4

Responsible Production and Circular Economy

4.1 Task Force on Climate-related Financial Disclosures (TCFD)

4.2 Energy and GHG Management

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4.4 Waste Management

4.5 Responsible Production and Circular Economy

4.1 Task Force on Climate-related Financial Disclosures (TCFD)

4.1.1 Climate Governance

As the impacts of climate change become increasingly apparent, extreme weather events such as typhoons, floods, and heatwaves are becoming more frequent and severe. These events not only pose direct threats to business production, supply chains, and market environment but also have the potential to trigger widespread environmental and social issues, affecting the balance and sustainable development of entire ecosystems. Therefore, businesses must pay close attention to risks like extreme rainfall and drought, incorporating them into their operational considerations to ensure the continued and stable growth of their business.

As a global citizen, Giga Computing will actively address the risks posed by climate change by developing management strategies and actions to enhance climate resilience. At the same time, to mitigate the pace of climate change, we also plan to gradually transform our operations towards a low-carbon approach.

Board of Directors

The highest governing body of climate governance at Giga Computing is the Board, responsible for overseeing the overall progress of the Company's climate actions and playing a key role in setting the Company's climate commitments and goals to ensure sustainable operations.

Sustainable Development Committee

To strengthen its climate governance structure, Giga Computing has established a "Sustainable Development Committee" in its organizational structure, which will oversee the Company's climate change governance in the future. In 2023, as the climate governance structure continues to be refined, the Sustainable Development Committee has not yet commenced operation. Moving forward, we will continue to plan and gradually implement measures to enhance climate resilience.

Sustainability Promotion Team

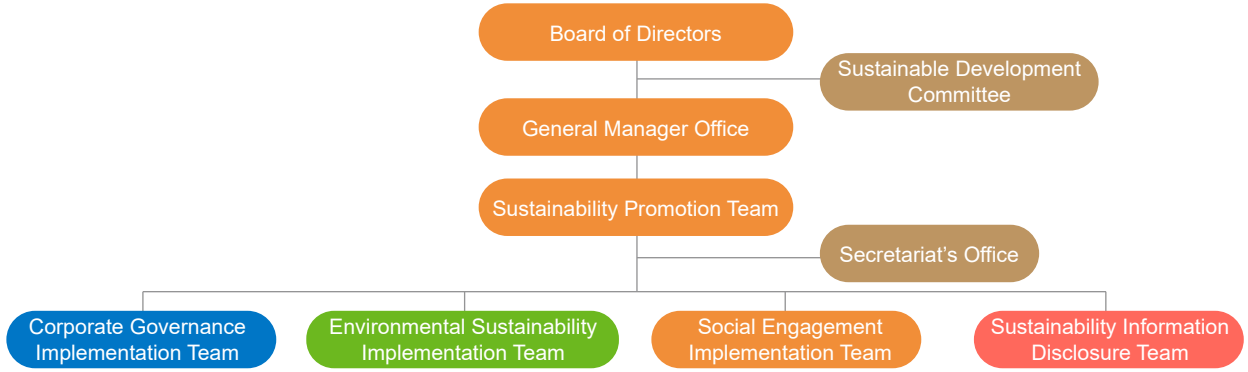
To enhance Giga Computing's management and identification of climate-related risks and opportunities, we established the Sustainability Promotion Team in 2023. The team is chaired by the General Manager and the R&D Center's Assistant Vice President serves as the convener. We also established four sub-groups, including the Corporate Governance Implementation Team, the Environmental Sustainability Implementation Team, the Social Engagement Implementation Team, and the Sustainability Information Disclosure Team. The 3 implementation teams are mainly responsible for developing internal management policies related to governance, environmental, and social aspects to achieve Giga Computing's sustainability goals. Additionally, members from these implementation teams form the Sustainability Information Disclosure Team, responsible for the annual collection and consolidation of data and information to implement sustainability information management.

In 2023, three implementation teams jointly assessed and identified climate issues and formulate countermeasures accordingly. In the future, we will regularly review our climate risk response planning and implementation results, monitor the achievement of climate response goals and actions at various sites, and have the General Manager regularly report to the Board on climate risk management policies and progress to enhance the governance framework.

Secretariat's Office

Giga Computing's Sustainability Promotion Team includes a dedicated Secretariat, responsible for coordinating the Company's sustainability affairs and serving as the communication channel with external parties. The team also assists in coordinating the three implementation teams for corporate governance, environmental sustainability, and social engagement, to ensure cross-departmental communication and collaboration, and to timely disclose sustainability-related information.

◆ Giga Computing's Sustainable Governance Framework



4.1.2 Climate Risk Management

To help the Company understand current key climate opportunities and risks, in 2023, the Sustainability Promotion Team compiled sustainability reports from peers and CDP climate questionnaires on risk and opportunity issues. The team convened the major implementation teams and assessed the degree of impact and likelihood of various climate issues to identify the key climate risks and opportunities for the Company in 2023 through questionnaires. The identified results have been reported to the Sustainability Promotion Team, which is working with relevant units to develop response strategies and management measures to improve the overall risk management process.

Collecting Issues

- Issues in the sustainability report of peers
- Peer CDP questionnaires
- International trends

Identify Risks and Opportunities

- Questionnaires were distributed, and members of the implementation teams under the Sustainability Promotion Team gave scores on the risk and opportunity issues

Formulate Countermeasures

- Inventory the current response situation of each operational site, and formulate management measures according to the risks and opportunities of each site

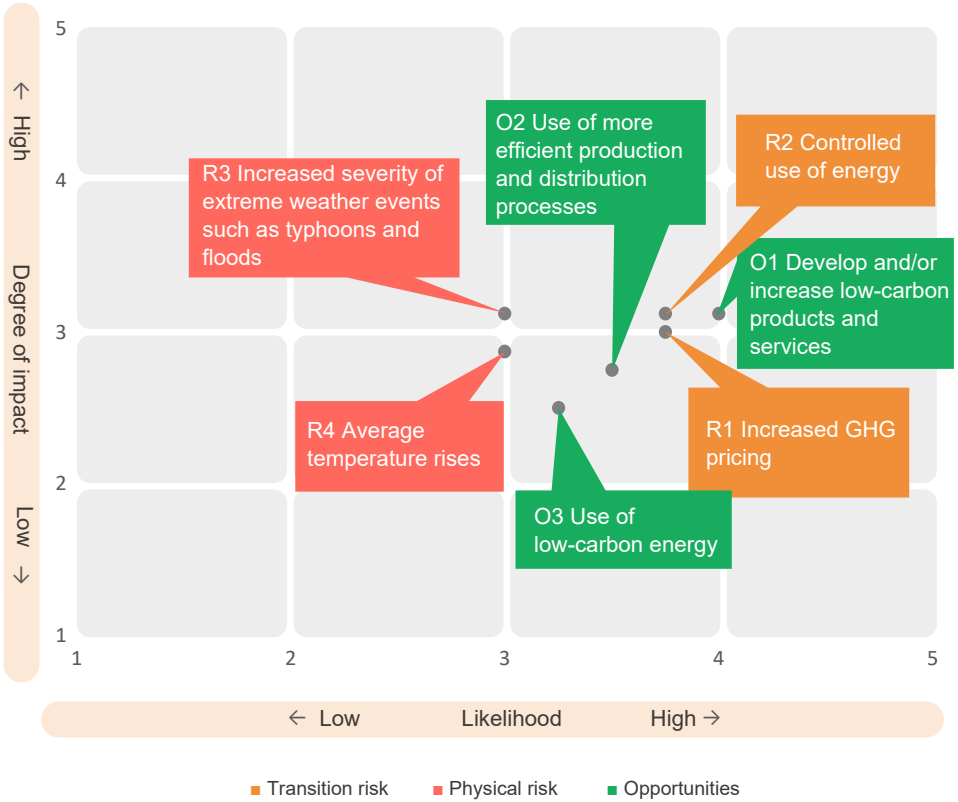
Tracking and Managing

- The Sustainability Promotion Team will track whether relevant units continue to implement or optimize management measures every year

4.1.3 Response Strategies for Climate Change

To formulate the Company's key climate change strategies, it is essential first to identify the key climate risks and opportunities for the year. In 2023, Giga Computing's Sustainability Promotion Team, following the TCFD guidelines, peer reports and international trends, gathered information on Giga Computing's specific climate issues. Through discussions with various units about the actual challenges and responses, 7 key climate risks and opportunities were identified, including 2 transition risks, 2 physical risks, and 3 opportunities. The identification results of these seven key issues are listed below, including their occurrence period, current status, and response strategies.

◆ Climate Risks and Opportunities Identification Matrix



◆ Giga Computing's Key Climate Risk and Opportunity Issues and Response Strategies

Aspect	Issue	Impact Period	Climate-related Risks and Opportunities Status	Response Strategies and Management Measures
Transition Risk	R1 Increased GHG pricing	Short-term (within 3 years)	In 2025, Taiwan's Climate Change Response Act will impose carbon fees on domestic entities with annual carbon emissions exceeding 25,000 tons. Although Giga Computing is not among the first batch of regulated enterprises, the Company still needs to consider this risk due to the possibility of future regulations expanding to include additional companies.	1. Conduct annual evaluations of its aging equipment and allocate a budget for replacement, to progressively enhance the energy efficiency of the Company's equipment. 2. Implement an annual routine carbon inventory system starting in 2024, with a voluntary GHG inventory conducted each year in accordance with ISO 14064-1, and submit the annual carbon data to the Group. External certification is expected to be completed by 2027. 3. After completing the voluntary GHG inventory in 2024, Category 4 will be evaluated as a major source of carbon emissions, and in 2025, plans will be made to implement a supply chain carbon reduction evaluation. 4. The office air conditioning and lighting will be set to turn off automatically, reducing electricity waste during periods of inactivity.
Transition Risk	R2 Controlled use of energy	Short-term (within 3 years)	The Ministry of Economic Affairs in Taiwan has set a target for renewable energy to account for 20% of the energy mix by 2025. Energy transformation policies are expected to cause fluctuations in electricity prices, and the requirements for business to adopt renewable energy will also increase.	Cooperate with GIGABYTE to evaluate the introduction of renewable energy.
Physical Risk	R3 Increased severity of extreme weather events such as typhoons and floods	Mid-term (3 to 5 years)	Giga Computing's supply chain spans the globe, and with worsening extreme weather, each location faces different climate risks. In the past, Chinese manufacturers have experienced extreme heat, leading to government-mandated shutdowns. Plants in the lower reaches of the Yangtze River have been flooded due to torrential rains, causing damage to equipment and affecting supply. For U.S. manufacturers, the supply chain was unable to supply raw materials as scheduled due to hurricanes, resulting in delays in delivery. Climate disasters such as this have increased the Company's risk of operational disruptions and materially impacted the Company's finances.	1. Establish a supply chain raw material backup plan to avoid supply chain disruptions, and gradually diversify supply from suppliers to reduce the response cost of a single supplier due to climate factors. 2. Increase the proportion of local suppliers to reduce the risk of extreme weather affecting transportation. 3. Purchased UPS systems to ensure continuous power supply and prevent impacts on equipment from sudden regional power reductions.
Physical Risk	R4 Average temperature rises	Long-term (5 to 10 years)	1. Rising temperatures can increase the risk of fires, cause equipment to malfunction and elevate cooling water temperatures due to poor heat dissipation, and lead to higher energy demands for cooling systems. Additionally, the risk of heatstroke for employees may pose significant health hazards. 2. Climate change may cause raw material price fluctuations, resulting in increased costs.	1. Promote the use of energy-saving equipment, such as replacing lighting with LEDs, and upgrading to more energy-efficient water dispensers and air conditioning systems. 2. Increase the supplier assistance plan, evaluate the comprehensive automation of processes, and improve energy efficiency. 3. Regularly conduct risk assessments to determine the factors that may cause fires, and formulate corresponding risk management measures, such as strengthening fire prevention facilities and training employees on fire prevention. 4. Raise employee awareness of high temperatures, strengthen the maintenance and use of indoor air conditioning systems, provide adequate rest and hydration areas to reduce the risk of heatstroke, arrange reasonable working schedules and rest intervals, and enhance employee health knowledge training.

Aspect	Issue	Impact Period	Climate-related Risks and Opportunities Status	Response Strategies and Management Measures
Opportunity	O1 Develop and/or increase low-carbon products and services	Short-term (within 3 years)	As the market shifts towards supporting low-carbon, high-efficiency products, enterprises are developing low-carbon products and creating circular economy business models to align with international trends and open new markets and business opportunities.	1. Evaluate the introduction of low-energy, high-efficiency supply chain products, such as power supplies with higher energy conversion efficiency. 2. Evaluate increasing the number of products with direct liquid cooling (DLC) and immersion cooling systems.
Opportunity	O2 Use of more efficient production and distribution processes	Mid-term (3 to 5 years)	As extreme weather events become more severe and frequent, global natural resources are increasingly scarce, with acquisition costs and difficulties rising. Recycling and reuse help reduce operational costs and improve the efficiency of raw material usage.	1. The possibility of introducing recycled materials into packaging materials (cushioning materials) is expected to be evaluated in 2024. 2. Expand the supplier assistance program to optimize processes and increase the proportion of scrap recycling. 3. Evaluate increasing the usage of recycled paper pulp in carton packaging materials (currently, the recycled paper pulp usage rate in carton packaging exceeds 80%).
Opportunity	O3 Use of low-carbon energy	Short-term (within 3 years)	As countries tighten regulations on total carbon emissions and import carbon tariffs, failure to adopt energy-saving and carbon-reduction measures may lead to decreased competitiveness of the company's products in exports and increase additional carbon costs for sales. On the other hand, if the company actively invests in or implements low-carbon energy and energy-saving solutions, it can reduce costs associated with carbon emissions. Additionally, facilities with lower carbon emissions could benefit from surplus carbon credits, resulting in potential gains.	Actively explore the availability of renewable energy at each operational site and collaborate with the parent company GIGABYTE to evaluate the use of renewable energy, and proactively increase the proportion of low-carbon energy.

4.1.4 Metrics and Targets

Since Giga Computing is currently conducting self-initiated GHG inventory, it has not yet been able to set specific reduction targets. However, to proactively address the impacts of climate change, we have established goals in areas such as carbon reduction, renewable energy usage, and climate change adaptation. These goals are under continuous review and implementation. Additionally, the Sustainability Promotion Team monitors the annual progress of each site, making rolling adjustments to climate targets to ensure their effectiveness and suitability each year. The climate-related goals set by Giga Computing and the status of achievement are as follows:

Target Type	Target Description	Achievement Status
Carbon Reduction Targets	Complete the voluntary GHG inventory for 2023 in 2024 (including subsidiaries)	Achieved
	Complete ISO 14064-1 certification in 2027 (including subsidiaries)	In progress
	Cooperate with GIGABYTE to set carbon reduction goals in 2027	In progress
Renewable Energy Target	Cooperate with GIGABYTE to evaluate the introduction of renewable energy	Under discussion
Responding to Climate Change	No instances where extreme weather conditions have caused supply chain disruptions leading to a suspension of shipments	No such situation in 2023

4.2 Energy and GHG Management

Item	Content
Policies, Commitments, and Importance	Energy management is intrinsically linked to GHG emissions, a critical factor influencing global warming. In recent years, many countries have implemented carbon tax regulations on imported products, and Taiwan is set to start collecting carbon fees in 2026. Giga Computing fully recognizes the importance of energy and carbon management. As such, in 2024, we conducted a voluntary GHG inventory in accordance with the ISO 14064-1: 2018 standard. Moving forward, we commit to conducting regular annual inventories and gradually increasing the share of renewable energy to mitigate the additional costs imposed by future carbon-related regulations.
Responsible Unit	R&D Center
Short-, Mid-, and Long-term Goals	**Short-term goals (2024):** 1. Complete the voluntary GHG inventory of Giga Computing (including subsidiaries). 2. Introduce power monitoring equipment to assess the actual power consumption in 2024. **Mid- and long-term goals (2025-2030):** 1. Complete the GHG inventory of Giga Computing (including subsidiaries) and obtained external certification. 2. Set carbon reduction targets based on GHG inventory results. 3. Submit the SBTi Commitment Letter. 4. Cooperate with the parent company, GIGABYTE, to evaluate the introduction of renewable energy.
Action Plan	1. Cooperate with the parent company to complete GIGABYTE's annual CDP climate questionnaire. 2. Routine annual carbon inventory operations will be newly implemented across all sites, with plans to introduce third-party certification processes in the future. 3. Each site set short-, mid-, and long-term reduction targets based on its current GHG emissions inventory.
2023 Performance	1. According to the ISO 14064-1 GHG Inventory Standard, we voluntarily completed the GHG inventory for Giga Computing. 2. Electricity savings represent an annual reduction of 68.99 metric tons of carbon dioxide equivalent through equipment replacement at the Giga Computing's operational headquarters. 3. Giga Computing, along with GIGABYTE, achieved an A- rating on the 2022 CDP Climate Questionnaire. After splitting and operating independently in 2023, we will continue to enhance environmental performance based on international evaluation standards.
Grievance Mechanism	Each year, all sites will submit their annual carbon inventory results to GIGABYTE, which will track progress toward carbon reduction targets, identify reasons for any shortfall, and adjust targets as needed to achieve low-carbon operations.

4.2.1 Energy Management

With the conclusion of COP28 highlighting global setbacks in carbon reduction, governments and businesses worldwide are intensifying their efforts in carbon management and reduction regulations. As a member of the global community, Giga Computing is committed to minimizing the environmental impacts of its operations. Therefore, we prioritize carbon reduction and energy saving as key management objectives.

To strengthen internal energy and GHG management, Giga Computing has established an energy management plan for its operational sites starting from 2023, in accordance with the policies of its parent company, GIGABYTE. Additionally, to lay the foundation for carbon reduction, Giga Computing completed its first self-assessment of GHG across Category 1 to 6 according to ISO 14064-1 in 2023. The company has also established a routine internal audit and carbon management system, with plans to obtain external certification or assurance from a third-party organization annually starting in 2027 to enhance the quality of GHG data. Giga Computing has responded to the Taiwan government's 2050 net-zero carbon emissions goal with actual actions, and actively demonstrated its determination to reduce carbon emissions to customers and stakeholders.

4.2.2 Energy Usage Overview

In 2023, Giga Computing had a total energy consumption of 17,721.94 GJ. As Giga Computing's primary product is servers, the main energy consumption comes from purchased electricity for laboratory machines and air conditioning, accounting for approximately 99.64% of the total energy consumption. The remaining 0.36% is attributed to gasoline used for company vehicles. In the future, Giga Computing will continue to monitor the consumption trends of various energy categories annually and continually evaluate energy-saving measures.

◆ Total Energy Consumption in 2023

	Activity Type	Energy type	Unit	Energy Consumption	Proportion (%)
Non-renewable Fuels	Company vehicles	Gasoline	Liters	1,936	0.36
			GJ	63.88	
Purchased Energy	Process equipment, air conditioners	Purchased gray electricity	kWh	4,905,016	99.64
			GJ	17,658.06	
Gross Calorific Value of Energy Consumption (GJ)				17,721.94	100.00
Intensity (GJ per million revenue)				0.36	-

Note 1: The statistical scope of energy consumption data covers: Giga Computing (Headquarters), GIGAIPC.
Note 2: Calorific value of gasoline = 7,800 kcal/L, calorific value of electricity = 860 kcal/kWh, and the coefficients are from the energy product unit calorific value table of the Bureau of Energy, Ministry of Economic Affairs.
Note 3: The denominator of the intensity is the total annual revenue in millions of NTD.
Note 4: Giga Computing did not use renewable energy in 2023, and will align with GIGABYTE's evaluation to introduce renewable energy.

4.2.3 GHG Management

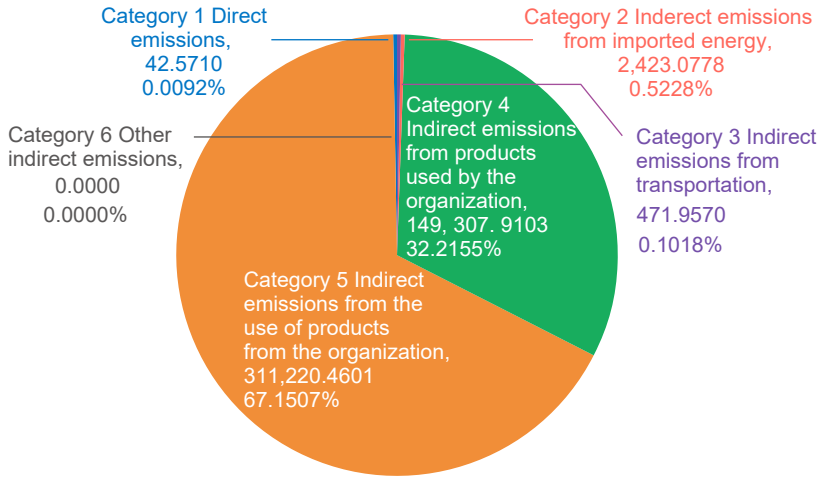
In 2024, Giga Computing completed its 2023 voluntary GHG inventory in accordance with ISO 14064-1: 2018 GHG Inventory Standard. The total GHG emissions for 2023 amounted to 463,465.9762 tons of CO_2e, with the largest contributions coming from Category 4 and 5 emissions, primarily due to purchased materials and the use of sold products, which together accounted for 99.37% of the total annual GHG emissions. Category 3 to 5 involve upstream and downstream vendors, making them harder to control. In 2023, Giga Computing focused its energy-saving and carbon reduction efforts primarily on Category 2. Moving forward, we will continue to conduct routine carbon inventories to monitor our organization's GHG emissions and set short-, mid-, and long-term carbon reduction goals, contributing to global carbon reduction efforts.

◆ 2023 GHG Emissions Volume and Intensity

Unit	Metric Tons of CO_2e	Proportion (%)	Total (metric tons of CO_2e)	Intensity
Category 1 Direct Emissions	42.5710	0.0092	2,465.6488	0.0508
Category 2 Indirect Emissions from Imported Energy	2,423.0778	0.5228		
Category 3 Indirect Emissions from Transportation	471.9570	0.1018	461,000.3274	-
Category 4 Indirect Emissions from Products Used by the Organization	149,307.9103	32.2155		
Category 5 Indirect Emissions from the Use of Products from the Organization	311,220.4601	67.1507		
Category 6 Other Indirect Emissions	0	0		
			463,465.9762	-

Note 1: GHG inventory boundary: Giga Computing (Headquarters), and GIGAIPC.
Note 2: Inventory Methodology: Giga Computing complies with ISO 14064- 1: 2018 GHG Inventory Standard, and voluntarily completed the 2023 GHG inventory.
Note 3: Scope of GHG inventory: Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorinated chemicals (PFCs), sulfur hexafluoride (SF_6), nitrogen trifluoride (NF_3), a total of 7 GHGs.
Note 4: The GHG inventory uses the operational control approach for the inventory process.
Note 5: Category 6 was not disclosed as it did not meet the material threshold.
Note 6: GHG coefficient reference: Ministry of Environment's Greenhouse Gas Emission Factor Management Table version 6.0.4, academic papers, similar products, or data from SimaPro or the Ministry of Environment.
Note 7: Emission intensity = (total carbon dioxide equivalent of Category 1 + Category 2 emissions) / annual revenue in millions of NTD.

◆ Percentage of Annual GHG Emissions



4.2.4 Reduction and Energy Conservation Measures

To promote energy conservation and carbon reduction, GIGABYTE has established a mechanism for rewarding reduction initiatives and low-carbon product proposals. By encouraging ideas from employees, the group aims to continuously find solutions within daily operations and expects employees to integrate environmentally friendly thinking into their work.

Currently, Giga Computing's main energy consumption comes from power consumption of R&D equipment at the operational headquarters and daily electricity use by employees. In 2023, through employee proposals, 4 equipment improvement projects were implemented, including replacing the headquarters air conditioning units, water dispensers, and updating laboratory equipment, which resulted in a reduction of approximately 68.99 metric tons of CO_2e.

Energy Saving Solution Category	Number of Solutions	Energy Saving Degree	Carbon Reduction Volume (metric tons of CO_2e)	Carbon Reduction Rate (%)
Shared Equipment Updates	3	58,906.80	29.10	1.20%
Laboratory Equipment Updates	1	80,758.00	39.89	1.65%
Total	4	139,664.80	68.99	2.85%

Note 1: The carbon emission coefficient of electricity is 0.494 kg CO_2e/kWh announced by the Bureau of Energy of the Ministry of Economic Affairs for 2023.

Note 2: Carbon reduction rate is the ratio of the amount of carbon reduction achieved by the energy-saving solution to the total carbon emissions from electricity consumption.

4.3 Water Resource Management

4.3.1 Water Resource Risk Assessment

With the intensification of extreme weather in recent years, uneven global rainfall distribution has become the norm. The frequency and severity of heavy rainfall, droughts, and floods have progressively exceeded historical records. This not only affects general water supply but also increases supply chain instability and the risk of operational disruptions for businesses. Water resource risk management has become a crucial issue that cannot be overlooked in corporate operations.

To assess the water risk at each of Giga Computing's operational sites, in 2023, we used the Aqueduct Water Risk Atlas online tool from the World Resources Institute to analyze water withdrawal pressure at each site. The results indicated that Giga Computing's sites are not located in high water stress areas. Moving forward, we will continue to monitor and evaluate the water resource pressure at each site annually to avoid any potential impacts on local communities and ecosystems.

◆ Destinations of Water Intake and Discharge by Site

Operational Sites	Main Water Intake	Intake and Catchment Area	Level of Discharge Treatment	Final Destination of Water Discharge	Water Resource Stress
Giga Computing (Headquarters)	Water from third-party	Feitsui Reservoir	Primary treatment	Dansuie River	Low-Medium (10% to 20%)
GIGAIPC	Water from third-party	Feitsui Reservoir	Primary treatment	Dansuie River	Low-Medium (10% to 20%)

4.3.2 Water Intake, Consumption, and Discharge

All of Giga Computing's locations source their water from third-party water suppliers, with the primary use for domestic purposes. In 2023, the total water intake was 13,418.00 million liters.

Water Use Category	Intake/Discharge Destination Classification	2023
Water Intake	From rainwater recycling, rivers, lakes	0
	From groundwater	0
	Water supplied from water companies, municipal water supply, and wastewater treatment plants	13,418.00
	Total water intake	13,418.00
Water Discharge	Discharged into rivers, glaciers, lakes, swamps	0
	Discharged into groundwater	0
	Discharged to the wastewater treatment plant for treatment	10,734.40
	Total water discharge	10,734.40
Water Consumption	Total water consumption	2,683.60
Water Intake Intensity (million liters/million revenue)		0.28

Note 1: The statistical scope of water consumption data includes only Giga Computing's headquarters. GIGAIPC's water usage is handled along with the leased building, making data collection difficult. Therefore, this year's water data does not include GIGAIPC.

Note 2: None of Giga Computing's water intake sites are located in areas with high water stress.

Note 3: The total dissolved solids (TDS) of all water sources of Giga Computing are less than or equal to 1,000 mg/L.

4.3.3 Wastewater Discharge Management

Giga Computing primarily focuses on product R&D and does not have factory registration. Therefore, the main discharges are general domestic wastewater, which is discharged into the underground sewer system in accordance with local regulations, without impacting the surrounding environment and ecology of the operational sites.

4.3.4 Water Resource Management or Reduction Actions

Since Giga Computing specializes in product R&D and does not operate a plant, there is no need for factory registration. Water for basic facilities and domestic use comes from tap water. The office, located in the headquarters building, follows GIGABYTE's "Reduce 333 Plan", aiming for a 3% annual reduction in water use, and has established related policies to achieve water conservation goals. For example, we have installed water-saving faucets and implemented a rainwater harvesting system on the headquarters building's roof (G-HOME GIGABYTE Sustainable Ecological Rooftop), which collects enough rainwater annually to cover half of our irrigation needs.

(Figure) Adoption of sensor faucets with water-saving labels

(Figure) Rainwater harvesting system installed on the roof of the headquarters building (G-HOME GIGABYTE Sustainable Ecological Rooftop)

4.4 Waste Management

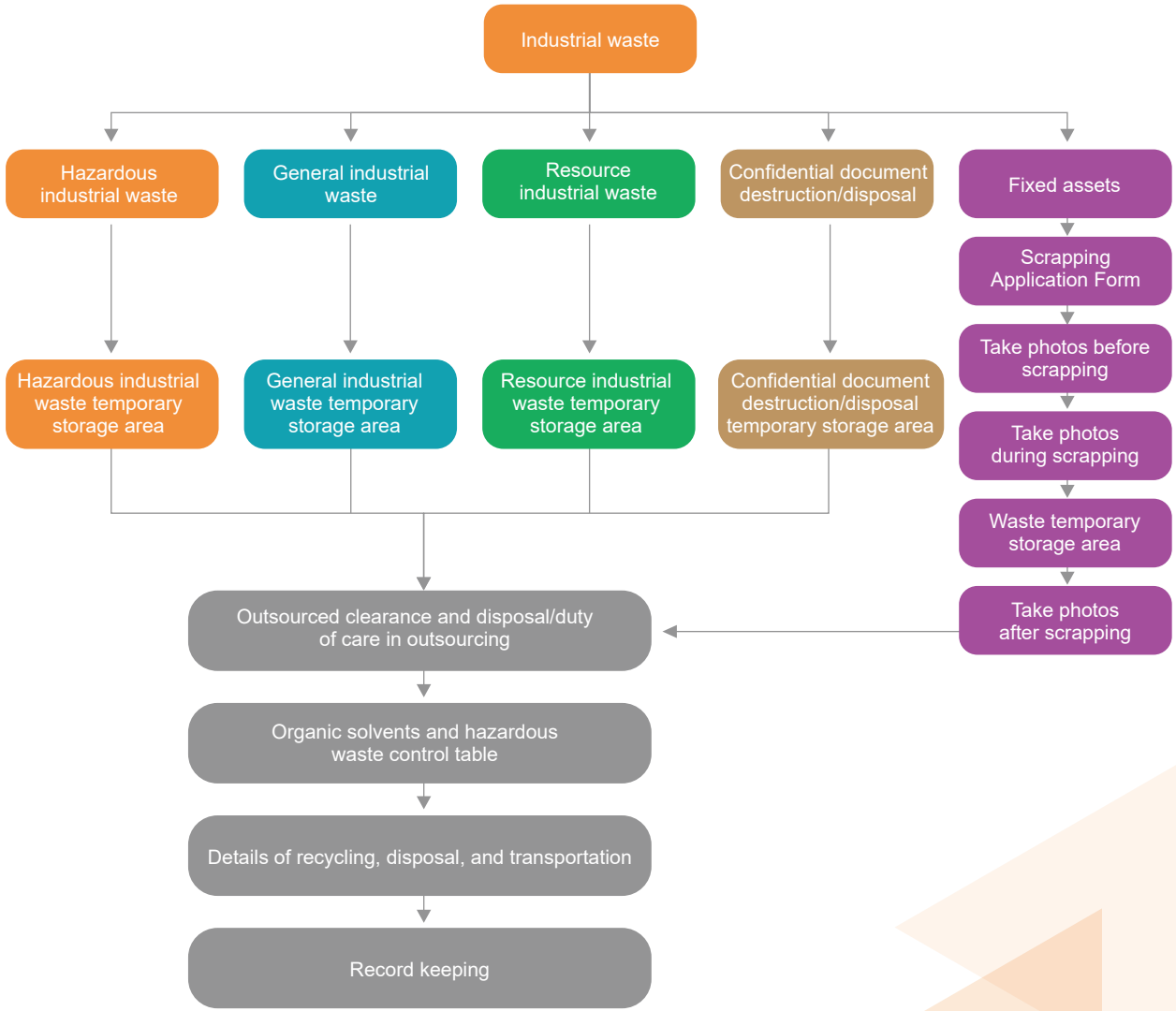
4.4.1 Waste Management System

The main waste generated at Giga Computing Headquarters consists of general waste produced by employees' daily activities. Industrial waste primarily comprises electronic waste, with a small amount of hazardous waste. To prevent negative impacts on neighboring communities and ecosystems from its waste, Giga Computing follows waste management and disposal measures established under ISO 14001 in collaboration with GIGABYTE. This includes adhering to the group's "Waste Disposal Operations Guidelines". All mentioned waste is handled and disposed of by qualified third-party waste management service providers.

Each year, the Group's environmental health and safety personnel audit the waste handler. Additionally, a designated person is assigned to inspect the waste storage areas at least once per quarter, and the results are recorded in the industrial waste storage inspection form. Furthermore, before signing contracts with new waste disposal, handling, or recycling agencies, the dedicated unit will send representatives to inspect their operational management. After the contract is signed, at least one inspection is conducted every six months, and GPS is used to track the transport routes of waste disposal vehicles to ensure proper waste handling.

The scope of the above content only includes the operations of the Giga Computing headquarters. The waste generated by the subsidiary, GIGAIPC, is managed by the leased building, and data collection is difficult. Therefore, the waste data for this year does not include GIGAIPC. In 2023, no incidents of illegal dumping or violations by waste handlers were found at Giga Computing and GIGAIPC. We will continue to manage waste properly to maintain a zero-violation goal.

◆ Industrial Waste Management Flowchart



4.4.2 Waste Generation

In 2023, the total waste amount for Giga Computing was 44.81 metric tons. In the future, we will continue to monitor trends in waste generation and progressively increase the rate of resource recycling and reuse to minimize the impact of our operations on the external environment.

Waste Generated		
Year	2023	
Non-hazardous Waste (metric tons)	44.11	98.45%
Hazardous Waste (metric tons)	0.70	1.55%
Total Amount of Waste (metric tons)	44.81	100%
Waste Intensity (tons/million revenue)	0.0009	

Note 1: General industrial waste includes general waste generated by employees in their daily lives.

◆ Total Waste Volume Categorized by Direct Disposal and Diverted Disposal

Waste Category	Hazardous Waste		Non-hazardous Waste		Total	
	Disposal Volume (tons)	Proportion (%)	Disposal Volume (tons)	Proportion (%)	Disposal Volume (tons)	Proportion (%)
Diverted Disposal (Reuse, recycling)	0.70	100%	26.93	61.06%	27.63	61.66%
Direct Disposal (Incineration, landfill)	0	0%	17.18	38.94%	17.18	38.34%
Total volume	0.70	100%	44.11	100%	44.81	100%

◆ Final Disposal Method Categorized by Waste Type

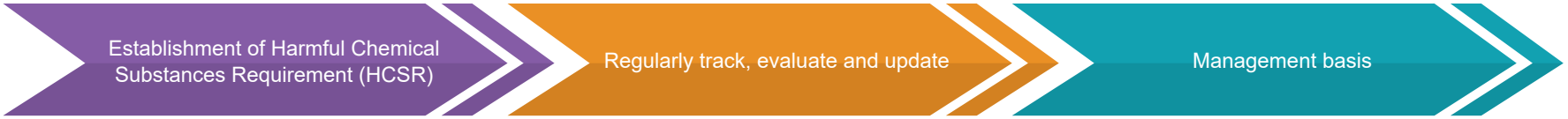
Waste Type	Waste Generated (tons)	Outsourcing to a Third Party	
		Waste Disposal Volume (tons)	Disposal Method
Non-recyclable general waste (domestic waste)	22.74	22.74	Incineration (non-energy recovery)
Kitchen waste	4.20	4.20	Compost
Paper	14.31	14.31	Recycled
Paper container	0.45	0.45	Recycled
Plastic	0.70	0.70	Recycled
Tin and aluminum cans	0.25	0.25	Recycled
Glass	0.36	0.36	Recycled
Plastic bottles (PET Bottles)	0.99	0.99	Recycled
Optical disc	0.00	0.00	Recycled
Batteries	0.11	0.11	Recycled
Electronic wastes	0.70	0.70	Recycled

Total Volume of Waste (tons)	Total Amount of Off-site Disposal (tons)	Proportion %
44.81	44.81	100.00%

4.5 Responsible Production and Circular Economy

4.5.1 Control of Hazardous Substances

Giga Computing, considering the potential negative environmental impacts of its products, has established a Harmful Chemical Substances Requirement (HCSR) by its Green Team based on current international hazardous substance regulations, including the EU RoHS, REACH, Battery, Packaging, Persistent Organic Pollutants (POPs), the US Toxic Substances Control Act (TSCA), the Toxics in Packaging Clearinghouse (TPCH) and customer hazardous substance standards. The HCSR categorizes controlled substances into Level A (immediately banned substances), Level B (substances expected to be banned) and Level C (potentially harmful substances that may be banned in the future). All components and products of Giga Computing must comply with this regulation for hazardous substance management. We also continuously monitor the development trends of international environmental regulations and the progress of customer standards, regularly assessing and updating our regulations.



In addition to adhering strictly to hazardous substance control during product design and material selection, we also manage hazardous substances in components through our self-developed Green Supply Chain Management (GSCM) system. This enhances the environmental friendliness of our products, ensures the health and safety of customers during product use and reduces health risks for waste disposal personnel at the end of the product's lifecycle. As of the end of 2023, Giga Computing has not received any complaints related to product violations of hazardous substance regulations causing harm to personnel health or environmental damage.

Giga Computing ensures the rigor of its hazardous substance control process by undergoing external audits conducted by a third-party certification body for the IECQ QC 080000: 2017 Hazardous Substance Process Management System and has obtained certification. At the same time, we also received the Green Label Award for Prohibited and Restricted Substances from SGS Taiwan.

4.5.2 Circular Economy Product Design

With the rapid pace of technological advancement in the electronics industry, electronic waste has become one of the fastest-growing waste streams globally. In response, Giga Computing is committed to reducing waste and aims to promote a circular economy as a long-term goal. This includes considering the product lifecycle impact during product design and developing products that are easy to recycle and reuse. At the same time, we leverage the professional repair technology and experience of our sister company, BYTE International Co., Ltd., also a subsidiary of the GIGABYTE, to extend the product lifecycle and reduce the generation of electronic waste. In 2023, Giga Computing sent 23,399 products for repair, and the completion rate reached 100%.

◆ Product Repairs and Returns Status in 2023

Product Repair		Taiwan	China (including Hong Kong and Macao)	Asia Region (excluding China, Hong Kong, Macao and Taiwan)	North America Region	Europe Region	Total
Giga Computing (Headquarters)	Number of repairs (pieces)	3,718	1,419	5,001	4,589	6,517	21,244
	Quantity returned (pieces)	3,718	1,419	5,001	4,589	6,517	21,244
GIGAIPC	Number of repairs (pieces)	1,204	284	199	222	246	2,155
	Quantity returned (pieces)	1,204	284	199	222	246	2,155
Total	Number of repairs (pieces)	4,922	1,703	5,200	4,811	6,763	23,399
	Quantity returned (pieces)	4,922	1,703	5,200	4,811	6,763	23,399

4.5.3 Eco-Friendly Packaging and Packaging Material Reduction

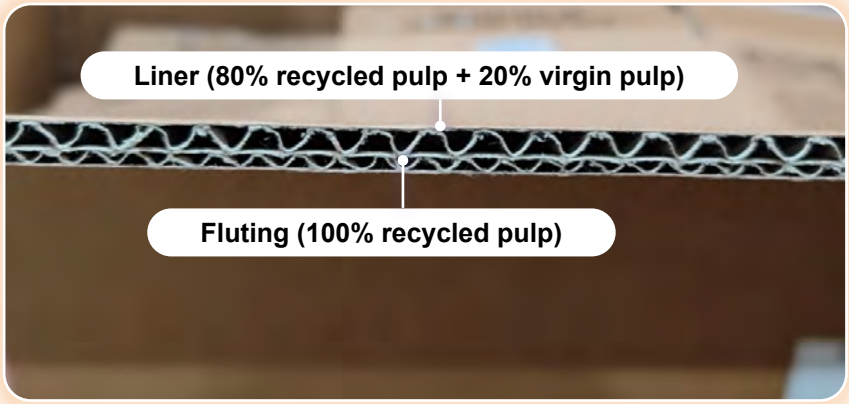
In addition to promoting product recycling and reuse, Giga Computing also focuses on waste reduction through packaging reduction initiatives. We continuously work on minimizing packaging, increasing the use of recyclable materials, and striving to reduce packaging material usage and subsequent waste while maintaining adequate protection functionality. In 2023, a total of 274.21 metric tons of packaging materials were used, of which recyclable materials accounted for 80.85% of the total packaging materials. In the future, Giga Computing will continue to use recyclable packaging materials and focus on the packaging reduction plan of GIGABYTE, aiming to achieve the common goal of eliminating single-use packaging by 2030.

◆ Recyclable Rate of Packaging Materials in 2023

Type of Packaging Materials	Annual Total Weight Purchased (tons)	Percentage of Recyclable Packaging Materials (%)
Paper	221.70	80.85%
Plastic	52.51	
Total	274.21	

Note 1: Recyclable rate = paper / (paper + plastic)

Case Focus

◆ Recycled Packaging Materials

Due to the nature of our products, Giga Computing uses a large amount of corrugated cardboard. Considering the environmental impact, we have introduced the use of recycled paper pulp in our corrugated cardboard. This not only reduces the cost of packaging materials but also minimizes the impact on the environment. Considering that virgin paper pulp has higher strength, we have not yet fully transitioned to using recycled paper pulp in the corrugated paper structure to ensure the strength of the packaging materials.