

FROM THE DRINK TO THE BOTTLE; REVOLUTIONIZING SUGARCANE

Bhoomi's cane water is a healthy functional beverage; its name means "Mother Earth" in Sanskrit. The cold-pressed sugarcane juice (cane water) is a Low Glycemic Certified beverage and Paleo friendly. Their mission is to revolutionize the relationship with sugarcane in Western culture by promoting its Ayurvedic health benefits, partnering with minority farmers, and working for radical positive environmental impact. Bhoomi has worked with their suppliers to ensure the bagasse (sugarcane fiber) produced from cane water production is composted. Bhoomi also sources their business cards, sample cups, and sell sheets from sugarcane fiber. Bhoomi is continuing their sugarcane revolution by switching packaging to utilize sugarcane-based bio HDPE instead of their current PET bottle to be a 100% plant based bottle beverage.



Improving Bhoomi's Packaging Impact

For this study, Bhoomi wanted to compare the environmental impact of switching their current PET bottle to a sugarcane-based bio HDPE bottle. Incorporating sugarcane into their bottle brings the company full circle with their drink, packaging, and business materials incorporating the regeneratively grown sugarcane plant. As with any packaging change, Bhoomi would need to evaluate any new possible configuration to ensure damage rate, barrier properties, cost, and performance are not negatively effected. This study helped Bhoomi quantify environmental impacts prior to investing those resources to determine the overall impact of the switch.

To measure the environmental benefits, Bhoomi applied and was accepted into a Packaging Climate Optimization project—a partnership between Climate Collaborative and Trayak. This project connects Climate Collaborative-committed companies to Trayak, who uses a cost-effective, streamlined LCA to quickly benchmark existing packaging and develop climate-improved alternatives.

All three organizations worked together to collect packaging system information (materials, conversion processes, masses, etc.) and perform the analysis with Trayak's LCA tool, EcoImpact-COMPASS (Comparative Packaging Assessment). Switching to a bio HDPE bottle showed a plethora of benefits for Bhoomi.



Results by the numbers

By switching their primary packaging to a bio HDPE bottle, Bhoomi can...

Water Consumption Reduction

by 22%. Making this packaging change for an annual volume of 60,000 bottles saves about **227,350 gallons of water**. This is equivalent to saving enough water for 36 people to shower daily for an entire year!



Fossil Fuel Consumption Reduction

by 62.6%. If the primary package was switched from a PET bottle to a bio HDPE bottle to annually deliver 60,000 units, fossil fuel consumption could be reduced by nearly 135,000 MJ—equivalent to nearly **22 barrels of oil!**



Greenhouse Gas Emissions Reduction

by 89.5% (12 tons CO₂ eq annually). This is the equivalent of the carbon emissions of using **4,841 liters of gasoline** or 2.5 cars driven yearly.



Key Takeaways

Bhoomi engaged in this case study because of their commitment to revolutionizing the relationship with sugarcane in Western culture. One way to do that is by switching their primary packaging from a PET bottle to a bio HDPE made from sugarcane. Bhoomi will evaluate this packaging change and tradeoffs associated with a format shift.

Weighing Options - Results showed that the bio HDPE bottle drastically reduces water use, mineral resource use, GHG emissions, and fossil fuel use. However, results also indicated that the switch could increase freshwater ecotoxicity and eutrophication; the nature of the material (biological vs. petroleum-based) requires more nutrients to grow. Those nutrients can leach into streams and create oxygen depleted zones or algal blooms. Bhoomi is focused on sourcing organic sugarcane, whose production practices may use less nutrient-intense inputs, to help reduce these potential environmental impacts.

LCAs Can Save Money - Simulating these benefits upfront using an LCA tool allowed Bhoomi to confirm and quantify the environmental benefits before making physical packaging changes.