



Sustainable Water Integrated Management programme (SWIM II)

Re-use of treated wastewater for agricultural irrigation in Southern Gaza Strip



Start date: 01 April 2017

End date: 31 March 2020





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Background

- This project came as a response to the intensified water crisis in the Gaza Strip.
- The project aligns with the strategy of PWA in relation to wastewater reuse as an integrated water management mechanism in order to tackle the water crisis of the Gaza Strip.

The Current Destination of treated wastewater

- 28% of households in the Gaza Strip are not connected to the municipal sewage discharge network relying instead on leaky cesspits, boreholes, and septic tanks, which are unsafe and porous (CMWU)
- Severe issues regarding contamination from untreated or insufficiently treated wastewater
- Power outages of up to 8-10 hours per day and a lack of fuel to operate backup generators to keep wastewater facilities functioning



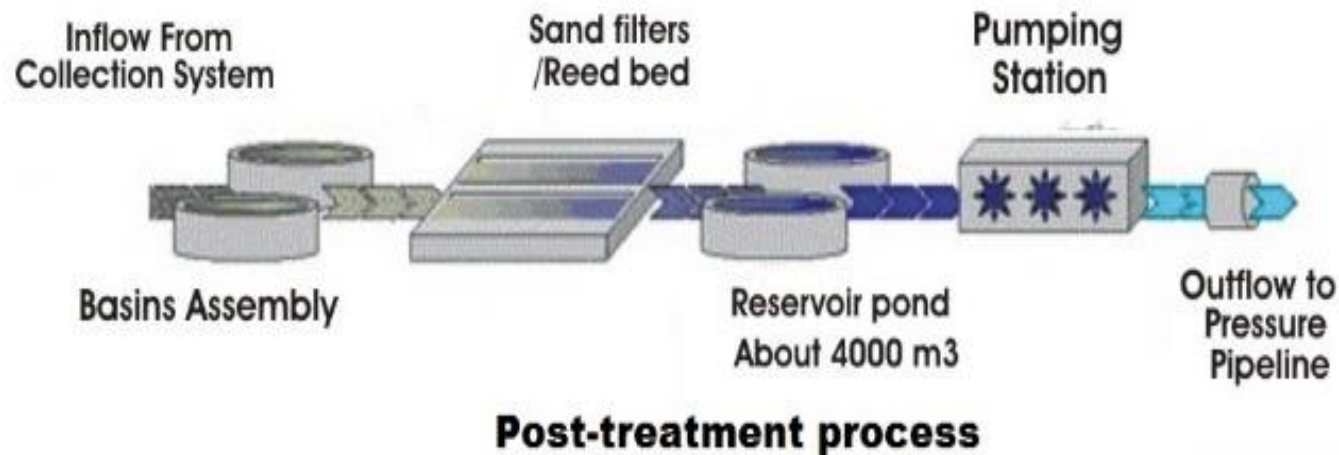
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Overall Objective : To contribute to more sustainable water and agricultural practices in the Gaza strip through reducing land-based sources of marine pollution.

Specific Objective: To strengthen integrated water resource management in the Gaza strip through innovative environmental and agricultural solutions in Southern Gaza.

Project location & Components :

Target area : North Mawasi Rafah



Technical & Economic Feasibility of the Project's Components

Output 1

200 dunums of productive agricultural land have been irrigated by reuse of TWW through an innovative and sustainable waste water treatment and irrigation system

- Community Mobilization, gender analysis research, and selection of targeted agricultural lands and farmers
- Conduct Engineering Assessment and Design for Construction Work
- Construction of drip irrigation system/network for 200 dunums of agricultural land
- Carry out capacity building and training of targeted farmers, on the practical aspects and application of waste water re-use for irrigation
- Carry out capacity building and training of TWWP operators, engineers and specialists on the practical aspects and applications of the post-treatment filtration process

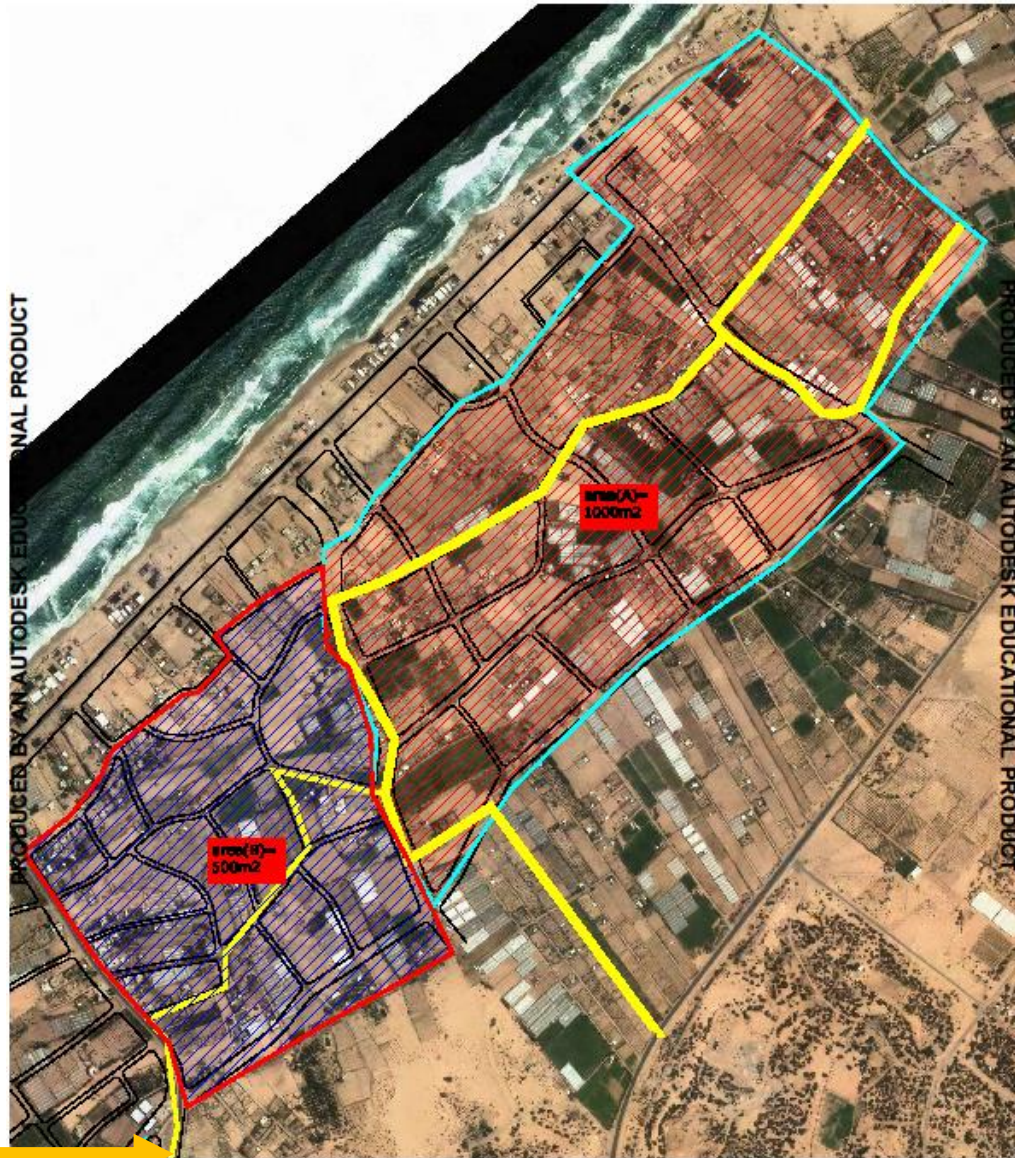
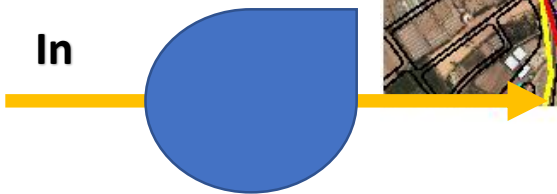
Output 2

Wastewater re-use management has been institutionalized through development and activation of a legal framework and governance model that includes a sustainable and equitable tariff system

- Development of a legal framework for treated waste water re-use management and monitoring, to be endorsed by PWA as sector regulator
- Exploration of possible women's leadership role in water financing mechanisms

Carrier Line and Target Area

In



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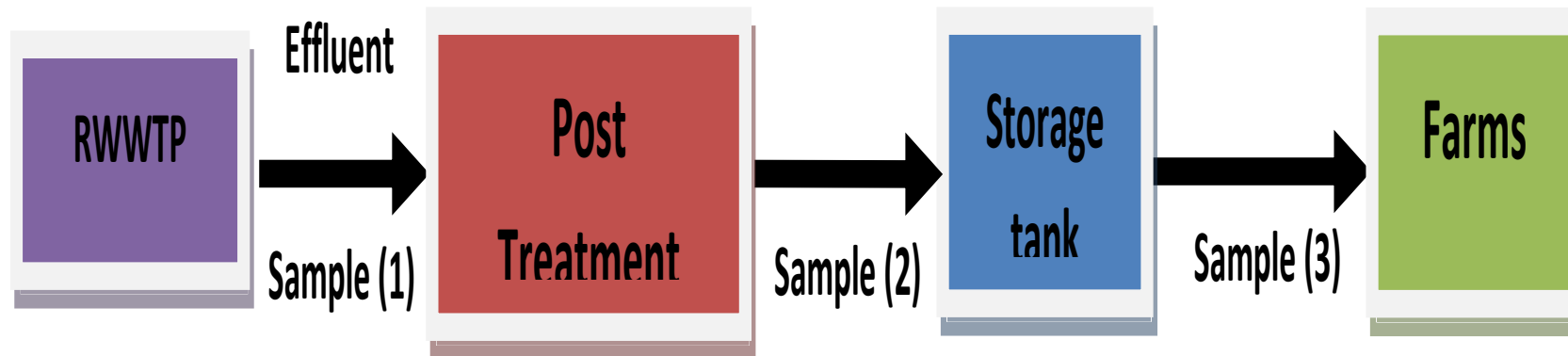
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Compliance with Existing Standards

- The project adopted the strategy of PWA in relation to wastewater reuse as an integrated water management mechanism to face the water crisis of the Gaza Strip.

Output 3

A monitoring and verification system for the full treatment and reuse cycle, from soil through to product quality monitoring, has been established and activated.



Replicability of project

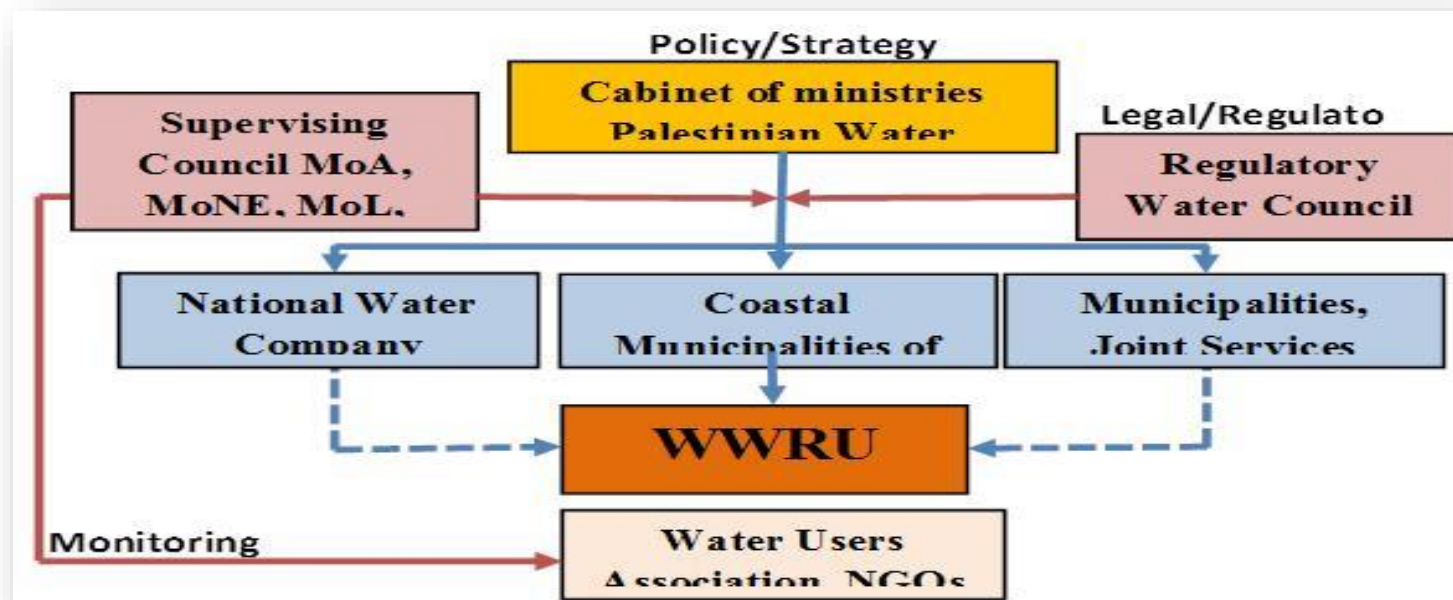
- This project is in line with PWA's national water strategy
- This project is in line with Oxfam's WASH strategy in the Gaza strip

Output 4

A replicable model for TWW re-use for agricultural irrigation has been developed and evaluated.

Output 5

Acceptance of using TWW for agriculture irrigation has been generated among farmers and consumers.



1.The cost of production of the cubic meter of treated wastewater (in terms of additional treatment + operating cost)

- The post treatment unit facilities cost is around 500,000 ERUO which will be able to treat 3,600 m³ on daily basis
- The operation cost has not been identified until now. This will be calculated after we finish the construction of the post treatment unit and development of the project legal frame work
- Water tariff system is being developed in close coordination with the main stakeholders.
- Community key informants, local farmers, and involved authority staff and other stakeholders will discuss the costs of wastewater reuse, prices of wastewater reuse, and components and types tariff system for wastewater reuse in order to ensure the economic sustainability of the action, which is considered as one of the most important interventions and strategies in the Gaza strip, as it secures a non-conventional source of water for agricultural irrigation purposes.

The selling price if the TWW is sold to farmers or will be sold in the case of replication of the project

- The issue has been discussed with the community and main stakeholders and we agreed that the TWW will be sold to farmers to ensure the economic sustainability of the action.

Farmers' ability to pay for treated wastewater

- According to the rapid needs assessment conducted in Al Mawasi area in March 2018, the majority of Al Mawasi farmers have indicated a strong willingness to pay for the TWW on the condition that it meets the PWA standards.
- More accurate findings will be identified during the second project review expected in April 2019.

The adopted TWW quality standards

The reference is the Palestinian Standards. The final effluent quality for BOD after the sand filters is expected to reach around 30 mg/l BOD for 3600m³/day received flow, which is in the range of waste water irrigation standards (20-60).