

Ecolab's Suzano, Brazil Plant Certifying as Water Stewardship Leader

Implementation of Alliance for Water Stewardship (AWS) Standard Case Study



BACKGROUND

Ecolab's manufacturing facility located in Suzano, Brazil near São Paulo, Brazil is a blend and reaction plant that primarily produces industrial water treatment chemicals. The Suzano facility sources groundwater from the Precambrian Aquifer and municipal water from the Alto Tiete Production System, a series of reservoirs along the Tietê river within the Alto Tietê river basin. Drinking water is sourced from the Guarani Aquifer. Wastewater is sent to both municipal and industrial streams for treatment before discharging into the Tietê river.

In alignment with Ecolab's commitment to a holistic approach to water management approach across its manufacturing facilities, the company pursued the Alliance for Water Stewardship (AWS) International Water Standard at its Suzano plant.

SITUATION

The team at Ecolab's Suzano plant assessed the facility for opportunities to decrease water use across operations to meet Ecolab's 2030 Impact Goals to reduce water impact by 40% per unit production across the enterprise and further restore greater than 50% of absolute water withdrawal volume at high-risk sites. Aligned with these enterprise goals, the country-level team's objective was to reduce water withdrawal per ton of product by 7% on average from a 2018 base year by 2021.

Water reduction opportunities were identified in the following areas: optimization of cooling water systems, improvement in water flow monitoring, construction of a rainwater harvesting system, enhancements in process equipment washout processes and introduction of a prioritization plan to address water-related maintenance issues. These opportunities involved collaboration across the Corporate Sustainability and Suzano Engineering and Safety, Health and Environment teams.

ANNUAL SAVINGS



2 MILLION
gallons (~7,600 m³)

TOTAL VALUE DELIVERED

\$550,000
risk-adjusted cost savings

With the aim to improve overall health of local watersheds, and as part of Ecolab's 2030 Impact Goals, we have prioritized AWS certification in high-risk watersheds in which we operate.



**ALLIANCE FOR
WATER STEWARDSHIP**

SITUATION (CONT.)

A comprehensive risk assessment was performed leveraging insights from Ecolab's Smart Water Navigator, the World Resources Institute (WRI) Aqueduct Atlas and the WWF Water Risk Filter to identify shared and site-level water challenges. Implementation of water withdrawal reduction projects was prioritized based on risk probability and impact to site-level and community stakeholders. Of the five water outcomes of the AWS Standard, Suzano focused on sustainable water balance, good water quality and good water governance balancing relevancy and risk to the site.



SOLUTION

The following projects help improve the facility's water balance and have been initiated to reduce overall water use:

- Implementation of Ecolab's own 3D TRASARTM Technology for Cooling Water to provide advanced monitoring, control and asset protection of cooling water systems
- Improvement in water flow monitoring through the installation of hydrometers and an online monitoring system to provide enhanced control and visibility to water use throughout the plant
- Construction of a rainwater harvesting system for use throughout operations
- Optimization of process equipment washout processes
- Utilization of a Total Plant Management program to create and maintain a cross-functional team tasked with identifying and addressing water losses across the plant through preventative maintenance and continuous improvement projects

Ecolab's 3D TRASARTM Technology for Boilers will also be employed at the site to offer advanced boiler water automation and control which will result in additional water, energy and emissions savings while improving reliability.

These combined efforts contributed to the Suzano plant's progress towards their 7% water intensity reduction target by achieving an overall reduction of 12% water withdrawal per ton of product in 2021 from a 2018 base year.

PERFORMANCE

Positive Water Impact | Average absolute annual water withdrawal reduction of 2 million gallons (~7,600 cubic meters) resulting in a 12% reduction of water use per ton of product realized in 2021 from a 2018 base year

Economic Results | \$550,000 in average annual risk-adjusted cost savings

WATER GOVERNANCE

At the plant level, the safety, health and environment team is responsible for managing the water quality, effluent and legal waste water discharges and steering water savings projects onsite. The utilities, logistics, production and maintenance teams are responsible for executing on water savings projects. The utilities department is also responsible for operation of effluent system, relevant sample collection, monitoring analysis reports and the legal wastewater discharge updates.

To maintain good wastewater quality, wastewater is adjusted for pH continually. Full testing is done on a monthly basis and annual analysis is sent to the São Paulo State's water sanitation company and environmental agency to ensure permit compliance. Incoming water quality for drinking water is tested monthly and process water is tested annually.

If a spill or water-related issue were to occur, we have a robust incident response plan that includes a root cause analysis of the original incident, a review by the leadership team, documentation in an internal reporting platform and communication of mitigation strategies during monthly site meetings. The site has not had any water-related violations in the past year.

WATER GOVERNANCE (CONT.)

The Sustainability Team is guided and advised by the Sustainability Executive Advisory Team, which is made up of the company's most senior business and divisional leaders. In addition, Ecolab's Sustainability, Water Stewardship and Safety, Health and Environment (SHE) positions are publicly available and serve as commitments to and guidance on water-related issues and compliance. Ecolab's Sustainability Position formalizes Ecolab's global commitment to sustainability within the company and its impact on customers. Ecolab's Water Stewardship Position reinforces Ecolab's global commitment to responsible water stewardship by identifying opportunities for the company and its customers to use water resources in a manner that benefits business, communities and nature. Ecolab's SHE position outlines the company's commitment to excellence in safety, health and environmental practices and performance across global operations.

WATER STEWARDSHIP JOURNEY

In addition to internal operational improvements, Ecolab's Suzano facility's external water stewardship activities are ongoing. Shared challenges between the plant and relevant, local stakeholders include water scarcity, water quality and the physical water risk of flooding. To address these shared issues, Ecolab collaborates with other water users in the basin.

Site employees have participated in numerous social projects in conjunction with Ecolab's Brazil sales and services teams to raise awareness and importance of water in the community through the creation of wall art and other public works. The facility engages with public stakeholders including municipal water sanitation providers, a variety of private companies in the area and several non-governmental organizations (NGOs).

Additionally, through Ecolab's founding membership in the United Nations (UN) Water Resilience Coalition, work to launch a São Paulo chapter of the Coalition was initiated, which expands collective action engagement to medium and small companies in the area on shared water challenges.

Moreover, Ecolab has committed to a project in partnership with The Nature Conservancy (TNC) through the São Paulo Water Fund. The primary objective of this project is to protect and improve water security in the metropolitan area of São Paulo. Through the São Paulo Water Fund, at least 220 hectares of forest land within the municipalities of Mogi das Cruzes and Salesópolis will be protected, both of which are located within the headwaters of the Upper Tietê watershed. Project partners engage with rural landowners, map existing forests for conservation and restoration and identify improvements to rural sanitation. Voluntary conservation agreements with landowners are negotiated, which align with Municipal Water Conservation Policies that already exist in the municipalities. Once signed, these agreements compensate rural landowners to conserve their forested lands. Additionally, the project leverages funding to expand access to basic sanitation within rural areas by replacing rudimentary systems with advanced technologies in Salesópolis and/or Mogi das Cruzes. Not only will the project replenish 29.4 million gallons of water each year for 10 years starting in 2023, but it will also maintain groundwater storage and recharge, surface water quality and abundance and diversity of native plant species. Additionally, it is projected to maintain or improve carbon sequestration, lending to enhanced climate adaptation and mitigation strategies and improved human health in the area.

On top of local water stewardship efforts, Ecolab's global giving program, Solutions for Life, enhances the company's mission to conserve and protect fresh water through partnership and additional projects with TNC and the Project WET Foundation.

This case study was created to comply with AWS indicators 5.1.1, 5.2.1, 5.3.1, 5.4.1, 5.4.2, 5.5.1, 5.5.2 and 5.5.3. For more information, please contact sustainability@ecolab.com.