المكتب الوطني للكهرباء و الماء الصالح للشرب
Office National de l'Electricité et de l'Eau Potable

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

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Outline

General context

Objectives

Roadmap

Results and perspectives

Lessons learnt

ONEE / Water Branch

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

Urban Potable Water

- **Production : 1000 *Million* M^3 (*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

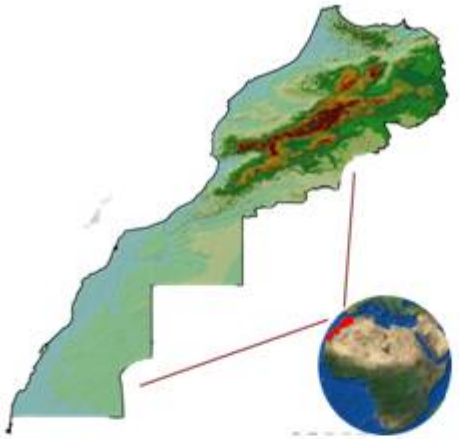
  Dissemination & Sharing Knowledge based on:
  - North-South-South Cooperation Model
  - Not-for-Profit Principles

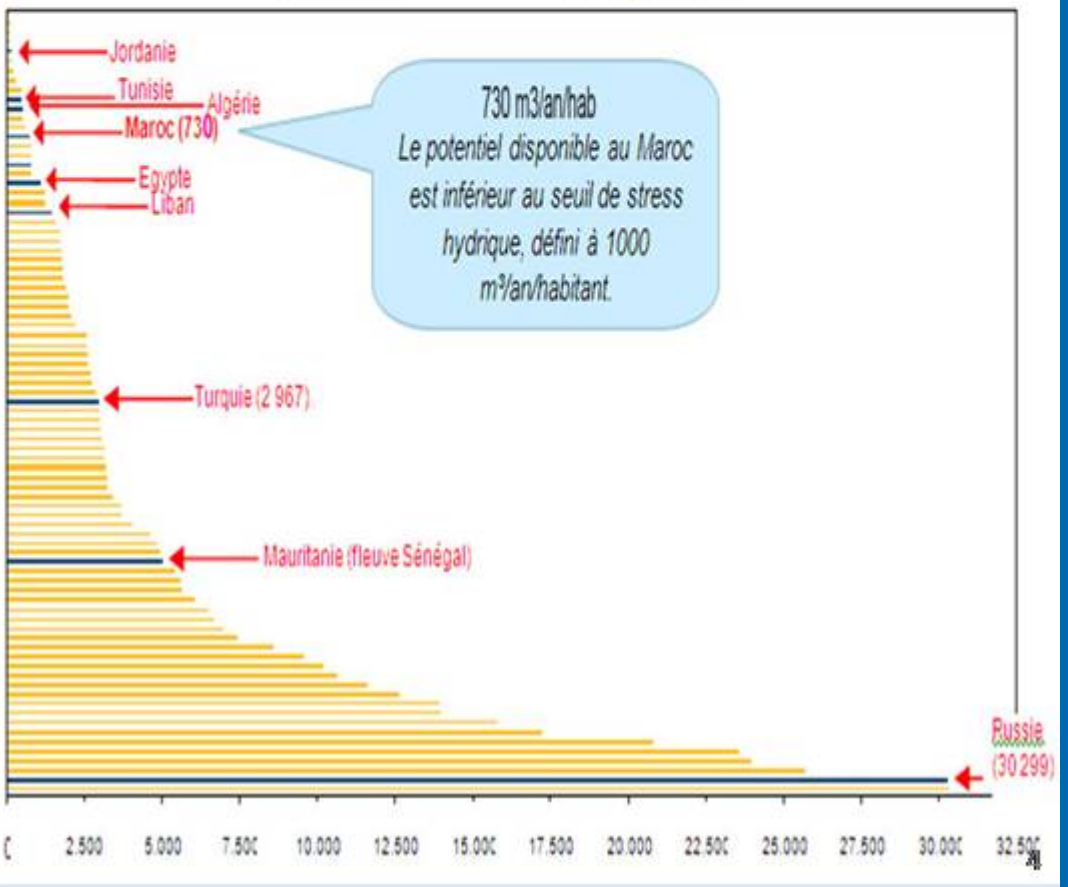
+ Potentiel des Ressources en Eau limité

Ressources en eau naturelles
22 Md m³/an

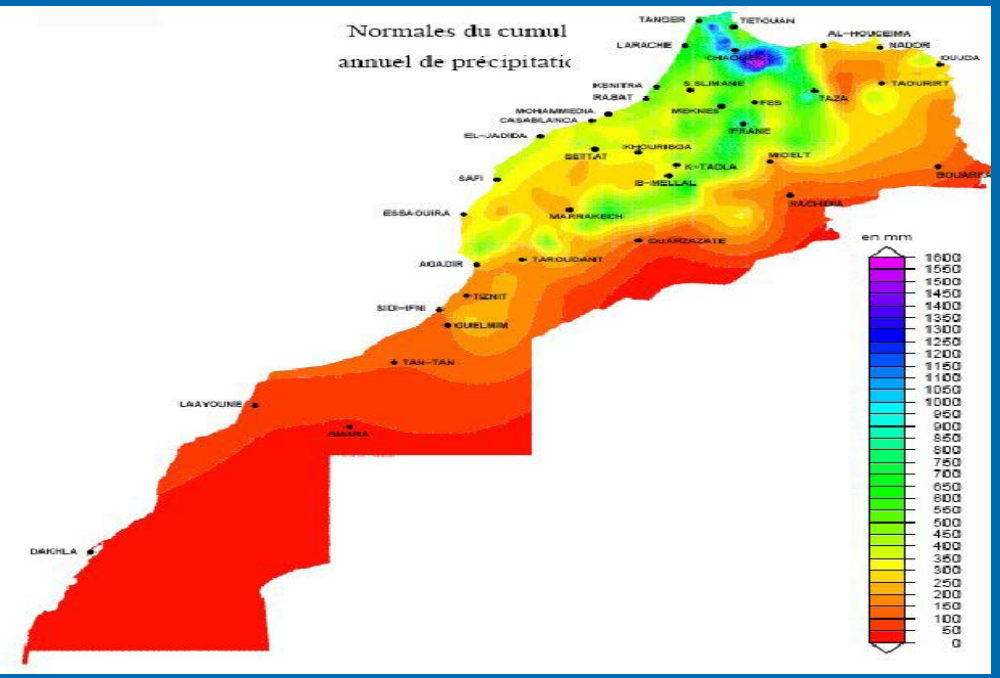
18 Md m³/an
Eaux de surface

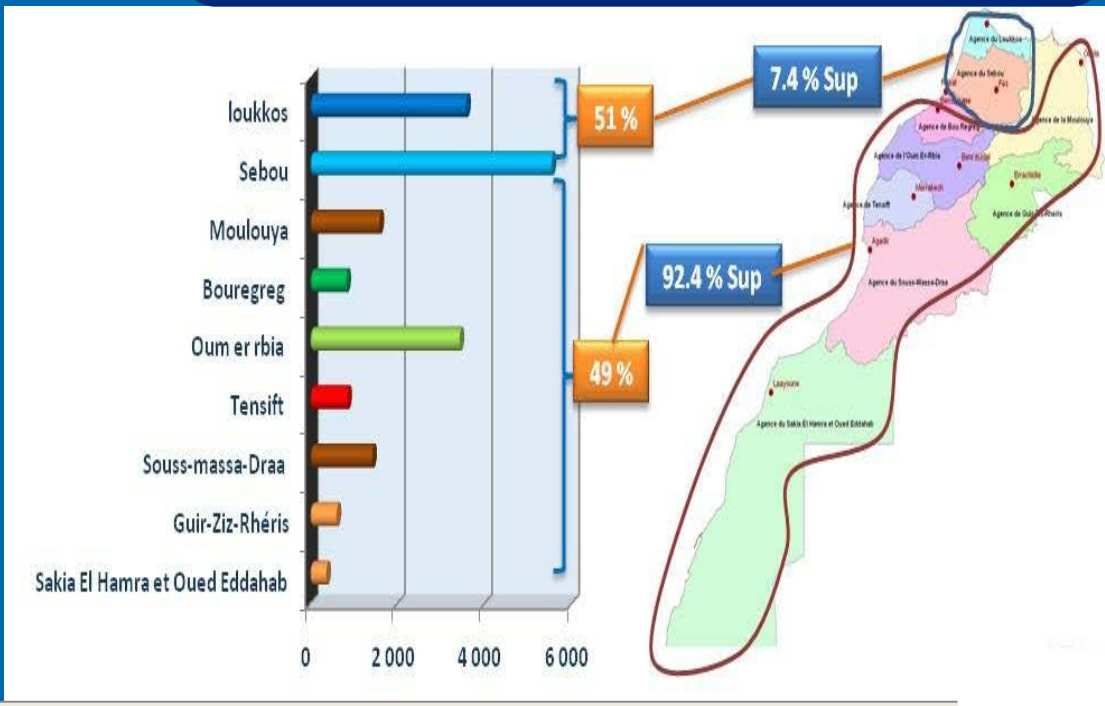
4 Md m³/an
Eaux souterraines

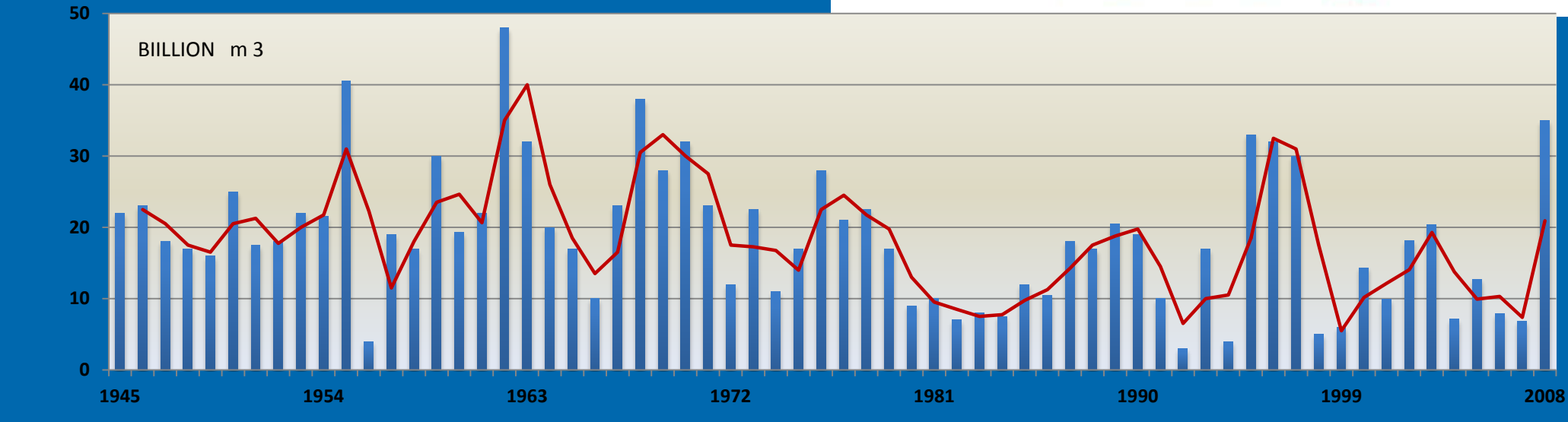




Scarcity, variability







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

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

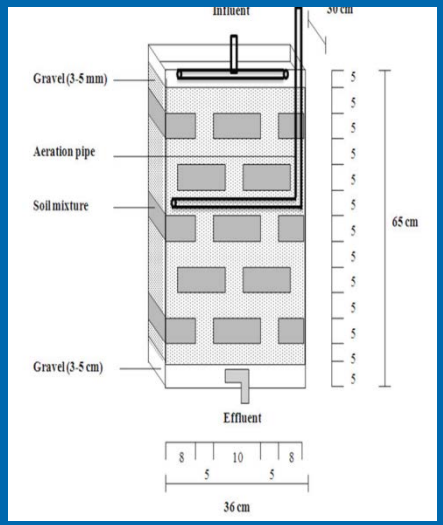
Context

- ✓ Scarcity of Water ressources
- ✓ Waste water is not treated
  - Health and Hygiene issues
  - Pollution of local acquifer 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

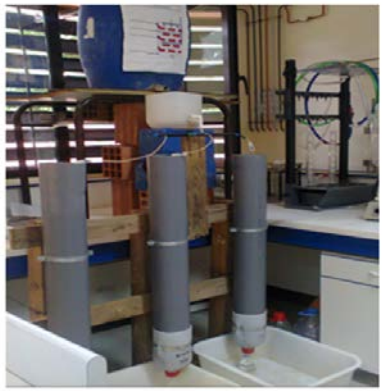


Figure 1 : Laboratory-scale MSL system installed at the center CNEREE

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)

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, USAID)
- ✓ Capacity Building and KM

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 appropiate. Need for investing in R&D for adapted and smart solutions.
- ✓Designing and building partneships 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.

Stockholm Water Week 2017
Susana Prize as Best R&D Project in MENA

Thank you for your attention

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