

CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



Phuc Sinh Corporation

-  Ho Chi Minh City, Vietnam
-  Agro-industry
-  phucsinh.com
-  Analysis period: 2020-2023

Premium Cascara Tea from Previously Discarded Coffee Waste

Business Spotlight

Vietnam is famous for its coffee. Vietnam is the 2nd largest coffee producer in the world and a leading coffee exporter. However, the industry is facing challenges: changing climate and weather patterns are putting the sector at risk because of water shortages; soil degradation and uncontrolled waste disposal; and loss of income resulting from unreliable processing technology.

Phuc Sinh Corporation (Phuc Sinh) was inspired by the twenty-year old story of a Salvadorian farmer who brewed a flavourful drink from coffee husks, which is usually discarded in the coffee industry or used as fertiliser or fuel. Phuc Sinh succeeded in making high-quality cascara tea, also known as coffee cherry tea, from Vietnamese Arabica coffee husks. The company has already accessed high-end customers in the EU, USA and Australia, who are willing to pay prices that are 7–8 times higher than the price of regular coffee. Producing and exporting premium cascara tea is not just a climate smart solution, it also provides many benefits for the coffee sector and is also good for health and the environment. Co-production of cascara tea makes coffee a more

profitable crop for farming communities, especially for small or independent farms in mountainous areas that are disadvantaged in terms of global pricing dynamics. Processing the dried coffee cherry into cascara tea at Phuc Sinh is an innovation that addresses environmental problems and contributes to circular green agriculture, thus aligning this company with both global and national sustainable development goals.

Keywords

Agriculture waste, Cascara tea, Coffee cultivation

Innovation

Manufacturing, End-of-life management, Resource circularity, Resource efficiency

Context and baseline

Over the past years, Vietnam has positioned itself as leading coffee producer – second only to Brazil – and exporter, and the volume of coffee produced in Vietnam increases every year. In the 2022–2023 season, Vietnam produced 1.578 million metric tonnes of Robusta coffee and approximately 54,000 metric tonnes of Arabica coffee. Coffee cultivation is concentrated in the mountainous areas of the Central Highland province of Lam Dong, the northern mountainous provinces of Son La and Dien Bien, and the two central provinces of Quang Tri and Nghe An.

After the processing, coffee cherries, also known as peels or husk, are usually discarded as waste; nearly all of it is composted or burned, which pollutes the air, waterways and land. Coffee producers have become conscious that consumers are more and more aware of the harmful impact of industrial practices on environment and climate change. They are seeking opportunities to minimise waste generation and at the same time use the by- and waste-products of their activities, and also utilize the flavour of the cherry skins, also known as cascara, which is a natural by-product of coffee processing.

Cascara tea, also known as coffee cherry tea, has become popular in cafes around Europe and the Americas. 'Cascara' is Spanish for husk or skin. An herbal tea can be brewed from cascara, providing nutritional and other health benefits, in particular by improving digestion and helping to maintain a healthy weight. Cascara tea consumption is well-known and well-established in South America and in the USA; in Vietnam, however, this tea is still very new. Aiming for sustainable business development that would simultaneously increase revenues, reduce negative environmental impacts, and contribute to social development, in 2023 Phuc Sinh successfully used the dried husks of Arabica coffee to produce cascara tea at its Phuc Sinh Son La factory in Mai Son district, Son La Province.

Innovation

Sustainable coffee planting and processing corresponding to the Rainforest Alliance/UTZ (RFA/UTZ) certification programme. Coffee plants are naturally prone to disease. As a result, many coffee farms treat their plants with pesticides and chemical fertilisers, some of which may remain on the cherry skin and end up in the coffee husk. Similarly, chemical products may be used during coffee processing to remove caffeine or strip beans of any residual mucilage. Phuc Sinh's coffee cherries are purchased from households with coffee gardens having adopted RFA/UTZ sustainability

practices to ensure that no pesticides or synthetic fertiliser residues remain on the coffee cherries. Adoption of the RFA/UTZ practices helps to reduce chemical fertiliser and pesticide use by 30%–40%. Cascara tea is produced with a modern processing line imported from Columbia that includes a food-standard fruit-cleaning system, peeling, UV drying, a multi-function freeze-drying system that ensures cleanliness and retains flavour and colours, and an automatic packaging system that can produce square and triangle filter bags.

Coffee harvesting. Coffee cherries must be entirely picked manually, because only in this way can the ripest, high-quality red cherries be selected for drying and peeling. The cherries are then washed and manually peeled so as not to crush the pods, followed by a quick process to prevent spoilage from fermentation. Preventing fermentation is a critical challenge because the sugar content in Arabica coffee husks in Son La is on average 22% higher than in other locations.



Manual harvesting of coffee cherries at Phuc Sinh's coffee growing area in Son La

Circular Economy impact

Cascara tea production at Phuc Sinh contributes to the circular economy principally through the circular and more efficient use of natural resources.

Resource circularity is achieved by using the Arabica coffee husk waste resulting from the processing of coffee cherries into premium cascara tea, thus avoiding composting, burning or simply dumping the husks. Returning the husks directly to the soil is not possible because they are too acidic. Fermented husks could be used as an organic fertiliser; however, fermentation produces methane which is a strong greenhouse gas (GHG). Hence, using the husks for cascara tea production not only minimises waste and associated pollution, but also mitigates

GHG emissions that would otherwise result from fermentation or the uncontrolled decomposition of the husks.

Resource efficiency is achieved in coffee cultivation primarily through the reduced and more efficient use of fertilisers and pesticides. Moreover, the manual harvesting and peeling of coffee cherries reduces the wasting of coffee beans and husks, further contributing to the efficient use of the harvested coffee.



Arabica coffee cherries from Son La

Business and market impact

The circular economy innovation delivers financial, environmental, and social benefits for Phuc Sinh. Aside from preventing coffee waste, cascara tea improves the economics of coffee cultivation and processing. Phuc Sinh exports up to 99% of its cascara tea to the EU (Italy and France), the Middle East, and Australia, with an export value of USD 99 per kg that contributes 5% to Phuc Sinh Son La's total revenues.

In addition to these exports, cascara tea has recently been put on the Vietnamese market priced at VND 1.5 million per kg (approximately USD 62), even higher than upmarket coffee products. The company has been able to raise its annual revenues from tea production and exports to some USD 2 million, enabling a payback well within seven years on the investment in the production line.

Although cascara tea is still relatively new on the market, interest in and awareness of its benefits are growing. Several countries are experiencing an increase in cascara tea consumption and demand. Better economic returns from cascara tea production could be expected as Mr Phan Minh Thong, General Director of Phuc Sinh, has said: *'During and post pandemic, our customers have become more concerned about safe and reliable supplies, so our orders are actually on the increase'*.

Farmers are focused to selectively pick only the ripest red cherries of the highest quality, as only these are suitable for drying, peeling and tea production. The ripest berries also have better quality coffee beans, that are fermented to produce coffee known as

arabica honey with a unique, natural sweet taste. For this particularly high-quality coffee, Phuc Sinh has established a premium price which is 20% higher than for regular Arabica.

Stakeholders

Cascara tea production at Phuc Sinh provides a boost for small farmers practicing sustainable coffee farming methods according to RFA/UTZ certification. Coffee thus becomes a more profitable crop for farming communities, especially for small or independent farms in the northern mountainous province of Son La who are at a disadvantage with respect to global pricing dynamics. Phuc Sinh has partnered with 1586 coffee farmers with a cultivated area of 1916 ha in the northern province of Son La to supply ripe coffee. Ten kg of fresh coffee is needed to produce two kg of green coffee and one kg of cascara tea.

Applying better and sustainable agricultural practices to coffee farming has resulted in higher satisfaction of the farmers, because they are benefitting from reduced input costs, lower fertiliser and pesticide use, higher product quality, and more favourable prices. They also receive training, and obtain 30% higher prices on the market, compared to the normal market price, which helps to facilitate the correct application of sustainable coffee farming practices.



Phuc Sinh cascara tea production line



Cascara Blue Son La

Implementation

With its cascara tea development, Phuc Sinh has taken their sustainable development efforts and achievements to a higher level, building upon several other initiatives initiated by the company since 2013. Among these accomplishments are the development of sustainable coffee growing areas in the provinces of Dak Lak, Dak Nong, Ba Ria-Vung Tau, and Son La, as well as certification for both FRA/UTZ and 4C sustainable agriculture. Phuc Sinh has built a strong foundation for further advancing the circular economy.

Phuc Sinh started R&D activities on producing cascara tea in early 2020 with a pilot in a small workshop in Son La. On October 21, 2023, the company opened a commercial-scale cascara tea processing line in the Mai Son district of the northern highland province with a capacity of 10 metric tonnes of ripe coffee per day, equivalent to one metric tonne of finished tea per day.

The economic potential of the cascara tea is indeed enormous. However, the challenge remains to further develop and expand market demand, as current sales are limited to roughly 20 metric tonnes per year. It is hoped that demand for cascara tea will increase in the near future, because the product would then become more profitable both for the company and for the local farming communities.

Takeaways

- Processing the dried coffee cherry into cascara tea at Phuc Sinh is an innovation with many benefits for the business sector, health, local communities and the environment. It offers the potential for upscaling in other coffee-growing areas in Vietnam, and it aligns with global and national sustainable development goals.
- Transitioning to green and sustainable agricultural production requires zooming in on the specific aspects within the farming and production system that create environmental issues in order to develop smart practices making it possible to eliminate the root causes.
- Farmers will accept the transition to circular agricultural practices when the co-benefits of sustainable coffee farming are fully demonstrated to them in terms of quality, cost and income, because farmers – and in particular smallholders – cannot be expected to take a risk to their incomes and livelihoods for the sake of achieving environmental quality.
- The long-term commitment of the company's top management to go green is key for an effective circular-economy transition.

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