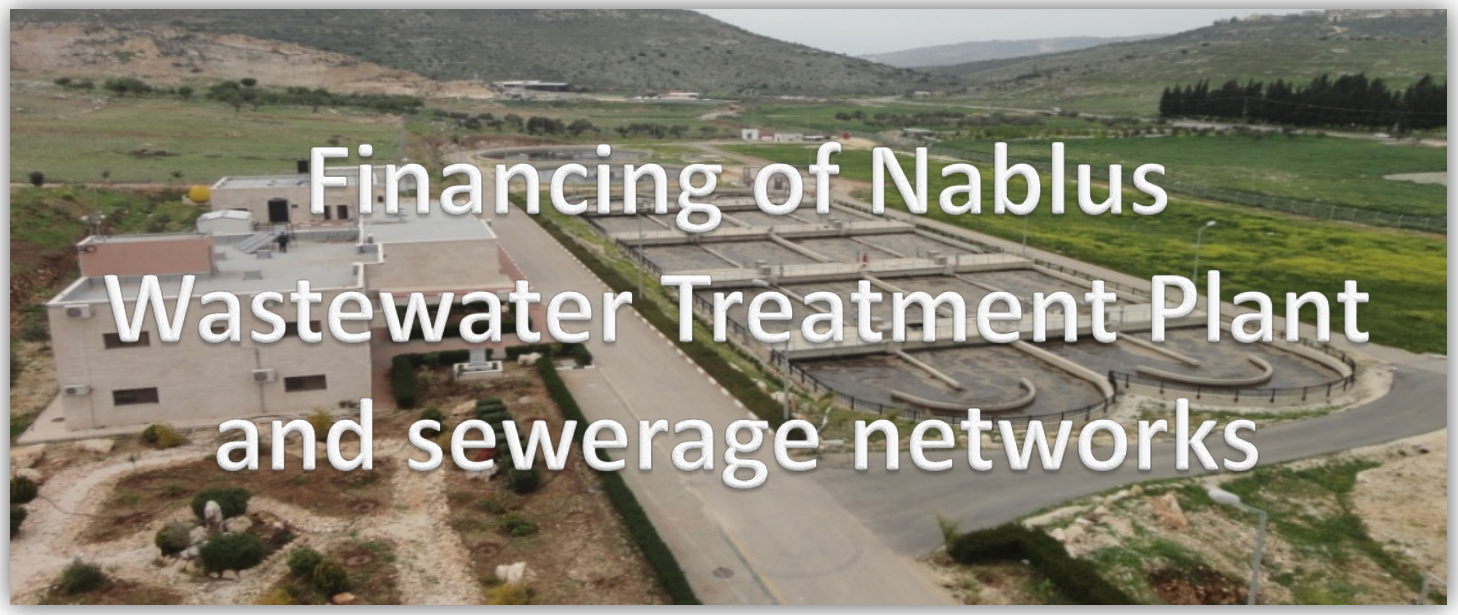


Financing of Nablus Wastewater Treatment Plant and sewerage networks

Water supply and sanitation department (WSSD) is considered one of the important departments of Nablus Municipality (NM) that provides safe drinking water and sanitation services to Nablus citizens and several surrounding villages in addition to four refugee camps(200,000 inhabitants)

Nablus WWTP& Sewerage Financing

- Donation from German Government through KfW 30 M€.
- Nablus Municipality local contribution and local communities is about 2.5 M€ to purchase the land of WWTP and SWT

Parameter	Unit	Present value
Q/day	m^3/day	11,000
PE	Citizen	110,000
Inlet BOD_5	kg/day	5,043
Sludge	Ton/day	12
O&M	Euro/Year	935,000

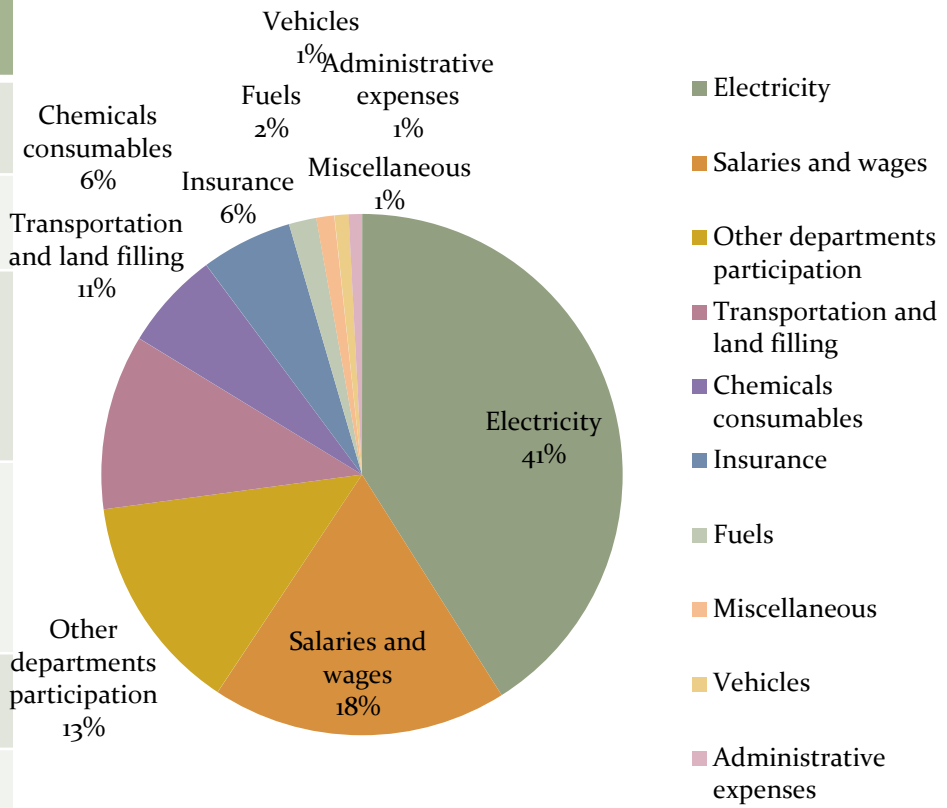
- 50% (Capital investment of sewerage networks) by NM/contribution from the citizens of Nablus, Calculated as per square meter of land
  - 1.8 Euro /m2 for residential use
  - 3.6 Euro /m2 for commercial use

→ Service connection

- Total length for sewage networks 215 KM

WWTP O&M2016-Problem

Expense	Euro	%
Electricity	383,196	41
Salaries and wages	171,011	18
Other departments participation	126,552	14
Transportation and land filling	101,394	11
Others	151,971	16
Total	934,123	



- **Fees collection rate is 70% (refugee camps)**
- **The cost of electricity is high (0.13 Euro/kwh)**

Cost Reduction- Approach

- Installation of CHP Unit to produce 400 kW electricity at investment cost of **0.76** M€ financed through KfW and 10% contribution from NM. (It is recently installed and operated).(25 – 30 % reduction in cost.)
- Also NM will implement a Pilot Project of PV Solar Panels in the WWTP of 70 kW as first stage to be financed from BMZ through Nuremberg Mun. Within the frame works of Partnership Project (Nakopa)(by the end of this year).
- Fees for treatment are 0.13 Euro per m3 of consumed water as for Nablus city.
- Fees for O&M of sewerage network are included in water tariff.

Cost Reduction- Outputs

- More revenues will be attained by treated effluent selling to the farmers. (12,000m3per day).(**Cover O&M). Expected in 2019.**
- Cost reduction in O&M for WWTP between 20-30 % as CHP output**.(Increasing the biogas production with other feed stocks will be considered soon).**
- Achieving more sustainable sanitation services to the nearby villages. (**Sustainability).**
- Creating a steady state operation of the WWTP as a result of industries discharges monitoring. (**Sustainability).**

Lessons Learned

- Sanitation projects must be financed for the longterm
- Gas generated from the anaerobic digester is valuable energy should not be flared
- Using of PV is promising future technology especially in our area which can reduce O&M costs
- Optimization of operation is necessary to reduce O&M costs and achieve the sustainability
- Local contribution to implement sewerage projects is necessary
- Present tariff only covers O&M costs

Follow up

- Finding a sound and environmental solution for the generated bio solids at WWTP instead of sending it to the sanitary landfill to decrease the cost. (Discussion at national level is ongoing with relevant ministries).
- Training of the sanitation department staff is necessary to keep the assets and operation without interruptions.
- Regulation is necessary to pump excess electricity-if any- to nearby electricity grid. This would need relevant by law!!
- The financial risks shall be checked regularly with creating counter measures.
- Increase TWW tariff to include some of depreciation cost.

WWTP