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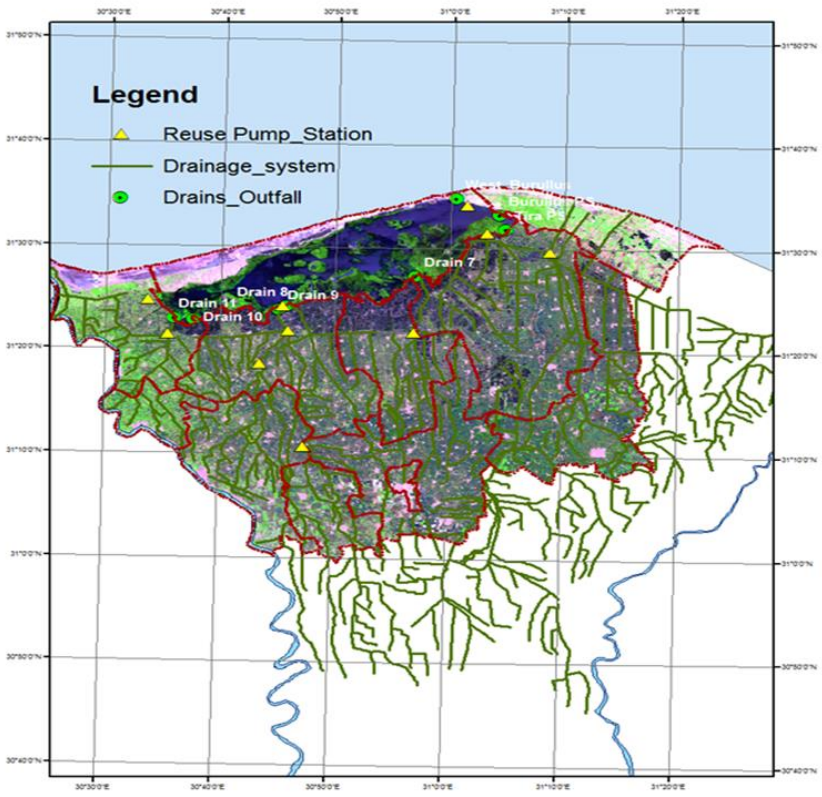
KAFER EL-SHIEKH DELTA - EGYPT



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Main characteristics of the case study such as :
Total Cultivated area 495,000 acre
Total Drinking water produced around 1.0 million m3/year
Total treated Wastewater 0.241 million m3/year.
Total reuse wastewater 755 million m3/year

- **Drivers for the reuse**
  - Water Resources limitation
  - Agricultural requirements

- Total irrigated area at Case study 554,237 Feddan (133,106 km2) its represented 62% from the total Governonate cultivated area.
- Wheat is the main winter crops where alfaalfa is the second winter crop production, their total crop productivity are 48% and 25% respectively.
- The main stakholders farmer, water resources planner , Policy makers the Governorate is the main responsible

Question answered

You will be offered a 5 min presentation to answer one of the two following questions (please write the concerned question in the title of the slide above) :

1. **Quelles pratiques et technologies pour rendre les filières de réutilisation des eaux performantes, sures et économiquement viables ?**

1. Which are the best practices, technologies and methodologies to create effective, safe and cost effective water reuse chains?

2. **Maitriser la valorisation directe des eaux usées brutes ou faiblement traitées par de bonnes pratiques: scandaleux ou vertueux ?**

2. Can we successfully reuse raw or low treated waste water?

Your slide should be concise and formulate the key messages (max 2 slides for one question)

Q2:Can we successfully reuse raw or low treated waste water?

Case Study (Egypt)

Historical background

- Water reuse in Egypt is an old practice. Since 1930, domestic wastewater has been used in sandy soil areas like ***Al Gabal Al Asfar and Abou Rawash.***
- Since the early 1990s , Egypt decided to recycle the treated effluent for irrigating man-made forests.
- Pilot scale man-made forests of timber trees have been grown in 10 governorates covering all agriculture climatological zones .

Using the wastewater effluents for irrigating and producing

timber trees planted in the desert

never use the wastewater for irrigating any other crops like fruits, vegetables, and field crops"

- Applying Wastewater in Agriculture is needed for
- adaptation of the guidelines to the specific area of concern is high and still
- a challenge to all involved disciplines.
- The adaptation to the local conditions should increase the benefits and
- decrease the health risk. This will result in a higher public acceptance which
- is crucial for the implementation of reuse projects.
- The highest priority in the wastewater management sector in every country
- has to implement an effective wastewater management system which will
- include:
    1. Maximization of collection of wastewater,
    2. Rehabilitation or upgrading of existing wastewater treatment plants or the construction of new treatment plants.
    3. Establishment of proper standards for influent and effluent wastewater quality.
    4. Increasing the farmers knowledge.

Benefits of Treated wastewater Use for Irrigation

- The use of treated wastewater for planned beneficial uses is emerging as an established water management practice in several water-stressed countries and regions for the following reasons: (Supply is cheap and reliable
- Available to farmers on demand allowing them to grow crops they would not otherwise be able to grow.
- It can ensure crops all year round, increasing crop yield.
- Rich with nutrients, reducing the need for fertilization
- Prevent surface water pollution, which would occur if the wastewater is not used but discharged into rivers or lakes
- preserve freshwater resources for higher quality uses (such as potable water supply)
- Postpone the implementation of more costly water supply approaches (storage, transfer, or desalination schemes)
- Eliminate or reduce the need for costly and complicated wastewater treatment processes. Agriculture could provide tertiary treatment, In particular the removal of nitrogen and phosphorus is unnecessary
- Effluent can be marketed

These benefits, if quantified, can partly offset the costs of the reuse scheme.

source: regional conference "sustainable integrated wastewater treatment and reuse,2014 cited from: *swim-sustain-**water**.eu/.../**Can_Water_Reuse**_Sustain_Integrated_**Water**)*

Constraints using treatment Wastewater in agriculture(Egypt)

The main constraints facing use of wastewater are:

- The low coverage with sanitation systems in combination with a sub-optimal treatment,
- Sanitation coverage did not keep pace with water supply coverage
- The implementation of large-scale centralized treatment facilities which produce large amounts of wastewater which in turn cannot be used for irrigation and is often discharged into receiving water bodies
- Some industries are still discharging their wastewater without any treatment.
- Consequently, Wastewater is either buried away in cesspools, or discharged into receiving water bodies.
- Insufficiency of economic analysis