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)
IEA
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
3- Field Pilot

- limited Collection/network, WWTP (MSL)
- Partners: Small Local private company (works)
- Academia (monitoring quality parameters 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
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 company (works)
   - Academia (monitoring quality parameters 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 Perspectives

- 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 Enginners
  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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