



Circular economy 3-pager, June 2025

POLICY LANDSCAPE

Taiwan introduced the circular economy as a national strategy in 2016, recognizing early on that resource efficiency and industrial innovation are essential for long-term resilience. As a highly trade-dependent economy with limited natural resources, Taiwan has treated circularity not just as an environmental priority, but as an industrial and economic imperative.

In alignment with global climate objectives, Taiwan has committed to achieving net-zero greenhouse gas emissions by 2050. In line with its 2050 net-zero commitment, Taiwan established the **National Climate Change Committee** under the Presidential Office in June 2024.

The Ministry of Environment has played a key role in Taiwan's circular transition. Since 1997, its **Four-in-One Recycling Program** has united communities, governments, industries, and producers under a shared responsibility model — shifting the focus from disposal to recovery. As of 2024, Taiwan's municipal waste recycling rate reached **59.6%**, and industrial waste recycling **85.4%**. Today, the Ministry is extending its efforts from “recycling” to “circulating,” laying the foundation for a broader circular economy through cross-ministerial collaboration.

FACTS & FIGURES

Economic and Policy Indicators

- Size: 36,197 km²
- Population: ~23.3 million (2024)
- GDP per capita: (2024) ~\$34,119, ranked 21st out of 190 countries
- EU exports in goods to Taiwan (2023) €30.5 billion
- EU imports in goods from Taiwan (2023) : €47.3 billion
- Economic growth: ~4.3% (2024)
- Ease of Doing Business (2019): ranked 15th globally out of 190 countries
- Currency: New Taiwan Dollar (NT\$); €1 ≈ NT\$33
- Corruption Perceptions Index: ranked 25th out of 180 countries

Circular Economy Indicators

- Recycling rate (2024): (MSW): ~59.6%; Industrial Waste: ~85.4%
- Renewable energy share (2024): ~16.8%
- IMD World Digital Competitiveness (2024): ranked 9th globally from 67 countries
- Waste recovery rate (2024): 96.7% (ranked 9th globally)

REPORTS & LINKS

Circular Taiwan Network Reports

[Co-Creating a Resilient Taiwan – Circular Stories](#)

[Towards a Circular Taiwan: 66 Circular Stories](#)

Industry Reports

[Taiwan Textiles Sustainable Innovation](#)[Taiwan Textiles Sustainable Innovation](#)

[Taiwan Circular Textile Initiatives](#)

[Circular Agriculture in Taiwan](#)

Other Reports

[Investing in Taiwan](#)

SELECTED PRIORITY AREAS

Electronics and High-tech manufacturing

As a global leader in semiconductor and electronics manufacturing, Taiwan's electronics sector contributes over **37.3%** of national exports and is central to global technology supply chains. The country produces more than **60% of the world's semiconductors, and nearly 90% of the most advanced chips**. As global attention turns to the environmental footprint of high-tech industries, Taiwan's leading electronics firms are embedding circularity into the heart of production.

For example, TSMC operates a **Zero Waste Manufacturing Center** in Taichung, which recycles fluoride, silica, solvents, and isopropanol, cutting outsourced waste by 130,000 metric tons annually, and saving NT\$1.5 billion in environmental costs. Meanwhile, **UMC** has built a Circular Economy & Recycling Innovation Center in Tainan to recycle up to 15,000 metric tons of semiconductor manufacturing waste.

Other players are also driving change. **ASUS** has committed to doubling the use of environmentally friendly materials in products and packaging by 2025, by replacing virgin materials with secondary, setting up take-back schemes to collect broken laptops and improving critical recycling infrastructure. **SAR Technology Inc.** is revolutionizing semiconductor production by operating the world's first electronic-grade sulfuric acid circulation plant, recovering ultra-high-purity acid for reuse, reducing carbon emissions, and enabling a fully circular supply chain. In addition, **Innolux** has established the world's first automated LCD recycling plant, integrating zero-waste processes that recover valuable materials like liquid crystals and glass from discarded panels, and reduce both CO₂ emissions and water use.

Textiles and Plastics

Taiwan's textile industry has emerged as a global leader in circular materials and sustainable fabric innovation. While the sector represents a modest share of Taiwan's GDP, it holds **around 70% of the global market for functional fabrics**, which in turn accounts for **10% of the global textile market**. Taiwanese functional textiles are widely used by global brands such as Nike, Adidas, and ZARA, demonstrating the industry's international influence.

For example, **Far Eastern New Century (FENC)** has been a pioneer in polyester recycling for over 30 years, transforming billions of PET bottles each year into new packaging and high-performance textiles. The company has built a vertically integrated recycling process that covers everything from waste collection to the production of finished materials, ensuring efficiency, quality, and reduced environmental impact. FENC's large-scale operations offer a practical model for transitioning textile production toward more circular and resource-efficient systems.

Meanwhile, **Shinkong Textile** is advancing **garment-to-garment circularity**, which uses mono-material design and mechanical recycling to simplify processing and reduce carbon emissions by up to **58%**. Moreover, **Atunas**, has launched Taiwan's first fully recyclable outdoor clothing line, using 80% recycled PET and 20% reclaimed polyester. All components are made from single-polyester materials, enabling easy recycling without sorting. The company also offers repairs and has set up 31 recycling stations across Taiwan, rewarding consumers for garment returns.

Food and Agriculture

Organic waste is no longer seen as a burden, it's becoming a valuable input for food, feed, fuel, and materials in Taiwan's circular economy. In 2023, nearly **480,000 tons of household food waste** were recycled with over **90%** turned into animal feed or compost, and the remainder supporting bioenergy and insect farming. This is made possible by a nationwide infrastructure of treatment facilities and policies aimed at closing resource loops and strengthening food system resilience.

Leading examples include the conversion of pineapple leaves into sustainable textile fibres and the use of soy pulp (okara), a tofu byproduct, as a base for functional animal feed and plant-based protein. **King's Ground Biotech**, has upcycled over **230 tons** of soy pulp using fermentation, reducing greenhouse gas emissions from feed production by more than **78%**. Circular innovation continues with aquaponics systems like that at **Shin Hu Cooperation Farm**, where leftover vegetable trimmings feed fish, and nutrient-rich pond water is reused to grow crops. This closed-loop system reduces reliance on chemical inputs and conserves groundwater.

Additionally, **Stonbo Creative** is committed to developing a self-sufficient circular ecosystem by using black soldier flies to treat approximately 20 million metric tons of organic waste annually in Taiwan. This approach reduces greenhouse gas emissions and transforms waste into high-value products like animal feed, fertilizer, and biodiesel, supporting food and energy self-sufficiency. Stonbo's innovative automated feeding system, now patented internationally, streamlines black soldier fly cultivation and maximizes efficiency.

Construction & Infrastructure

Taiwan's construction sector is increasingly adopting circular design principles to reduce environmental impact and extend material lifecycles. Projects are incorporating modular systems, low-carbon materials, and building passports to support future reuse.

One leading example is the **Taisugar Circular Village** in Tainan, designed by Bio Architecture Formosana. The project features modular buildings, rainwater reuse systems, and reclaimed materials, resulting in 40% construction waste diversion, allowing for easy future adaptation.

In Taipei, the **Nangang Depot Social Housing** in Taipei is also advancing circular construction through the use of precast systems, recycled steel, fly ash concrete, and building material passports that support future disassembly and component reuse.

Private sector innovators are also advancing material circularity. **Miniwiz** has developed processes that transform over 1,200 kinds of local waste into high-performance building products such as bricks, wall panels, tiles, and air filtration systems. Finally, **UniGreenTek** is advancing circular solutions in construction by producing recyclable wood-plastic composite alternatives.

RELEVANT NETWORKS

CE think-tanks and research institutes

- [Circular Taiwan Network \(CTN\)](#)
- [Industrial Technology Research Institute \(ITRI\)](#)
- [Chung-Hua Institution for Economic Research \(CIER\)](#)

Business & Knowledge Platforms

- [Taiwan Textile Federation](#)
- [Industrial Development Bureau \(IDB\)](#)

Government Links

- [Netherlands Office Taipei](#)
- [Ministry of Environment \(MOENV\), Taiwan](#)
- [Ministry of Agriculture \(MOA\), Taiwan](#)
- [Ministry of Economic Affairs \(MOEA\), Taiwan](#)
- [Resource Circulation Administration, MOENV, Taiwan](#)