





## CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



## Pizza 4P's

-  Phnom Penh, Cambodia
-  Hospitality and food industry
-  [pizza4ps.com/kh/](https://pizza4ps.com/kh/)
-  Analysis period: 2022-2024

## Pioneering Zero-Waste Dining

## Business Spotlight

Pizza 4P's, launched by Japanese entrepreneurs in the hospitality and food sector in Vietnam in 2011, expanded into Cambodia in 2022. In Cambodia, a zero-waste restaurant concept was introduced, prioritising sustainably sourced ingredients, recycling, and composting to address solid waste management challenges. The restaurant's innovation lies in a comprehensive waste management system and the incorporation of 'sustainable' ingredients on the menu, such as cricket insect powder and tilapia fish. This approach encompasses product and service design, use, maintenance, and end-of-life management. Implementing their own 5Rs strategy ('reduce, reuse, recycle, repair, rot' (compost)), Pizza 4P's has dramatically minimised its environmental footprint, achieving a 96% waste recycling rate in 2023. This strategy includes diverting food waste to feed livestock, and incorporating recycled materials into the interior design of the restaurants, demonstrating the efficient use of resources and replacement with, renewable energy and materials. The business model has proven successful, and Pizza 4P's continues to seek innovative ways to enhance sustainability and expand its zero-waste ethos and practices, especially among local customers.

 Keywords

Zero-waste pizzeria, Circular food, Recycling restaurant

 Innovation

Product/service design, Use and maintenance, End of life management, Resource circularity



## Analysis of PIZZA 4P's

### Context and baseline

Due to rapid population growth, trends in development and urbanisation, and the lack of proper infrastructure for waste management, Phnom Penh is facing an escalating issue of solid waste management, with the city alone generating 4 to 6 million metric tonnes of solid waste annually. Of this, 63% is properly managed, 8% is collected informally, and 29% is disposed of indiscriminately. Although responsibility for waste collection and management in Cambodia is assigned to local government, some individual initiatives are going beyond the requirement of source segregation or composting.

Pizza 4P's is a Japanese-founded food and beverage business with a strong vision of "Make the World smile For Peace". Pizza 4P's is deeply committed to creating a positive impact on the world through its focus on sustainability and hospitality. Since 2021, Pizza4P's has established two restaurants in Cambodia in the capital city of Phnom Penh. The company has become a pioneer in promoting the farm-to-table dining concept, first in Vietnam, prioritising organic and sustainably produced ingredients while promoting transparency in its sourcing processes. Pizza 4P's pushed its sustainability vision further in Cambodia where it opted for a full zero-waste-concept restaurant that built relationships with local recycling and composting companies to ensure that no waste generated on site would be sent to landfill.

### Innovation

Sustainability is at the heart of Pizza 4P's business strategy and vision. Initially, the Company concentrated on locally sourcing organic and fresh ingredients in Vietnam. In Cambodia, this strategy was less successful, because local sourcing represents less than 8% because of fewer replacement options. However, the company has been able to expand the vision in Cambodia by adopting a zero-waste philosophy and focusing on plastic recycling. Pizza 4P's took its time and creativity to operationalize and implement a zero-waste approach. Pizza 4P's is dedicated to forging innovative partnerships at the sourcing level with eco-friendly and circular food producers, as well as with recycling firms and designers, to realise their vision. This also creates positive narratives to promote awareness on circularity.

From an operational standpoint, a notable innovation is the restaurant's advanced food waste management system, which underwent thorough analysis, resulting in 20 distinct categories of waste, each meticulously sorted in a recycling room within

every restaurant. After the trash is sorted by the staff at each working station in the kitchen, all of it is gathered in dedicated recycle room. For each restaurant, there are at least two zero waste officers working for three hours daily to sort the trash one more time and also clean if needed to ensure the trash can be recycled correctly. This team is responsible for washing the waste, educating staff on zero-waste practices, and liaising with partners regarding these processes. Creativity is also evident in their menu. Pizza 4P's has introduced 'sustainable' menu items, including zero-waste pizzas featuring 'circular' ingredients like cricket powder (the insects are fed with leftover pizza dough), Tilapia fish fillets prepared with fish that consume Pizza 4P's damaged green vegetables, and cage-free eggs produced by chickens that are fed with "shell powder" made from waste shells collected from restaurants. Shell waste that cannot be composted is sent to Eggscellent, a cage-free egg farm, to feed their chickens.



### Circular Economy impact

In Cambodia, Pizza 4P's is contributing to the circular economy specifically through resource circularity, or recovery and reuse of waste materials, and thus diverting them from disposal into a new useful application. The company meticulously implements the 5Rs – reduce, reuse, repair, recycle, and rot (compost) – across all areas of its operations, not only in its daily activities but also in its design and business concept.

Pizza 4P's is committed, as much as possible, to sustainable sourcing of products and incorporating a circular approach. The company created sustainable products through partnerships with local suppliers and the creation of a "Circular Menu" featuring for example zero-waste pizza and zero-waste blends. For instance, Demeter, a social enterprise that produces herbal products, receives used lime peels

from Pizza 4P's to create a 'Zero Waste Blend' tea. Another partner is Ecologie, an insect-food research company, which receives leftover pizza dough to feed crickets. These crickets are then turned into powder for use as a topping on their 'Zero-waste pizza.' Additionally, damaged vegetables are sent to Cambodia Fresh Farm to feed the tilapia fish, featured on the menu at Pizza 4P's.

**Efficient and circular waste management:** Through diligent efforts to minimise waste, Pizza 4P's managed to divert 6.6 metric tonnes of waste in 2021 after their opening in October. In 2022, they recycled 91.1% of their waste (excluding food waste) through various partnerships, totalling 33.5 metric tonnes of waste diversion. The remaining 8.9 metric tonnes, including non-recyclable items like broken plates and soiled plastic, were disposed of in landfills. In 2023, Pizza 4P's Quayside store maintained a 91% recycling rate, and Pizza 4P's Bong Keng Kang store (opened in December 2022) was able to adopt the same concept with over a 72% diversion rate. The total waste that both Pizza 4P's stores were able to divert was 46,778 kg. Food waste is sorted daily and sent to Ruy Reach BSF Cambodia to feed Black Soldier Fly larvae, which become high-quality feed for poultry and fish.

**Recycling-based Design:** The restaurant's design showcases the commitment to sustainability, featuring recycled materials such as composite plastic chairs and banquettes, countertops made from collected glass bottles, and partitions made of reused steel rebar. The recycled furniture is a product of collaboration with local recycling experts like GOMI Recycle. Uniforms are crafted from discarded clothing, glasses from upcycled wine bottles, cutlery boxes from plastic waste, and tabletops from plastic bottles. Wherever possible, plastic waste is repurposed into interior decorations or smaller items like coasters.

**Plastic-waste management, recycling and upcycling:** In 4P's Quayside store, over 4 tonnes of plastic waste have been upcycled to become furniture and tables. In their newest store at Bong Keng Kang, Pizza 4P's increased the use of recycled material. Over 8 tonnes of plastic waste was upcycled to become the facade, structure, stairs, and handrails. Additionally, remnants such as broken plates from the first store have been used for the decoration of the oven in the new store. Pizza 4P's continually explores innovative circular solutions such as employing handmade banana-fibre paper as wallpaper, repurposing wooden benches, and using other recycled materials. The company also makes a point of openly displaying the recycling hub to foster awareness about sorting and recycling processes.

Plastic waste management is a key focus of community engagement at Pizza 4P's. The second restaurant includes a 'Recycling Hub,' to collect plastic bottles, plastic bags, and styrofoam waste from businesses and residents in the store's vicinity to facilitate proper plastic recycling. Furthermore, the company created a recycling reward program to encourage people to develop sustainable habits.

## Business and market impact

Pizza 4P's is a profitable enterprise and has emerged as a success story since its inception in Vietnam in 2011. Over the years, it has expanded significantly, operating 30 restaurants in Vietnam and 2 in Cambodia, and one each in Japan and India, while also running its own cheese factory in Vietnam. Over the years, quality standards have remained high despite the recent accelerated growth, thanks also to sizeable investments from Funds like Mekong Capital from 2018 to 2022. Pizza 4P's was awarded the title of best pizza in Cambodia by Asia's Best Awards 2022 from Travel+Leisure Asia, and has also been recognised for its architectural design.

While Pizza 4P's concept has already achieved remarkable success in Cambodia, the company aims to expand its customer base among local residents to 80%, who currently make up only 40% of its clientele; the middle-income demographic is specifically targeted.

The company recognises that the investments made in the business are significant, and that the operational costs associated with running a zero-waste restaurant are high. However, these sustainability expenses are also leveraged as a marketing tool, as these have enabled Pizza 4P's to build a strong brand around its business concept. In November 2022, the holding company that manages the Pizza 4P's brand secured a USD 10 million investment from the Cool Japan Fund.



## Stakeholders

In Cambodia, Pizza 4P's collaborates with approximately 15 suppliers to realise its vision, covering everything from product sourcing (e.g. Demeter, Cambodia Fresh Farm, and Ecologie) and obtaining recycled furniture (e.g. GOMI Recycle, Trash is Nice) to waste disposal (e.g. Ruy Reach, Trash is Nice, Chip Mong Ecocycle). Through these partnerships, the company has established strong, innovative and inspiring collaborations. They meticulously track the transformation and integration of their waste into new products as mentioned above, such as turning lime peels into herbal tea, using vegetables to feed tilapia fish, converting pizza dough leftovers into cricket insect powder, feeding food waste to grow Black Soldier fly larvae for fish feed, or repurposing plastic bottles into design elements for their restaurants.

Pizza 4P's is eager to amplify their presence and impact, and is looking to enhance collaboration with the government specifically on issues related to plastic use and collection. The new community plastic collection initiative also aims to actively engage the Cambodian community, and raise awareness on more sustainable practices in the neighbourhoods of their restaurants.

## Implementation

A significant advantage for Pizza 4P's is the experience gained from initiating the sustainability efforts in Vietnam. This prior knowledge provided a clear vision for their expansion into Cambodia, a much smaller market but with opportunity to push the implementation of circular initiatives further.

One of the foremost challenges encountered by Pizza 4P's has been cultivating awareness on and training of staff in the principles of zero waste. In Cambodia, the practice of waste sorting and waste management is not culturally ingrained, and there is minimal public awareness about the zero-waste concept. Although managers grasp the concept generally well, imparting this understanding to employees requires extra time and commitment, especially in terms of circularity training. Employees are also encouraged to manage their personal waste responsibly, such as by washing their plastic waste and bringing their own reusable bottles.

In Cambodia, the costs associated with sustainability are notably high, as the economy of scale – for reducing costs – is challenging to achieve. Sustainable alternatives like eco-friendly straws come at a higher price and do not necessarily lead to cost savings. Instead, these choices reflect a deliberate commitment to the well-being of people and the planet.

## Takeaways

Pizza 4P's serves as a compelling illustration of how a business philosophy rooted in simplicity – 'Bring Happiness and Peace' and the motto 'make the world smile for peace' – can be actualised and expanded over time and across borders. The founders aimed to generate shared values and encourage a positive societal influence.

In Cambodia, Pizza 4P's has demonstrated the feasibility of operating a zero-waste restaurant while remaining profitable. They have applied their approach with meticulous consistency and have succeeded in establishing a distinctive and well-regarded brand. This distinction is achieved by tailoring the business concept to the local context; for instance, Pizza 4P's in Vietnam emphasises local sourcing and energy efficiency, which differs from the focus in Cambodia on zero-waste. Through rigorous strategy implementation and flexible adaptation of sustainability practices to each country's unique needs, Pizza 4P's has managed to make a significant impact in the countries in which it operates.

To enhance their influence in Cambodia, Pizza 4P's is keen to broaden its engagement and increase awareness among Cambodian consumers, thereby fostering a robust community of active environmental contributors and continually seeking new opportunities for collaboration.





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## Disclaimer

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