At PharmaEssentia, our mission is "Better science, Better lives." We strive to enhance lives through continuous scientific advancement, and we embrace the same spirit in our environmental protection efforts. In 2018, we first introduced our Environmental, Health, and Safety Policy, clearly defining our goals to protect the environment and prevent disasters. Our pharmaceutical manufacturing processes require the use of energy, water, and raw materials. Thus, we are committed to reducing the negative environmental impacts throughout the product lifecycle and across our supply chain. To monitor our progress, we regularly track indicators such as greenhouse gas emissions, water usage, and waste.

4.1 Environmental Impact and Management in Production Processes

Materiality Assessment

Materiality Assessment

Environmental Impact and Management in Production Processes

Impact Assessment

PharmaEssentia is a research-driven biotechnology company with its R&D and manufacturing bases in Taiwan. We have sales operations spread across Europe, America, Japan, Singapore, China, and Korea. In each market, we collaborate with local suppliers to cover various aspects of our operation, including drug packaging, warehousing, and transportation. Through our comprehensive management systems, we strive to minimize the environmental impact throughout the product development, production, and transportation processes.

Management Policies and Commitments

In 2018, PharmaEssentia first introduced its Environmental, Health, and Safety Policy aimed at ensuring the safety and health of our employees and protecting the environment to prevent disasters. Our environmental management during the production process is governed by various documents, including Greenhouse Gas Management Procedures, Waste Management Procedures, and Chemical Hazard Management Procedures. Additionally, to reduce the environmental impact, we plan to implement the ISO 14001 Environmental Management System in 2024 to further enhance our environmental management efficiency and reduce the negative environmental impacts of our production and operational processes.

Responsible Departments

- Taipei HQ: Occupational Safety and Health Promotion Team
- Taichung Plant: GHG Inventory Promotion Team (GHG Promotion Team)
- Key ESG Material Topics: Managed and coordinated by members of the Sustainability Development Center - Eco-Friendly Team

Indicators and Objectives

- No Environmental Non-Compliance Issues: Confirms the absence of any violations or non-compliance incidents related to environmental regulations.
- Waste Reduction and Recycling: The recycling rate for the year 2023 and beyond. This highlights efforts towards reducing waste generation and enhancing recycling initiatives.

Ensuring Effective Action

- Internal Audits: For example, we conduct irregular audits of waste management vendors and review our internal waste classification and storage management processes. We also regularly assess the waste output intensity of different units to ensure continuous improvement.
- External Verification: We adhere to environmental regulatory authority laws by implementing routine legality checks on required projects to ensure compliance.
- Quarterly Engagement: We engage in regular advocacy meetings with the Taichung City Environmental Protection Bureau, the Central Taiwan Science Park Administration, and neighboring factories. These meetings are conducted to foster dialogue and collaboration, typically through communication meetings and other consultative formats.

3%
2023 Environmental Cost Investment Growth Rate

2023 Performance

- Education and Training:
  - ISO 14064-1 Internal Auditor Certification: As of 2023, a total of 27 employees have achieved certification as ISO 14064-1 internal auditors.
  - TCFD/Greenhouse Gas Inventory Training Hours: In total, 106 participants have completed 282 hours of training.
  - Toxic and Concerned Chemical Substances Response Training - General Awareness Level: Four individuals have successfully obtained certification.
  - Regulatory and Policy Training: Designated personnel have participated in training sessions on regulations and policies conducted by supervisory authorities, including environmental lectures and seminars.
  - Emergency Response and Rescue Training: Conducted training for emergency response personnel on the use of rescue protective equipment and annual disaster response drills to enhance the disaster response skills of operational staff.
- No Emission Pollution, Zero Leakage Violations.
- Increased Recycling of Waste Foam and Glass: Statistics for recycling waste foam and glass were included in 2023.

Future Planning

- New Plant Construction at Hsinchu Biomedical Science Park: A new facility is being established with an application for green building certification. Groundbreaking began in 2022, with completion expected by 2025.
- ISO 14064-1 Internal Auditor Certification: Plans for 2024 include training two employees to obtain the ISO 14064-1 internal auditor certificate.
- Increased Environmental Budget: For 2024, an environmental budget of NT$3.1 million has been allocated.
- Implementation of ISO 14001 Environmental Management System: The introduction of this system includes setting environmental management indicators, focusing on pollution control and greenhouse gas emission intensity targets.
- Comprehensive Construction of the TCFD Framework and Internal Risk Management Integration.
- Enhanced Environmental Budget by 14%: This increase will fund new air pollution control equipment to reduce the emission of air pollutants, including hazardous air pollutants.
- Pollution Prevention: Achieved zero violations in pollution control.
- Seeking evaluation from waste manufacturers in 2024 to introduce Solid Recovery Fuel (SRF) utilization and improve waste reuse efficiency.

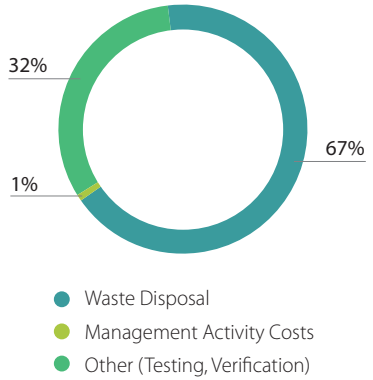
Environmental cost expenditure statistics

At PharmaEssentia, the potential environmental impacts of our operational activities primarily stem from energy use, water resources, and waste management. In 2023, the total investment in environmental costs amounted to NT$2.72 million, which represents a 3% increase from the previous year. The highest cost was attributed to waste management, totaling NT$1.817 million. This increase was mainly due to expanded production capacities.

Item	2023 Cost Expenditure (NT$)	Proportion (%)
Waste Disposal	1,817,126	67%
Management Activity Costs	21,600	1%
Other (Testing, Verification)	881,771	32%
Total	2,720,497	100%

In addition to annual environmental cost expenditures aimed at ongoing energy conservation and carbon reduction to minimize environmental impact, in March 2023, new energy-saving equipment such as air compressors was purchased. This equipment collectively saved approximately 87,300 kWh of electricity, reducing energy consumption by about 1.7%.

Environmental cost statistics



Environmental Management Indicators

As part of our environmental management, we focus on waste management and greenhouse gas reduction as key performance indicators. We aim for continual improvement in these areas each year.

Items	Waste management	Energy Use and GHG Inventories		
Management Indicators	Waste Intensity (tons/million NT$)	Electricity Savings (%)	Energy Intensity (GJ/million NT$)	GHG Emission Intensity (t CO_2e/million NT$)
2022 (Actual)	0.009	1.2	11.28	1.48
2023 (Actual)	0.006	1.7	5.38	0.86
2023 Target	<0.01	≥1	≤5	<1
Short-Term Target (2024)	<0.01	≥1	≤5	<1
Mid-Term Target (2025-2027)	<0.01	≥1	≤5	<1
Long-Term Target (2030)	<0.01	≥1	≤5	<1