Title: Wastewater Treatment Technology Alternatives & Selection
Prepared by: Dr. Rashed Al-Sa`ed
Supervised by: Palestinian Water Authority
Funded by: Austrian Development Agency (ADA)
Email: subhisamhan@yahoo.com

Introduction

The Palestinian Water Authority [PWA] will investigate the potential for all technology alternatives and depart from a traditional centralized approach to wastewater treatment to a more evenly distributed wastewater treatment strategy. This distributed approach will investigate the use of the existing sewerage infrastructure, while setting the direction for more localized wastewater management with significant focus on potential water reuse and where possible energy recovery opportunities. The strategy will investigate the possibilities of more decentralized water reclamation plants in association with the development of a totally integrated approach to wastewater management and recycling.

The advantages of this distributed treatment approachare three fold. First, it potentially reduces the size of the traditional centralized plants as the use of upstream water reclamation plants reduces the flows reaching the plant. Second, by strategically locating the upstream water reclamation plants, this approach creates local opportunities for future water reuse and to a lesser extent heat recovery from the wastewater. Third, by reducing the existing wastewater flows in the lower portions of the sewerage system, capacity is freed up to handle a greater portion of the wet weather wastewater flow – greatly reducing the frequency, volumes and possibility of the sanitary sewer overflows (SSO).

The real innovation of this strategy is the flexibility that it will provide the additional capacity within the existing network design and also the potential for extending the life of existing plants by diverting wastewater streams to satellite facilities in the future decades. This will reduce the need to build larger pipes in the ground to transport the wastewater long distances to a central treatment plant site. There will also not be the need to continually expand the central plant to handle higher wastewater flows due to growth – the decentralized water reclamation plants will handle growth in the outlying communities. These plants have the potential to utilize advanced treatment technologies where possible to take advantage of phasing opportunities and avoid the more the costly “just in time" construction phenomenon.
This strategy will also allow municipalities to continue to incorporate innovative directions in overall community development. New or re-development projects, fit well with the strategies adopted by the PWA in that they blend the advantages of local water reuse with reduced demands on the water infrastructure, while using the capacity of the community sewerage systems for the management of surplus wastewater flows and residuals management and potentially hazardous spills.

The Strategy addresses issues related to governance, wastewater facility performance, effluent quality and quantity and its associated risk considerations in a way that provides consistency andclarity to the wastewater sector in Palestine.Specifically, the Strategy identifies effluent quality standards which include minimum National Performance Standards and the need to conduct site-specific risk and/or EIA assessment and develop site-specific effluent discharge objectives and monitoring and reporting requirements. Implementation of the Strategy shall take place over time using a risk-based approach. As the Strategy is implemented, a coordinating committee will be established under PWA to monitor implementation of the Strategy with a focus on continuous improvement.