use of reclaimed water in agriculture. This factsheet is part of a total of 5 factsheets in Info-package 5 aimed at consumers and general public, to describe the environmental benefits of irrigation with reclaimed water.

1. Introduction:

There are environmental and climate challenges of increasing importance worldwide, that are interconnected with our main systems of production and consumption, and that have put us in a trajectory of unsustainable use of our natural resources. Global population growth (expected to reach 10 billion by 2050) will continue to put pressure on resources, with water demand increasing 55% by 2050. Climate change is also contributing for the ever-bigger challenge of having water in sufficient quantity and quality for all.

2. Water for agricultural irrigation:

Global freshwater withdrawals is estimated at 3,928 km³ per year (AQUASTAT, 2017), and it is predicted that this demand will increase significantly over the coming decades. Of this consumption, on average, agriculture alone uses about 70%, whereas sectors such as industry uses 22% and domestic and trade only 8%.

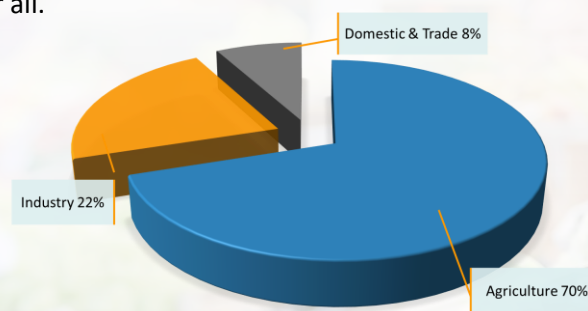
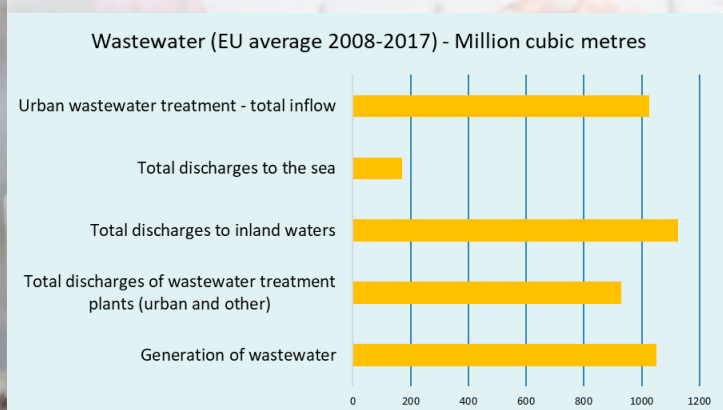


Figure 1: Average Water Consumption



According to FAO, almost half of the water used for agricultural purposes is wasted. If agricultural activities reduced water consumption by 10%, this volume would be enough to supply twice the world's population. One way to reduce water consumption in agriculture is the adoption of more localized irrigation techniques (drip irrigation or micro sprinkler) that save water. But not all agricultural activities allow the use of these techniques. On the other hand more than 40,000 million m³ of wastewater is treated in EU every year and only 964 million m³ are reused, so there is a potential for further uptake this valuable resource.

3. Impacts on the use of reclaimed water in agriculture:

Reclaimed water is gaining an increasing role as a reliable alternative source of water, pushing from 'treatment and disposal' to 'reuse, recycle and resource recovery'. There are also other by-products that can be used such as nutrients, leading to decreasing in costs for the agricultural sector.

The impacts of using reclaimed water can go beyond those at farm level and environmental health, having implications on food and energy security as well as climate change mitigation.

This will lead to a reduction in freshwater abstractions for agriculture, making this resource available for other uses, such as direct human consumption. The use of reclaimed water will also prevent the discharge of wastewater to water bodies.

The treatment of wastewater to an acceptable standard for the use that is intended (i.e. 'fit-for-purpose' treatment), will prevent unnecessary costs of overtreating the water (Figure 3).

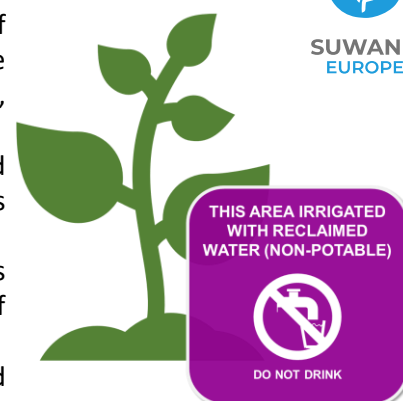


Figure 2: Example of a sign used in a farm

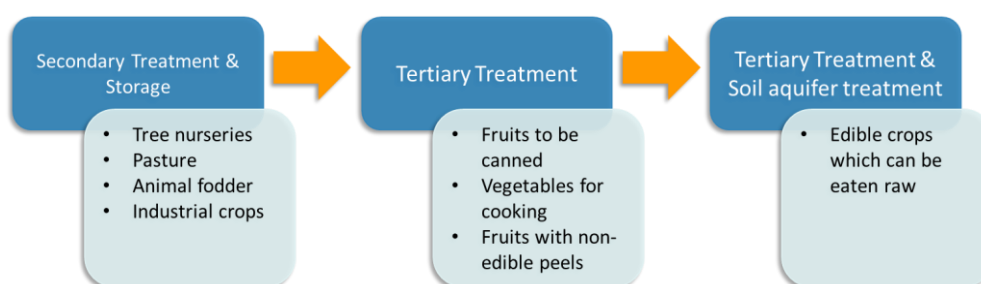


Figure 3: 'Fit-for-purpose' treatment

4. Benefits and risks:

There are several benefits linked to the use of reclaimed water in agriculture mentioned in studies and verified on farms using this resource:

- Reclaimed water irrigation improves soil nutrient conditions;
- Reclaimed water irrigation improves significantly soil microorganism activities;
- Minimum or inexistent costs for the wastewater.

Salts, nitrogen and pathogens are the major risk sources for using reclaimed water in agricultural irrigation, while risks associated with heavy metals and emerging contaminants are low. Other risks could be the eutrophication, groundwater contamination, antibiotics or even odor, but, given the huge potential benefits, the risks can be controlled by proper field management. These facts must not neglect that irrigation with reclaimed water should face more stringent quality requirements in order to minimize risks.

Reference/further readings

EUROSTAT - <https://ec.europa.eu/eurostat/data/database>

FAOSTAT - <http://www.fao.org/faostat/en/#home>

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Chen, *et al.*, (2015). Chemosphere, 119, 654-661.

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