

Evaluation Summary

North Gaza Emergency Sewage Treatment Plant (NGEST) Gaza Strip, Palestine

Country: **Palestine**

Sector: **Water and Sanitation**

Evaluator: **ICEA Consulting & Universal Group for Engineering and Consulting**

Date of the evaluation: **December 2019 – February 2020**

Key data on AFD's support

Project numbers:

Amount: 16 M €, across two financing agreements

Disbursement rate: 100%

Signature of financing agreement: March 2006 (F.A. CPS 3003) and October 2010 (F.A. CPS 1019)

Completion date: March 2018 (Works Completion)

Total duration: 12 years*

*12 years represents the period between the signing of AFD's first F.A. and the completion of construction. The construction of the Treatment Plant took 7.5 years; and the construction of the Pumping Station (incl. pipelines and infiltration basins) lasted approximately 3 years and 7 months. Over a year passed between completion of TPS construction and beginning of WWTP works.

Context

Gaza is faced with serious water issues: less than 3% of the locally abstracted water meets drinking water standards. This situation can directly be attributed to seawater intrusion and sewage pollution. Wastewater treatment and reuse are therefore essential levers in improving the water situation in Gaza by enhancing sustainable and healthy aquifer recharge. At the time of project appraisal, existing wastewater infrastructure in Northern Gaza was insufficient, overloaded, and underperforming. Therefore effluents could not be treated and disposed of correctly, with effects such as poorly treated effluents overflowing into an artificial lake of foul water; groundwater contamination; health risks; proliferation of mosquitoes and other insects; foul gases; and contribution to the water issues highlighted above.

Actors and operating method

Project funding was provided by various donors, including AFD, World Bank and by the Palestinian National Authority. All donors had different operating methods. During project implementation, PWA was responsible for the fiduciary and safeguard aspects through a dedicated Project Management Unit (PMU). Following completion of the construction, rehabilitation, and expansion of the facilities, the Coastal Municipalities Water Utility (CMWU) was in charge of ensuring O&M. The assignment of responsibilities for the operation phase was to be determined by the 2014 law, which to this date has not entered into effect.



Objectives

The NGEST project was therefore implemented to provide a solution to the issues highlighted. The listed objectives of the project were to:

- Mitigate the health and environmental safety threats to the communities surrounding the effluent lake at Beit Lahia;
- Provide a satisfactory long-term solution to the treatment of wastewater for the Northern Governorate in Gaza

Outputs

- Component A : Effluent Transfer to the Infiltration Basins Adjacent to the Proposed North Gaza Wastewater Treatment Site. This component includes the construction of a Terminal Pumping Station (TPS), of 9 infiltration basins, and of a 7 km pipeline to transfer the effluent initially from the lake to the infiltration basins, and later transferring the raw sewage to the wastewater treatment plant upon its completion.
- Component B: Construction of the North Gaza Wastewater Treatment Plant

Performance assessment

Relevance

Relevance is composed of two aspects: relevance of the objectives of the project in light of the challenges identified, and relevance of the project itself in light of the objectives. The objectives were highly relevant to face the issues identified, and the project itself was relevant in light of the objectives, but the design of the project was too complex given the emergency nature of the project and the specific context of Gaza.

Effectiveness

Effectiveness assessment examines whether the project managed to achieve its intended results. Assessment was therefore structured around two key objectives: sanitize Beit Lahia and provide a long-term solution, and divided into sub-components. For the former, the project has been very effective (full drainage of the lake and transfer of the effluents, significant decrease in waterborne diseases) but issues related to odor pollution and sludge disposal remain. For the latter, the project fares well.

Efficiency

Efficiency assessment examines how efficiently resources were used. Efficiency was therefore examined both as time efficiency (effective plant construction time vs construction time initially planned) and as cost efficiency (disbursed amounts vs planned amounts and vs consultant's estimates). Time efficiency is low, due to considerable delays in construction (5 years). Cost efficiency is excellent, as no overcosts in excess of 10% are to be noted.

Impact

Going one step beyond the effectiveness assessment, impact assessment examines "Positive and negative, primary and secondary long-term effects produced by the intervention, directly or indirectly, intended or unintended". Impact assessment was structured along environmental, socio-economic and perennity and sustainability indicators. Despite lack of data on water table level and quality, environmental and socio-economic indicators are quite good compensating low level of sustainability indicators.

Sustainability

Sustainability looks into the long-term effects of the project, and analyzes to what extent the different effects of the intervention will continue following the withdrawal of the donors' support. Indicators used for the sustainability assessment are based on O&M capacity, support staff capacity, institutional clarity and financial sustainability. Today, the NGEST project is not sustainable enough. However consistent efforts by the donors, local agencies, and local staff mark a desire to improve this situation and must be commended.

Added value of AFD's contribution

While it is hard to quantify AFD's « added value » beyond financial terms, as it is difficult and not necessarily useful to assume what the project would have been without AFD, a good proxy can be used: AFD's notoriety with stakeholders. In the majority of interviews, when asking who the key development partners were in this project and beyond, AFD was consistently stated among the first three. Moreover, from discussions with stakeholders it appeared that all were satisfied with AFD's intervention, and recognized it as a trustworthy and engaged counterparty. Municipalities, however, expressed that they were not properly engaged in the project, both at the time of project implementation (weak communication on objectives, advancement, little to no consultation) and that today they have little access to information on reporting.

Conclusions and lessons learnt

NGEST is an impressive facility, and its completion in the difficult context of Gaza is a remarkable achievement. While there have been significant delays in construction, they are due to factors outside of donors' control, and while cost overruns have been identified, the final cost of the plant is consistent with international costs for a facility of this size and this level of complexity.

The quality of the effluent in some parameters exceeds the standards set by PWA and the WHO, and the extension of the plant and the finalization of the reuse component will further improve quality of life for local populations, reduce water table pollution and contribute to bettering the environment and alleviating the water crisis in Gaza. **Overall, the project performance is awarded a 7.4/10.**

While the project scores well in relevance and effectiveness, there is room for improvement regarding efficiency and impact, which are in great part linked to the situation of sludge disposal. Sustainability is a major issue. AFD's added value appears considerable, though improvements are possible. More specifically, crucial issues are:

- **Sustainability:** to this date, the plant is not financially sustainable due to the lacks in invoicing, which poses an issue for project long term sustainability.
- **Institutional clarity:** a clearly defined and enforced institutional architecture is necessary to ensure an efficient operation.
- **Complexity:** while the plant achieves excellent results, it seems overly complex and in some cases over dimensioned.
- **Sludge Disposal and impact visibility** must be improved.
- **Weaknesses** also appear in the maintenance of some specific equipment, certain chemical analyses, quality of the power supply, improving the energy efficiency of the TPS, and reducing wear and tear and H2S health risks.

In conclusion, NGEST is an impressive achievement and shows excellent results. These are however tainted by issues regarding some operation aspects, and most importantly by the need to ensure the project's sustainability. The project must be continued and the reuse of wastewater must be implemented. This work and its positive impact could be better promoted. For future projects in the region, mitigation measures should be implemented to address the risks of developing a project in Gaza (conflict and import restrictions in particular), including all the relevant components (e.g. recovery wells, irrigation and O&M Support) to ensure long term impact, efficiency and sustainability and improving involvement of local authorities would be an asset.