Case study

Wastewater Treatment and Reuse Plant – As Samra, Jordan

Project	
Where (country/City):	Amman and Zarqa, Jordan, Middle East
When and contact length :	- Initial construction phase started in 2003 and start of operation was in 2008. - Expansion phase started in 2012 and the plant was operational in 2015. - Original contract duration is 25 years (ie. 3 years for construction and 22 years of operation and maintenance) extended with the Expansion until 2037.
Goal: Construction and or Operations?	Construction and Operations
Scope: Water/ Wastewater?	Wastewater
Scope: Plant and or Network?	Plant + 1 pretreatment plant + 4 large conveyance pipeline + 2 pumping stations
People served:	In 2008, the WWTP benefited 2.3 million inhabitants to a target of 3.5 million people at the horizon 2025 *(≅ 70-75% of the population of Amman and Zarqa)*
Brief description of the project	
The scarcity of water in Jordan is widely seen as the single most important restriction on the country's sustainable economic growth. At the time, the Zerqa river drains most of its polluted water into the King Talal Dam, which provides irrigation water for the Jordan Valley, causing significant environmental and health concerns. The As-Samra wastewater treatment plant (WWTP) was built to replace the old, overloaded As-Samra Wastewater Stabilization Ponds (WSP). The plant was built therefore, to improve the quality of water in Jordan. The plant treats wastewater released from the Zarqa river basin, which is part of the two populated cities of Greater Amman and Zerqa.	
Is this project unusual or different compared to others?	
The facility is acknowledged for being :	

- One of the first projects in the Middle East region to be built under a build, operate, and transfer (BOT) basis and one of the first project to be financed via a blended financial package (ie. mix financing with 50% of grants from IFIs (USAID/MCC), 40% of Senior loans from a consortium of Jordan commercial banks led by Arab Bank, 10% from private sector)
- First energy self-sufficient wastewater treatment plan in Jordan (almost 90% energy recovery -see below)
- First comprehensive environmental project (full cycle of treatment and reuse, sludge odours etc.)

What have been the major outcomes or success so far?

- Water line capacity has increased by 37% : bringing the total capacity at 365,000m3/day
- The proportion of blended wastewater used for irrigation has grown from 61 percent to 83 percent four years later, freeing up additional freshwater resources for potable water supply for domestic use for appx. 2,020,000 people
- Now about 4,000 farms and 10,000 hectares are irrigated with Samra high quality water
- The plant is self-sufficient in energy : The WWTP receives 90% of its electricity needs through the combination of hydraulic turbines and gas turbines powered by digestion biogas.
- Reduction of greenhouse gasses emissions (GHG) up to 90%, estimated to 40 000 tons/year
- The project has created about 230 long-term jobs: 100% Jordanian employees. 70% from local areas.

Has "working in partnership" helped to make the project successful?

As Samra project's success story has been mostly due to the strong partnership and implication of:
- IFIs (USAID and MCC) which provided the needed grants for the construction and expansion of the As-Samra WWTP
- The Jordanian Government who has been strongly committed to tackle the Water issue mentioned above
- A strong consortium of banks led by The Arab Bank granted necessary loans
- The Samra Plant Company (SPC), comprising Veolia and Morganti, which has been dedicated to operating the plant at the highest standards and with the support of a highly trained workforce.

As part of the Corporate Social & Environmental Responsibility approach, the project supports local communities including local society associations, small businesses and administrations.

Contribution to the United Nations 2023 Conference themes

1) Which Interactive Dialogue theme does the project contribute to?

Water for Health: Access to safe drinking water, hygiene and sanitation	Yes, as the dominant feature of this project is the development of access to good quality water through better treatment of the Wastewater discharged in potable water resources
Water for Development: Valuing Water, Water-Energy-Food Nexus and Sustainable Economic and Urban Development	Yes. As-Samra WWTP stands out as an example of how a good cross-sectoral planning can optimize resource management and result in gains in form of

	energy self-sufficiency, higher water efficiencies or indirect agricultural and environmental outcomes.
Water for Climate, Resilience and Environment: Source to Sea, Biodiversity, Climate, Resilience and Disaster Risk Reduction	Yes. Findings proved the effectiveness of the As Samra wastewater treatment plant on enhancing the quality of the Zarqa River (ZR) and its flora and fauna; so, consequently reducing environmental deterioration. For instance, various Fishes specimens can now be once again seen in the Zarqa River!
What topic of the "Global Acceleration Framework" does the project contribute to?	
1. Optimized financing – did you improve targeting or utilize existing resources more efficiently, or mobilize additional funds?	YES. The mobilization of additional funds for the plant expansion was a key part of a water reuse program that also improved the allocation of water resources by enabling the use of high-quality treated wastewater from As-Samra in agriculture, thereby freeing up freshwater for higher value use in municipalities
2. Improved data and information – how did you use data and information to improve the service and increase accountability and transparency?	YES: on the As Samra WWTP, effective data-driven process control and performance analysis have been put in place and have reduced costs while drastically improving operations & treatment processes.
3. Capacity development - did you create new jobs or developed local people's skills and talents?	Yes. Since its launch As Samra WWTP has created ≅230 long-term jobs which made it one of the top employers in the Zarqa region.
4. Innovation – how have you used innovation and technologies to make the service better?	YES: the Plant has been designed and is currently operated with the latest technologies and know-how. The water treatment, sludge treatment, biogas production, power production lines have all been optimized, while making sure that the costs of operation/maintenance stay low. In addition, the SPC company has implemented an energy management system as per ISO 50001 to evaluate and control its energy consumption. An innovation was the use of hydraulic turbines on raw sewage.
5. Governance – what have you done to maintain and strengthen governance around the project?	YES: From a governance perspective, As Samra is a great example of the effectiveness of the involvement of an array of strong stakeholders; and cross-sectoral integration for planning and implementation of in-infrastructure projects. The project has benefited from strong institutional and regulatory support mechanisms.
Has the project in any way supported the development and involvement of young people and/or supported gender equality, and if yes, how ?	

Providing access to potable water and improving its quality are priority gender equality measures. The programme includes, as well, the training so far of about 200 local young people who have the ambition to work on such WWTP facilities.