

CASE STUDY

TOUBA VILLAGE

2019

Distributor **Tx-H2O**

Project Installation of a watertight System O)) for a small town in Senegal

Treatment Capacity **5 000 L/day**

Soil Analysis **Impermeable**

System Surface Area **42 m²**

Particularities of the Site Some of the wastewater from an infiltration lagoon is treated by a System O)) and recovered to be reused for irrigation.

Treatment results available upon request.



Overview of the completed project revealing a small garden within the septic system

BACKGROUND

This project is to install a wastewater treatment system in a community in Senegal. The system is designed to further treat a portion of the effluent leaving the wastewater treatment facility in the nearby town to recover and reuse it for irrigation.



PRIMARY TREATMENT

The watertight System O)) is preceded by a primary treatment in the form of an aerated lagoon. Raw wastewater from the town is collected in a large settling tank where it separates into layers as fats float to the top and solids sink to the bottom. After leaving the settling tank, the effluent empties into a large infiltration lagoon. 5,000 L of this wastewater is pumped into the System O)) each day.

DISTRIBUTION

The treated wastewater leaving the lagoon is pumped into a distribution box where it is then distributed evenly into four more distribution boxes. Each of these distribution boxes feed four Advanced Enviro))Septic pipe rows. The proper functioning of the System O)) depends on a uniform distribution of wastewater between the Advanced Enviro))Septic pipe rows. This is achieved with the help of equalizers installed inside the distribution boxes. These equalizers have weirs that are manually adjusted by a dial during the installation. They are the only moveable parts in the entire system. Once they are set during the installation, they don't need to be adjusted again. There are no components of the Advanced Enviro))Septic treatment technology that require electricity when the system is gravity-fed. The treated water will be recovered in a holding tank to be reused as irrigation.



Connecting the AES pipes on the watertight membrane



Filter sand covered AES pipes, piezovents and ventilation.



SECONDARY TREATMENT

This watertight System O)) uses one cell consisting of 16 rows of Advanced Enviro))Septic pipes. The wastewater flows along the length of the rows where it is treated by bacteria living in the pipes and in the filter sand during the infiltration process.

System O)) septic systems combine wastewater distribution, treatment and infiltration in one simple step.



ECONOMIC ADVANTAGES

By using a watertight System O)), the client saves money in the long term. A System O)) costs roughly the same as a conventional system, but has a lifespan of over 30 years. Conventional installations can start to fail after 15 years even if they are treated well.

The treated water of this system is destined to be used as irrigation. Irrigation costs can accumulate quickly in countries where there is already a shortage of water and cuts into the profit margins of the farmers.

The System O)) does not clog and therefore will provide a source of irrigation for years to come.

And finally, System O)) requires little maintenance as there are no parts to repair or replace and no media filter to change.



ENVIRONMENTAL ADVANTAGES

Purification performance well below the country's standards:

- Less than 40mg/L of BOD5 (biochemical oxygen demand over 5 days)
- Less than 50mg/L of suspended solids (SS)
- Less than 2000 CFU/100ml of fecal coliforms

The treatment process of a conventional installation occurs in the soil, while System O)) treats the wastewater within the system, protecting the native soil.



Cheikh Mor Mbacke, an engineer of DBO International still present to ensure the quality of the installation



The reuse of treated water allows a garden within the System O))