

Using water wisely in a drought-stricken state



 Sustainability	 394 shops
 Brazil	 Water efficiency/ Wastewater treatment

KEY HIGHLIGHTS

- São Paulo state has been suffering a record-beating drought, affecting the lives of millions of people
- Parque D. Pedro Shopping wanted to support water conservation and mitigate water scarcity risks and found a way to do so by extracting greater value from its Wastewater Treatment Plant (WWTP) and increasing the proportion of wastewater reused.

SOLUTION

- A win-win partnership with General Water enabled Parque D. Pedro Shopping to upgrade the WWTP without having to cover the capital costs of the initial investment
- Water treated through ultrafiltration and reverse osmosis now provides for different uses in the shopping centre, increasing the percentage of water reused, thus reducing withdrawal from municipal water supplies and increasing the community's available water supply

KEY NUMBERS

13
year contract with
General Water to
own, manage and
maintain the WWTP

140%
increase in the
volume of water
reused at Parque D.
Pedro Shopping

€5,000
cost savings per
month due to
reduced water
withdrawal

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Parque D. Pedro Shopping



Campinas, São Paulo, Brazil



127,348 m²



394 shops



8,000 parking spaces



Sustainability

Abstract

Historically low rainfall coupled with rapid urbanisation have contributed to a record drought in São Paulo state. The situation threatens not only the water supply to a population of millions, but also risks giving rise to an energy crisis due to the country's dependence on hydropower. In this context, the management team at **Parque D. Pedro Shopping** wanted to extract greater value from the wastewater treated by the centre's effluent treatment plant, 75% of which was discharged to a local water course. Through a partnership with General Water, the team found a way to reuse the treated water in the centre's cooling systems. This enabled **Parque D. Pedro Shopping** to substantially increase the proportion of water reused on-site to 60%, also generating cost savings.

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Introduction

Faced with a record drought and dangerously low reservoir levels, local authorities in Brazil have been forced to develop radical action plans across São Paulo state to reduce the pressure placed on the state's natural water supplies. Anticipating future restrictions, and keen to strengthen its resilience, **Parque D. Pedro Shopping** decided to put measures in place to safeguard the future of the asset. Not only would these support broader local and regional water conservation efforts, but they could contribute to Sonae Sierra's sustainability objectives to improve the water efficiency of its assets.

Background

Parque D. Pedro Shopping was supplied by three different water sources: groundwater which supplies stores and drinking water; water drawn from the municipal network and used to supply the air-conditioning system; and water treated on-site by the shopping centre's Wastewater Treatment Plant (WWTP) which is reused in WCs and for irrigation.

The WWTP treated around 16,000 m³ of water per month and just 25% of this volume was reused. The remaining 75% of the treated water was discharged into a watercourse. **Parque D. Pedro Shopping** has been reducing its overall water consumption over the years in line with Sonae Sierra's long term objectives, however there was a big opportunity to improve water efficiency even further as the proportion of water reuse remained low relative to its potential.

Challenge

To increase the asset's resilience to water scarcity, the **Parque D. Pedro Shopping** team embarked on a challenge to find an alternative and more valuable use for the high volume of treated wastewater which was being discarded. They sought a solution that would not only provide a positive sustainability outcome, but financial returns too.

Working together, the team determined that the best scenario would be to reuse the water to supply the shopping centre's air-conditioning system. But without the technology to render the water suitable for this use, or the budget to support it, their idea didn't look feasible. Could they find a way to proceed?

Solution

Fortunately they could. **Parque D. Pedro Shopping** found that General Water, a company which specializes in wastewater treatment systems, water recycling systems and treatment, could offer an attractive business model that would enable the shopping centre to upgrade its system without having to cover the capital costs of the initial investment.

Parque D. Pedro Shopping and General Water formed a partnership with a 13 year contract that would kick-start a series of technological and operational improvements (including safety measures) to the shopping centre's WWTP.

General Water bore the costs of the €800,000 investment to fully modernise **Parque D. Pedro Shopping's** WWTP, including the purchase of a new racking and filtration system, an oxygen dissolution system; ultra-filtration and reverse osmosis technology to improve the quality of the treated water. For the duration of the contract, General Water owns the WWTP and is responsible for its operation and ongoing maintenance, and for guaranteeing the consistency of the water quality so that the cooling system is not at risk of any adverse effects. **Parque D. Pedro Shopping** purchases for water treated through ultrafiltration (for use in irrigation and WCs) and reverse osmosis (for use in cooling towers) and pays for water discharged to the river. All the same, by reducing withdrawal from municipal water supplies, the shopping centre will save around €5,000 per month.

Once the 13 year contract expires, the ownership of the WWTP will return to **Parque D. Pedro Shopping**.

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Conclusion

By harnessing the power of new technology and forging a proactive partnership approach, **Parque D. Pedro Shopping** has demonstrated that greater resource efficiency can be achieved. The shopping centre increased the proportion of waste water reused by 140%, up to 60%, or 9,600m³ per month, enough to fill four Olympic swimming pools and supply around 1,600 four-people households.

We hope that other shopping centres, businesses and individuals will follow **Parque D. Pedro Shopping's** example of wise water use. To this end, **Parque D. Pedro Shopping** is already engaging with schools in the region to provide practical demonstrations of its natural resources management strategy.

One of the water tanks in place at **Parque D. Pedro Shopping**. The handrail and guardrail have been put up to enable safe access for inspection.

