

METITO



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Domestic Wastewater Treatment Plant Biopipe for Metito Labor Camp Project

A CASE STUDY OF BIOPIPE

Introduction

With the strategic Joint Venture and License Agreement in Asia and Africa between Biopipe and Metito, the first Biopipe order came from our partner to work as a perfect solution in treating the wastewater in one of Metito's labor camps in Doha, Qatar. In addition, Biopipe 100m³/d biological wastewater treatment plant will be a solid reference in the region to showcase the product and prove its efficiency in the market. In addition, the plant is the first joint project between Biopipe and Metito.

Key Data

Project: Metito Labor Camp in Doha, Qatar.

Plant Type: Treatment of domestic wastewater in labor camp.

Project Capacity:
100m³/day – 200 person/day

Use: Recycle wastewater to reuse in agriculture with < 20 BOD/day mg/l effluent.

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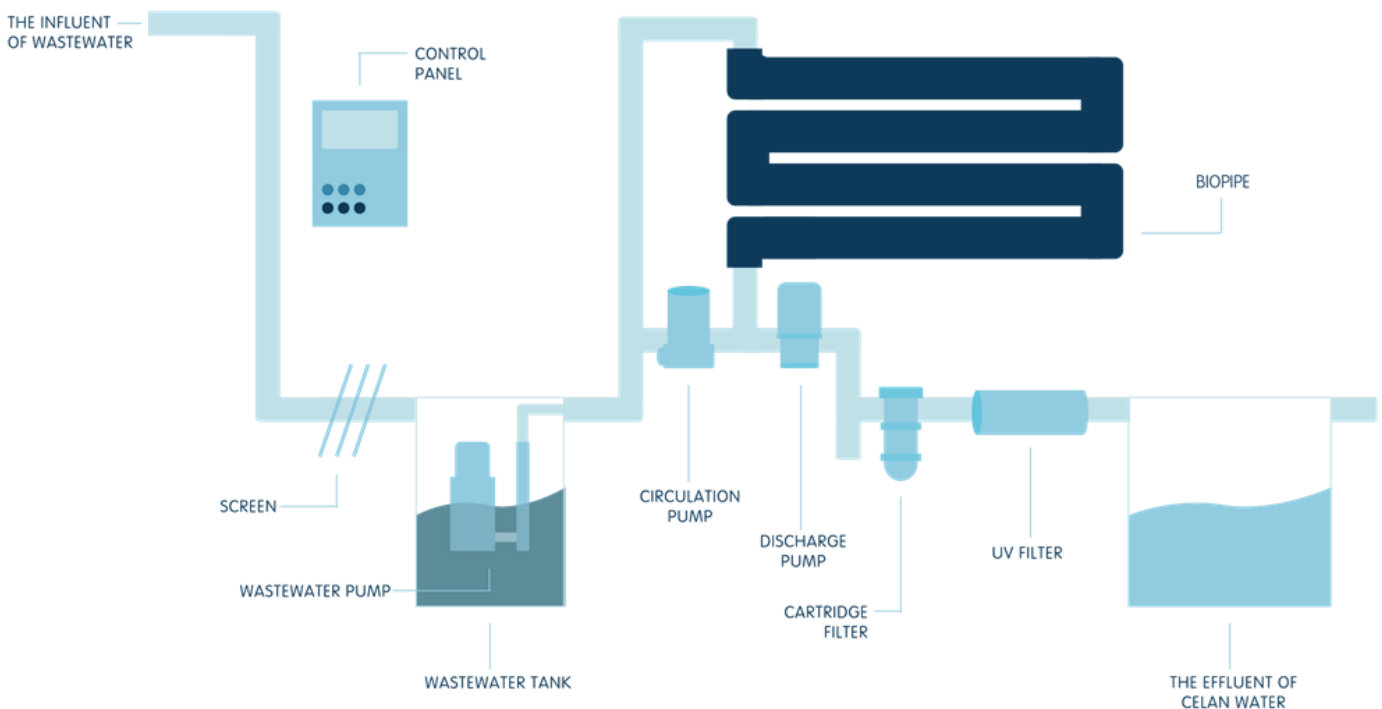
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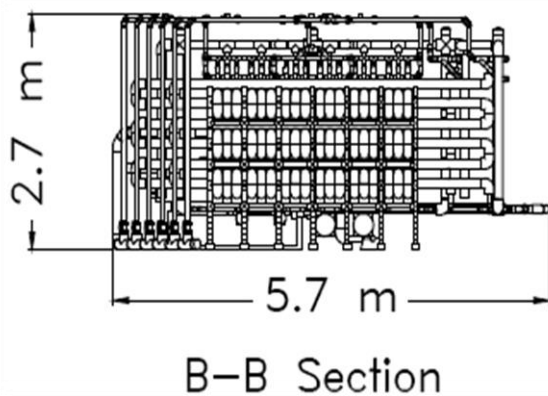
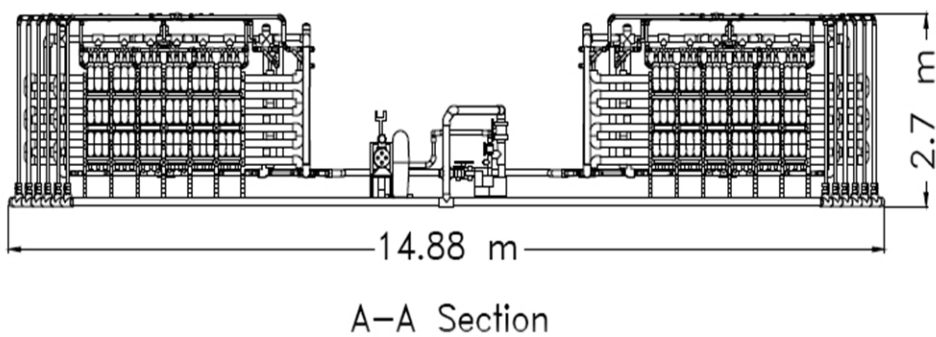
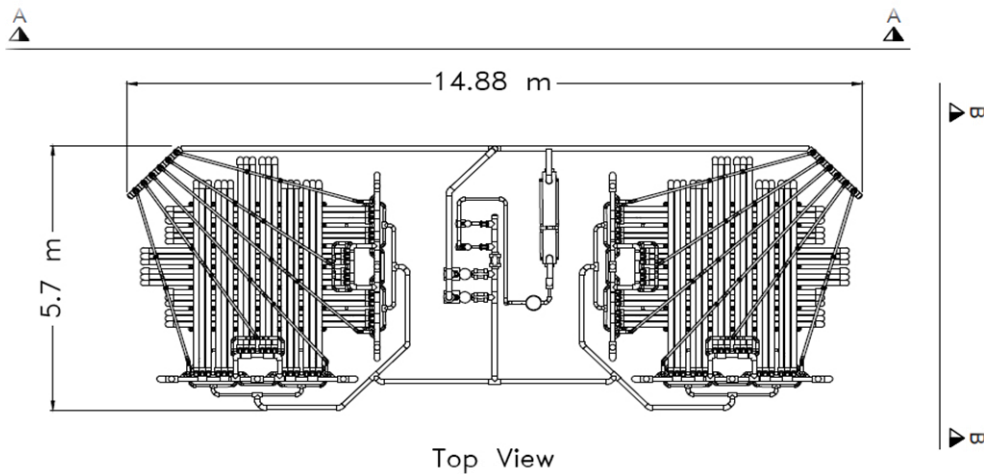
BIOPIPE

Biopipe is the first biological wastewater treatment where the process takes place entirely inside the pipe. With a simple design and effectual treatment, Biopipe works as follows:

1. An equalization water tank is used to store domestic wastewater with inorganic and organic substances. Screen and sand separator (in some instances) are used before equalization tank.
2. Once wastewater reaches the operational level in the tank, wastewater pump pumps water to circulation pump.
3. When Biopipe becomes full, circulation starts and treatment begins. Biopipe bacteria engage with with pollutants and eliminate them from wastewater during circulation while 'air is automatically vacuumed by the pressure difference in order to allow aerobic bacteria to grow rapidly and efficiently treat the wastewater.
4. Wastewater then passes through a disc filter (cartridge filter) and an UV filter to complete treatment. The treated water can be used directly or stored in a clean water tank.

Biopipe is a remotely controlled, modular, eco-friendly and sustainable STP. It can scale from a 1m³/day to a small municipal system.





System Area:

100m²

System Dimensions:

14m x 7m

Lift Station:

50m³, 20m³

Wastewater Tank
(needed):

2 x 15m³

Treated Water Tank
(needed):

3 x 15m³

Electricity
Consumption:

190kwh/day

ENVIRONMENTAL BENEFITS

Thanks to Biopipe bacteria, all organic matter in domestic wastewater are consumed during the circulation period of treatment. Circulation period begins after the wastewater pump pushes water to the circulation pump. At the end of 2 – 4 hours treatment, only clean water is produced. The main benefit is low maintenance, no sludge to remove and discharge and low energy consumption. Additionally there is no sound and odor. The aeration of Biopipe is provided with venturi system instead of blower. This reduces the overall operating cost even further.

In addition, Biopipe is classified to be an innovative wastewater treatment technology that makes the end user achieve one of the requirements for LEED accreditation related to water efficiency and water re-use.

In the region where this project is located, there is infrastructure but project owner was seeking LEED certification. Recycling of black water is far more valuable than simple grey water treatment for LEED purposes.

Biopipe flexible design option allowed the system to be installed in a parking garage and total area equal to two parked cars.

Scope of work

Briefly, Biopipe is a biomimetic domestic wastewater treatment system that recycles wastewater into reusable non-potable water.

The key differentiators of Biopipe is zero sludge production, low operating and maintenance cost.

With modularity option of Biopipe, additional modules can be added as capacity increases or moved to another camp.

Biopipe is installed in Metito Labor Camp Project, Biopipe capacity 100m³/day.

The scope of work included complete design, engineering service, supply, installation, and commissioning and final performance test.

- Physical Treatment with basket screen
- Biological Treatment on Biopipe support with circulation and discharge pump.
- Discharge of Water under EU standards after pass through disc and UV filter.

Final step of Biopipe treatment is cartridge or disc filter before discharge.

- Biopipe Effluent Water Quality is;
 - BOD: < 16 mg / lt
 - COD: < 30 mg / lt
 - TSS: < 30 mg / lt
 - pH: 6 – 9

With Biopipe, 36500 tonnes of water was saved and used for several purposes in the camp.



BIOPIPE TREATMENT STAGES

Physical Treatment

In this system, screen option is presented but wastewater flows down from a higher point and catches large inorganic particles are captured

Biological Treatment

As it can be seen in the flow chart, the wastewater pump pumps water to the circulation pump as programmed into the Control Panel. With the circulation pump cycles the wastewater through the pipes where Biopipe bacteria engage consume all the organic matter. This project required BOD level of < 20 mg/l.

Final Stage

Treated water is discharged by the discharge pump. After the pump, any inactive bacteria that detached from biofilm layer are captured by a 100 micron cartridge filter and then treated water passes through UV filter to eliminate pathogens. Discharge standards were easily met.



*Layout of system

Challenges

The production of the system was done in Turkey. Therefore, it was necessary to take it into consideration logistics and shipping from Turkey to Qatar. The main challenge was the installation. Since the system is relatively new to Metito's specialists, we had to gather specialized staff in order to have the required training.

Benefits of the Project

Doha is becoming one of the most developed cities in the region and its importance is getting bigger day by day. Metito's Qatar office is having a strong appearance in Qatar and the neighboring gulf countries. Therefore, having a solid reference site there was important in order to get the attention of industry leaders and establish new sales channels for Biopipe. Biopipe can help customers meet LEED accreditation related to treatment and reuse of wastewater.

