Republic of Tunisia

National Sanitation Utility (ONAS)

Sustain Water MED

Network of Demonstration Activities for Sustainable Integrated Wastewater Treatment and Reuse in the Mediterranean

Tunisian Pilot Activities

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BMZ Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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National Sanitation Utility (ONAS)

Created in **1974** as a public institution with industrial and commercial character.

Mission

In charge of the sanitation sector management and water pollution control

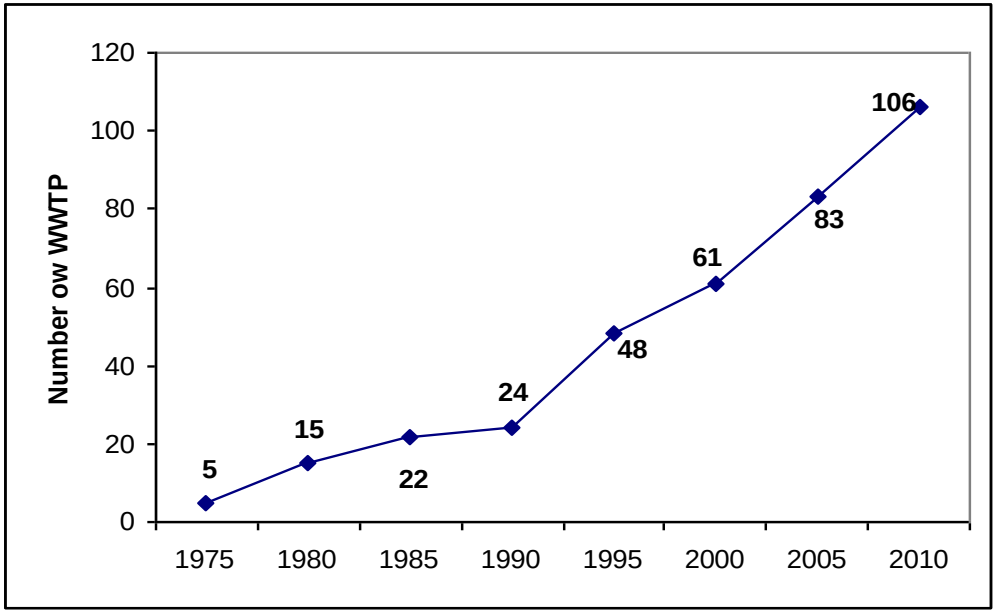
Human Resources

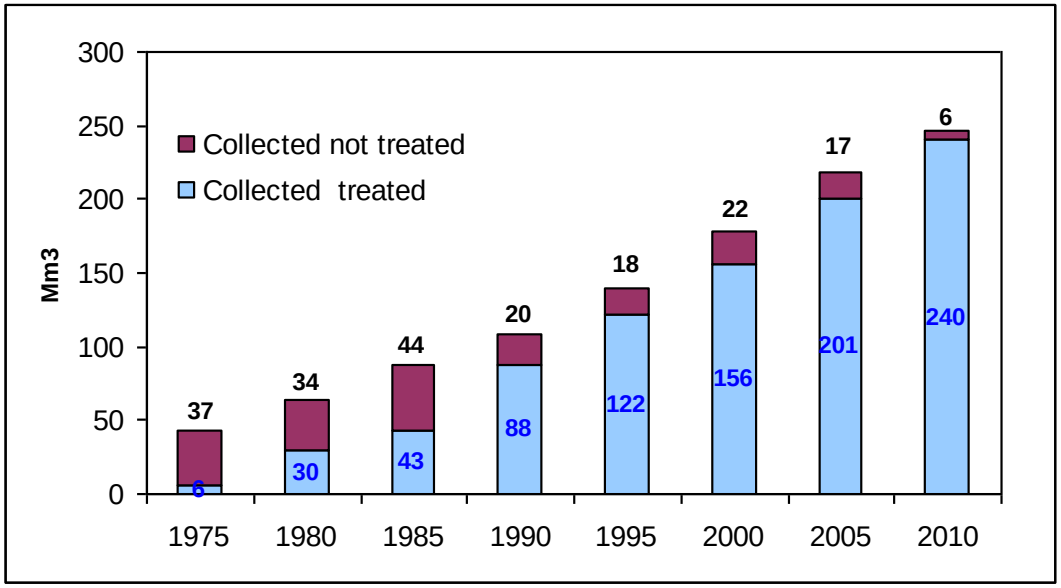
4525 Employees
507 with higher education degrees
(Engineers and Managers)

Some indicators of 2011

Population benefiting from ONAS services/ In million inhabitants	**6,4**
Rate of connection in localities managed by ONAS	**90 %**
Total length of networks (1000 km)	**15**
Number of wwtp	**114**
Treated wastewater quantities (Mm3/year)	**240**
Reuse of treated wastewater (ratio)	**24 %**

Overview of the wastewater treatment and reuse in Tunisia





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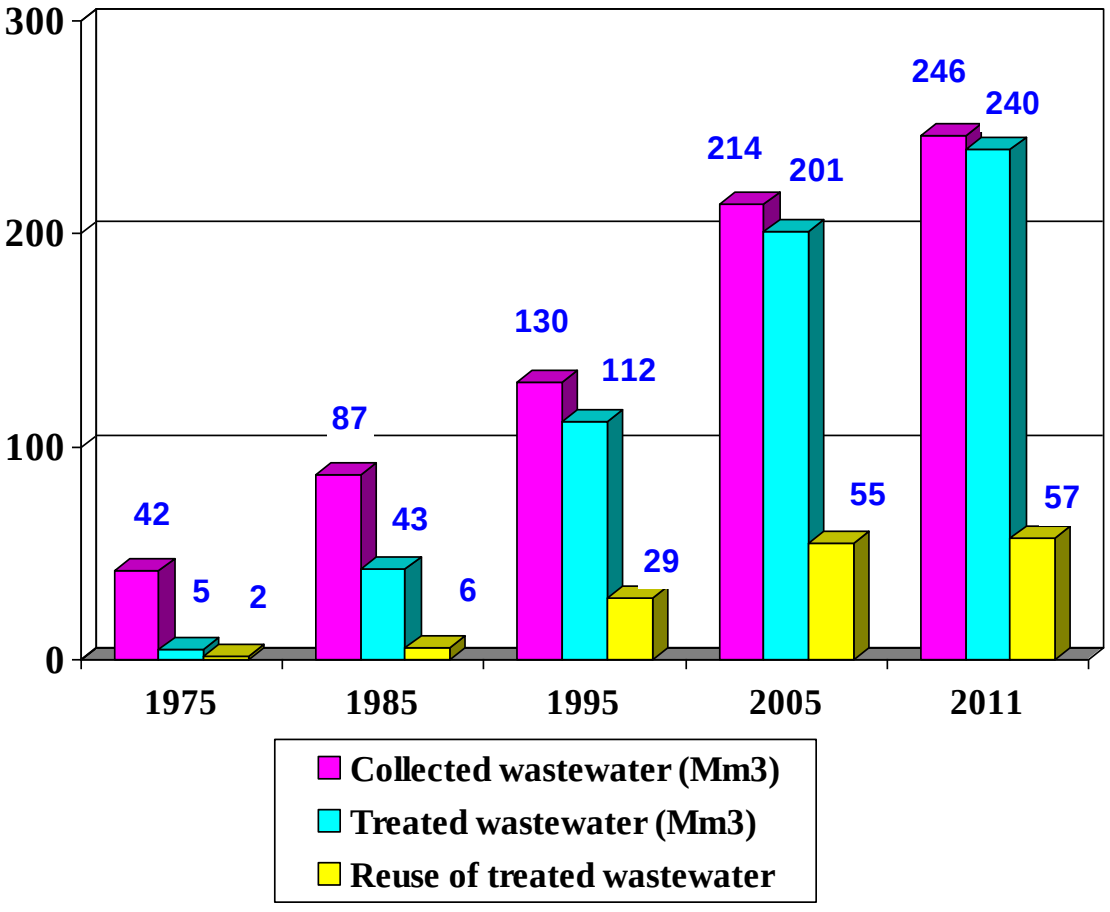
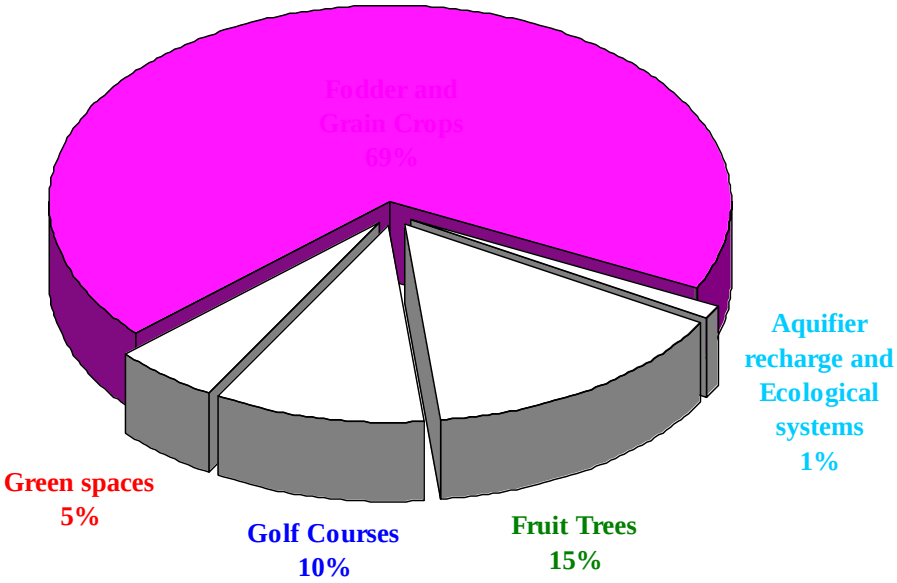


Overview of the wastewater treatment and reuse in Tunisia

Tunisia started with wastewater reuse in 1965 to protect citrus groves of La Soukra north of Tunis from saline intrusion causing by the overexploited aquifer.

Now, the TWW is used to irrigate farmland (8100 ha), Golf courses (1030 ha) and green spaces (450 ha). It's also used to aquifer recharge (Nabeul) and ecological valorization (protection of the wetlands at Korba).



Overview of the wastewater treatment and reuse in Tunisia

Legislation on the TWW Reuse

Treated wastewater reuse in agriculture is regulated by :

- **The 1975 Water Code**. The law forbade the use of untreated effluents for irrigation and stipulated that treated wastewater could not be used for the irrigation of vegetables that would be consumed raw.
- **The 1989 and 1993 decrees** set out the terms and conditions required for using treated wastewater norms for chemical and biological loads in treated wastewater in agriculture.
- **The 1990 order** from Ministry of Economy established the reclaimed water quality standards for reuse (Tunisian Standard NT 106.03).
- **The 1994 order** from the Ministry of Agriculture established the list of crops that could benefit from treated wastewater.
- **A 1995 joint order** from the Ministry of Health, the Ministry of Environment and the Ministry of Agriculture set out the precautions required for using treated wastewater in agriculture.

Overview of the wastewater treatment and reuse in Tunisia

Monitoring and quality control of TWW Reuse

4 levels of monitoring :

- The self monitoring by O.N.AS
- The sanitation control (Ministry of Health)
- The Environment control (ANPE)
- The Agriculture control (CRDA and water user's associations).

Overview of the wastewater treatment and reuse in Tunisia

Constraints related to TWW Reuse

Despite increasing water shortages and substantial economic incentives, demand for reclaimed water over the last ten years has stagnated at around 24 – 27 % of treated wastewater due to :

- The non availability of the agricultural lands close to big wastewater treatment plants (larger cities).
- Competition with the conventional water (in the North).
- Demand variability over the seasons without storage capacities.
- WW quality instability in some cases (industrial effluents)·
- Limited fields of TWW Reuse (Crop restriction).
- TWWR acceptability.

how to promote the TWWR and ensure security for farmers in terms of wastewater quality ?

The pilot activities in Tunisia

Objectives

Demonstrating the usefulness of a system for water quality monitoring, control, and early warning and water quality contracts between farmers and treated wastewater suppliers to promote security and acceptance of wastewater reuse.

The pilot activities in Tunisia

Description of the pilot activities

The pilot activity in Tunisia will take place in Oueljet El Khodher in the province of Medenine, a region where non-conventional water resources present a significant potential since surface water is scarce and ground water is over-exploited.

The Medenine WWTP (capacity of 8870 m3 /d) currently produces about 4,000 m3 /d of secondary TWW to irrigate Oueljet El Khodher perimeter situated nearby (30 ha, with possibility of extension)

This non-conventional water resource is not used to its full potential and the farmers say that the reason of that is the instability of the WW quality.

The pilot activities in Tunisia

Description of the pilot activities

In this context the Oueljet El Khodher pilot activity aims at **reinforcing significantly the monitoring programme in terms of frequency and information dissemination** :

1. Irrigation water as well as groundwater samples will be collected at the frequency set by the national norm.
2. the CRDA/GDA will be trained in order to analyze the water quality data and to set up a warning system in collaboration with the users.
3. Technical trainings and general awareness raising programs will be set in order to ensure proper use of the devices and general understanding and acceptance of the process.
4. the producer and the CRDA/GDA will elaborate a characterization of the water they produce/ need detailing the available/ requested quality, quantity, temporal distribution, etc.
5. These documents will form the basis for the formulation of a contract between partners specifying the service they agree on.

The pilot activities in Tunisia

Stages of the pilot activities

a. **Establishment and regular meetings of a national Steering Committee**.

b. **Baseline assessment and final adjustment of pilot activity**.

c. Implementation of activities with local stakeholders.

d. Action oriented capacity development and awareness raising.

e. Accompanying study of social, environmental and economic effects.

The pilot activities in Tunisia

National Steering committee

Ministry of Environment	**ONAS (leader),** DGEQV and ANPE
Ministry of Agriculture	DG/GREE, BPEH and CRDA of Medenine.
Ministry of Health	DHMPE
Universities and Research Center	INAT, INRGREF and IRA of Medenine.
Giz Tunisia	CCC and sludge projects
Civil society	NGO and GDA Ouljet El Khoder.

The pilot activities in Tunisia

Baseline assessment and final adjustment of pilot activity

Terms of reference were established and contain the following :

1. **Baseline assessment**
   - Diagnosis of the current situation of the WWTP Medenine
   - Diagnosis of the current situation of the irrigated area of El Oueljet khodher.
   - Diagnosis of the quality system monitoring of irrigation water and environmental monitoring
   - Analysis of the institutional and organizational context.
   - National and international experience in treatment and wastewater reuse
2. **Proposal of the pilot**
   - A detailed description of the components of the pilot
   - An environmental management plan
   - A program of capacity building
   - A coordination mechanism between the CRDA and the ONAS

The pilot activities in Tunisia

Recruitment of the Project Manager

Terms of reference were established and contain the following :

- **Monitoring and Project Management :** (i) Coordinates all activities of the project, (ii) Undertakes visits to the project area (Medenine) according to the needs and requirements of the project, (iii) Prepares and conducts coordination meetings of the steering committee and organizes seminars and exchange training and (iv) Ensures the preparation, implementation and documentation of training, workshops, forums, team meetings and other project activities.

- **Capitalisation and Dissemination at program** : (i) Animes spaces dedicated to the project on the website of the program and ensure its regular updating, (ii) Ensures cooperation, regular contact and dialogue with SWIM project partners.

The pilot activities in Tunisia

Fact sheet

A draft fact sheet was developed. This draft contains an overview of reuse in Tunisia, an overview of the pilot work, the methodology, the steering committee, the planning of activities and partners SWIM.

Thank you