

# As-Samra Project

## A Major Asset for Jordan

High technology combining water  
recycling and energy production



# As Samra, an Environmental Success

- **70%** of the wastewater treated in Jordan
- **100%** of treated water used for irrigation
- **10%** of global water consumption thanks to high quality treated water that frees up fresh water
- **80%** self-sufficient in energy with renewable resources
- **185** tons/day valuable resource of biosolids (organic fertilizer, soil conditioner, energy recovery, etc.). Landfill for now.



# Description of the project

- Public Private Partnership (BOT) contract signed in 2003 between the Government of Jordan and Suez/CCC groups
- Grants by USAID (phase 1) and MCC (phase 2)
- Operation and Maintenance up to 2037
- Phase 1: operational in 2008
- Phase 2: completed in October 2015
- Nominal capacity: 364,800 m<sup>3</sup>/d (3,27 million inhabitants)



# Key figures of electricity production

- Production with hydraulic turbines:
  - Total power: 4.2 MW
  - Benefits from geographical site location
  - 2 x Pelton (inlet) + 3 x Francis (outlet)



- Production with biogas generators:
  - Total power: 9.5 MW
  - Gas produced by digestion process
  - Need of H<sub>2</sub>S removal treatment
  - 10 x Caterpillar gensets



- Total Production: 75 GWH/y

# Key figures of electricity consumption

- Water line process: primary settling tank + aeration + clarification + chlorination
- Sludge line process: anaerobic digestion + belt filter press + solar drying beds
- Energy Consumption:
  - Total need of the plant: 90 GWH/y
  - Main consumer: aeration process (45%)
  - Bought from the grid (JEPCO): 15 GWH/y



## Benefits of electricity production

- Significant reduction of water tariff for the Government of Jordan
- 300,000 tons of CO2 saved per year



## Constraints to consider

- High level in Health and Safety competency required due to biogas production and presence of explosive atmosphere
- Expertise in digestion and biogas gensets
  - ➔ 4 certifications achieved
- Not applicable for small size plants

