

CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



PACTICS

- 📍 Siem Reap, Cambodia
- 🏭 Textiles, apparels
- 🌐 pactics.com
- ★ Analysis period: 2010-2023

Sustainable Transformation of Travel Goods Manufacturing

Business Spotlight

PACTICS is a leading technical textiles producer of bags and travel goods serving international brands. It implements sustainable economy solutions in the Cambodian textile and travel goods sector, with a focus on resource efficiency and recycling. PACTICS does not directly identify itself as a circular company due to its lack of closed-loop practices. However their hallmark holistic approach to sustainability, has enabled innovations using recycled materials new dyeing and printing techniques along with ethical business practices, towards circularity. Significant impacts include reduced ecological footprint through material substitution, waste reduction, and waste energy recovery via a partnership with a local conglomerate for energy recovery. The company is also constantly looking for more sustainable waste management strategies. Business benefits include

enhanced productivity, improved market positioning, and better employee job satisfaction and well-being. Future plans involve further minimising microfibre shedding and promoting responsible business management.



Keywords

Travel goods industry, Recycled PET, Textile Waste Management



Innovation

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

Context and baseline

The garment, footwear and travel-goods industry is significant globally, and in Cambodia, it generates ~ USD 10 billion in exports and employs some 840,000 people. The 2023 Global Fashion Agenda estimated that Cambodia generates around 140,000 tons of textile waste annually, most of which is likely to end up in landfills, incineration, or informal recycling.

PACTICS, a global company specialised in travel goods manufacturing from high-quality technical textiles, prioritises sustainability and is committed to minimising the environmental footprint of manufacturing. The company has implemented various initiatives to enhance resource efficiency and promote positive effects on people and the planet. Despite these efforts, PACTICS still produces a considerable amount of fabric scrap waste. Currently, this waste is collected for incineration to produce energy. However, PACTICS is actively exploring different options to improve its sustainable waste management strategy.

Innovation

Sustainability is central to PACTICS' business strategy and its approach to buyers from the travel goods and outdoor sector, with four key areas of focus: raising sustainability awareness; monitoring and tracking emissions (including direct emissions and, eventually, those across the entire value chain such as transportation); minimising waste; and reducing water usage.

Even though PACTICS does not consider itself to be a circular company due to the absence of closed-loop activities, through its sustainability initiatives it is actively contributing to the circular economy transition, and PACTICS works to optimise their positive impact on people and the planet through multiple innovations.

- First, through procurement of textile materials targeting solution-dyed (requiring no water for dyeing) and recycled polyester fabric (made from used PET bottles).
- Second, the company optimises the use of material and printing techniques by Digital Dye Sublimation. Next to that, it optimises continuously its cutting room operations.
- Thirdly, PACTICS practices sustainable product design, in collaboration with its customers, by offering eco-friendly solutions as part of the agreement on product design and specifications. This active collaboration with customers and brand owners is most notable and indeed welcomed by leading high-end brands in

environment-sensitive travel goods and the outdoor market segments.

- In addition, energy is saved by using water-curtain cooling in screen printing and sublimation rooms, leading to significant power savings. This is complemented by daylighting and passive cooling by green areas around the factory premises.

These innovations are resulting in products with a reduced environmental impact along the value chain, including materials sourcing, manufacturing, distribution, use and end-of-life of products.



Circular Economy impact

The innovations at PACTICS contribute to positive effects in terms of both resource circularity (use of recycled materials) and resource efficiency (efficient use of materials, energy and water in own operations and supply chain). On average, PACTICS manufactures 18% of its total production with a waterless dyed technique, 37% of its total production with recycled materials, and 14% of its production using both. In the coming years, PACTICS expects 50%–75% of its portfolio to move into recycled materials. PACTICS is working actively with its clients to choose sustainable options.

In 2023, resource circularity was achieved for 37% of their total production by sourcing polyester raw materials made with flakes from recycled PET bottles sourced from China. In addition, PACTICS sends its remaining fabric cutting waste to the Chip Mong Group for incineration with heat recovery for

steam generation. The company is very interested in high-quality cutting waste for materials recovery in products for local markets; however, the current regulatory framework for export processing companies does not make this possible.

Waste Minimisation

In addition to practicing energy recovery from fabric waste and advocating external materials reused, PACTICS works to minimise cutting waste through improved production planning and continuous optimisation of cutting processes, using fabric scrap in new products for export, for example.

Efficient use of materials and other resources, and associated waste reduction

PACTICS procures waterless, solution-dyed polyester which is applied to recycled PET, resulting in a 58% reduction in greenhouse gas emissions, an 87% decrease in water consumption, and a 56% reduction in energy use. Digital Dye Sublimation technology, which uses minimal water and non-toxic imported ink, is particularly suited for custom designs and limited production runs, helping to reduce overproduction and waste. Moreover, the factory was designed specifically with energy- and water-efficiency in mind, and it features natural (day) lighting and ventilation along with abundant greenery to cool the buildings. There is an on-site water purification plant for drinking water that eliminates the need for plastic water bottles.

Business and market impact

PACTICS employs 600 people worldwide, 98% of whom are Cambodian. It has diversified its product range over time, expanding from eyewear accessories to reusable bags, backpacks, and sportswear. The company's decision to operate an eco-friendly factory has proven to be a sound financial investment, enhancing workers' satisfaction, retention and indeed their productivity.

PACTICS operates under Dutch management and ownership, with its headquarters in the Netherlands and production in Cambodia. Their goal is to maintain a holistic approach to sustainability while remaining competitive and commercially viable. Their strategy emphasises flexibility and customisation.

Looking ahead, PACTICS is committed to further enhancing and tracking its environmental impact. PACTICS has appointed a full-time sustainability coordinator and they are focusing even more on customer-centric supply chain solutions, coupled with enhanced customer support.

Stakeholders

PACTICS received a substantial grant from the Dutch Government to support the construction of their 'green' factory.

PACTICS is committed to ethical business practices and ensuring fair working conditions for its employees. The company has chosen to be certified by SA 8000 and ISO 9001, representing the highest standards in social compliance and quality. Their social and inclusive programs offer significant benefits, especially to young women who make up the majority of their workforce. These benefits include a daily subsidised lunch, maternity leave, health insurance, day-care for children, education, and training programs which encompass education on plastic waste and other eco-friendly practices.

Interestingly, PACTICS compensates its employees based on productivity while respecting the garment minimum wage. This approach, along with their various initiatives, plays a crucial role in maintaining the high quality and consistency of their product deliveries.

Implementation

PACTICS nevertheless faces significant challenges in recycling high-quality waste in Cambodia because of their status as an export producer under Cambodian law. While PACTICS imports raw materials and exports its products tax-free, it is prohibited from selling its products and anything else that is imported tax free locally within Cambodia (including fabric cutting waste). Additionally, the company cannot transform this waste into valuable products for local sales, nor can it export the waste (e.g. to Vietnam, where better recycling infrastructure exists) or donate it, despite its high quality. Consequently, the only options are to dispose of the waste in landfills, or else pay Chip Mong Group to collect it for energy generation.

This unfortunate situation highlights the need for a comprehensive industry infrastructure that can repurpose and upcycle good quality materials from the textile and related industries into useful products.

Moreover, PACTICS previously used solar panels for power generation, supplemented by a backup generator running on biofuels. However, due to strict regulations on solar energy in Cambodia, the company has had to abandon this eco-friendly energy source.

Takeaways

Despite its best efforts, and in the absence of an enabling regulatory framework, a manufacturer like PACTICS is limited in what it can achieve in terms of resource efficiency and circularity beyond its own factory walls. There is a pressing need for a broader global consensus and discussion on circularity and recycling in the garment and travel goods industry. Innovative solutions could emerge from platforms that facilitate matchmaking, allowing buyers and sellers of fabric to manage fabric waste more efficiently. Additionally, the transition to a more sustainable global framework brings with it the challenge of navigating complex legislation related to environmental, social, and governance (ESG) issues. Finally, a power imbalance issue exists, with major brands often dictating terms due to the overcapacity of the global suppliers' base, without necessarily assuming even marginal price increases to pay for the decarbonisation and other environmental efforts of their suppliers.



Acknowledgements

This business case study was prepared within the framework of the Technical Advisory project: Mobilising Business Action for Circular Economy in the ASEAN countries under the EU SWITCH-Asia Policy Support Component for the sole purpose of documenting and analysing business experiences with the circular economy. The case study was produced by Ratana Phurik-Callebaut (national expert, Cambodia) and reviewed by Rene Van Berkel and Thomas Thomas (regional experts) on the basis of information provided and validated by PACTICS, Cambodia.

Disclaimer

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