

SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

SWIM-H2020 SM Regional Activities 14

Presented by:

MOHAMMD SUTARI, MEHSIP RESIDENT EXPERT-JORDAN

SWIM and Horizon 2020 SM REG-14: Refugee Emergency: Fast track project Design of wastewater

26 March 2018, Beirut, Lebanon

This Project is funded by the European Union



umweltbundesamt

ATKINS

Session - 4

Water and Sanitation Facilities for Refugee Camps Under Emergency



ZAATARI CAMP - JORDAN



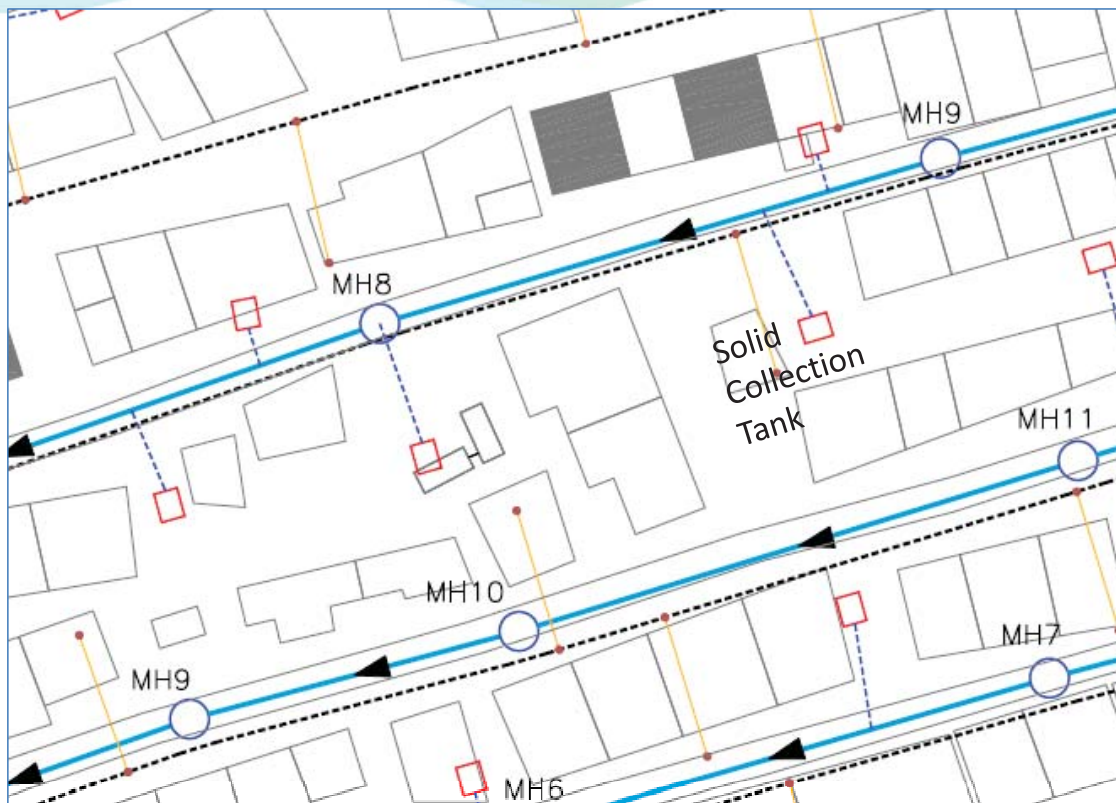
Approach and Limitations for the Site Selection

- Location should be free from the risk of water erosion and from standing water including stormwater, flood water, domestic wastewater.
- Disposal facilities for surface water and wastewater.
- Infiltration is usually the easiest way to drain excess water.
- Clay soil has limited infiltration capacity

Initial Sanitation Services

- **Initially public prefabricated toilets are built which includes:**
 - ✓ 6 toilets
 - ✓ 4 showers
 - ✓ 2 basins
- **Each communal facilities serves 70 households.**
- **Max. walking distance 250 m.**
- **Wastewater is discharged to septic tank.**

Sewerage Network



Solid Free Sewer System

Advantages and philosophy behind using solid free sewer system:

- **Low average water consumption(30-50 l/c/d).**
- **Sewers could be laid at flat or low gradient as they don't carry solids that require self cleansing velocity.**
- **Risk of clogging is low**

Design Criteria for Sewerage System

Design Population = 100,000

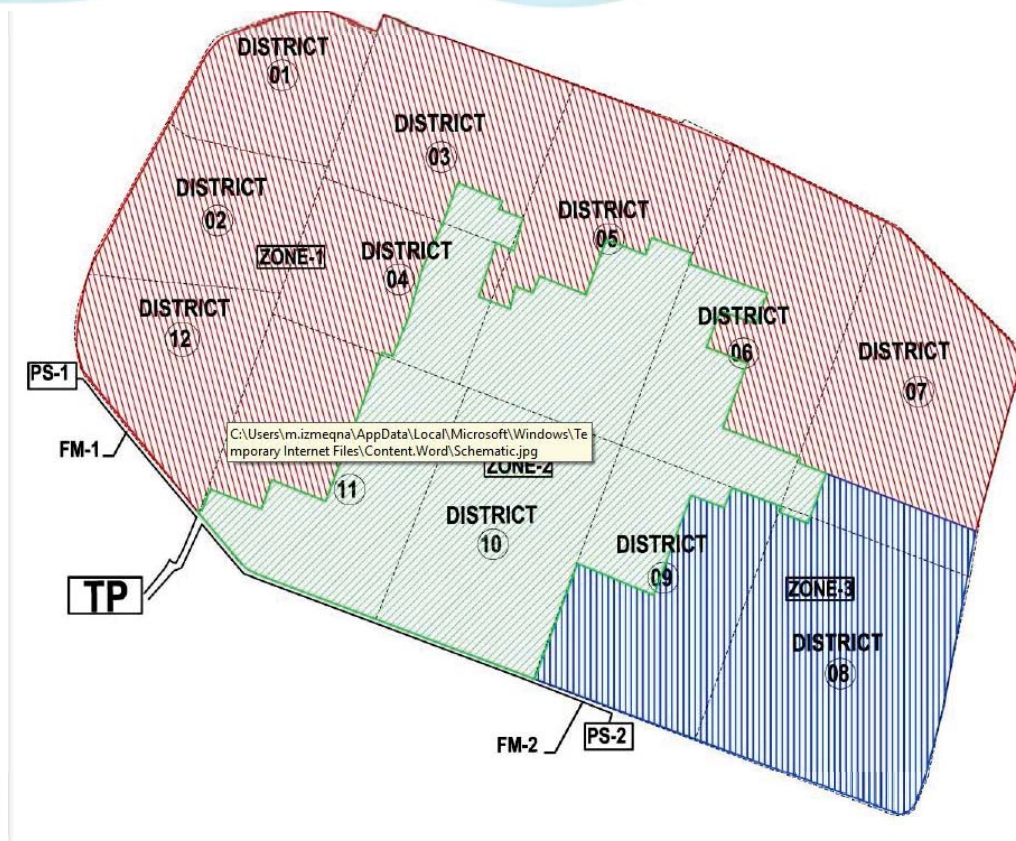
Design Period = 5 years.

Water Consumption = 50 l/c/d.

Wastewater Generation = 35 l/c/d.

Minimum velocity = 0.3 m/s.

Catchment Areas



Water Supply

- Started as communal system.
- Changed to household connections.

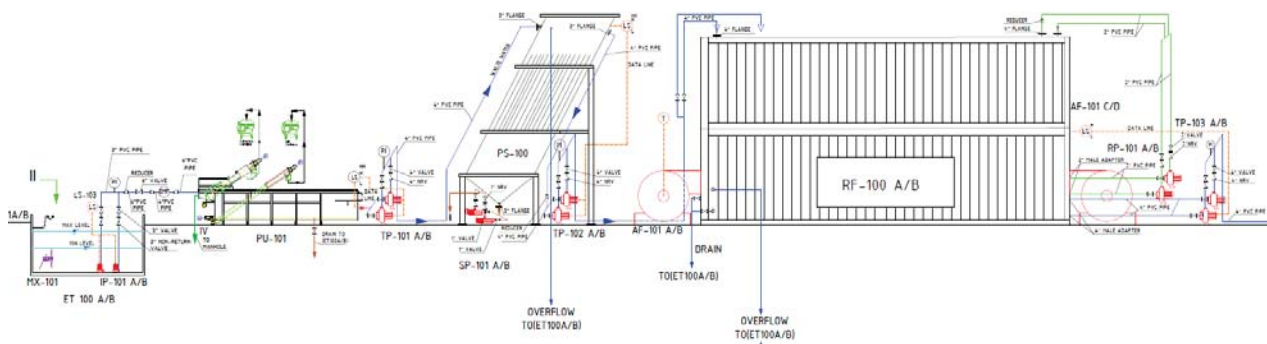


ZAATARI CAMP WWTP

- Average design flow = 3520 m³/day
- Process
 - ✓ MBR system
 - ✓ Trickling Filters



Trickling Filter Unit





MBR Unit



Package Wastewater Treatment facility



Package Trickling Filter Plant



SWIM-H2020 SM

For further information

Website

www.swim-h2020.eu

E: info@swim-h2020.eu

LinkedIn Page

[SWIM-H2020 SM LinkedIn](#)

Facebook Page

[SWIM-H2020 SM Facebook](#)



SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

Thank you for your attention.

This Project is funded by the European Union

