4 Sustainable Environment

Chapter Highlights

TCFD	Continued Alignment with Government
3%	2023 Environmental Cost Investment Growth Rate
ISO 14064-1	Taichung Plant Completes 2022 Third-Party GHG Verification
-42%	Reduction in GHG Emission Intensity
-52.3%	Decrease in Energy Consumption Intensity
1.7%	Reduction in total energy consumption with installation of new equipment at Taichung Plant
-33.3%	Reduction in Total Waste Intensity
6.62 million liters	Taichung Plant Process Water Recycling and Reuse
0 violations	No Leakages and Pollution Emissions

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.

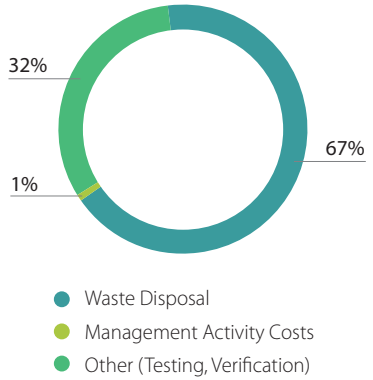
Environmental cost expenditure statistics

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

4.2 Climate Action

TCFD

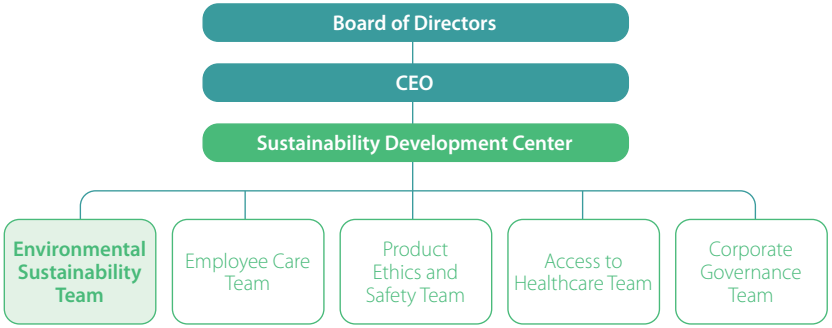
Continued Alignment with Government

Under the impact of global climate change, businesses face significant challenges. The risks and opportunities brought about by climate change can have substantial impacts on corporate value chains. In 2017, the Financial Stability Board (FSB) introduced guidelines from the Task Force on Climate-related Financial Disclosures (TCFD), aimed at providing businesses with guidance to identify climate-related risks and opportunities. PharmaEssentia first adopted the TCFD guidelines in 2022 to identify climate-related risks and opportunities and in 2023 further assessed the financial impacts of these risks and opportunities under different scenarios according to these guidelines. Additionally, we initiated the ISO 14064-1: 2018 organizational greenhouse gas inventory to address and adapt to climate change from a carbon management perspective. Below, we describe PharmaEssentia's climate actions and efforts in four areas as guided by the TCFD: climate governance, strategy, risk management, and metrics and targets.

Governance: Board and Senior Management Oversight and Management of Climate Issues

The Board of Directors is the highest climate governance body at PharmaEssentia, overseeing and formulating strategies related to climate change from a sustainability perspective and responding to domestic and international net-zero commitments. The Board authorizes the Sustainability Development Center and the Eco-Friendly Team to promote various climate change management activities. Execution units include the EHS (Environmental, Health, and Safety) department and other relevant departments such as R&D, production, logistics, warehousing, and engineering, each with specific tasks. The EHS department conducts bi-weekly meetings/factory affairs meetings to report progress on various projects to senior management. Every quarter, a representative from the Sustainability Development Center reports overall ESG project progress to the Board. Plans are in place to implement ISO 14001 in 2024 to establish an environmental management system.

PharmaEssentia Climate Governance Organization



- **Board of Directors:** Oversees and develops strategies related to climate governance.
- **Sustainability Development Center:** Drives and manages actions for responding to and adapting to climate change, and regularly reports outcomes to the Board of Directors.
- **Eco-Friendly Team:** Executes various action plans.

Strategy: PharmaEssentia's Global Climate Strategy

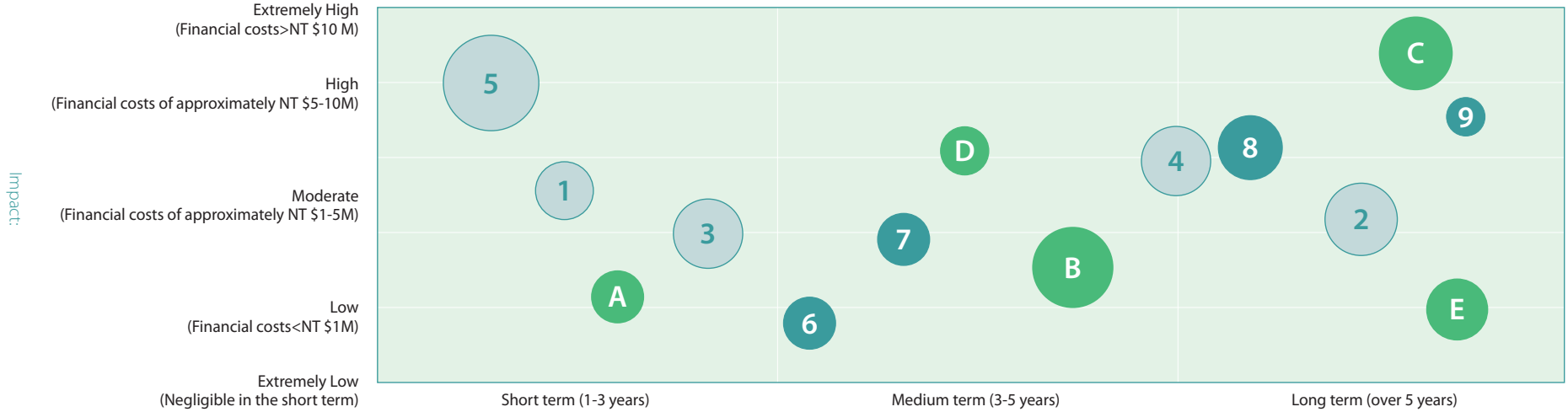
To assess the short-, medium-, and long-term impacts of climate-related risks and opportunities on organizational operations, the PharmaEssentia Sustainability Development Center, in collaboration with external consultants, conducts interviews with managers and surveys to discuss and identify climate-related risks and opportunities with relevant department heads. Through departmental discussions, proactive solution development is undertaken.

In terms of physical risks, we have assessed that our main operational sites are at low to very low risk of operational disruptions caused by extreme weather conditions due to climate change, as considerations for risks such as flooding or drought were made during the site selection process. In 2023, a natural disaster in the U.S. market caused a temporary disruption in transportation, but fortunately, it did not impact operations. Going forward, the company will closely monitor the impact of climate-related risks on operational activities and adjust inventory levels accordingly.

Regarding transition risks, our country has legislated the target of net-zero emissions by 2050, and enhanced obligations for carbon emission reporting and carbon charges are likely short-term risks. Additionally, PharmaEssentia has proactively aligned with financial regulatory requirements by completing greenhouse gas inventories and verifications ahead of schedule. We also plan to implement the ISO 14001 Environmental Management System starting in 2024 to strengthen enterprise management of environmental and energy resources.

According to international studies, climate change may increase the incidence of contagious diseases or cancer-related illnesses. PharmaEssentia will closely monitor this trend and invest in research resources to address unmet market needs potentially arising from climate change. Furthermore, our new facilities have applied for green building certifications, which are expected to yield carbon reduction benefits due to improved resource efficiency.

Short-, Medium-, and Long-Term Climate Risk and Opportunity Matrixs



Transition Risks

1. GHG Management and Carbon Fees
2. Legislative Requirements for Renewable Energy Usage Ratios
3. Legislative Requirements for Phased Net-Zero Carbon Emission Targets
4. Uncertainty in New Energy-Efficient and Carbon Reduction Technologies
5. Raw Material Supply Shortages

Physical Risks

6. Extreme Weather Causing Floods
7. Extreme Weather Causing Droughts
8. Temperature Increases
9. Sea Level Rise

Climate-Related Market Opportunities

A. Carbon Reduction Benefits from Improved Resource Efficiency
B. Emerging Business Models in the Low-Carbon, Energy-Saving Trend
C. Market Opportunities Arising from Solutions to Diseases Caused by Climate Change
D. Adoption of More Efficient Buildings
E. Investment in Renewable Energy or Participation in Carbon Trading Markets

Note: Financial costs are estimated based on the price levels of 2023 and existing data. Different assessments may arise under varying temporal and spatial conditions. The size of the circle represents the financial cost.

PharmaEssentia's climate risk management strategy focuses on managing and adapting to short-term (1-3 years) high-impact climate risks; through management actions, we aim to mitigate the immediate and medium-term impacts and plan for potential climate-related opportunities. We have identified high-impact short-term climate risks including "#5. Raw Material Supply Shortages" and "#1. Greenhouse Gas Management and Carbon Fees," as well as preparations needed in response to "#3. Legislative Requirements for Phased Net-Zero Carbon Emission Targets." These three are prioritized for management.

Furthermore, medium to long-term climate risks such as "#2. Legislative Requirements for Renewable Energy Usage Ratios" and "#4. Uncertainty in New Energy-Efficient and Carbon Reduction Technologies" are expected to materialize in the medium to long term. We will initially observe these risks and reassess whether immediate management is necessary in future annual evaluations.

Regarding climate-related opportunities, "A. Carbon Reduction Benefits from Improved Resource Efficiency" has been identified as a relevant opportunity at our Taichung facility. We have already planned updates to energy-saving equipment and are implementing energy-saving devices at new plant locations.

Scenario Analysis

We assess the impact of different scenarios on climate-related risks and opportunities, as well as possible response strategies for PharmaEssentia. We have considered three scenarios proposed by the Intergovernmental Panel on Climate Change (IPCC) under Representative Concentration Pathways (RCPs): RCP2.6, RCP4.5, and RCP8.5. Based on existing climate data for Taiwan, we estimate the effects on PharmaEssentia's major manufacturing sites under these scenarios.

- RCP2.6 represents a scenario with very low radiative forcing, aiming to limit global warming to within 2 degrees Celsius above pre-industrial levels, which is considered a mitigation scenario.
- RCP4.5 is a scenario of moderate stabilization.
- RCP8.5 represents a high greenhouse gas emissions scenario, assuming that no efforts are made to reduce greenhouse gas emissions globally.

RCP 2.6	RCP 4.5	RCP 8.5
Taiwan (Taichung Plant)	Taiwan (Taichung Plant)	Taiwan (Taichung Plant)
Average Temperature Increase, 2031-2050: 0.3~2.1°C	Average Temperature Increase, 2031-2050: 0.7~2.4°C	Average Temperature Increase, 2031-2050: 1.0~3.1°C
Average Precipitation, 2031-2050: -5.3~12%	Average Precipitation, 2031-2050: -4.7~13.6%	Average Precipitation, 2031-2050: -7.7~13%
Scenario: The increase in temperatures could result in higher ambient temperatures around the factory; due to extreme weather conditions, the probability of droughts or intense rainfall could increase, but the impacts and scale are less severe under controlled temperature rise.	Scenario: An increase in temperatures could raise the ambient temperature around the factory, potentially reducing production efficiency. Extreme weather conditions, such as droughts or sudden heavy rains, could lead to flooding.	Scenario: Under conditions of extremely high temperatures and increased variability in annual rainfall, the impacts of extreme weather become more pronounced. Droughts or floods could lead to power outages or operational disruptions at the factory, necessitating higher costs for improvements.
Responses: • PharmaEssentia itself: The factory is located in a science park, where the risk is relatively low. • Supply Chain: Alerts are set up for potential delivery delays caused by natural disasters, with plans to establish secondary and tertiary sources of supply.	Responses: • PharmaEssentia itself: The factory is currently located in a science park, where the risk is relatively low. • Supply Chain: Measures are in place to alert for potential shipment delays due to natural disasters, with contingency plans involving the establishment of secondary and tertiary sources of supply.	Responses: • PharmaEssentia itself: In addition to strengthening PharmaEssentia's own disaster prevention capabilities under extreme climate conditions, it is necessary to enhance disaster preparedness drills and business continuity plans for both the supply chain and transportation routes. • Supply Chain: Alerts are in place for potential shipment delays caused by natural disasters, with contingency plans involving the establishment of secondary and tertiary supply sources, and even changing materials or reconfiguring the supply chain.

Data Source: TCCIP - Taiwan Climate Change Projection Information and Adaptation Knowledge Platform

Transition Risk Scenarios

In terms of transition risks, PharmaEssentia evaluates scenarios using the "Shared Socioeconomic Pathways" (SSPs) assessment methodology proposed in the IPCC's Sixth Assessment Report (AR6). This approach helps assess the potential scenarios related to climate change transition risks.

Low-Risk Scenario

Scenario Description Projected Temperature Increase by the End of the Century:

SSP1-1.9 Pathway

Projected Temperature Increase by the End of the Century:

1.4 degrees Celsius

Orderly Global Transition to Net Zero by 2050

Explanation of Transition Risks:

Gradual Implementation of Climate Policies Starting in 2021: Climate policies are being implemented step by step.

Impact on PharmaEssentia:

For PharmaEssentia, Based in Taiwan:
Given that the government has already legislated the 2050 net-zero target, PharmaEssentia will follow national objectives to set phased carbon reduction targets.
PharmaEssentia has already completed the ISO 14064-1: 2018 organizational greenhouse gas inventory and will use these results to plan further carbon reduction initiatives.

Moderate-Risk Scenario

Scenario Description Projected Temperature Increase by the End of the Century:

SSP1-2.6 Pathway

Projected Temperature Increase by the End of the Century:

1.6 degrees Celsius

Delayed Implementation of Transition: A gradual approach is taken towards shifting policies and technologies.
Global Achievement of the Paris Agreement's Sub-2 Degrees Celsius Target

Explanation of Transition Risks

Urgent Implementation of Climate Policies Starting in 2031.

Impact on PharmaEssentia:

PharmaEssentia will monitor the implementation at each operational site according to local market conditions.

High-Risk Scenario

Scenario Description Projected Temperature Increase by the End of the Century:

SSP4-6.0 Pathway

Projected Temperature Increase by the End of the Century:

>3 degrees Celsius

No Additional Carbon Reduction Measures
Countries Maintain Existing Policie

Explanation of Transition Risks

Status Quo, No New Policies Issued: There is no introduction of new climate policies, maintaining the current approach.

Impact on PharmaEssentia:

PharmaEssentia will monitor the implementation at each operational site according to local market conditions.

Financial Impact Analysis of Climate Change

Considering the above climate-related risks and opportunities and their impact on organizational operations, PharmaEssentia is actively formulating response and adaptation measures to enhance climate resilience. In 2023, the company implemented the ISO 14064-1: 2018 organizational inventory process, laying a solid foundation for future carbon management capabilities.

Category	Transition Risks		Physical Risks
Content of Risk/ Opportunity ! Risk factors ☆ Opportunity factors	! GHG Management and Carbon Fee Levies ! Legislative Requirements for Renewable Energy Usage Ratios ! Legislative Requirements for Phased Net-Zero Carbon Emission Targets ! Uncertainty in New Energy-Saving and Carbon Reduction Technologies	! Raw Material Shortage Pressures	! Extreme Weather Leading to Flooding ! Extreme Weather Leading to Drought ! Temperature Rise ! Sea Level Rise
Potential Financial Impact ⊕ Potential Opportunity ⊖ Potential Cost	⊖ Increased Operational Costs Due to Carbon Management: Introduction of carbon taxes in international markets and the levying of carbon fees and energy-related taxes in Taiwan have led to increased operational costs. ⊖ Investment in Renewable Energy Planning and Equipment Leads to Higher Costs, ⊖ Investment in Energy Efficiency and Carbon Reduction Resources: Allocating resources to inventory, verify, and disclose organizational greenhouse gas emissions, extending further to include the carbon footprint of products throughout their lifecycle, also increases operational costs.	⊖ Material Shortages and Increased Transportation Costs Due to Climate Change: Climate change causing raw material shortages or increased transportation costs.	⊖ Operational Interruptions Due to Natural Disasters: Natural disasters leading to operational disruptions or exceeding existing emergency response measures, impacting production, causing financial losses, and decreasing revenue. ⊖ Natural Disasters (e.g., Snowstorms in the USA): May lead to shipment delays or damage to local operational equipment and personnel injuries, increasing operational costs. ⊖ Natural Disasters Disrupting Raw Material Supply: Interruptions in raw material supply due to natural disasters can hinder production operations and disrupt product transportation, affecting operational revenue. ⊖ Costs Associated with Insurance and Flood Prevention Measures: The company mitigates financial losses due to property damage via insurance and increase costs for installing flood prevention measures at facilities. ⊖ Increased Energy Use or Cold Chain Costs Due to Rising Temperatures: Long-term temperature increases may lead to higher energy usage in facilities or increased costs in the transportation cold chain.
Explanation of Financial Impact Assessment	▶ Carbon Fee: The annual estimated CO_2e emissions of PharmaEssenia are less than 5,000 metric tons. With a carbon fee set at NT$300 per metric ton, the annual cost will increase by NT$1.5 million. ▶ GHG Inventory: Each plant is gradually implementing management systems and inspection procedures, with an estimated annual cost not exceeding NT$3 million. ▶ GHG Inventory Reduction, Energy Portfolio, and Efficiency Enhancement: Further assessment is needed to evaluate the costs associated with emission reduction and energy efficiency improvements across various factory sites.	▶ Due to the stringent requirements of Good Manufacturing Practice (GMP) for pharmaceutical ingredients, thorough inspections and certifications are necessary at each stage. The cost increase of raw materials is difficult to predict. To mitigate this, early procurement or increased inventory will be implemented. It is estimated that costs will increase by 10% to 20%, resulting in an annual increase of over NT$10 million in procurement costs.	▶ The Taichung plant has measures in place to sustain operations for approximately three to four weeks in case of water shortage. Therefore, production is unlikely to be affected, and the additional financial costs incurred under this scenario are minimal. ▶ In the event of natural disasters disrupting transportation, the current safety stock should be able to sustain operations for three to six months. Consequently, the additional financial costs incurred under this scenario are minimal. ▶ Further evaluation is needed to assess the long-term financial implications of increased energy usage or transportation costs due to rising temperatures. ▶ Actively pursuing pharmaceutical approvals in various regions worldwide to diversify climate-related risks associated with regional climate conditions. ▶ Commitment to diversifying production bases and enhancing the sourcing and preparation of raw materials.

Category	Climate-Related Opportunities	
Content of Risk/ Opportunity ! Risk factors ☆ Opportunity factors	☆ Carbon Reduction Benefits from Improved Resource Efficiency: Enhancing resource efficiency to reduce carbon footprint. ☆ Adoption of More Efficient Buildings: Using higher efficiency buildings to decrease energy consumption. ☆ Market Opportunities from Investing in Renewable Energy or Participating in Carbon Trading Markets.	☆ Market Opportunities from Investing in Renewable Energy or Participating in Carbon Trading Markets: Engaging in renewable energy projects or carbon trading to capitalize on market trends. ☆ Emerging Business Models Under Low-Carbon, Energy-Saving Trends: Innovating new business models that align with the shift towards energy conservation and reduced carbon emissions. ☆ Market Opportunities Arising from Solutions to Climate Change-Induced Diseases: Developing solutions for diseases exacerbated by climate change to meet emerging healthcare needs.
Potential Financial Impact ⊕ Potential Opportunity ⊖ Potential Cost	⊖ 2024 Estimated Equipment Replacement: The anticipated cost is projected to be under NT$5 million. ⊕ Potential Carbon Assets from Carbon Management: This includes benefits derived from carbon credits.	⊕ Potential Carbon Assets from Carbon Management: Benefits derived from carbon rights, potentially increasing the company's value through enhanced sustainability practices. ⊕ Investment in Climate-Related Disease Solutions: Potential market opportunities from developing solutions for health issues exacerbated by climate change.
Explanation of Financial Impact Assessment	▶ Further assessment is required to evaluate the benefits generated from reducing emissions and enhancing energy efficiency across various factory sites. ▶ Commitment to Decreasing Energy Intensity and minimizing reliance on energy resources.	▶ There are currently no specific data available to estimate the financial benefits of emerging solutions.

In response to the financial assessment above, we have categorized climate-related risks and opportunities into the following issues. Key strategies and departmental responses of PharmaEssentia Pharmaceutical are outlined below:

Category	Transition Risks		Physical Risks
Climate-Related Risks and Opportunities	GHG Emission Control · GHG Inventory and Reduction · Energy Portfolio and Efficiency Enhancement	Raw Material Management	Strengthening Emergency Response Capabilities at Plant Sites due to Extreme Weather Events such as Hurricanes and Floods, which can lead to operational disruptions.
Key Strategy of PharmaEssentia	Enhancing GHG Emission Control Capabilities at PharmaEssentia; Continuously Implementing: (1) GrHG Inventories at each operational site. (2) Setting phased targets for greenhouse gas reduction (3) Evaluating the benefits of achieving interim actions towards carbon neutrality or net zero by 2050, considering the cost and benefits of carbon management.	• In terms of raw material management, we will increase the registration of raw material sources and evaluate new suppliers. • In future research and development, we will incorporate considerations of climate change impacts to provide more options.	• Regularly assess the contingency capabilities of the plant sites, provide risk alerts and identification, and enhance emergency response capabilities at the plant sites. • Construction of a new plant in Zhubei: PharmaEssentia will adopt green building standards for the construction of a new plant in the Zhubei Industrial Park, and has prepared for climate risks and impacts. • Regularly enhance climate resilience and response capabilities at PharmaEssentia's global operational sites through education, training, and internal process improvements.
Departmental Responses	• **Production/Environmental Safety Department:** Utilizes the "Environmental Policy" as an internal guideline for preventing and addressing environmental impacts and has established the "Greenhouse Gas Management Procedure Manual." The primary production base, the Taichung Plant, serves as the first site to conduct greenhouse gas inventory operations. We have completed the inventory operations for the year 2022 and undergone third-party verification. We will continue to progress along the path of carbon reduction, achieving phased reduction targets through improvements in resource efficiency in existing facilities.	• **Procurement:** Conduct assessments based on material categories and geographical sources to increase sourcing contingency plans; seek green supply chains; or request carbon reduction from the top five suppliers by annual transaction amount. • **Research and Development:** Reduce environmental impact by incorporating concepts of biotechnology and digital transformation, including: · Reducing materials (reagents/solvents/reducing the use of toxic substances, etc.) · Energy usage and temperature control at each stage of equipment/production methods/processes/storage, transportation, and preservation · Use of environmentally friendly and recyclable materials (lightweight, thin, short) • **Production:** Depending on the situation, move towards automated production.	• **Environmental Safety:** Evaluate the potential impact and corresponding emergency response measures; increase assessment frequency. The Taichung plant has established the "Emergency Response Management Standard for Plant Facilities" to implement emergency response mechanisms. In the event of natural disasters or equipment abnormalities, ensure normal equipment operation and conduct process operations in a safe environment for all personnel. • Overall, we will cooperate with the Central Taiwan Science Park and Hsinchu Science Park to prevent and manage physical risks.

Category	Climate-Related Opportunities	
Climate-Related Risks and Opportunities	Enhancing Resource Efficiency.	Meeting Unmet Medical Needs.
Key Strategy of PharmaEssentia	• Evaluate the resource efficiency improvements resulting from equipment updates or replacements. • Assess the benefits of installing renewable energy or participating in carbon trading markets.	• Diseases resulting from climate change will become a key focus of future biopharmaceutical industry research and development. PharmaEssentia will continue to monitor this trend and assess the feasibility of addressing unmet needs related to climate-related diseases and PharmaEssentia's R&D direction. • PharmaEssentia also undertakes other projects requiring cold chain transportation services. Currently, plans are being devised on how to provide more efficient transportation methods or containers to increase additional services or revenue.
Departmental Responses	• Our Taichung plant's future plans involve replacing high-energy-consuming equipment (such as air compressors and chillers) to improve energy efficiency. • Planning for an energy monitoring system, optimizing steam process control, and waste heat recovery. • The new plant in Zhubei plans to apply for green building certification, aiming to obtain subsidies for green buildings and reduce the organization's carbon emissions.	• The Research and Development Department, in collaboration with the Sustainability Development Center, the Access to Healthcare Team, and the Product Ethics and Safety Team, will jointly be included as regularly monitored topics.

Risk Management

Climate Risk Identification and Assessment Process

In addition to the risk management mechanism described in section 2.3, which categorizes different types of risks and implements corresponding measures to reduce their impact on the company, this section will further explain the company's management mechanism and actions regarding climate risks, which have been gradually introduced in accordance with the TCFD framework guidelines:

Risk Governance Unit

The board of directors serves as the highest supervisory and decision-making unit for risk management. Through its audit committee, audit department, and corporate governance department, it assists in supervising, controlling existing or potential risk issues to reduce company risks or early positioning, minimize negative impacts, and avoid financial losses. Additionally, the board of directors assigns senior management to be responsible for promoting and operating various issues, implementing risk management through regular management supervision.

Risk Management Policies and Practices

The company establishes internal risk management policies, procedures, and internal control systems in accordance with relevant regulations to properly manage all risk issues, impact items, and corresponding highly material topics. Annually, the board of directors approves the company's overall risk management goals and policies, assigns senior management to be responsible for the promotion and operation of various issues, and continuously ensures the effective operation of risk management mechanisms through regular supervision.

Climate Risk Management Process

We consider climate-related risk management policies, actual assessment practices, and pre-response measures to mitigate the impact of climate risks on operations. We began conducting major operational risk assessments, including the assessment process for climate risks within environmental risks, education and training, and implementation of specific practices to address various risks in each department starting in 2023. These assessments are expected to be conducted regularly each year to ensure a thorough understanding and timely adaptation to changes in these risks, and to develop relevant reduction management methods and measures as needed as well as risk management objectives and policies as needed, and to continue to implement and supervise the effective operation of the risk management mechanism.

Indicators and Targets

In the biotechnology industry, the main response to climate change is primarily focused on carbon reduction. In order to achieve the above goals, PharmaEssentia strives to reduce carbon emissions at each stage. We have already implemented the ISO-14064-1 Greenhouse Gas Inventory Standard, conducting regular inventories of greenhouse gas emissions at each operational site and managing climate-related key indicators. In 2023, we also disclosed inventory data for Scope 3 emissions for the first time. In the future, we will continue to assess whether updates to response plans are needed based on annual climate risk evaluations and actions. We will actively engage in research in areas related to climate change-induced diseases, striving to find more solutions from the source through pharmaceutical research and development.

ESG Matters	Carbon Management	Rising Costs of Raw Materials	Severity of Extreme Weather Events such as Hurricanes and Floods
Response Measures	**Scope 1, Scope 2, and Scope 3 Greenhouse Gas Emissions and Associated Risks** • PharmaEssentia's primary source of greenhouse gas emissions is Scope 2, from purchased electricity. In 2023, Scope 1 and Scope 2 emissions were less than 5,000 metric tons of CO_2e. • Regarding greenhouse gas emission policies, the company aims to align with the national target of net-zero by 2050 and the National Development Council's goal of reducing overall emissions by 24% by 2030.	• Tracking Raw Material Usage through the Indicator of Material Consumption per Revenue: This metric is used to monitor the use of raw materials in relation to business turnover.	• Regular Assessment of Facility Response Capabilities: Periodic evaluations are conducted to enhance risk warning and identification, increasing emergency response capabilities at the facility. • New Facility Construction in Zhubei Factory: PharmaEssentia is constructing a new facility in the Zhubei Park using green building standards and has made preparations for climate risks and impacts.
Indicators and Objectives	• Carbon Intensity (t CO_2e per NT$ Million)	• Raw Material Consumption per Revenue • Enhancing Resilience: Reducing the risk associated with raw material procurement due to environmental impacts.	• Regular Implementation of Emergency Response Measures
Risk Governance Unit	• Carbon Intensity of 0.86 (t CO_2e/NT$ million), down by 42% vs 2022 • For details on carbon emissions and the calculation of carbon intensity, please refer to 4.3 Energy Management	• 0.30 g/NT$K in 2023, lower than 0.50 g/NT$K in 2022	• Cooperate with Taichung Science Park to carry out preventive measures • Assess and adjust the level of safety stock in the U.S. market

4.3 Energy Management

ISO14064-1
Taichung Plant Completes 2022 Third-Party GHG Verification

-42%
Reduction in GHG Emission Intensity

The largest source of GHG emissions for PharmaEssentia is from Scope 2 purchased electricity, primarily due to the need for temperature control during the drug production process. Therefore, energy use and GHG emissions are closely managed. In 2023, following the global commercialization of major new drugs, overall sales volume and production increased, leading to a rise in total electricity consumption. However, energy intensity and greenhouse gas emission intensity decreased by 52.3% and 42% respectively compared to the previous year.

PharmaEssentia Taichung Plant - GHG Emissions Statistics for the Past Three Years

Category	ISO 14064-1	Definition	2019 (base year)	2020	2021	2022	2023 (Unaudited)
Scope 1	Category 1	Direct Energy	707.23	503.21	510.95	569.55	692.39
Scope 2	Category 2	Purchased Electricity from TPC	3055.00	3094.32	3029.61	3037.27	2905.97
Scope 3	Category 3	Transportation Related (Upstream + Taichung to Other Countries, Commuting + Attendance) No Downstream Transport	822.80	814.53	785.36	657.79	105.18
	Category 4	Indirect Emissions from Raw Materials/Services					669.86
Total		Total: CO_2e (ton-CO_2e)	4585.03	4412.06	4325.92	4264.60	4374.40
Carbon Intensity Trends (CO_2e)		Revenue (NT$ million)	305.69	557.26	656.51	2,882.04	5,105.62
		GHG Emission Intensity (tCO_2e / NT$ million)	15.00	7.92	6.59	1.48	0.86
		YoY Change	-	-47%	-17%	-78%	-42%

Note 1: The data in this table are specific to the PharmaEssentia Taichung Plant.
Note 2: The greenhouse gases included in the inventory are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).
Note 3: The statistical method used is the 'emission factor method'. The emission factors for purchased electricity follow the carbon emission factors announced by the Bureau of Energy, Ministry of Economic Affairs, with the factors for 2021 and 2022 being 0.509 ($kgCO_2e$/kWh) and 0.495 ($kgCO_2e$/kWh), respectively. Emission factors for CO2 equivalents of natural gas are based on the Global Warming Potential (GWP) of various GHGs as reported in the IPCC AR6 (2021).
Note 4: Intensity is measured by total annual sales revenue (million NT$) as a metric for usage density and emission intensity.
Note 5: This is the first time Scope 3 emissions are disclosed separately by category.

GHG Emissions Analysis

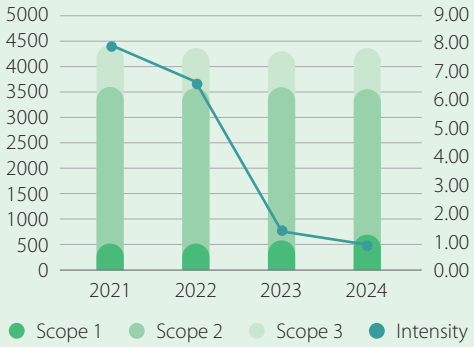
GRI 305-1~305-4

The main production facility in Taichung has implemented the ISO 14064-1: 2018 Organizational Inventory Management System. As of the end of 2023, the Taichung plant has obtained the 2022 SGS verification certificate. Additionally, the greenhouse gas inventory operations for 2023 have been completed, with external verification expected to be passed in Q3 of 2024

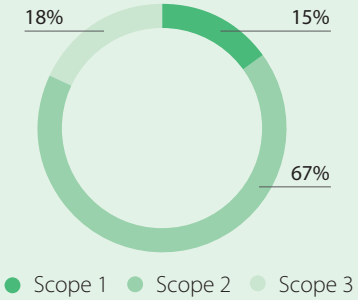

SGS
Greenhouse Gas Verification Statement
PharmaEssentia Corporation
Taichung Plant
ISO 14064-1:2018

Historical Carbon Emissions

Historical Carbon Emissions and Intensity Changes



Distribution of Scope 1-3 Emissions in 2023



Energy Use Analysis GRI 302-1, 302-3 CSA 2.3.1

Our company's energy consumption primarily consists of purchased electricity and natural gas. To comply with Good Manufacturing Practice (GMP) standards, which require maintaining a certain level of cleanliness even during non-production periods, our company has implemented various energy-saving actions. These include investing in suspended ice water chillers and variable frequency drive air compressors to achieve energy savings. As of 2023, the total energy consumption has shown a year-over-year declining trend, with energy intensity decreasing by 52.3% compared to the previous year.

-52.3%

Decrease in Energy Consumption Intensity

PharmaEssentia and Panco - Energy Consumption Statistics for the Past Three Years

Item	Year	2020	2021	2022	2023
Purchased Electricity	Renewable Energy Use (GJ)	0	0	0	0
	Non-Renewable Energy Use (GJ)	24,839.53	27,277.60	23,454.71	19,165.49
Natural Gas	(GJ)	8,395.93	7,339.11	9,045.06	8297.21
Petroleum	(GJ)	-	-	19.58	9.56
Total	Total Energy Consumption (GJ)	33,235.46	34,616.71	32,519.36	27,472.26
Intensity	Energy Intensity (GJ/million NT$)	59.64	52.73	11.28	5.38
	Revenue (million NT$)	557.26	656.51	2,882.04	5,105.62
	YoY Changes	-	-11.6%	-78.6%	-52.3%

Note 1: Energy consumption data includes PharmaEssentia and Panco.
Note 2: Starting in 2022, petroleum (including diesel and gasoline) was added to the statistics.
Note 3: Intensity is measured by the total annual sales revenue (million NT$) as a metric for usage density and emission intensity.

2023 Energy Conservation and Carbon Reduction Achievements GRI 302-4 GRI 305-5

At the Taichung plant, new energy-saving equipment was purchased in March and June 2023, including variable frequency drive air compressors and suspended ice water chillers. These investments resulted in savings of 87.3kWh of electricity, equivalent to a reduction of 43.2135 tones of CO_2e (approximately 314.2 GJ of energy), accounting for a total energy consumption reduction of about 1.7%.

1.7%

Reduction in total energy consumption with installation of new equipment at Taichung Plant

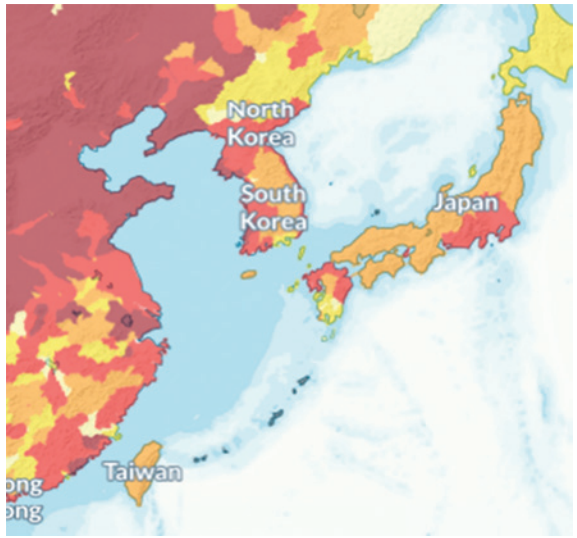
4.4 Water Stewardship

Impact Assessment and Water Resource Risks

GRI303-3, 303-4, 303-5, 304-1 CSA 2.5

PharmaEssentia's production base is located in the Central Taiwan Science Park, Taichung Park. According to statistics, the daily water supply capacity of the Central Taiwan Science Park is 107 million liters, while the Taichung factory of PharmaEssentia withdraws 0.04 million liters per day, which represents a proportion of 0.037%. This level of water use does not have a significant impact on the community.

Furthermore, risk identification conducted using the Water Risk Assessment Tool developed by the World Resources Institute (WRI) indicates that all operational sites of the company are located in areas with low to medium water stress.



Data Source: World Resources Institute (WRI)

Water Intake and Discharge

Although our company's operations do not consume large amounts of water resources, we implement measures to conserve water. Our main production facility, the Taichung Plant, is located within the Taichung Science Park, where the water source is municipal water (third-party freshwater), and the discharge is managed through the Taichung Park's wastewater treatment plant. In compliance with the regulations of the Ministry of Environment, water quality monitoring of the discharge is conducted biannually by an inspection agency authorized by the Environmental Protection Administration, ensuring adherence to the environmental standards set by the Environmental Protection Administration and the Central Taiwan Science Park of Taichung.

Operational Site Nankang Software Park Phase II	Water Source	Water Supplier	Usage		Discharge Point	
			Manufacturing Process	Domestic Use	Wastewater Treatment Plant	Surface Water Bodies
Nangang Software Park Phase II	(Tamsui River Basin)	Municipal Water		✓		
Taichung Plant	(Yongheshan, Mingde, Liyutan, and Deji Reservoirs)	Municipal Water	✓	✓	✓	
Panco (Shimen Reservoir)	(Shimen Reservoir)	Municipal Water		✓		

Water Pollution Control and Wastewater Discharge Management Indicators CSA 2.5.6

The Taichung plant conducts water quality monitoring of its discharge water every six months. The testing is performed in accordance with the standards set by the Ministry of Environment and carried out by an Environmental Protection Administration-approved laboratory. In 2023, all tests met the regulatory standards. The discharged water is properly treated at the Central Taiwan Science Park, Taichung Park's wastewater treatment plant before release, complying with the wastewater treatment system standards for pharmaceutical manufacturing set by the Central Taiwan Science Park Administration. The water quality of the discharge in 2023 met all controlled discharge criteria and limits, with no significant environmental pollution concerns.

Facility Area	Taichung Plant - Operations Center	Taichung Plant - Manufacturing Center
Discharge Handling	Regulated Discharge	Regulated Discharge
Tested Parameters	None	pH, COD, BOD, SS, Water Temperature, True Color, Free Residual Chlorine
Discharge Standards, Source of Standards (Environmental Indicators, Followed Regulations)	Taichung Park Sewerage Discharge Standards	Taichung Park Sewerage Discharge Standards
Discharge Location	Commercial Building	Junhao Factory Area

Water Recycling and Reuse

At the Taichung plant, water recycling and reuse are enhanced through the reclamation of reverse osmosis brine and wastewater, which are redirected into the cooling towers of the air conditioning system to improve the efficiency of water resource cycling. In 2023, a total of 6.62 million liters of water were recycled.

6.62 million liters

Taichung Plant Process Water Recycling and Reuse

PharmaEssentia Water Resource Statistics Table

(in million liters)

Location	2020			2021			2022			2023		
	Intake	Discharge	Consumption	Intake	Discharge	Consumption	Intake	Discharge	Consumption	Intake	Discharge	Consumption
Taipei HQ	10	-	10	7.78		7.78	7.38		7.38	7.63		7.63
Taichung Plant	15.64	9.46	5.18	15.1	5.6	10.5	18.11	9.13	8.98	14.13	5.74	8.39
Panco	0	0	0	0	0	0	0	0	0	1.4		1.4
Total	25.64	9.46	15.18	22.88	5.6	18.28	25.49	9.13	16.36	23.16	5.74	17.42

4.5 Air Pollution Control and Compliance GRI 305-6, 305-7

PharmaEssentia adheres to regulatory requirements for air pollution control. We do not use or emit ozone-depleting substances (ODS) regulated under the "Montreal Protocol," nor do we release any persistent organic pollutants (POPs). Compliance with the Environmental Protection Agency's standards includes regular testing and reporting of stationary air pollution sources. Testing is outsourced to Jichuan Environmental Technology Co., Ltd., an EPA-approved agency, conducted as per regulatory intervals. The test results show that air pollutant emissions are below legal limits, and there were no violations of environmental regulations in 2023.

Despite an increase in total production in 2023 due to global commercialization and sales demand, the emissions of volatile organic compounds (VOCs) have risen but still remain below the legally prescribed emission levels.

PharmaEssentia Air Pollutant Emissions Statistics Table for the Past Four Years

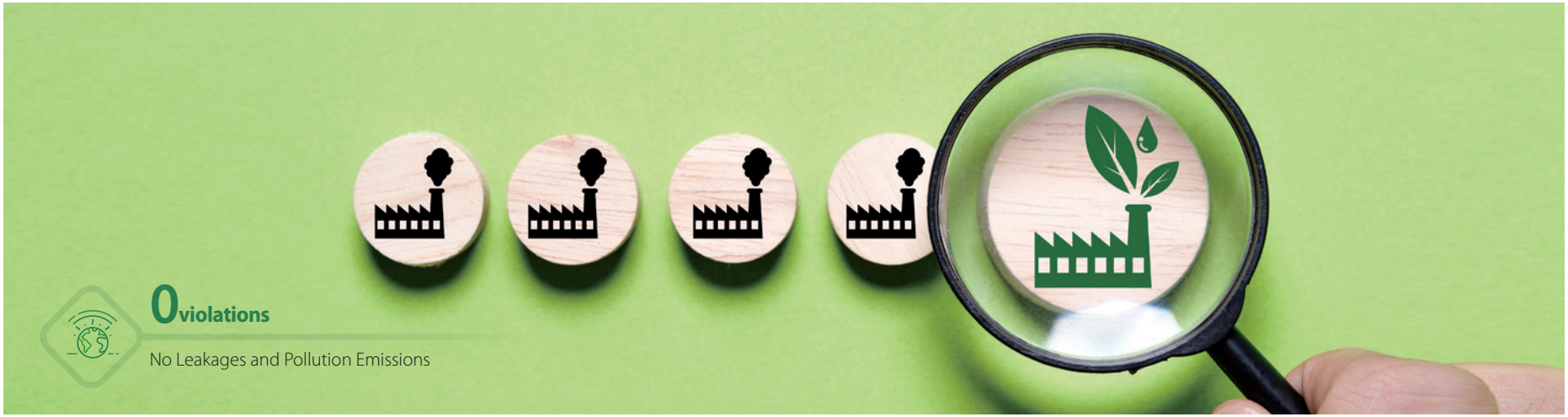
(units: kg)

Air Pollutant	(NOx)	(SOx)	(VOCs)	(HAP)	(PM)	(HCl)
2020	415.70	29.60	13.30	NA	7.00	-
2021	352.41	0	734.31	168.54	14.77	-
2022	444.2	34.0	9.3	434.2	7.8	0.1
2023	425.7	32.3	17.1	607.9	7.4	0.2

Notes1: The data in this table are specific to the PharmaEssentia Taichung Plant; Panco Medical does not emit the air pollutants listed in this table.

Notes2: Nitrogen oxides (NOx), sulfur oxides (SOx), and particulate matter (PM) were not tested in 2022; figures are estimated based on 2020 data. From 2022, statistics for hydrochloric acid have been included.

Notes3: The 2022 data for hydrochloric acid was corrected from 93.4 to 0.1 due to a data entry error.



4.6 Waste Management

PharmaEssentia primarily produces general business waste from operations, including a small amount of chemicals used in R&D and laboratory experiments. The company strictly adheres to legal regulations for waste management to avoid any potential legal issues or risks of environmental pollution. Additionally, PharmaEssentia actively keeps abreast of environmental regulations, promoting waste reduction from the research phase, adjusting process designs, and improving material usage efficiency to achieve environmentally friendly practices.

Waste Output and Disposal GRI 306-1~2

PharmaEssentia examines waste output, elimination, treatment, and recycling from a lifecycle perspective, meticulously recording input materials and waste output. Waste disposal is outsourced to qualified third-party waste treatment firms.

Input & Output

Input Characteristics

Waste Originating from Manufacturing, Quality Control (QC) Analysis, and Laboratory R&D Work: This includes a small amount of hazardous waste comprising toxic substances used in experiments and infectious waste. Initially, these wastes undergo high-temperature sterilization within the factory and laboratories, after which they are considered as general waste. However, to ensure compliance with regulatory control measures, they are subsequently treated as infectious waste for disposal.

Activity Records

Detailed Recording of Toxic Chemicals: Usage and inventory of toxic chemicals are meticulously recorded, along with the statistics on waste output. In 2023, the total waste generated was 33.8 metric tons, an increase from the previous year due to the rise in production batches.

Impact Assessment

Production and QC Inspection in Accordance with Pharmacopeial Standards: Operations in the manufacturing area and QC inspections adhere to pharmacopeial standards and Good Manufacturing Practices (GMP). The materials used, including those containing toxic substances, cannot be substituted arbitrarily, and practices are in place to prevent reuse within the processes that could contaminate and affect the quality of subsequent pharmaceutical products. Efforts are made to manage waste from the back end of the process to minimize environmental impact.

Disposal & Monitoring

Categorized Disposal

Disposal Categorized by Waste Type: Disposal processes are categorized according to the type of waste, including hazardous waste, infectious hazardous waste related to biological medical activities, solid/liquid hazardous waste, and non-hazardous waste, ensuring each type is handled appropriately to mitigate environmental impact.

Multifaceted Monitoring

- Waste Management Contractors: The waste disposal contractors engaged by our company are legally registered as Class A or B waste removal/treatment providers. Operations are conducted using a "three-party check and balance operation," which involves completing stamps from PharmaEssentia, the waste transporter, and the final treatment facility before final reporting on the Environmental Protection Administration's official website. This process is essential to manage and control the final direction of waste disposal.
- Annual Vendor Audits and Inspections: We conduct annual audits of our contractors (during the removal/treatment processes) and accompany them on visits to ensure that waste management is carried out flawlessly. Throughout these audits, there have been no instances of contractors violating legal regulations.

Waste Output Volume GRI 306-3, 306-4. 306-5

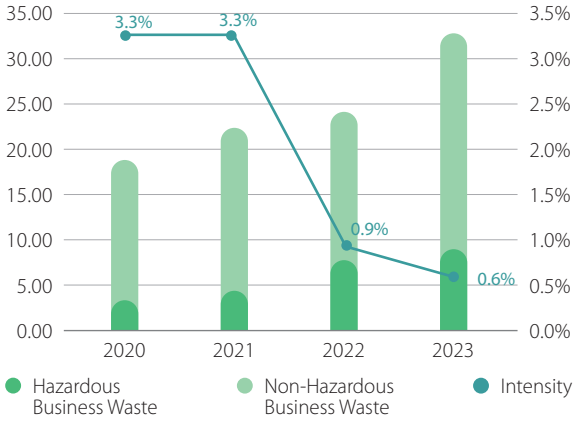
As PharmaEssentia's global footprint expands, our capacity and efficiency continue to improve. We persistently focus on reducing waste volume and enhancing the efficiency per unit of output to decrease the intensity of waste generated. Following short-term, medium-term, and long-term goals and action paths, we refine our management policies and implement concrete actions. The intensity of total waste generation has decreased year over year, with a reduction of 33.3% in 2023 compared to the previous year.

PharmaEssentia (Taipei + Taichung) Waste Statistics for 2023

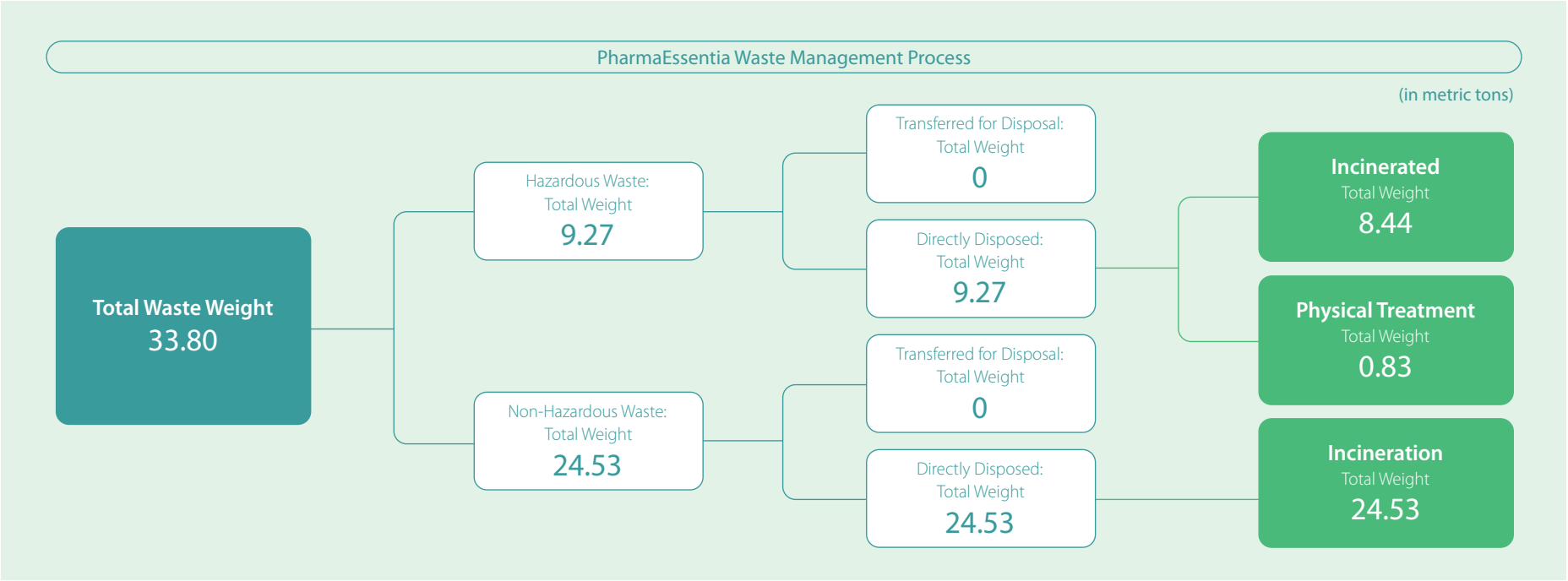
(in metric tons)

Category	Subcategory	Total	Rate	Recycled	Recycling Rate	Landfilled	Landfill Rate	Incinerated	Rate	Total
Non-Hazardous Business Waste	None	24.53	72.57%	0.00	0.00%	0.00	0.00%	24.53	72.57%	100%
Hazardous Business Waste Total Waste Output Category	Biomedical	1.97	5.82%	0.00	0.00%	0.00	0.00%	1.97	5.82%	100%
	Organic Effluents	6.47	19.15%	0.00	0.00%	0.00	0.00%	6.47	19.15%	100%
	Non-Organic Effluents	0.83	2.46%	0.00	0.00%	0.83	2.46%	0.00	0.00%	100%
Total Business Waste		33.80	100.00%	0.00	0.00%	0.83	2.46%	32.97	97.54%	100%

Historical Total Waste Volume and Intensity



Note: The above data includes both Taipei and Taichung facilities. The calculation method for intensity is total waste volume divided by the annual revenue (in million NTD).



Material Management in Production and Packaging

The Taichung facility operates as a GMP (Good Manufacturing Practice) compliant plant. To meet regulatory requirements, many materials used in various operational processes are disposable, especially in the packaging of semi-finished or finished products, to prevent cross-contamination and protect the products. The packaging materials used are not reused. In 2023, the main non-renewable materials used during production were disposable process bags, accounting for approximately 87.7% of all materials. Renewable materials primarily consisted of paper boxes and inserts used for packaging.

	2021	2022	2023
Renewable Materials (Metric Tons)			
Packaging Materials (Paper Boxes/Inserts) (FP)	0.05	0.08	0.1
Non-Renewable Materials (Metric Tons)			
Disposable Consumables for Processes (FP)	0.04	0.09	0.09
Packaging Materials (Blister Packs/Syringe Labels/Plungers/Safety Needles) (FP)	0.05	0.09	0.1
Disposable Process Bags	0.54	1.26	1.35
Total	0.63	1.44	1.54

4.7 Management of Toxic and Concerned Chemical Substances

PharmaEssentia uses a limited number of environmentally regulated toxic and concerned chemical substances in its R&D and production processes (including machine cleaning). Therefore, we focus particularly on source control by properly classifying and storing each chemical substance, implementing documented control of usage, tracking the flow of chemicals, and preventing environmental pollution and harm to human health. In 2023, there were no incidents of chemical or waste leakage.

Classification and Control of Toxic Substances

We classify substances according to the "Management Law of Toxic and Concerned Chemical Substances," storing regulated toxic substances in laboratory fume hoods by category. Due to the wide variety of chemicals used, we have established a "Chemical Hazard Management Procedure" that defines clear responsibilities and control measures for the purchasing, usage, storage, and disposal of toxic substances, with precise records of chemical usage and inventory.

Our subsidiary Panco operates as a logistics center, not a manufacturing plant, and does not use chemicals, hence no chemical hazard operation procedures are required. The logistics center engages in processing and labeling operations; during which, accidental breakages of pharmaceuticals may occur, necessitating on-site cleanup. Therefore, we have written a "Cleanup Procedure for the Processing and Labeling Line" to ensure proper handling of any pharmaceutical leaks. No incidents of pharmaceutical breakages occurred during processing in 2023.

Toxic Chemical Disaster Response Actions

The Taichung factory is equipped with one general-level professional emergency responder to maintain safety. We have established a "Chemical Spill Emergency Response Standard Operating Procedure" that allows for quick and effective response actions. To date, no such incidents have occurred. The laboratory is equipped with comprehensive emergency response equipment available for use in emergencies, and equipment conditions and safety stock levels are checked monthly. Annual toxic substance spill drills are conducted to ensure that employees can respond promptly and effectively in emergency situations, minimizing the impact of disasters. In the future, based on the "Management Measures for Professional Responders to Toxic and Concerned Chemical Substances," professional responders will be appointed within the factory to take necessary protective, response, and cleanup actions in the event of an accident, while other unit's professional responders will perform disaster response support tasks, ensuring the implementation of factory-wide toxic disaster response operations and education and training for handlers of toxic substances.

2023 Annual Emergency Response Personnel Suit-Up Training and PEG Process Toxic Substance Spill Disaster Drills

(Response Procedure: Suiting Up → Decontamination → Cleanup)

Emergency Responder Suit-Up Training

Spill Disaster Rescue Drills

4.8 Biodiversity

Conservation of Diverse Species in the Central Taiwan Science Park

PharmaEssentia's production bases are located in the Central Taiwan Science Park in Taichung and the under-construction Zhubei factory in the Hsinchu Biomedical Science Park. Neither site is located in a conservation area or habitat for protected or rehabilitated species. Assessments have determined that there is no direct impact on biodiversity.

However, to ensure water resource protection, the Taichung facility has applied for a water pollution prevention permit and adheres to its regulations for production operations and reporting. Regular sampling and testing reports are within standards, posing no risk of environmental impact. According to the Central Taiwan Science Park Sustainability website, ecological surveys have shown an increase in many species inhabiting the area. Future efforts will continue to enhance conservation actions to attract more species and enrich the habitat of the park. Simultaneously, in 2023, we also sponsored a public welfare project by the international Jane Goodall Institute, indirectly participating in initiatives to protect plant diversity. This contributes to maintaining ecological balance, preventing ecosystem degradation, and promoting soil conservation and water stewardship. (Refer to section 6.4 Philanthropic Activities)