



CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



Shwe Pyoe Eaik

- Yangon, Myanmar
- Plastic Recycling
- ★ 🛮 Analysis period: 2022-2024

Repurposing plastic waste into nursery grow bags and for other agricultural applications

Business Spotlight

Shwe Pyoe Eaik was established by Mr San Oo in Myanmar in 2002 to repurpose plastic waste into valuable products for a new production and consumption cycle. The business started with repurposing plastic waste into nursery grow bags. Over time, operations have expanded to produce recycled plastic granules, which are now used by various businesses to produce new products such as chairs, buckets, sockets, and other valuable items. These plastic products are custom-made for the requirements of farmers nationwide, supporting their demand for plastic products while reducing natural resource use and minimising plastic wastes. This sustainable business of recovering plastic waste to transform it into valuable products minimises plastic waste that would otherwise be landfilled or burned, and thus advances the circular economy through resource circularity. Promising growth in the business has been achieved thanks to successful engagement with local communities and positioning the business as a leading producer and distributor of grow bags from repurposed plastic waste. The business gained recognition through a 3Zero House Myanmar Accelerator Program award, which helped to further strengthen the firm's recycling initiatives.

Future expansion plans include manufacturing insect traps and chicken coops for farmers and expanding the diversity of nursery grow bag sizes to meet growing demand.



Keywords

Plastic recycling, Waste management, Manufacturing business, Sustainable agriculture



Innovation

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



Analysis of Shwe Pyoe Eaik

Context and baseline

Global plastic consumption is projected to reach 516 million tonnes by the end of 2025 and may exceed 1.2 billion tonnes by 2060,1 yet only 9% of all plastics produced are currently recycled. Plastic waste thus remains a pressing global challenge and in addition it is harming ecosystems, wildlife, and human health. Worldwide some 19 to 23 million tonnes of plastic waste enter lakes, rivers, seas and other aquatic environments annually, with about 75% of it ending up in the oceans.2 According to some estimates, Myanmar leaked 115,000 tonnes of plastic waste into the oceans from 2010 to 2019, and a further 220,000 tonnes accumulated on beaches.3 Around 80 million plastic bags are used every day in Myanmar. Yangon generates over 4,160 tonnes of municipal waste every day, and 1,120 tonnes in Mandalay alone, with plastic accounting for approximately 13% of the total waste streams in the region.4 Nonetheless, the principles of the circular economy (CE) can provide a solution for minimising plastic waste and halting marine plastic pollution at the source.

Shwe Pyoe Eaik was established in 2002 to contribute to addressing the escalating plastic waste crisis, in particular the waste polypropylene bags that are contributing to both land and marine pollution. The waste plastic bags are repurposed into both sturdy nursery grow bags and recycled into plastic granules for the production of plastic products used by farmers. The idea for this circular business arose during a study tour to India made by Shwe Pyoe Eaik's founder, Mr San Oo, which improved his expertise in plastic recovery and recycling techniques that he then applied in his business. The company collects and uses plastic waste from junk shops and individual collectors which supply good quality plastic waste suitable for repurposing and recycling. Once cleaned, these pieces are carefully stitched together in-house to meet the specific dimensions and unique requirements of each customer. The process of recovery and repurposing of plastic waste (including propylene waste) into nursery grow bags, row-over sheets, and other useful materials for the agriculture sector has several benefits: the market for grow bags receives a constant supply, while reliance on virgin plastic imports from China and Thailand is reduced, lowering greenhouse gas (GHG) emissions and mitigating environmental degradation.

Shwe Pyoe Eaik also recycles plastic waste into recycled plastic granules that are used by furniture and other plastic product manufacturers nationwide. Integrating recycled plastic materials into diverse products supports waste reduction, promotes responsible manufacturing, and contributes overall to the circular economy transition.



Figure 1. Plastic waste delivered for recycling.



Figure 2. Recycled plastic bags transformed into nursery grow bags.

Innovation

Shwe Pyoe Eaik sources waste plastic bags and other polypropylene waste from domestic plastic goods manufacturers and junk shops, relying on waste-pickers and local communities for primary waste collection and sorting (see Figure 1). After collection, the plastic waste is cleaned thoroughly, carefully trimmed, and then re-stitched into 15 different sizes of black or white nursery bags (see Figure 2). The black grow bags are produced using recycled black plastic sheets sourced directly from recyclers. These sheets are cut to size, sealed, punched, and packed according to quality standards.

¹ https://www.worldenvironmentday.global/get-involved/key-messages

² https://www.unep.org/plastic-pollution

³ https://globalplasticshub.org/country-dashboard?country=Myanmar&countryCode=MMR&categoryId=environmental-impact

⁴ https://www.switch-asia.eu/project/prevent-plastics/

The key innovation lies in repurposing plastic waste into products for use on farms that support early plant growth and weed control. This diverts plastic waste from disposal in landfill, and repurposing waste represents a significant step towards circular economy.

Trimmed plastic pieces left over from grow bag production are recovered into recycled plastic granules, together with polypropylene waste collected from junk shops. This involves washing, tumble drying, crushing, grinding, and pelletising using a blow moulding machine. These recycled granules are used directly by other manufacturers to produce recycled plastic products such as chairs, buckets, and other useful items. The key feature differentiating Shwe Pyoe Eaik from other recyclers in Myanmar is that the products are 100% made of recovered polypropylene, without incorporating any virgin plastic. Recovering plastic waste for agricultural applications has significantly enhanced the value chain by fostering collaboration in partnership with recyclers, junk shops, municipalities, furniture manufacturers and farms. Partnerships like this reinforce sustainable practices and bolsters regional cooperation.

To minimise potential water contamination from plastic waste cleaning, Shwe Pyoe Eaik has set up wastewater treatment with sieves and filtration systems. The treated water is used for gardening and general use within the premises, while the sludge is discarded through the municipal waste management system. To control air emissions, the gases emitted during the extrusion process are collected and cleaned in a gas chamber, and released only after meeting permitted air quality standards to prevent particulate matter pollution. The company maintains clean and sanitary practices in all its operations to minimise the nuisances generally associated with waste and recycling operations.



Figure 3. Grow bags



Figure 4. Plastic granules



Figure 5. Growbags in use at nursery

Circular Economy impact

The practices of Shwe Pyoe Eaik contribute to a circular economy by recovering plastic waste for making new plastic products, illustrating the resource circularity strategy.

By transforming waste plastic sheet material and polypropylene waste into new products, Shwe Pyoe Eaik minimises the reliance on virgin plastic and reduces materials consumption. The company also achieves resource circularity, ensuring that plastic waste is returned to a further production and use cycle. In early 2025, approximately seven metric tonnes of plastic waste were recovered and reprocessed each month, which represented a potential recycling of up to 84 metric tonnes annually, depending on market demand and the supply of waste plastic. By avoiding landfill disposal and open waste burning, the initiatives of this business are mitigating land degradation and air pollution and reducing the overall environmental footprint of plastic waste disposal. The new plastic products are 100% made of recovered plastics.

Business and market impact

Shwe Pyoe Eaik supports sustainable consumption and production through the supply of recycled plastic nursery bags and other plastic items primarily to farmers. The business started as a small-scale operation with minimal investment but has steadily expanded over time. The monthly net profit from grow bag production was around USD 900 in early 2025, while plastic granule recycling yields around USD 7,000. By utilising plastic waste and trimmed rejects as raw materials, the business maintains low material costs, enabling a cost-effective supply of recycled granules. Moreover, products made from recycled plastic granules offer good durability, impact resistance, and high tensile strength, making them competitive in the market. The company's main selling point is customer preference and their unique needs. Depending on the specific needs of farms in different geographic regions, customised grow bags are produced to meet specific demand.

In September 2024 Shwe Pyoe Eaik won the First Prize and a cash award of USD 10,000 in the '3Zero House Myanmar Accelerator Program: Empowering Social Enterprises for a Sustainable Future' (see Figures 6 and 7).





Figure 6, 7. 3Zero House Myanmar Accelerator Program Award awarded to Shwe Pyoe Eaik.

Stakeholders

Shwe Pyoe Eaik initially operated in Mandalay and Yangon and has since expanded nationwide, collaborating with domestic plastic goods manufacturers, junk shops, local waste pickers, municipalities, recyclers, and farmers across the country to collect plastic waste and distribute the company's products. Local communities and waste pickers play a crucial role in collecting and sorting plastic waste, while farmers benefit from the grow bags and other plastic products intended for agricultural use. This collaboration ensures a

steady supply of raw materials and promotes the distribution of the company's products.

Beyond recycling and product offerings, the business is committed to raising awareness among customers and the public about the environmental impact of plastic waste and the importance of plastic waste recovery. Additionally, it provides support and guidance to aspiring recyclers interested in starting their own plastic recycling ventures.

This circular model has a positive impact on employment and livelihoods by creating jobs in waste collection, processing, and product manufacturing. Participating communities generate income through waste collection and from using grow bags and other products to improve farm yields, which in turn strengthens local economic resilience. Local waste pickers are employed on a contract basis for waste collection and receive payment for their contributions based on working hours. The business currently provides additional income for approximately 50 people, 90% of whom are women, primarily engaged in production, and with about 20 in supportive administrative, sales and related activities. People are offered comprehensive benefit packages and career advancement opportunities which contribute to job satisfaction. To ensure workplace safety, employees are equipped with personal protective equipment (PPE) in compliance with Occupational Safety and Health requirements.

The company conducts 'Shwe Pyoe Eaik Grow Togetherness for Success Activities' outreach events regularly. As the business continues to grow, collaboration with communities remains essential, highlighting the importance of supporting individual collectors and expanding plastic recovery efforts. The business cooperates with projects like the European Union's SWITCH-Asia Programme, and supported the Prevent Plastics+ Project aimed at building markets, knowledge and skills.



Figure 8. Shwe Pyoe Eaik workshop

Implementation

Myanmar faces significant challenges in plastic waste collection and management, which limit the opportunities for polypropylene waste recycling. Limited infrastructure for waste collection and sorting hampers the establishment of efficient systems, while the absence of formal waste management services in many areas further complicates waste processing, especially as regards mixed-material plastics. Additionally, electricity shortages, with regular 4-hour rotational outages, cause operational difficulties for plastic waste recovery facilities. Economic constraints pose challenges to investments in advanced recycling technologies, limiting the ability of firms to scale up sustainable waste management solutions.

Despite these constraints, Shwe Pyoe Eaik actively implements local initiatives and fosters community-driven efforts to enhance plastic recycling practices and advance circular economy solutions. Awareness and skill-training programmes on plastic waste collection and recycling have encouraged more individuals to participate, both in the business and in plastic waste recycling at large. Home-based work of cutting and stitching the grow bags from plastic waste provides income opportunities for women.

Farms and nurseries in both the private and government sectors are targeted as customers, to ensure profitable business and facilitate business growth and further sustainability initiatives. Shwe Pyoe Eaik has also supported the establishment of micro-businesses for plastic waste collection and sorting in remote regions, expanding access to sustainable waste management solutions.





Takeaways

Shwe Pyoe Eaik's plastic waste recovery business shows an operational circular economy model despite the challenges of Myanmar's waste management and economic situation. Repurposing plastic waste into valuable products for agricultural usage demonstrates the company's alignment with goals adhering to Myanmar's National Climate Change Policy 2019 and for advancing sustainable business practices.

Customised to Myanmar's conditions. company operates successfully in spite of regular power shortages and outages, which is clearly a demonstration of business resilience. The success of Shwe Pyoe Eaik is driven by environmental and social responsibility, commitment to product quality, and tailored solutions that support agricultural businesses. Repurposing plastic into grow bags and for recycled plastic granules for new products supports the circular economy transition, by using previously discarded plastic waste for a new production and consumption cycle. The company is pursuing new product opportunities including insect traps and chicken coops.

The business operates towards sustainability across environmental, social, and economic dimensions. Furthermore, it is expected that promoting public awareness and engagement in plastic waste collection and recycling initiatives will help to foster environmental protection on a broader scale.





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Disclaimer

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