This project is funded by the European Union


# Sustainable Water Integrated Management (SWIM)

## Innovative Demonstration on Sustainable Integrated Management of Wastewater and Reclaimed Water Use in

## North West Bank – Palestine

# Objectives

- To protect the environment through eliminating the use of cesspits to dispose wastewater from Anin Village houses and replacing the cesspits with sewer network.
- To secure new non-traditional source of water for agricultural irrigation through using treated wastewater for irrigating certain type of crops which will in turn contribute to food security in the area.
- To develop sustainable water and environmental management through the promotion of sustainable and innovative wastewater management systems and reuse schemes in Palestine.
- To utilize innovative treatment technologies that are suitable for the West Bank/Palestine.

# Objectives

- To utilize treatment technologies that are easy to operate and maintain, and minimize the amount of energy and water use.
- To produce an effluent that is of high quality and suitable for agricultural reuse.
- To provide wastewater treatment systems that are safe to operate, provide a good working environment, and have low risk of odors.

# 3 years project (Feb. 2017 – Jan. 2020)

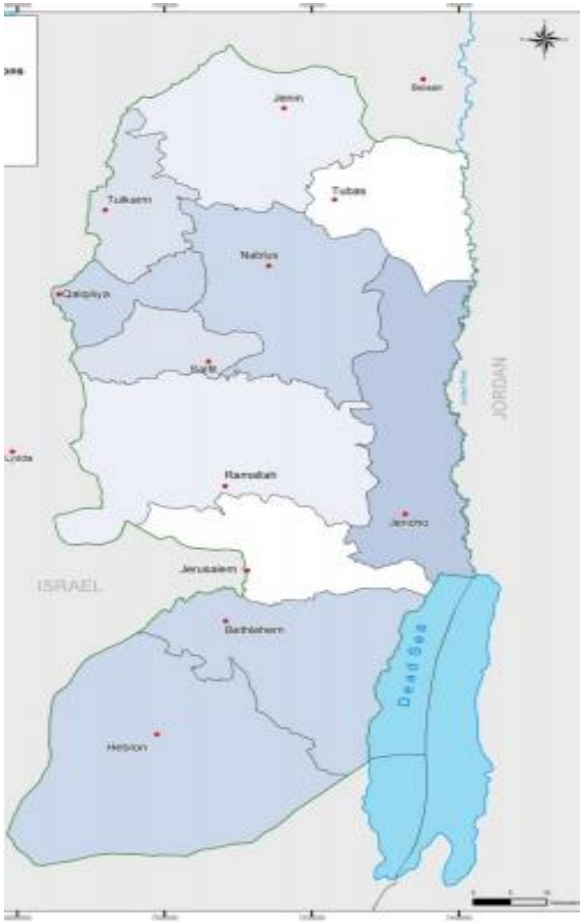
Location: Anin Village/ Jenin Governorate

**Project Activities/Components**:

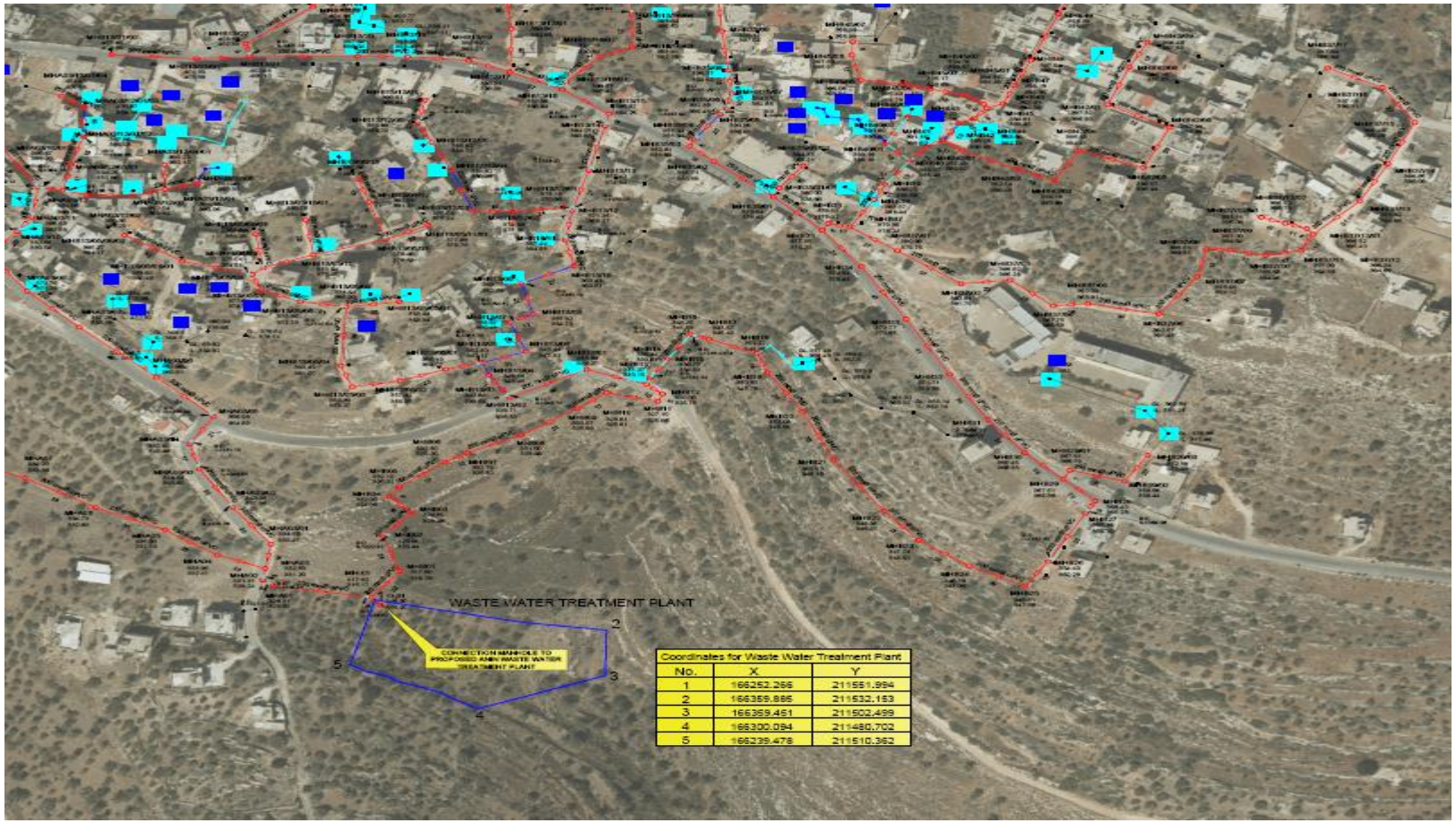
- Constructing Wastewater Collection System – 10 km
- Constructing Wastewater Treatment Plant – SBR System
- Installing Irrigation Schemes
- Public Awareness and Capacity Building Targeting School Students and Farmers

# 3 years project (Feb. 2017 – Jan. 2020)

- Location: Anin Village/ Jenin Governorate

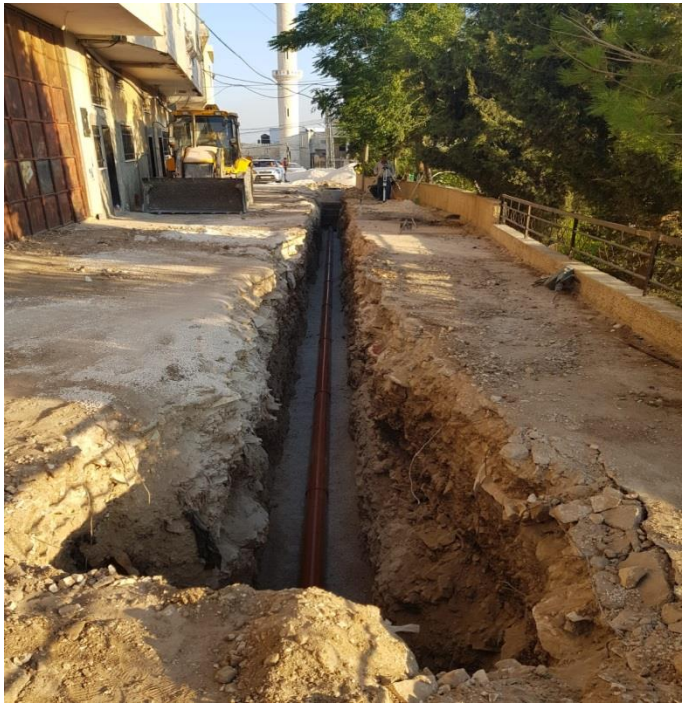


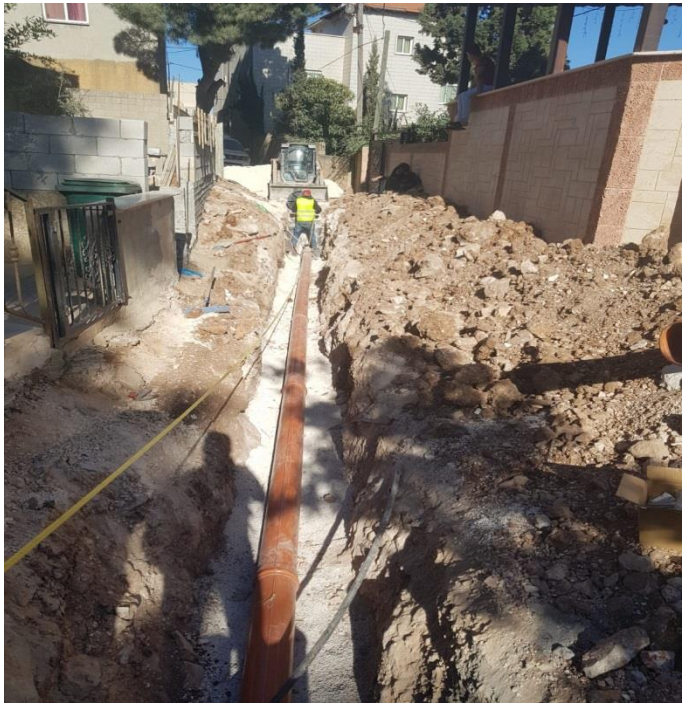
# Site Location – Anin Village Location



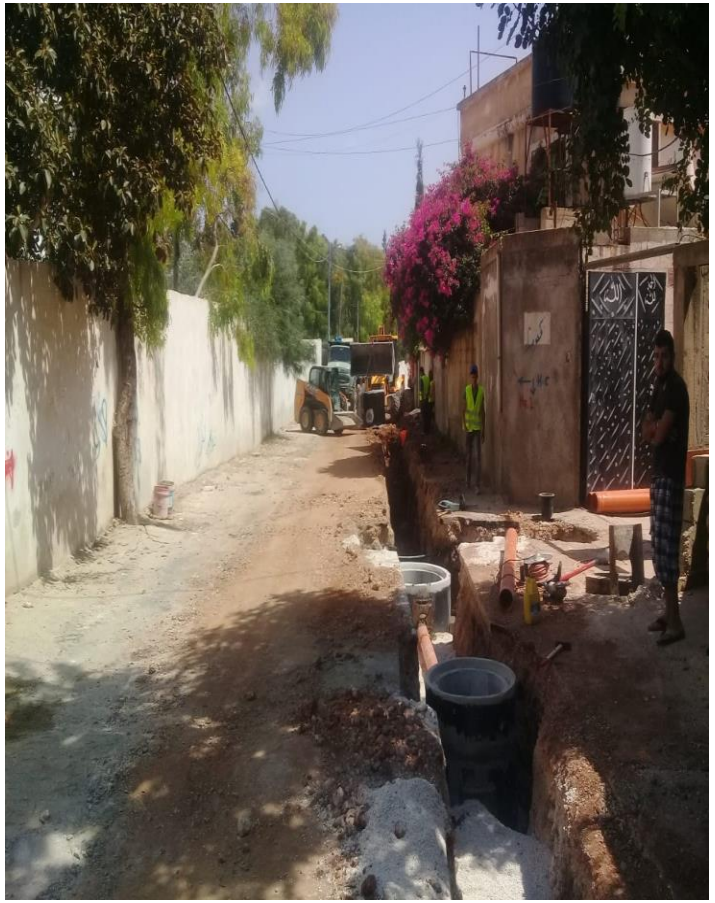

| Coordinates for Waste Water Treatment Plant | | |
|---|---|---|
| No. | X | Y |
| 1 | 166252.266 | 211551.994 |
| 2 | 166359.886 | 211532.153 |
| 3 | 166359.451 | 211502.499 |
| 4 | 166300.094 | 211480.702 |
| 5 | 166239.478 | 211510.362 |

# Demo Project- Anin
# Wastewater Collection System – Under Construction

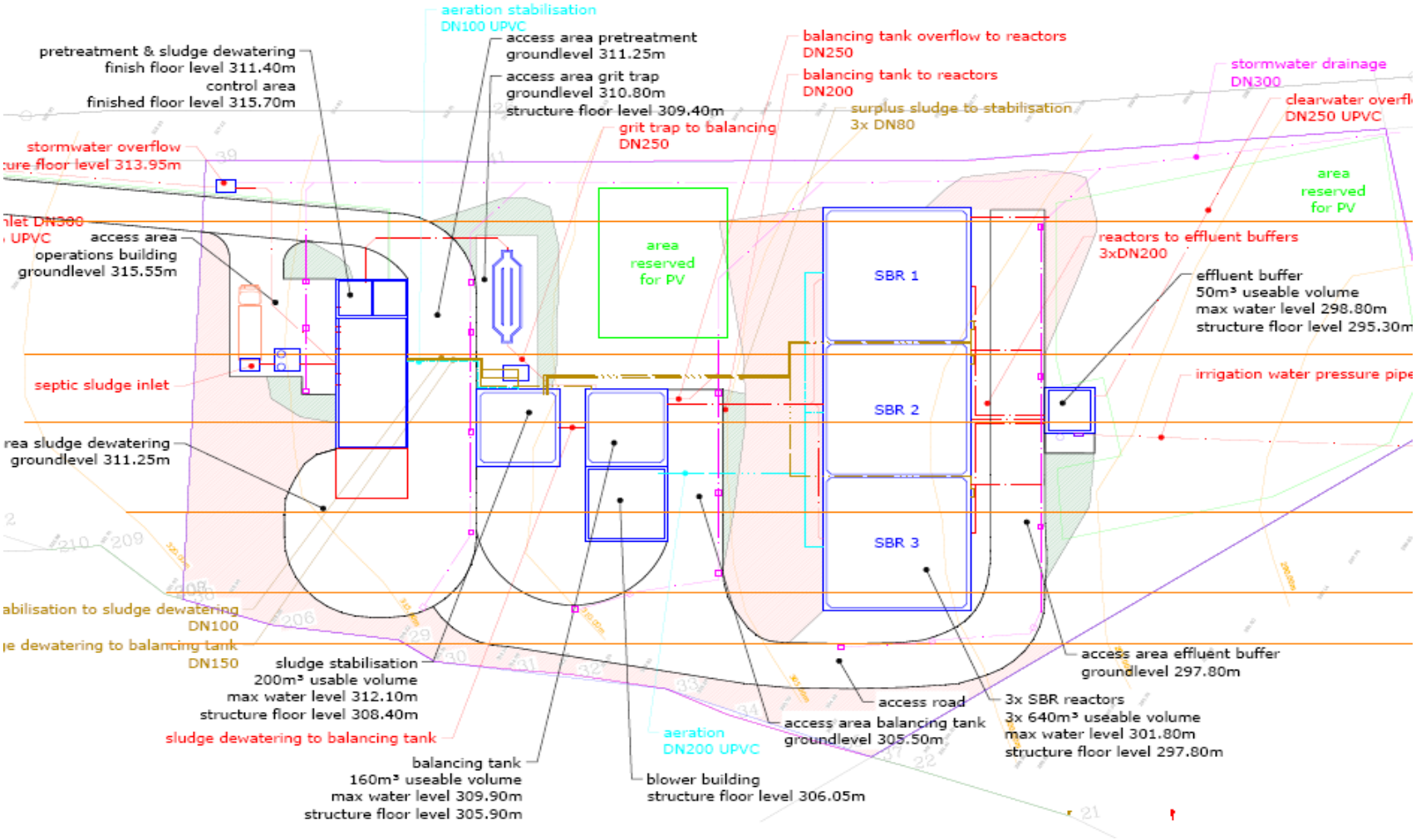




# Demo Project- Anin
# Wastewater Collection System – Under Construction



# Propoesd Anin WWTP



**Public Awareness and Capacity Building Targeting School Students and Farmers**

- 4 Schools in Anin Village
- 500 students



# Expected Impact of the Project

- **Economic Level:**
  - Adaptation and resilience of rural farmers in targeted village to water related impact of climate change will be enhanced.
  - About 50 farmers in Anin Village will have access to extra water for irrigation.
  - The farmers will have additional income source since they have the opportunity to apply irrigated agriculture.
  - About 65% of Anin Village will be connected to sewer lines and WWTP and will save from the unsafe disposal of wastewater and extra financial burden on villagers caused by regular emptying of cesspits .
  - Providing job opportunities.
  - The operational power cost for the WWTP will be 50% covered by clean energy (solar panels) which have economic and environmental positive impacts.

# Expected Impact of the Project

- Technical Level:

- Enhancing the capacity of the local authorities (Village Council and the Joint Service Council (JSC) to manage and maintain the sewage system facilities.

- Maintenance units will be established.

- Staff will be trained. At least 8 engineers will be trained (wastewater management and reuse).

- Raising the awareness of school students in 4 schools in Anin Village – 500 students- (2 female schools and 2 male schools) regarding water and wastewater related issues.

- Awareness, technical and institutional capacity of farmers groups, public service providers, and local and regional authorities will be enhanced in the field of wastewater treatment and reuse.

# Expected Impact of the Project

- Social Level:

- Rural families in the targeted village (Anin) suffer from environmental hazards due to the uncontrolled discharge of raw sewage and from high cost of sewage evacuation.

- Residents of Anin Village will be served by wastewater collection system and WWTP. This will have positive impacts on the social wellbeing and health of residents.

# Expected Impact of the Project

- **Policy Level:**

Establishment of the Water Users Association (WUA) in line with national polices for both Ministry of Agriculture (MoA) and the Palestinian Water Authority (PWA).

- The tasks of the WUA include:
  - Responsible for the management of the distribution system of the reclaimed water and its use for irrigation purposes.
  - Responsible for the maintenance and operation of the distribution system and irrigation facilities.
  - Recommending of cropping patterns.
  - Post harvesting practices including packaging, marketing,…etc
  - Collecting fees from participating farmers.
  - Representing the farmers against all relevant institutions.

# Financial Sustainability of the Project

- Sewage collection is by gravity without any pumping station or pumping cost.
- Extensive systems of treatment that need low maintenance and operation cost were used.
- Using solar panels will help ensure a sustainable operation and reduction in the annual operational costs (energy) at the installed wastewater treatment facility in Anin.

# Financial Sustainability of the Project

- Enhancing the ownership feeling through extensive consultation with local community represented by their village council.
- Community showed high interest and readiness to contribute in cash and in kind. They have purchased the land for treatment plant in Anin.
- The designed WW collection system is gravitational with no pumping cost.
- The designed WW treatment system technology requires low maintenance and operation cost.
- The solid waste / sludge generated from the WWTP will be safely disposed to a very close national dumping site (Zahret Al Fenjan), thus, eliminating the challenge of very high transportation cost .

## Replication of the Project

Replicating the Experience in Other Villages and Areas Can be Achieved by:

- Enhancing and maximizing the role of public authorities in regular monitoring of reclaimed water quality.
- Enhancing the public acceptance to purchase reclaimed water irrigated products.
- Endorsing public trust in, and ownership of the technology installed.
- Solar energy exploitation for different applications including the sanitation sector is crucial in the context of Palestine.
- This will ensure a sustainable operation and reduction in the annual operational costs (energy) at the installed wastewater treatment facility.

# Thank You