WALAILAK UNIVERSITY

SDG REPORT 2025-2026



Times Higher Education Sustainability Impact Ratings 2026

SUSTAINABLE DEVELOPMENT GOALS

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12 RESPONSIBLE CONSUMPTION AND PRODUCTION

SDG 12 : RESPONSIBLE CONSUMPTION AND PRODUCTION

UNIVERSITY WASTE TRACKING AND MANAGEMENT SYSTEM FOR SUSTAINABLE WASTE REDUCTION AND RECYCLING

Walailak University has established a systematic waste tracking and management process covering the entire waste management cycle, from waste separation at source to collection, transportation, recycling, and final disposal. The system enables the university to measure the amount of waste generated and recycled across its operations while promoting responsible resource use and continuous improvement.



At the source, the university promotes waste separation through institutional policies, color-coded waste bins, and awareness activities that encourage students, staff, and visitors to participate in proper waste sorting. Initiatives such as waste separation during Children's Day activities, "Waste for Points," "Separate Waste, Happy World," and other waste-to-points activities provide practical opportunities for the university community to engage in waste reduction and recycling. These activities also support the development of reliable waste information by encouraging waste to be separated according to its type from the point of generation.



The university has also developed a structured collection system to support waste tracking throughout the university. Waste collection points have increased from 63 to 66 locations, providing broader coverage of university areas. Waste collection vehicles operate according to designated routes to transport separated waste from collection points to appropriate destinations. This structure strengthens the university's ability to follow waste flows from generation and collection through to final treatment or disposal.



At the destination stage, waste is managed according to its characteristics and potential for recovery. Organic waste is reused for animal feed, compost production, and the production of bio-fermented liquid, while inorganic waste with recovery potential is directed toward recycling. Waste that cannot be recovered or recycled is appropriately managed through landfill disposal. This approach prioritizes resource recovery and recycling while minimizing the amount of waste requiring final disposal.

Through this integrated process, Walailak University can generate evidence of its waste management activities and use collected information to assess the effectiveness of waste reduction and recycling practices. The combination of source separation, systematic collection, recycling, and final disposal provides a clear framework for measurement and continuous improvement. At the same time, university-wide awareness activities strengthen engagement among students, staff, and other stakeholders, while the systematic identification of waste flows supports diagnostics for identifying areas where waste generation and recycling performance can be further improved.

Overall, the university's waste tracking system demonstrates an ongoing commitment to measuring waste generated and recycled across the whole university, supported by documented processes and practical implementation. The system provides a foundation for monitoring performance, strengthening stakeholder participation, and improving waste management toward a more resource-efficient and sustainable campus.

WU IMPLEMENTS POLICIES TO MINIMISE PLASTIC USE AND SINGLE-USE DISPOSABLE ITEMS IN SUPPORT OF SUSTAINABLE RESOURCE MANAGEMENT





Walailak University is committed to reducing the environmental impacts associated with resource consumption by implementing a Plastic Use Minimisation Policy and a Disposable Items Minimisation Policy (2023). These policies establish a comprehensive framework for reducing the consumption of plastics and other single-use materials across the university and form an integral part of the university's sustainable resource management strategy.

The policies are communicated and disseminated to all university stakeholders, including academic and administrative units, staff, students, and on-campus vendors, to ensure consistent implementation throughout the university. They are integrated into daily operations, university activities, and event management practices, promoting environmentally responsible behavior and supporting the university's long-term sustainability objectives.



Under these policies, Walailak University has continuously organized awareness campaigns and behavioural change initiatives to encourage the reduction of single-use plastics and disposable products. These initiatives promote the use of reusable containers, personal drinking bottles and cups, the reduction of plastic bag consumption, and the adoption of reusable or environmentally friendly alternatives for university activities and services.





Through sustained communication and engagement, the university has successfully encouraged widespread participation among students, staff, and university vendors, resulting in significant changes in resource consumption behaviors. The integration of these practices into everyday university life has strengthened environmental awareness and fostered a culture of responsible resource use throughout the university community.

The effectiveness of the existence of these policies is demonstrated by measurable reductions in plastic waste generation. The total amount of plastic waste decreased from 86.96 tonnes in 2024 to 70.84 tonnes in 2025, representing a reduction of 16.12 tonnes, or 18.54%. These results demonstrate that the university's policies have been successfully translated into practical action and have produced quantifiable environmental outcomes.

The reduction in plastic waste reflects the effectiveness of the university's efforts to minimise plastic consumption, reduce reliance on single-use disposable items, and decrease the overall volume of waste generated on campus. These achievements contribute to more efficient resource utilization, reduced environmental impacts, and the university's broader commitment to sustainable campus management.

WALAILAK UNIVERSITY'S POLICY AND SYSTEM FOR HAZARDOUS WASTE DISPOSAL



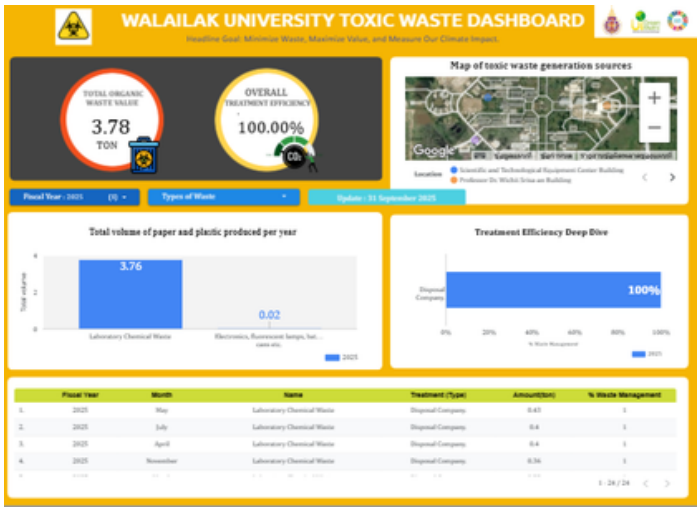




Walailak University has established a comprehensive policy, process, and practice for waste disposal covering hazardous materials to ensure that hazardous waste is handled safely, systematically, and responsibly. The framework is governed by the Policy of *Walailak University on Waste and Hazardous Waste Management B.E. 2569 (2026)*, which provides an institutional basis for managing hazardous waste across the university. The policy was created within the 2022-2026 assessment period and has been translated into operational practices across relevant areas.

The university's hazardous waste management process covers the entire waste management cycle, beginning with source separation, followed by temporary storage, transportation and disposal, and systematic tracking and record-keeping. Dedicated hazardous waste bins are provided according to waste types, with clear labels and symbols placed throughout relevant areas. This enables users to correctly identify and separate hazardous materials at the point of generation, reducing the risk of contamination and supporting the safe movement of waste through subsequent disposal processes.

The policy is supported by practical implementation across the university. Walailak University has established procedures capable of managing 100% of the hazardous waste generated, covering collection, temporary storage, transportation, and final disposal. This demonstrates that the policy is not only formally established but also implemented as an operational practice to minimize risks to human health, safety, and the environment.



To strengthen measurement and continuous monitoring, the university applies digital tools to collect quantitative waste data, analyze management performance, and display waste management information in real time. These data provide a basis for assessing the quantity and management patterns of hazardous waste, identifying potential gaps, and supporting evidence-based improvements to the university's waste disposal system.



The university also promotes engagement and awareness among students and other users through laboratory safety training. These activities provide students with knowledge and practical guidance on the safe handling, separation, and disposal of hazardous waste. In parallel, clearly designated hazardous waste containers and signage make correct separation more accessible in daily practice, helping to embed responsible waste management within the university community.



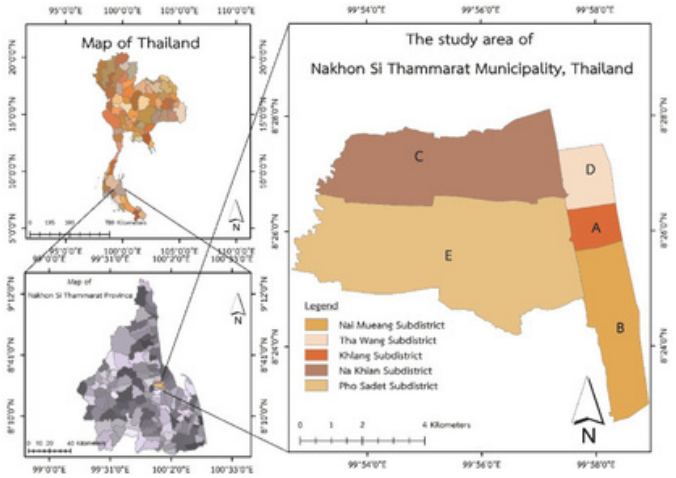
The system also supports diagnostics by connecting operational data, waste separation practices, and monitoring results to the identification of areas requiring improvement. Evidence generated through collection, recording, digital monitoring, and practical implementation enables the university to assess whether hazardous waste is being managed appropriately and where further intervention may be needed. This creates a continuous cycle in which policy guides practice, data support evaluation, and findings inform further development.



Overall, Walailak University demonstrates a comprehensive approach to hazardous waste disposal, combining an established policy, documented processes, practical implementation, stakeholder engagement, and measurable performance. The availability of operational evidence and digital monitoring strengthens accountability and provides a foundation for continuously developing a safer, more effective, and environmentally responsible hazardous waste management system.

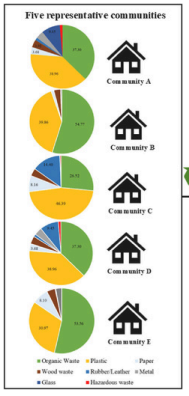
SORTING WASTE AT SOURCE TO REDUCE GREENHOUSE GAS EMISSIONS – CIRCULAR ECONOMY LESSONS

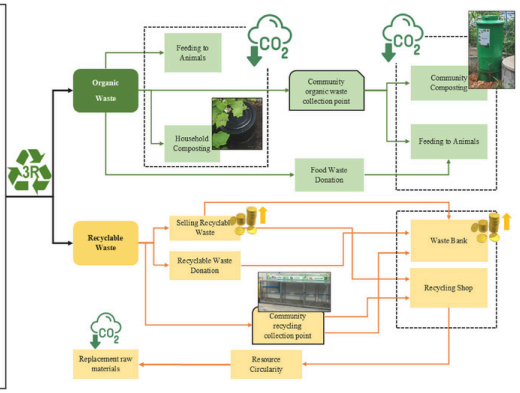
Waste from households and markets includes food scraps that can be composted and certain types of plastic that retain value and can be recycled. When these materials are mixed with general waste, they become harder to recover, and the municipality has more waste to collect, transport, and dispose of. Researchers from the School of Public Health at Walailak University therefore worked with residents and other stakeholders in five communities in Nakhon Si Thammarat Municipality. They examined how sorting waste at source and applying circular economy principles could change the composition of waste sent for disposal and reduce greenhouse gas emissions.



Assessing Waste Composition Before Designing Interventions

The research team began by sorting waste samples to determine the proportion of each type of material. The survey found that organic waste was the main component in residential communities, while plastic waste was prevalent in market communities. This difference helped guide the choice of activities. Residential areas could turn food scraps into compost, while market areas could recover recyclable materials by separating them from mixed waste and collecting them for recycling. The team used a community-based participatory research approach, in which residents, researchers, and other stakeholders jointly developed and tested a waste management model. Involving residents in the design helped each community select activities suited to the types of waste it generated and the options available locally. These activities ranged from composting household food scraps to collecting recyclables through community waste banks.





Turning Food Scraps into Compost and Collecting Recyclables Through Waste Banks



The communities tested separating food scraps from general waste for composting. This put the scraps to use and reduced the amount of organic waste sent for disposal. When food scraps accumulate in waste piles and decompose under low-oxygen conditions conditions, they can generate methane. Diverting food scraps before they reach disposal sites can therefore help reduce greenhouse gas emissions from municipal waste. Residents sorted recyclables either to sell them or to donate them through community waste banks. These banks served as collection points for materials that residents had already separated and helped channel them into the recycling system. Providing a collection route alongside sorting at source helped keep valuable materials in use and created opportunities to earn income from their sale.

Results from the Five Communities



After the communities introduced the circular waste management model, organic waste accounted for a smaller share of the waste sampled, falling by 6.09–11.29 percentage points. The share of plastic waste fell by 4.18–11.11 percentage points. The changes varied across the five communities, reflecting differences in local waste streams and the activities each community adopted. These figures describe changes in waste composition. Estimating how many kilograms of organic waste or plastic were diverted would also require data on the total weight of waste before and after the trial. The researchers estimated that, compared with an open-dumping scenario, the model could reduce greenhouse gas emissions across the five communities by approximately 4,234 kilograms of carbon dioxide equivalent per year, or 4.23 tonnes of CO_2e annually. Composting contributed to this potential reduction by diverting food scraps that could otherwise generate methane as they decompose in waste piles. The researchers also estimated that recovering materials through the model could generate a combined THB 19,537 per year in the study area, illustrating the economic value of separating and collecting materials for reuse or recycling.

The findings illustrate how the same circular economy approach can be adapted to different waste streams. In residential areas, where organic waste was the largest component, composting gave households a way to put food scraps to use. In market areas, where plastic waste was prevalent, sorting and collection helped recover recyclable materials from mixed waste.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