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CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA

Sai Yok Springs

Sai Yok Springs Bangkok, Thailand, and production base in the western province of Kanchanaburi

Beverages

saiyoksprings.radach.com

Analysis period: 2022-2024

Domestic Premium Mineral Water in Refillable Bottles

Business Spotlight

In October 2022 Alex and Elodie Radach started Radach & Family Organics, which sells locally sourced premium mineral water directly to restaurants and hotels in Bangkok, Phuket, and Hua Hin. The water is bottled in reusable glass, in a bottle-deposit and take-back system.

The deposit and take-back system already existed in Thailand but was neither wide-spread nor used with beverages at restaurants and hotels. The company targets selected customers (environmentally aware, high-end market segment), who want to lead the way for other small local companies while demonstrating a circular solution to eliminate plastic water bottle pollution.

This company maintains a 91% lower carbon footprint than the competition from imported premium mineral water from Europe. This can be credited to the closed-loop system of the glass bottles, use of hydropower energy at the production facility, and a domestic supply chain.

The company attracts clients who are interested in reducing their carbon footprint, sourcing locally, and giving back to the local communities. This has supported sales and grown their market share.

This company started as a niche brand and is building its image by targeting Michelin-starred restaurants, fine-dining, and luxury hotels. In the short term, it aims to reach more clients who value local and sustainable products in Bangkok, Phuket, Hua Hin and Koh Samui. In the long term, the company wants to develop other beverages, also with the deposit-take back system and using reusable glass bottles.

Keywords

Bottle deposit and take back, Domestic supply, Plastic alternative

Innovation

Product/service design, Manufacturing, End-of-life management,Resource circularity, Resource efficiency, Resource substitution

Analysis of Sai Yok Springs

Context and baseline

Thailand is the second largest per-person consumer of bottled water in the world with 57.5 gallons annually. In 2021, Thailand imported USD 5.76 million worth of bottled premium mineral water, primarily imported from France, Italy, and Iceland. The average carbon footprint of imported mineral water in single-use bottles is 776.70 grams CO_2 per 750 ml bottle.

In Germany the founders experienced the many advantages of the multiple-use system for beverage packaging. First, minimising the waste of raw materials and eliminating plastic pollution, and second, minimising consumers' exposure to potentially harmful chemicals from plastic by switching to glass.

Innovation

Sai Yok Springs identified and developed a natural source of premium mineral water in Thailand, and supplies this in refillable glass bottles, while encouraging bottle collection through its proprietary deposit-and-take-back system. The company thereby offers a local, sustainably sourced, and circular packaged alternative for imported premium mineral water in the hospitality sector.

The company innovates by addressing its manufacturing in three ways: packaging in refillable glass bottles, locally sourcing premium mineral water, and using renewable energy. It also addresses end-of-life management of packaging waste by taking back empty glass bottles for refilling. End-of-life and supply logistics have been seamlessly integrated: when crates of water are delivered, the company takes back the crates with empty bottles to the bottling plant for cleaning and refilling.

The company is the first in Thailand to locally source and produce premium mineral water and supply it in refillable glass bottles with a proprietary deposit refund system.

These innovations offer the Thai hospitality sector the opportunity to 'walk its sustainability talk' by using locally sourced premium mineral water.

Circular Economy impact

Sai Yok Springs bottled water contributes to resource circularity by having switched to a closed-loop packaging system with refillable glass bottles. By using a local source for premium mineral water, it also contributes to resource efficiency by significantly reducing the transportation distance in the supply chain compared to the distance involved for import premium mineral water.

When it operates at the design capacity of its current bottling plant, Sai Yok Springs will annually avoid using almost 940 t raw materials and generating waste, by means of its closed loop glass bottle packaging system. Moreover, it will annually avoid nearly 2,900 t of CO_2 in its production process as the bottling facility uses 80% solar power, plus nearly 420 tt of CO_2 via local sourcing (thus avoiding transport from outside Thailand).

To produce 1 ton of glass, some 1000 L of water are needed, so by reusing the same bottles a very significant amount of water is being saved.

The company uses only high-temperature water to clean and sanitise the returned bottles prior to their reuse. The waste water from bottle washing is distributed around the factory grounds. The company does not use any chemicals in its production. At present, there is no sewage system in the community, and the company plans to raise awareness on waste water treatment, especially as some farmers do use pesticides and fertilisers.

Business and market impact

Over the first six months of sales, the company opened a new market in Phuket, was able to break even financially, and achieved a compounded monthly growth rate (CMGR) of more than 80%. It took about one full year to recover operations and maintenance costs.

In the long term, it will be possible to use the same bottles over and over instead of buying new ones.

In 2024, the company plans to release a line of small bottles (250 ml) for still and sparkling water, and to introduce a new products such as organic fruit sodas, colas, etc. Moreover, the company is continuously expanding with new clients and new markets, and will begin building a new production facility.

Stakeholders

Research studies from Chulalongkorn University provided some secondary data and information about water mineral sources, and local communities identified mineral water sources. The company works closely with the village leader to maintain the water source quality, provide daily bacterial tests, and will shortly add more protective barriers around the spring, which will protect the water source from contamination during the rainy season. Additionally, the company has an agreement with the village council which limits the company's water usage from the spring; the company is currently using 0.12% of the source capacity. The company only fills its storage tanks only during the night so it does not disturb villagers during their regular water collection during the day.

The company provides employment for local people from ethnic minorities in remote areas of Thailand. Employees at the local village have a permanent job and learn technical skills associated with the use of the machinery. There is a hand-in-hand partnership with the village leader, the school, and the temple to give back to the local community.

The company is in the process of organising an organic farming workshop in the village to raise more awareness on how pesticides can affect the soil, water, and human health. There are volunteer cleaning events to maintain public areas in the village. The company was able to attend one of the most recent events, and donated gasoline and meals for all volunteers. In addition, the company is committed to giving back a portion of its revenue to the community by making regular donations to the local temple and school as well as to community events. In the past, the company donated kitchen appliances to support the new kitchen built on the temple grounds. The company has also donated a 10 L rice cooker, 60 k of rice, and various cleaning supplies.

Implementation

The company is still working on securing a local manufacturer for the high-quality glass bottles it uses (at present, the reusable bottles are imported from Germany). Moreover, the Company works with small local communities in cooperation with local government agencies to maximise economic, social and environmental benefits in developing the business of spring water.

This model can be replicated in other regions/ countries, but it will require the following:

- finding a natural spring with high quality of minerals
- creating a new logistics network
- hiring new employees
- dealing with local government agencies
- making new markets aware of the take-back scheme.

Takeaways

Sai Yok Springs has been encouraged by the relative ease with which they unlocked the latent market demand for its alternative products, even though it took some courage and considerable patience to start a 'different business', to deal with government, navigate some grey areas and convince people who had no particular interest in the environment as well. However, a few months after having started sales, the company noticed that being considerably more sustainable than imported premium mineral water is certainly its biggest selling point, with target clients (high end hotels and restaurants) increasingly contacting the company directly for sales.

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