

Safeguard the Environment

Responsible Waste Management

Why Is It Important?

Waste management is a major challenge for society, as the overproduction of waste negatively impacts the environment, health, and economic growth. Effective waste management can reduce operational costs and environmental impact while improving reputation and stakeholder trust.

What Is Our Approach?

We practice the concept of waste management hierarchy, namely remove, reduce, reuse, recycle, recover, and dispose in order of most to least environmentally preferred. Across all our sites, activities that generate waste are categorised and identified according to type, quantity, frequency of generation, handling requirements, treatment and disposal methods. Our waste management plans are regularly reviewed, while performance indicators are submitted monthly to a central reporting platform, which helps measure progress and performance. Typical waste generated from operations include oily sludge from tank cleaning activities, sludge from wastewater treatment plant, spent catalyst and spent oils.

In 2022, PETRONAS generated 144,620 tonnes of hazardous waste, an increase of 19,736 tonnes from 124,884 tonnes in 2021. The higher amount of waste generated in 2022 was contributed by scheduled maintenance and tank cleaning activities. The total amount of waste recycled or recovered during the year in review was 73,643 tonnes of which 63,133 tonnes was attributed by operations in Malaysia. These are equivalent to waste recycling and recovery rates of 51 per cent for the Group or 77 per cent for Malaysia operations.

Guided by international principles, frameworks and standards:

- Host country requirements on waste management
- Global Reporting Initiative (GRI) Standards on waste reporting



Value Creation in 2022

Waste Management

1 Managing Waste

In 2022, despite facing increased waste generation, we found opportunities to improve our waste management practices and increase our waste recycling and recovery rate, contributed largely by a close and continued collaboration between our operations and waste treatment technology and waste management service providers.



Quarterly assurance assessments were also carried out at all off-site waste treatment and disposal facilities owned by our waste management contractors to verify that they meet both regulatory and our requirements.

2 Reducing and Reusing Hazardous Waste

Oily sludge is one of the most common waste of our operations. In collaboration with the Shimizu Institute of Technology, we embarked on a pilot project to use carbonisation technology to treat hazardous waste, including oily sludge generated from the refining process. The initiative aims to explore broader means of a circular economy by reducing hazardous waste and reusing it for other purposes instead of merely disposing it to a licensed facility. The pilot project was funded by the Japan Cooperation Center for Petroleum and Sustainable Energy (JCCP), utilising selected sites provided by the Malaysia Refining Company Sdn. Bhd. (MRC SB).

During the Phase 1 pilot (50kg kiln), the identified hazardous waste types generated by MRC SB were tested in batches and was extended to other types of hazardous waste including Vacuum Gas Oil (VGO), used activated carbons, spent clay and effluent treatment sludges. The Phase 1 pilot test was completed in December 2022 and preliminary results showed promising results with 99.6 per cent to 99.9 per cent of oil recovered from oily sludge samples and a weight reduction range of 84 per cent to 97 per cent for all samples. Phase 2 pilot testing is planned in 2023, utilising 500kg kiln capacity. The pilot results will determine the feasibility for full-scale implementation.