

10. Ecopark Natura: filtration gardens



Type: private

Region: north

State: Pará

Biome: Amazon

City of Benevides

Population: 61 689 (estimated in 2018 ¹¹¹)

Area: 177.7 km²

Elevation: 28 m

Coordinates: 1.36138 S / 48.244722 W

MHDI: 0.665 (2010) ¹¹²

Context

Benevides is an industrial city that is part of the Belém metropolitan region (capital of the state of Pará). It is in the Amazon biome, on the equator, with high temperatures and insulation during the whole year. Humidity is high, with rainfall in all seasons.

Objectives

To treat the Natura cosmetics factory's industrial and sanitary effluents in a beautiful filtering garden, tackling multiple issues in the same place at the same time.

The filtering gardens are located at the main access point of

the production facility and are the focal point of the ecopark where the Natura cosmetics factory is located. They give a fresh look to waste-water treatment, bringing NBS to the vanguard to offer numerous benefits.

¹¹¹. <https://cidades.ibge.gov.br/brasil/pa/benevides/panorama>

¹¹². Idem.



Figure 61: A view of the filtration gardens

Actions

This waste-water biologic treatment project treats 132 m³ of sanitary effluents daily.

- The filtering gardens were implemented in 2013 and have been efficient ever since. There is a weekly garden maintenance service (plants grow quickly because they are located in a very favourable environment).
- The clean effluents flow to a watercourse nearby.
- The Environmental Department demands periodic water quality analyses with high restrictions of contaminants.

Implementation

The project was financed by the private company Natura, developed in 2012 and implemented in 2013.

Stakeholder involvement

This is a private project with the following companies involved.

- Conception and management: Phyto restore.
- Contractor: Sinetel.
- Client: Natura.
- Contractor management: Concremat.
- Project management: Gesto Ambiental.

Outcomes

Besides cleaning water, it offers a nice place to rest and contemplate and enhances biodiversity. The innovative treatment plant allies the aesthetics of a garden with the water depuration process. It has given a lot of visibility to the brand in the media.

After 5 years in operation, water analyses have shown that the parameters are better than conventional waste-water treatment plants and go beyond environmental requirements.

- Treatment of all the industrial and sanitary effluents to meet the high environmental standards required by the city department.
- It is a biologic treatment that enriches biodiversity, with low energy consumption.
- There is no sludge generation because all the organic matter is filtered and consumed by the plants, eliminating the need to dispose of it.
- There are great gains compared to the conventional waste-water treatment plants that require chemicals, generate sludge and demand high energy to function.

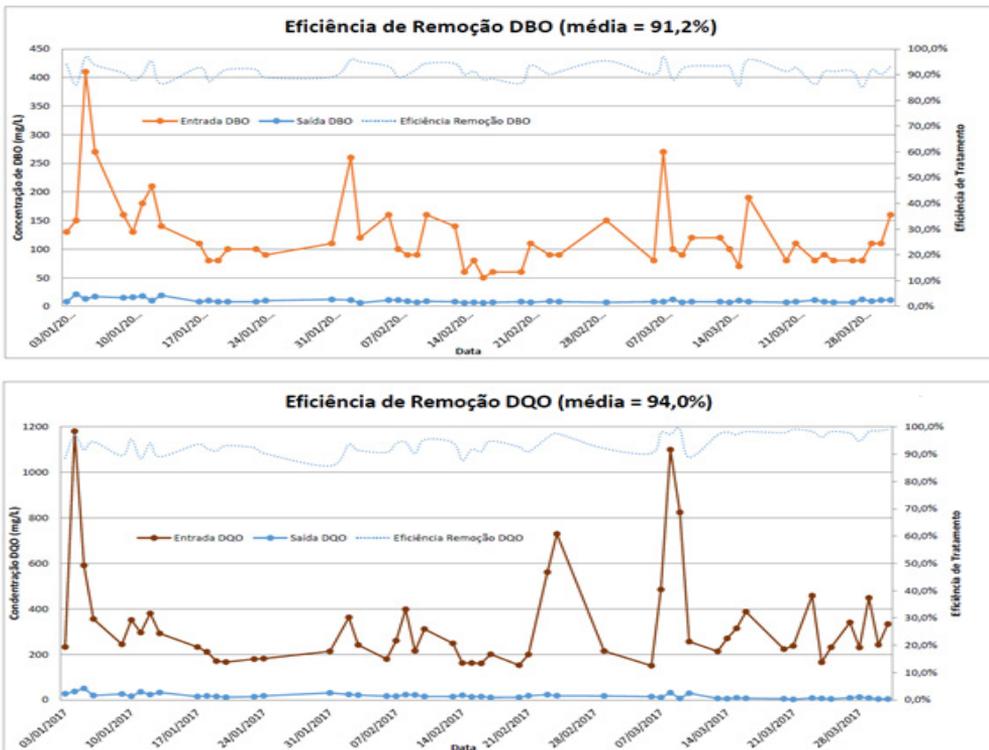


Figure 62. The positive impacts are measured in periodic analysis. In the graphs above it is possible to verify the high removal of biochemical oxygen demand (DBO below), always below 21 mg/L, with high removal efficiency (91.2%); and chemical oxygen demand (DQO below), always below 50 mg/L, removal efficiency of 94%.

Success factors

Establishing from the outset the correct dimension and configuration of the system, according to the quantity and quality of effluents.

Limiting factors and risks

There was a delay in the building process caused by more rain than usual, which caused a small increase in the planned implementation cost.

Lessons learnt

As Phytorestore conceived the treatment and not the piping system of the factory's effluents, there was an initial difficulty in adjusting the operation and supervision. From this project on, the company established the parameters for the effluents'

piping system to be implemented by another contractor.

It was possible to demonstrate the efficiency of the filtering gardens in the biologic treatment of industrial and sanitary effluents and the possibility to implement the same technology in other biomes and climate zones.

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