

المكتب الوطني للكهرباء و الماء الصالح للشرب

Office National de l'Electricité et de l'Eau Potable



المعهد الدولي للماء
و الصرف الصحي
institut international
eau & assainissement

Investing in Research for Appropriate Sanitation Systems Case of Tlat Marghane, Morocco



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ONEE / Water Branch

- A Nationwide Public WWS Operator
- Turnover : 400 *Million USD*
- Staff : 7,300

Urban Potable Water

- Production : 1000 *Million M³ (35 Million Inhab)*
- Distribution : 600 Municipalities (1.5 Mi connect.)

Rural Potable Water

- Access rate to safe water : 90% (mostly through pipe stands)
- Population supplied : 12 *Million Inhab*

Sanitation

- Collection and WWTP : 100 Municipalities (0.8 Mi connections)

Institut International de l'Eau & Assainissement



- ✓ Vocational training (since 1978)
 - ONEE staff, National (LA..), Regional: Africa, Arab Reg.

- ✓ R&D activities & KM platform (since 2008)
IEA is an exchange platform and a meeting-point of Water Industry and Academia in Morocco

- ✓ Technical Assistance / Partnership
Dissemination & Sharing Knowledge based on:
 - North-South-South Cooperation Model
 - Not-for-Profit Principles



IEA Infrastructures & facilities



- ✓ A experimental network for Potable water
- ✓ A Pilot waste water plant
- ✓ Workshops : hydraulics, hydromechanics, ...
- ✓ 2 mobile training trucks for on-site training activities
- ✓ 6 Buildings IT equipped
- ✓ A conference Centre (130-seat amphitheatre, a 240- seat conference room and three additional seminar rooms 20 to 50 seats);
- ✓ A Hotel (100 beds)
- ✓ A restaurant (200 guests)

IEA ASSETS

- ✓ Affiliated to a performing utility (ONEP)
- ✓ An experience of 34 years (Training)
- ✓ A skilled staff (60) + large Network of professional trainers and Academia researchers
- ✓ National & International Partnerships (GIZ, Waternet, JICA, IWA, GWOPA, HCWW, CNAM, OIEAU, UNDP, UNDESA, UN-Water, UN-Habitat...)
- ✓ A WHO Collaborating Centre in the areas of Research & Training, since 1994
- ✓ Designated by USAID as Water Centre of Excellence in MENA Region since 2011
- ✓ ISO 9001-2008 for the whole activities

Main Challenges of Water Sector in Morocco

- Escalating Demand
Population Growth & Economic Development / Tourism
- Urbanisation and Land use
Half of the population in urban areas
Urbanism Planning not sufficiently linked to WWS
- Stress on Water Resources due to Pollution
Lack of Wastewater Treatment.
- Agriculture uses >80% of Water Resources
Vs 10% for Potable Water
- Lack of Energy
An Opportunity to develop Renewable Energy ?
- Climate Change
Extreme Events: Drought / Flooding

Tlat Marghane Sanitation Project

General Objective

Developing a sustainable Sanitation system for rural areas

- Appropriate technology
- Socially acceptable (User-friendly)
- Affordable
- Environment protection
- Water conservation (REUSE)

Tlat Marghane Sanitation Project

Context



✓ Scarcity of Water resources

✓ Waste water is not treated

- Health and Hygiene issues
- Pollution of local aquifer dedicated to drinking water
- Negative impact on socio-economic development (tourism)
- Negative impact on social

✓ Village located in a remote rural area

✓ Poor area (lack of development opportunities, migration)

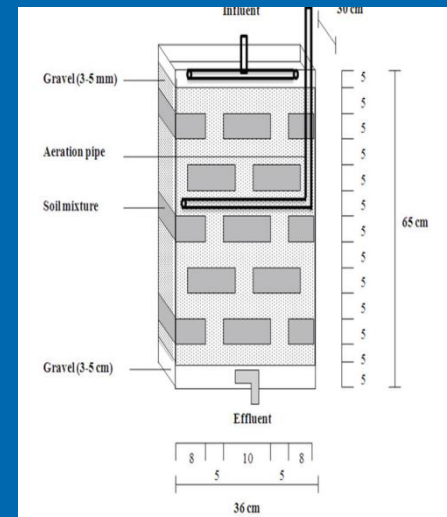
✓ Population 530 inhab. (a hundred of households)

Tlat Marghane Sanitation Project

Roadmap 1

1- Prepa. Phase

- Diagnosis, Studies, Technology choice, Identifying
- Partners: users/citizen, LA, Academia, local private..
- Outcome: PCD (Community Development Plan dealing with entire chain of water, solid waste, urban planning..), Partnership Agreement



2- Lab. Pilot

- Tech. MSL (Multi-Soil-Layering)
- Engineering: IEA
- Partners: Shimane Univ., Japan, Cadi Ayyad Univ. Marrakech (Quality performances), IAV Rabat (high institute for Agriculture..)/Reuse aspects

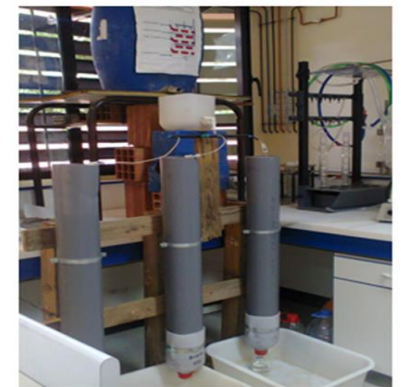


Figure 1 : Laboratory-scale MSL system installed at the center CNEREE

Tlat Marghane Sanitation Project Roadmap 2

3- Field Pilot

- limited Collection/network, WWTP (MSL)
- Partners: Small Local private compagny (works)
- Academia (monitoring quality parametrs and performances of Treatment system), local NGO (citizens), LA..
- Outcomes:
 - Confirmation of treatment performances of the Laboratory pilot
 - Refining the engineering of the MSL plant



Figure 2: Laboratory-scale MSL system installed at the douar Talat Marghen

Tlat Marghane Sanitation Project Roadmap 3

4- Large scale Project (expanding to the whole village)

- Large Collection/network, WWTP (MSL) + Reuse (Reeds field)
- Partners: Small Local private compagny (works)
- Academia (monitoring quality parametrs and performances of treatment system), local NGO (citizens), LA..
- Outcomes & achievements:



Beneficiaries : 530 inhabitants (most are poor and vulnerable)

Reclaimed water (Reuse): 17 m³/day

Setting up an Users Association for OM of the system (CB...)

Total cost (Including R&D phases): 500,000 Euros

Total definitive project (Collection, WWTP): 200,000 Euros (30 Euros/ inhab)



Tlat Marghane Sanitation Project Persepectives

- ✓ Dissemination and outreach at the Basin level
- ✓ Dissemination and contribution to the National Program of Rural Sanitation (PNAR / CESAR)
- ✓ Sharing knowledge at Regional level (MENA, Africa):
 - ie. MENA-NWC (Jordan), FABRI, USAIDWaste water is not treated
- ✓ Capacity Building and KM (ie CLARA)

Tlat Marghane Sanitation Project

Lessons and Recommendations

- ✓ Institutional environment (tax policy, R&D strategy ...) is crucial
- ✓ Make a shift in the Politician, Decision makers and Engineers Culture in Developing countries: Sophisticated solutions are not always appropriate. Need for investing in R&D for adapted and smart solutions.
- ✓ Designing and building partnerships Operator-Academia-Citizen... etc is fundamental (pooling resources, networking, KM, ownership..etc)
- ✓ Relying on aid developemnt mecanism for funding R&D and CB is not sustainable.
Need for sustainable R&D and CB funding linked systematically to Infrastructure budget and financing.

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