

CHAPTER 3



CH3. Promoting Environmental Friendliness

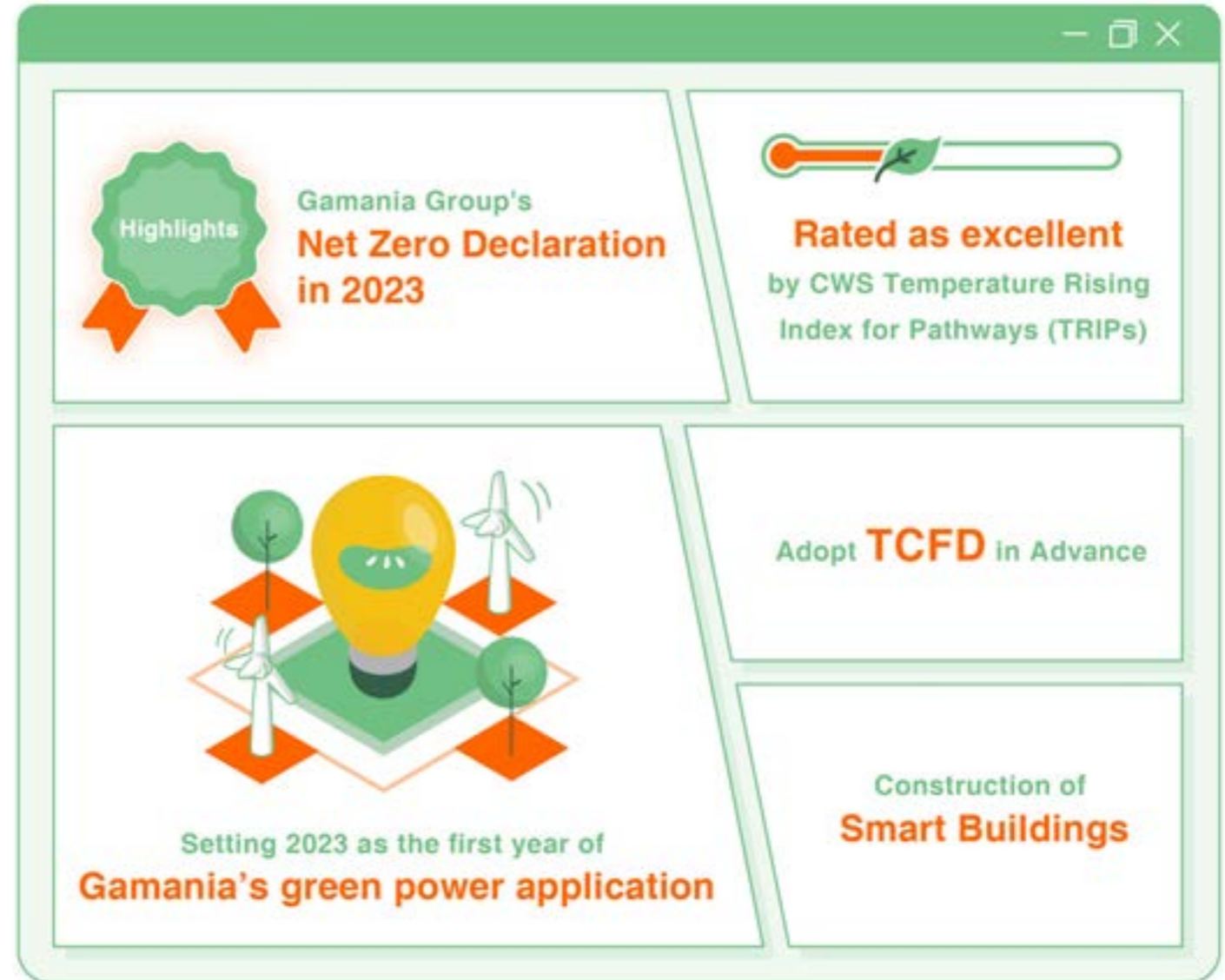
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3.1 Environmental management

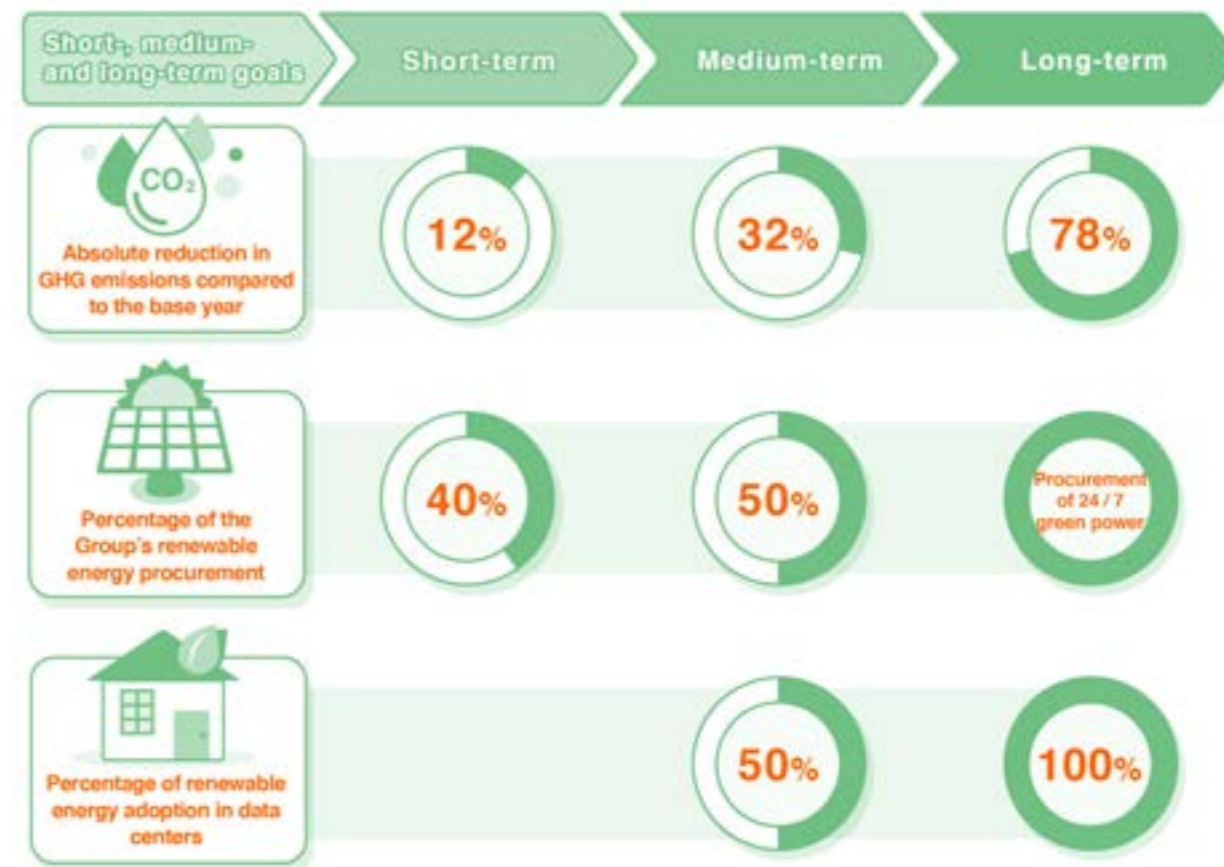
3.1.1 Response to climate change

In August 2023, Gamania's Board of Directors passed the Group's "Net Zero Declaration," committing itself to a 78% reduction in Scope 1 and Scope 2 carbon emissions by 2030 compared to the emissions in 2022, achievement of Scope 1 and Scope 2 carbon neutrality, and fulfillment of net zero carbon emissions by 2050. To keep in line with Taiwan's net zero carbon emissions policy, we actively devise carbon reduction plans, including the replacement with power-saving equipment and purchase of green power in the short term, and changes to the energy use model of data centers in the medium and long term, thereby implementing energy conservation and carbon reduction, building low-carbon data centers, and providing services of better quality. Our carbon reduction commitment has even been certified by CommonWealth's "Temperature Rising Index for Pathways" for compliance with the target for a temperature rise limit of 1.5°C under the Paris Agreement.

This year, following the recommendations of domestic sustainability regulations, Gamania took in advance to introduce the Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) to promote the transparency of information disclosures regarding climate-related risks and opportunities, and progressively set up a management mechanism for climate risks and opportunities which is expected to be integrated with the company's risk management process in the future. We thereby facilitated low-carbon transformation and strengthened climate resilience based on four strategic directions: governance, strategies, risk management, and metrics and targets.



 <p>Governance</p>	<p>In response to climate change issues, Gamania established a “TCFD Team,” which was jointly managed by the relevant members gathered by the “Environmental Symbiosis Team” and “Sustainability Planning Office.” The Head of Internal Service Division was responsible for managing and carrying out environment-related projects such as greenhouse gas inventory and carbon reduction actions, and reported to the Sustainable Development Committee and the Board of Directors on a regular basis. The Board of Directors provided full authority and guidance on climate-related issues, such as the Net Zero Declaration, carbon reduction targets, and strategic planning.</p>
 <p>Strategies</p>	<p>In the climate risk assessment and prioritization processes, the Net Zero Emissions by 2050 Scenario (NZE) of the International Energy Agency (IEA) and the RCP2.6 and RCP8.5 scenarios* of the Intergovernmental Panel on Climate Change (IPCC) were included to discuss the risks and opportunities Gamania could face in different climate scenarios. For operational deployment, strategy formulation and financial planning, carbon emission factors were taken into account; short-, medium- and long-term targets and action plans covering renewable energy use, replacement with energy-saving equipment, supplier selection, platform and big data installation, etc. were accordingly set, to gradually reduce the negative environmental impact of our operations through environmentally friendly measures.</p>
 <p>Risk management</p>	<p>After the list of climate-related risks and opportunities was compiled, relevant departments identified and assessed the risks and opportunities for Gamania’s value chain, and made significance assessment of risk hazards based on the level of impact and level of vulnerability of each risk with reference to the common risk management practices, and sorted the risks in order based on the significance. The results were eventually integrated into the Group’s risk management system for timely preparation and implementation of response measures.*</p>
 <p>Metrics and Targets</p>	<p>All departments of Gamania jointly managed climate-related issues based on their respective responsibilities. The Internal Service Division was the primary responsible unit for promoting carbon reduction actions, and used carbon emissions as the climate indicator for internal management. For climate opportunities, Gamania internally introduced low-carbon technologies and services to the Group in an active manner, and included carbon emissions as one of the assessment factors in terms of platforms and big data, agency for new products, and self-developed new products.</p> <p>Since 2022, the statistics on GHG emissions have been made with the method under the “GHG Protocol” every year, and we have been certified by a greenhouse gas inventory standard (ISO 14064). In 2023, Gamania Group announced the “Net Zero Declaration,” giving a commitment that the Group will achieve net zero carbon emissions by 2050 and set relevant metrics for follow-ups.</p>



- Note 1: This is based on the RCP (Representative Concentration Pathways) released in the IPCC Fifth Scientific Assessment Report, that is, the future global warming is estimated by the changes in greenhouse gas concentrations and radiative forcing. In particular, RCP2.6 is a global warming mitigation scenario while RCP8.5 is a scenario with very high GHG emissions; they are approximately equivalent to the SSP1-2.6 and SSP5-8.5 scenarios in the IPCC Sixth Scientific Assessment Report, respectively.
- Note 2: According to the climate risk inventory results of this year, Gamania is in an industry with low climate risk. Thus, this has not been included in the Company’s major risk management measures for the time being.

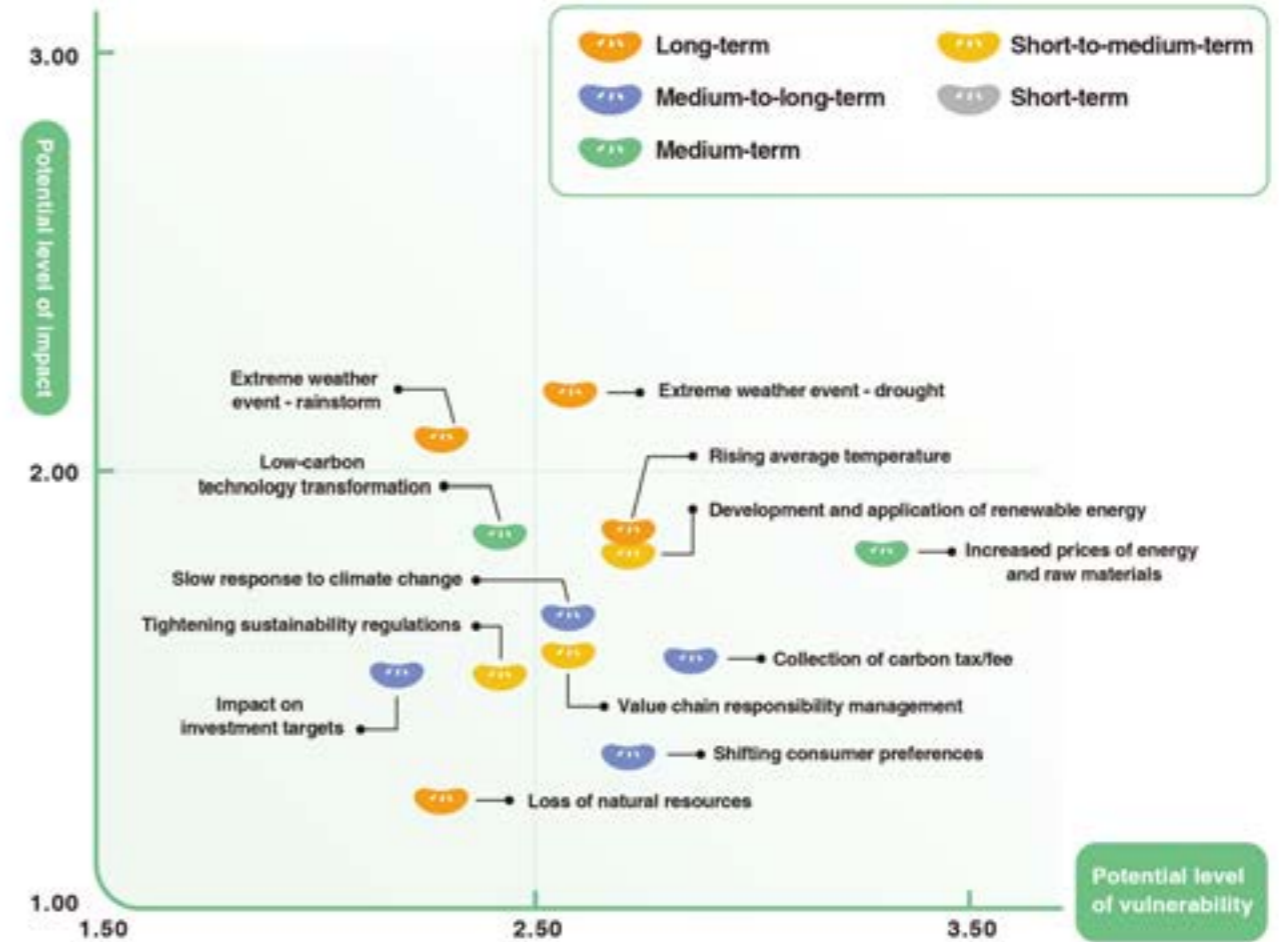
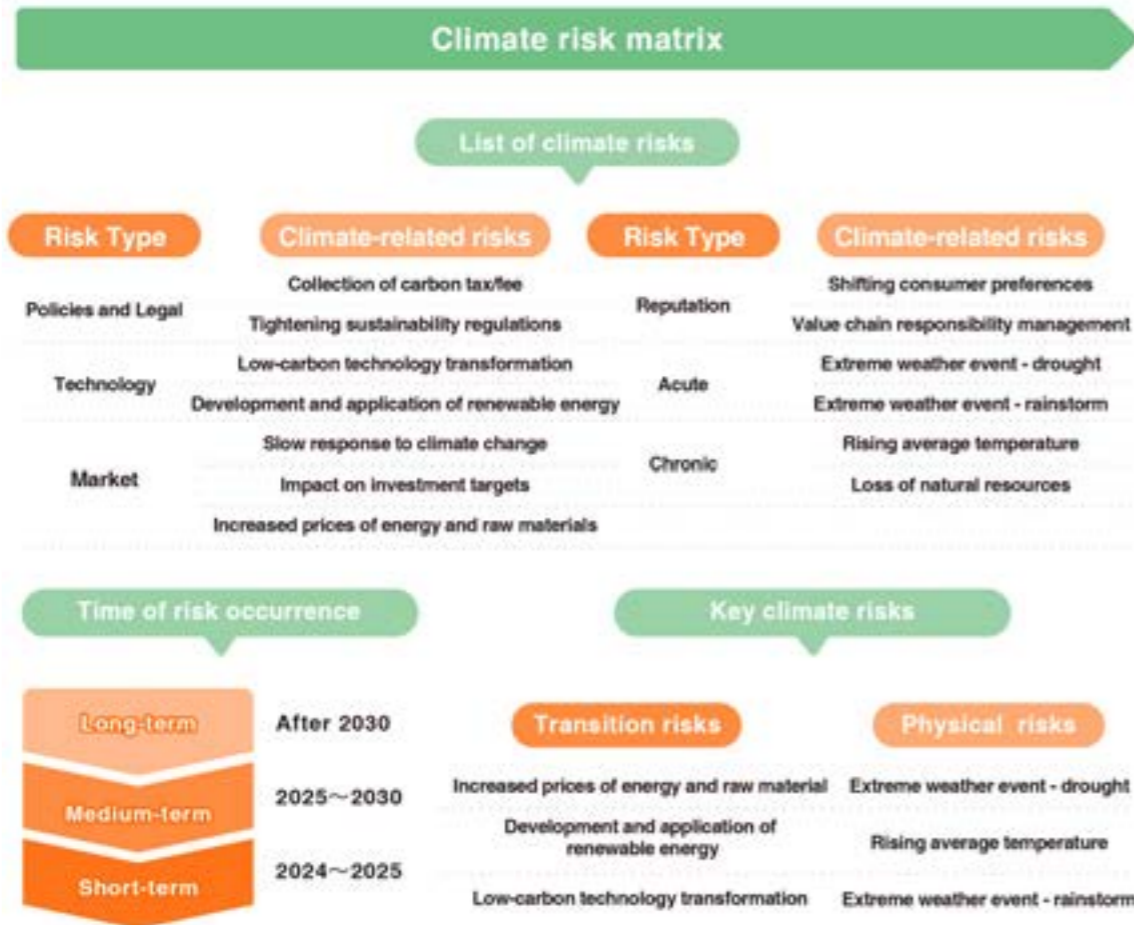
Climate governance structure



Climate risk identification, assessment, and management processes




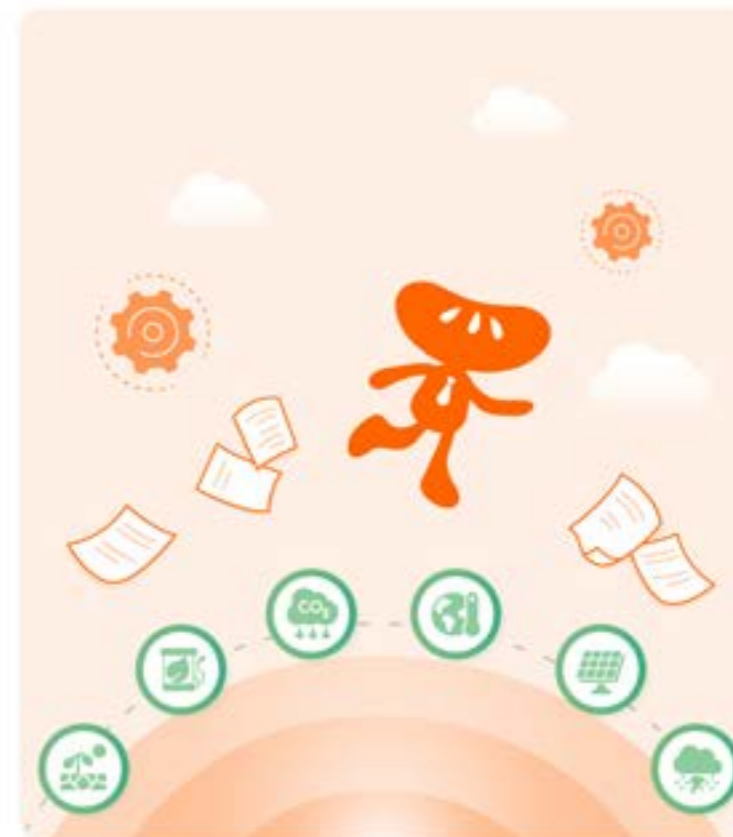
Climate risk matrix




Description of management of key climate risk issues

Climate-related risks are determined through the matrix produced based on the product of "potential impact" and "potential vulnerability" through the above climate-related risk identification procedure; the results are divided into three risk levels: low, medium, and high. The results of Gamania's inventory in 2023 showed that the climate-related risks were all of the low and medium levels. The top six risks, including transition risks (increased prices of energy and raw materials, development and application of renewable energy, and low-carbon technology transformation) and physical risks (extreme weather event - drought, rising average temperature, and extreme weather event - rainstorm), were considered as the key risk issues. Gamania further managed the potential impacts and financial impacts of the key risks on Gamania; the countermeasures and management plans therefore are described in the table below:

 Market risk Increased prices of energy and raw materials	Long-term
Description of impacts	Countermeasures / management plans
<p>In order to meet the NZE scenario's requirements to triple the renewable energy capacity and quadruple the energy efficiency, energy prices might shoot up to reflect the true cost. The attempts by various industries in Gamania's value chain to adapt to climate risks might result in price fluctuation of raw materials such as energy, crude and bulk materials, which could increase Gamania's procurement expenditure and operating costs for data center maintenance, etc.</p>	<p>1. Installation of a smart building monitoring system An energy monitoring and management system has been installed in Gamania's headquarters building to digitally monitor, analyze, and calculate the building's energy consumption by monitoring air conditioning, lighting, water dispensers, printers, sensor lamps, and air quality. The facilities may be set at the constant temperature mode, be equipped with a time switch, or have a sleep mode setting to save electricity and manage air quality.</p> <p>2. Energy saving measures With energy efficiency improvement as the goal and environmental protection and energy conservation as the priority, the Company increases the awareness of energy conservation through building re-planning and renovation as well as continuous outreach activities for employees.</p> <ol style="list-style-type: none"> The lights in the office are required to be switched off when not needed for use. Some public areas are equipped with sensor lights. Patrol inspection is performed after working hours to check if the lights are all turned off. Old and energy-consuming air conditioning equipment has been replaced, and the new equipment is regularly cleaned and maintained to improve its performance. Old lamps have been replaced with high-efficiency LED lamps to save lighting electricity. In 2023, the office lighting system has been fully changed to LED one (a total of 1,671 lamps replaced). A shading design is adopted to reduce indoor sun exposure and further enhance cooling performance.
Potential financial impacts	<p>3. Implementation results and targets Compared to 2022, the electricity consumption per person in 2023 fell by 1,686 kWh/year or 17%, which far exceeded the annual target of reducing electricity consumption per person by 1% (with 2022 as the base year).</p>
<p>Changes in energy costs, and higher operating costs and expenses</p>	
Scope of impacts	
<p>Upstream parties and own operations</p>	






Acute risk Extreme weather event - drought

Long-term

Description of impacts

In the IPCC SSP 5-8.5 scenario applied to Taiwan based on the TCCIP estimation, the result showed that the frequency of extreme weather would increase, and the probability of no rainfall for more than 30 days would increase by multiples. Drought could cause water outage or shortage and therefore lead to higher water bills, and the following risks could subsequently arise:

- Water outage or shortage due to drought may result in higher water bills, which may lead to operational disruptions of Gamania or the value chain and greater operating costs.
- The operating costs may increase as the cooling water supply of data centers is disrupted, and as the equipment requires more frequent maintenance or even gets damaged.



Chronic risk Rising average temperature

Long-term

Description of impacts

In the IPCC AR6 scenario with 1.5 to 4°C of temperature rise applied to Taiwan based on the TCCIP estimation, the waters around Taiwan would see a sea level rise of 0.5 to 1.2 meters, followed by a longer drought period and extremely high temperature; Gamania would thus face the following impacts:

- Employees' health condition might be negatively impacted, which could cause lower work efficiency or higher turnover rate, and make it necessary for Gamania to invest more labor costs.
- The more frequent use of air conditioners in data centers means more electricity consumption. Subsequently, there might be energy shortage and a risk to all business development, and Gamania would have to pay more to transfer its overall business strategy.

Countermeasures / management plans

- 1. Enhancement of the ability to resist natural disasters**
Building structure should be reinforced, and contingency measures in response to disasters should be increased to maintain the effectiveness of BCM. Gamania has established business continuity plans for all IT systems and equipment, and conducted confirmation and drills regularly.
- 2. Improvement of water resource efficiency and prevention of water waste**
At Gamania, we have replaced the faucets on the sink with sensor ones, and continued to promote water conservation and frame water resource management policies more comprehensively to reduce water consumption.
- 3. Energy saving measures**
The measures are the same as those under the description of market risk.
- 4. Supply chain resilience**
Gamania has a supplier management policy for evaluating and selecting suitable partners. Meanwhile, we actively promote sustainable development with suppliers to jointly reduce the impact on the environment. In the future, we will progressively include climate risk issues into the scope to identify suppliers with high climate risks, strengthen the management of and guidance for suppliers, and boost the climate resilience of Gamania's supply chain.

Potential financial impacts

Operational disruptions, supply chain disruptions, increased operating costs or reduced productivity due to equipment maintenance and energy use, etc.

Scope of impacts

Upstream parties, own operations, and downstream parties



Technology risk Development and application of renewable energy

Short-to-medium-term

Description of impacts

According to the Net Zero Emissions by 2050 Scenario (NZE) proposed by the International Energy Agency (IEA), the global installed capacity of renewable energy power generators must be tripled by 2030 compared to 2022. Considering that Gamania's main source of carbon emissions is electricity use, we intend to invest in the development and application of renewable energy in a more wide-ranging manner in the future, which will lead to greater operating costs.

Countermeasures / management plans

- 1. Purchase and assessment of other renewable energy**
Solar energy procurement has been promoted, and we plan to increase the use of renewable energy year by year while looking forward to the maturity of renewable energy technology. Our goal is to have the purchased renewable energy, such as geothermal and hydrogen energy, make up 100% of the total energy used. In March 2023, Gamania's headquarters building began to purchase solar green power; a total of 901 green electricity certificates were purchased.
- 2. Planning of carbon negative technology**
We assess the carbon reduction technologies that are based on natural carbon sinks.

Potential financial impacts

Higher operating costs and expenses

Scope of impacts

Own operations



Acute risk Extreme weather event - rainstorm

Long-term

Description of impacts

In the IPCC RCP 8.5 scenario applied to Taiwan based on the TCCIP estimation, the proportion of strong typhoons will increase by about 100% and 50% in the middle and end of the current century, respectively, and the average wind speed will increase by 8%. Statistics show that 7.96 strong typhoons are expected to hit Taiwan in the following decade, and that there will be a higher probability and intensity of extreme rainfalls, and the probability of flooding will increase by 10%-20%. The accompanying risks include:

- Operating office buildings and data centers may be flooded, resulting in massive asset losses and subsequent handling costs.
- The supply chain may suffer losses of equipment and assets due to extremely heavy rainfall, resulting in supply chain disruptions and the impossibility of providing products/services promptly.
- Rainstorms may cause damage to employees' residences, disrupt commuting, and make employees unable to attend work.



Technology risk Low-carbon technology transformation

Medium-term

Description of impacts

To respond to the expectations of stakeholders such as investors and consumers, and to meet future demand for low-carbon products or services, we will progressively introduce low-carbon transformation in the future through technological innovation, institutional innovation, industrial transformation, new energy development, and other means. Hence, there will be additional expenses.

Countermeasures / management plans

1. Enhancement of the ability to resist natural disasters

We conduct building disaster prevention drills to ensure smooth evacuation channels, and increase contingency measures (e.g. remote backup, remote working) in response to disasters to maintain the effectiveness of BCM.

2. Supply chain resilience

This is the same as the description of chronic risk.

Potential financial impacts

Operational disruptions, supply chain disruptions, increased operating costs or reduced productivity due to equipment maintenance, etc.

Scope of impacts

Upstream parties, own operations, and downstream parties

Countermeasures / management plans

1. Transition plans

- Platforms and big data: We will shift our planning focus from the premises to the cloud where green power stands a relatively high proportion.
- Agency for new products: Carbon emissions will be taken into consideration during the discussion on deployment of machinery and equipment with the original manufacturers.
- Self-developed new products: The focus will be on the cloud with lower carbon emissions.
- Existing product agency: Cloud migration is suggested to the original manufacturers.
- Electronization of internal operations: We make use of the Group's network technology to promote the action plans of paperless operations and cloud compression.

2. Implementation results

Gamania combines cloud data centers, information security service and mobile safety, and offers domestic and international customers with tailored services and solutions for information security, system integration and IDC/NOC/SOC with the technical experience accumulated over the years.

Potential financial impacts

Higher operating costs (e.g. for building low-carbon data centers), R&D expenditures, or new technology investment cost

Scope of impacts

Own operations

Description of management of climate opportunity issues

In 2023, Gamania, with reference to the characteristics and benchmarks of the industry it is in, created a list of climate-related opportunity issues, which was evaluated and confirmed by the TCFD Team to be consistent with Gamania's business philosophy and strategic directions. The list is based on the inventory of climate and business opportunities that could be grasped and developed under the low-carbon transformation trend, including resource efficiency, products and services, and green procurement/supply chain. We further formulated internal strategies and targets, and management and action plans, as described in the table below:

Opportunity issues	Internal strategies and targets	Potential financial impacts	Management and action plans
<p>Resource efficiency</p> <p>In response to climate change, introducing or developing new technologies and equipment for use in renewable energy application, resource efficiency, green buildings, etc., to reduce operating costs or enhance the resilience to climate risks.</p>	<p>Gamania actively promotes digital transformation, renewable energy applications, and environmentally friendly recycled materials that are of low carbon. We also continue to advocate water conservation, energy conservation and waste reduction to our employees, and plan more comprehensive management policies for water resources and waste to cut the consumption of various resources, and fulfill the Group's philosophy of environmental symbiosis.</p>	<p>Lower operating costs</p>	<ol style="list-style-type: none"> 1. A smart energy monitoring and management system has been installed in the headquarters building to digitally monitor and analyze the building's energy consumption to save electricity and manage air quality. 2. In 2023, the office lighting system has been fully changed to LED one. Some areas are equipped with sensor lights, and stricter patrol inspection is performed after working hours. 3. The Company has promoted the action plans of paperless operations and cloud compression, such as making good use of cloud storage space, replacing traditional whiteboards, post-it notes and other consumables with electronic means for meetings, and digitizing subpoenas. 4. We produce environmental promotional videos to raise employees' awareness of energy conservation.
<p>Products and services</p> <p>In response to the green trend and changes in consumer behavior, developing and innovating our own services to achieve opportunities for scope expansion into new business areas and the development of new markets.</p>	<p>Making use of digital network technology, Gamania introduces AI, big data, etc. for the innovation of products and services, which helps effectively integrate the synergy of the Group, increase operational efficiency, improve service experience, and thereby win consumer recognition. We also accordingly provide digital business solutions, and integrate cloud data centers, information security services, mobile safety, etc.</p>	<p>Innovative low-carbon services, engagement in new markets, and higher revenue</p>	<ol style="list-style-type: none"> 1. In 2023, major enterprises were actively engaged in cloud transformation, trying to reduce the carbon emissions of physical data centers. The Company's revenue from cloud-related services thus sees consecutive years of growth. 2. Digicentre serves as an agent for the 3D digital twin visualization platform of WeMB, integrating cloud, information security, energy, and environmental control systems to effectively support corporate transformation. Cumulatively, the sales has come to NTD 40 million over the past two years, with more than 10 benchmark customers introducing the service. 3. The product managers share the latest market information and trends to formulate product, service, and sales strategies for the next stage in the strategy meeting.
<p>Green procurement/supply chain</p> <p>Prioritizing the procurement of green products with environmental labels (low-pollution, recyclable, resource-saving, or of green building materials), or with a statement that they have less environmental impact, or with a lifecycle (from raw material acquisition to disposal) of less environmental impact; or, actively participating in green procurement plans and activities, to stimulate a green consumption culture in the industry and among the public.</p>	<p>Gamania establishes a supplier management policy, and takes concerted actions with our suppliers to jointly promote sustainable development and reduce the environmental impact. We actively promote green procurement as well; in addition to selecting cloud suppliers with good ESG performance, for sundry purchases such as LED lamps, computer hardware and toilet paper, we also choose products in compliance with environmental protection regulations, ISO certifications, and PEFC forest certification.</p>	<p>Lower operating costs, reliable supply chain, higher reputation</p>	<ol style="list-style-type: none"> 1. Prioritized procurement of desktop/laptop computers with environmental protection labels amounted to more than NTD 10.8 million. 2. In 2023, the old lighting fixtures in Gamania's headquarters building were replaced with high-efficiency energy-saving LED ones; the total procurement amount reached NTD 10.836 million. 3. The centralized green procurement by the headquarters amounted to NTD 21.796 million. 4. We received the "Buying Power Service Procurement Award" by the SMEA of the Ministry of Economic Affairs again in 2023, achieving responsible consumption and production while facilitating the innovative collaboration between businesses and social innovation organizations. 5. The "supplier management policy" has been established, and in terms of new suppliers, we continue to request for their self-management and signing of the "Supplier CSR Commitment."

3.1.2 Environmental, energy and resource management

Environmental policy

In terms of the industry type, Gamania is not a company with high energy consumption and high pollution emissions; its negative impact on the environment is relatively small. In order to fulfill sustainable corporate development and protect the market environment, we have formulated the “environmental and energy management policy” according to which we comply with environmental regulations, and commit ourselves to reducing the Group’s impact on the natural environment through management mechanisms and increasing employees’ awareness of environmental protection and safety. Meanwhile, in response to the issues of global energy shortage and climate change, Gamania has incorporated the mindset of sustainability into its business management to carry on the promotion of environmental friendliness.

In 2023, Gamania produced educational training videos on the topic of “Promoting Environmental Friendliness” for the Group’s sustainability blueprint, with the content covering energy conservation and carbon reduction, water resources, waste management, and environmental regulations. The videos have been made available on Gamania’s E-learning website for online viewing at any time. Awareness-raising emails were also sent to all employees to deepen their understanding of and agreement to the environmental protection actions recognized by Gamania.

Energy management system

Gamania does not generate hazardous waste or air pollution in its business activities. However, the IT data centers still use a great amount of power to operate, which is why an energy monitoring and management system has been implemented in Gamania’s headquarters building. The design, operation, and analytical aspects of this system have been closely integrated to improve energy efficiency. Through complete and digitalized monitoring, the system performs a detailed diagnosis of the building’s energy consumption, analyzes the data gathered and compares it to the database to identify problems. These findings allow energy conservation measures to be devised and root causes to be traced for adjustments and improvements. This energy management and monitoring system monitors and senses the indoor air quality, temperature and humidity at the same time, helping maintain good air quality or remind employees to take timely responses.

To achieve digital transformation based on an ideal monitoring environment where management blind spots are avoided, Digicentre, as an agent for the 3D digital twin visualization platform of WeMB, has integrated corporate IT&O with different systems, including access control, CCTV, cloud system, information security system, and environmental control system, directly staying on top of the monitoring status with digital twin technology to detect events in real-time. Currently, this technology is used in both the headquarters building in Neihu and the data center in Zhonghe to control the Group’s application of energy and resources by means of smart buildings and smart data centers, and to effectively manage energy hot spots, such as adjusting air conditioning use and troubleshooting.



Energy use and emissions

Gamania continuously strengthens energy management and closely monitors energy use. In 2023, due to the increased business volume, the number of employees within the Group grew, which resulted in a slight increase in each energy data. However, the energy consumption per person actually had a slight decline. In terms of electricity consumption, with energy efficiency improvement as the goal and environmental protection and energy conservation as the priority, the Company increases the awareness of energy conservation through building re-planning and renovation as well as continuous outreach activities for employees. In addition, this year, old lamps were replaced with high-performance LED lights. Compared to 2022, the electricity consumption per person in 2023 fell by 1,686 kWh/year (around 17%). In 2023, the Company's GHG (Scope 2) emissions were reduced by 11% compared to 2022, which was better than the preset target of reducing GHG (Scope 2) emissions by 6%.

100% of the water used in Gamania's operating locations comes from the Taipei Water Department. In 2023, Gamania not only made efforts to maintain a stable situation under the pandemic and encouraged employees to develop good hygiene habits, but also reminded employees to wash their hands frequently and disinfect the building environment every day in a stricter manner. This year, Gamania introduced two atmospheric water generators that could capture and filter moisture in the air and turn it into potable water to reduce water consumption. Meanwhile, the Company also continued to increase employees' awareness of water conservation and frame water resource management policies more comprehensively to cut the consumption of water resources. In 2023, the water consumption per person decreased by 5.34 m³ compared to 2022.

- Note : Taipei Water Department withdraws water from freshwater sources (total dissolved solids \leq 1,000 mg/L) that are, according to the assessment based on WRI tools, not in regions with high water stress.



Energy consumption

Energy	Unit	2020	2021	2022	2023	Target for 2023
Gas	m³	1,434	1,008	1,880	-	-
Natural gas	kWh	-	-	-	1,831	-
	GJ	-	-	-	61.29	-
Liquefied petroleum gas	L	-	-	-	1,581.66	-
	GJ	-	-	-	43.91	-
Diesel	L	-	-	-	731.29	-
	GJ	-	-	-	25.70	-
Purchased electricity - non-renewable	kWh	2,959,100	11,508,827	10,349,029	9,211,644	Target achieved Reduction in electricity consumption per person by about 17%
	GJ	10,647.55	41,411.52	37,238.29	33,145.71	
Purchased electricity - renewable	kWh	0	0	0	1,331,232	Reaching the annual target of reducing electricity consumption per person by 1% (base year: 2022)
	GJ	-	-	-	4,790.09	
Tap water consumption	megaliters	13.83	16.01	27.98	23.00	-



- Note 1: The gas disclosure method was adjusted in 2023, with the data broken down into the consumption of natural gas, liquefied petroleum gas, and diesel.
- Note 2: The conversion coefficients are based on the source of the Environmental Protection Administration's "Greenhouse Gas Emission Coefficient Management Table 6.0.4."
- Note 3: The data coverage rate is 74% in 2020, and 100% from 2021 to 2023, calculated based on the operating income.

Greenhouse Gases emissions

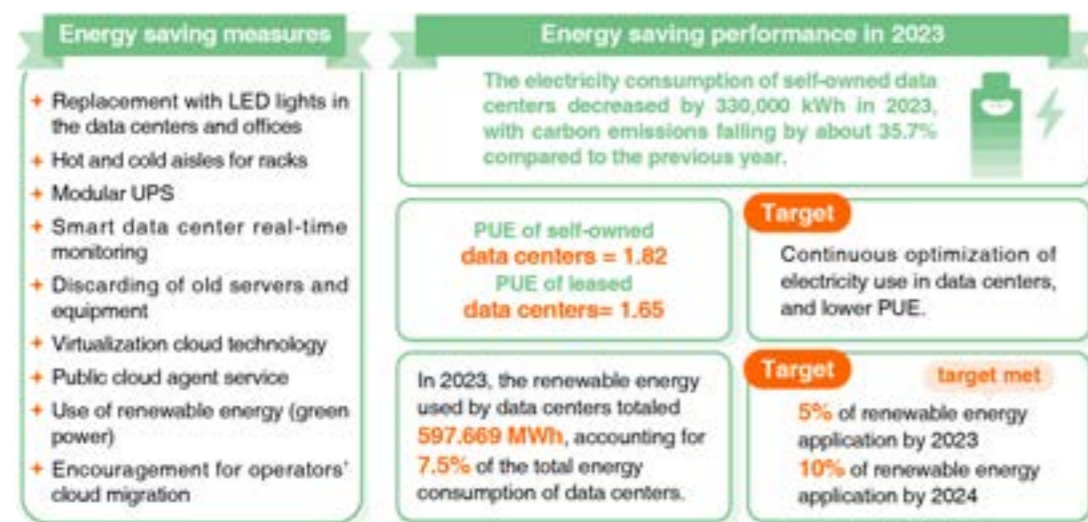
Unit: tCO₂e

emission source	2020	2021	2022	2023	Target for 2023
Category 1	2.697	24.276	45.882	193.463	-
Category 2 - location-based	1,506.181	5,777.431	5,267.656	4,559.764	Target met Reduction in Scope 2 emissions by 13.44% Reaching the target of reducing Scope 2 emissions by 6% (base year: 2022)
Category 2 - market-based*	1,506.181	5,777.431	5,267.656	4,559.764	
Category 3	NA	399.910	818.830	613.291	-
Category 4	NA	2,118.895	1,929.418	1,918.753	-
Category 5	NA	NA	792.965	1,257.437	-
Total greenhouse gas emissions	1,508.878	8,320.512	8,854.751	8,542.709	-

- Note 1: The increase in category 1 this year was mainly due to the additional installation of air conditioners in the building; the increase in category 5 was due to the increase in customers from different industries.
- Note 2: Category 3 includes upstream (downstream) transportation, employee commuting, and business travel.
- Note 3: Category 4 includes emissions from the products purchased by the Company, capital goods, disposal of solid and liquid waste, and the use of other services.
- Note 4: Category 5 includes emissions from downstream leased assets.
- Note 5: Based on the significance, this inventory excludes emissions from visitor transportation, upstream leased assets, product use, final product disposal, franchise, and investments.
- Note 6: The carbon emission coefficient of electricity is based on the figures published by the Bureau of Energy, which is 0.509, 0.502, 0.509 and 0.495 (kg/kWh), respectively from 2020 to 2023.
- Note 7: The data coverage rate is 74% in 2020, and 100% from 2021 to 2023, calculated based on the operating income.

Carbon reduction in data centers

The total electricity consumption of data centers made up 55.5% of the overall operational electricity consumption and 54.1% of the overall carbon emissions (including Scopes 1, 2, and 3). Thus, data centers were the largest energy consumer among all of Gamania’s operating locations and facilities. The energy consumption of self-owned and leased data centers has gradually increased mainly due to the AI carrying capacity, digital transformation, and operational improvement. To achieve the 2030 carbon reduction target, in addition to increasing the amount of purchased green power year by year, the self-owned data centers stabilize energy consumption by introducing cloud technology, discarding old servers, and adopting smart data center real-time monitoring equipment, and have hot and cold aisles for racks so that the malfunctioning of air conditioners due to mixed air can be avoided. In 2023, we saved around 330,000 kWh of electricity from the self-owned data centers compared to the previous year, and scrapped nearly 50 pieces of old equipment. The average PUE of the self-owned data centers was 1.82. For the leased data centers, we also evaluate the data center space configuration provided by the ISPs, including comprehensive electricity, air conditioning, fire protection, security, environmental control system, and the use of renewable energy. With these data centers all in line with Gamania’s philosophy of environmental friendliness, we work towards the goal of net zero emissions together with the operators.



- Note 1: The scope of the data in this table is based on the overall (100%) data centers of Digicentre.
- Note 2: Carbon reduction is calculated based on the carbon emission coefficient of electricity in 2022 = 0.495 kg CO₂e/kWh.

3.1.3 Pollution prevention and waste management

Waste management

In terms of waste management plan, Gamania’s “Environmental and Energy Management Policy” stipulates that the inventory of total weight of waste should be performed every year, and relevant reduction measures and recycling plans should be developed to properly recycle and dispose of general and industrial waste and thereby lower the emissions of waste and pollutants. The waste of Gamania is mostly domestic garbage, kitchen waste, as well as a small portion of waste batteries and electronic products. In 2023, approximately 29.48 tons of resource recycling waste and 51.05 tons of domestic garbage were generated; the total generated waste was approximately 80.53 tons, which is 5.3% less than the total weight of waste in the previous year. Various types of waste are entrusted to legally registered companies for waste-cleaning operations. In addition, Gamania has set up an intelligent recycling machine “Bottle Man” and a battery machine “Ms Battery” as a “couple,” and gives the collected PET bottles and batteries to recyclers who in turn distribute them to circular manufacturers for resource recycling and reuse, to create new value of waste. At the same time, employees may also earn environmental protection points by recycling waste; the accumulated points can be exchanged for relevant eco-friendly goods of the Company’s cooperation projects (e.g. in response to Arbor Day, employees may exchange a bag of toilet paper certified by environmental protection labels with the points).

Waste category	Volume cleared (kg/year)				
	2020	2021	2022	2023	
Domestic garbage	40,190	53,520	56,580	51,050	
Resource recycling waste	Kitchen waste	8,840	5,713	12,285	14,255
	Paper	10,832	9,704	12,488	11,106
	Aluminum	164.6	92.2	128.5	152.2
	Iron	988.9	862.7	1,379.6	1,393
	PET bottle	2,065	1,624	2,143	2,534
Waste electronic products (batteries)	17.3	30.3	68.5	43.6	
Subtotal	22,908	18,026	28,493	29,484	
Total	63,098	71,546	85,073	80,534	

- Note 1: The source of clearing data is the clearing records of outsourced waste-cleaning manufacturers.
- Note 2: The data coverage rate is 85%, calculated based on the operating income.

Waste reduction measures

- ✦ Setting up an intelligent recycling machine and a battery machine to encourage employees' proper recycling practices and collaborating with cyclic economy companies.
- ✦ Providing recycling points that can be accumulated and exchanged for eco-friendly goods.
- ✦ Adding the recycling category of paper containers to improve the space for garbage recycling and ensure proper sorting.
- ✦ Setting up a photocopying paper recycling area in offices to promote the reuse rate.
- ✦ Shooting waste sorting promotion videos for employees to better understand the steps of resource sorting.
- ✦ Setting up a plastic bag recycling area at pantries for clean plastic bags to be reused.



Waste reduction results in 2023

Domestic garbage
decreased by 5.5 tons
 compared to the last year



Resource recycling waste
increased by 1 tons
 compared to last year

The garbage generation per person
decreased by 11.7 kg

Target
 Adoption of renewable energy and environmentally friendly recycled or low-carbon materials; promotion and fulfillment of the Group's philosophy of environmental symbiosis.

Pollution prevention

Gamania does not generate exhaust or other harmful pollutants given the nature of its business activities, so no water treatment or pollution control facilities are needed. However, we perform regular maintenance of pollution control equipment every year. The pollution prevention projects include the cleaning of water treatment pool, grease trap and drainage pipe, fume exhaust system, and air quality management for Gama Island (the employee cafeteria). The Company spent nearly NTD 370,000 in 2023 to maintain pollution prevention equipment.

Pollution prevention equipment/project	2023 Execution frequency	2023 maintenance expense
Water treatment pool cleaning	Once a quarter (four times a year)	About NTD 150 thousand
Grease trap cleaning	Once a quarter (four times a year)	About NTD 20 thousand
Drainage pipe cleaning	Twice a month (24 times a year)	About NTD 200 thousand



3.2 Environmental symbiosis

3.2.1 Sustainable procurement GRI 2-6 GRI 2-24

Supplier management policy

Gamania's suppliers are mostly for the procurement of electronic equipment and sundry items. The "supplier management policy" is in place to work with suppliers toward adopting sustainable practices and reducing impact on the environment. All suppliers are required to sign a "Supplier CSR Commitment" when contracting to ensure partners' compliance with environmental, labor, and human rights rules. In addition, suppliers are subject to assessment, management and evaluation.

Supplier management status

Sundry purchases such as computer hardware, toilet paper, photocopying paper, water dispensers, and office supply have been prioritized toward environment-friendly, ISO-certified, and PEFC (Programme for the Endorsement of Forest Certification) certified products. In the future, decomposable eco-friendly products will be covered in the scope of assessment for sundry purchases, and the sustainability risk assessment will be included in the purchase of property. In 2023, the Company was awarded the "2023 Buying Power Service Procurement Award" by the Small and Medium Enterprise Administration of the Ministry of Economic Affairs. This award continuously encourages central and local government agencies, state-owned enterprises, and private enterprises and organizations to take the lead in purchasing products or services from social innovation organizations, assist social innovation organizations in obtaining resources and exploring market opportunities, practice responsible consumption and production, and promote innovative cooperation between businesses and social innovation organizations.

Sustainable procurement - 2023

- 100% local procurement.
- Prioritized procurement of desktop/laptop computers with environmental protection labels amounted to more than NTD 10.8 million.
- In 2023, the old lighting fixtures in Gamania's headquarters building were replaced with high-efficiency energy-saving LED ones; the total procurement amount reached NTD 10.83 million.
- The centralized green procurement amounted to NTD 21.79 million in 2023, accounting for 10%.
- In 2023, 13 new copies of "Supplier CSR Commitment" were signed.

About PEFC certification

PEFC certification ensures that wood and non-wood products are produced at the highest ecological, social and moral standards. Gamania adopts PEFC certification as a way to enforce sustainable practices.

- Note: The definition of local suppliers are suppliers registered in Taiwan, excluding non-physical virtual software suppliers.



Gamania's supplier management policy

Supplier evaluation

According to Gamania's Procurement Management Regulations, the General Affairs Procurement Department annually selects key suppliers to be evaluated in the year based on the number of transactions, transaction amount, and importance. The procurement unit must review the items listed in the supplier evaluation form, including quality, timeliness, and customer complaint handling, etc., and handle relevant matters according to the supplier evaluation bylaws. Suppliers that have already shown abnormalities during cooperation while still in cooperation with the Company must be particularly prioritized for evaluation. After the supplier evaluation results are confirmed and signed by the head of the responsible unit, they can be used by procurement personnel as the basis for future supplier selection. In 2023, a total of 12 suppliers underwent risk assessment, accounting for 10.3% of all our suppliers.

Scoring rules

Procurement personnel must investigate the cooperation records in the past or market reviews, and record the comments in the supplier evaluation form as the basis for supplier evaluation in the following years.

The supplier evaluation items include quality, timeliness, services, price, etc. In 2023, ESG implementation was additionally included as a standard for bonus points. The above items must be clearly recorded in the evaluation form, and the evaluation results shall be determined by the department head.

Evaluation results

- 1 Actively cooperative (5 points)
- 2 Worthy of closer interaction (4.9 - 4 points)
- 3 Cooperation to be maintained (3.9 - 3 points)
- 4 To be individually evaluated (2.9 - 2 points)
- 5 Cooperation to be terminated (1.9 - 0 points)
- 6 If a supplier has been evaluated as "to be individually evaluated" (less than 3 points) for two consecutive years, the cooperation therewith will be terminated.

Supplier management rules

- 1 Where a supplier violates Gamania's regulations such as the Ethical Corporate Management Procedures and the Supplier Management Regulations, it shall be specified as "abnormal" to remind all units when engaging in a transaction; if a transaction therewith is needed, the matter must be reported to and approved by the responsible head beforehand.
- 2 A corresponding control mechanism must be applied to a supplier listed for special management or evaluated as below standard.
- 3 The supplier evaluation results will be used as the criteria for procurement personnel to make supplier-related judgment for future cooperation.
- 4 A supplier in the Group's region must be subject to the Group's regional supplier evaluation mechanism established by the parent company.
- 5 Higher evaluation standard shall be adopted for suppliers of important or long-term procurement projects to ensure the service and quality assurance.

Exit rules

When a supplier's quality has been abnormal for many times and made the Company suffer losses, while the supplier has no intention to improve or has been listed as a suspended/terminated supplier, business dealings therewith shall be suspended. If the business relationship therewith still needs to be maintained for special reasons, the consent of the relevant responsible head is required.

If the supplier is the only supplier or an irreplaceable supplier, the Company shall pay more attention to the improvement effect while actively seeking other suppliers.

If a supplier is evaluated as below standard or meets the criteria of regulations regarding the listing of suppliers for special control (e.g. the parent company's supplier management policy or other relevant management regulations), the relevant units shall be notified of the response plan, and the corresponding control mechanism shall be implemented.

3.2.2 Environmental symbiosis actions

Gamania recognizes “environmental symbiosis” as one of its core values, and takes extensive actions to convey sustainability, environmental protection, and green operations among employees and form a strong sustainable culture. We look forward to seeing our employees become advocates for our sustainability values, and help spread these values to greater influence.

Eat while saving the planet! Carbon reduction revolution of "Green Dining" - Gama Island

Gama Island is Gamania’s employee cafeteria. As a comfortable and well-lit dining space that can be used for resting, meetings, exhibitions, forums, and press conferences, it is a very important “cultural asset” to Gamania. Gamania values employees’ health. The specially hired chefs are responsible for quality control in catering, and carefully select suppliers with government certification and qualification marks; for example, vegetables and fruits have the GAP logo, and meat products have the Animal and Plant Health Inspection Agency’s slaughter hygiene qualification seal. The diner offers tasty and healthy menus that are catered to employees’ preference, and changes them on a weekly basis. The Company offers meal subsidies and engages nutrition experts to design healthy meals that ensure pleasant taste and employees’ health at the same time. A perfect workplace supply station has thereby been created; this is one of the employee welfare measures that Gamania is most proud of. In addition, Gama Island conducts an annual employee satisfaction survey in the aspects of environmental hygiene, speed and efficiency, frontend service, meal contents, etc. to listen to employees’ voices. In 2023, the overall satisfaction rate reached 82.4%.



Green Food Declaration

In favor of the ESG philosophy, we have joined the “Green Dining Guide” initiative and anchored our business to the spirit of “Green Food Declaration.” Gama Island insists on purchasing green food, such as ingredients from local organic smallholders and egg farmers, traceable vegetables, etc. In addition, Gama Island also grows its own vegetables at its IG Farm, using a variety of seasonal ingredients to create delicious delicacies.

No disposable tableware

In response to the ESG trend, Gama Island has eliminated the use of disposable tableware since five years ago, and has hired professional cleaners that wash the tableware with good efficiency to save dishwashing detergent and water resources. It is calculated that around 340,000 units of disposable tableware can be reduced per month. Meanwhile, Gama Island provides no takeaway services, fully adopts an electronic checkout system, and implements strict control over waste management.

綠食宣言
 一同守護餐飲的綠色理想
 FOR EARTH FOR HEALTH

- 1. Prioritizing the use of seasonal ingredients.** (Icon: Apple)
- 2. Reducing the use of additives.** (Icon: Test tube)
- 3. Considering friendly organic ingredients as the first option.** (Icon: Hand holding leaf)
- 4. Providing vegetable-based meal options.** (Icon: Leafy vegetable)
- 5. Adhering to the sustainable ecology and ocean principles.** (Icon: Fish)
- 6. Avoiding resource consumption and waste.** (Icon: Recycle symbol)

綠色餐飲指南 Green Dining Guide

The poster also features a 5-point checklist:

1. 優先採用當地當令食材
2. 優先採購有機及可食材料
3. 選購本場生蔬及海鮮類
4. 減少添加物使用
5. 提供適合的餐點選擇

減少資源耗損與浪費

Green actions being seen

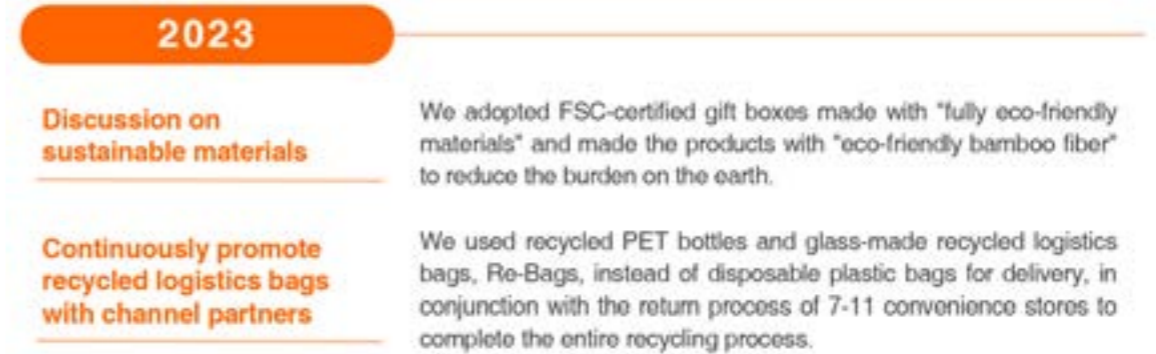
In 2023, we were recognized in the 3rd Green Dining Annual Awards Ceremony, the most iconic green restaurant evaluation in Taiwan co-sponsored by the Taipei Cultural Exploration Association and Green Dining Guide. Gamania Group won the 3rd Green Dining Guide Award “Corporate Pioneer in Green Dining” in the corporate category. We have also won the “Eco-friendly Restaurant” certification of the Ministry of Environment, Executive Yuan for our efforts in reducing waste from the source (not providing disposable tableware), using local ingredients (preferentially using domestically produced ingredients), and implementing food appreciation ordering (providing a meal portion adjustment service). In recent years, many companies that have set up employee cafeterias have visited us for opinion exchange and following. We are also determined to build a platform for sharing catering resources in Taiwan to exert our influence in depth.

Green actions with Gamania’s brand ambassador - Q Brick

Gamania is an Eco-Internet Enterprise that does not release any physical products. However, for festivals, we make our own Q Brick dolls and send them to external partners as thank-you gifts that represent us and symbolize the friendship to maintain our sustainable partnership. Q Brick is the brand ambassador of Gamania; over the years, the production and design thereof have been innovative, trendy, and relatable to current events. In response to the trend of environmental sustainability, we have integrated environmental protection elements in the development, design and distribution logistics of the products since 2020.



History of green actions



In 2023, 2,926 recycled logistics bags were used, and 1,344 recycled logistics bags were recycled. The average recycling rate reached about 46%, showing a growth of around 16% compared to 2022.

Dragon Boat Festival gifts in May

The first Q Brick doll made with bamboo fiber in the world.

Mid-Autumn Festival gifts in September


Continued the bamboo fiber-based manufacturing process, while additionally introducing eco-friendly varnishes

Christmas gifts in December


Used bamboo fiber-based manufacturing process and incorporated our original IP “Re-challenge” to interpret the brand core of Gamania Group: Dare to Challenge.

To perpetuate our corporate brand culture, we keep optimizing all the details of the gifts year after year, declaring to external parties and stakeholders through green design that we take ESG issues seriously! For the remaining Q Brick dolls that were not given away, Gamania works with the New Taipei City Government to give them to children in rural areas as incentives.





QB over the years



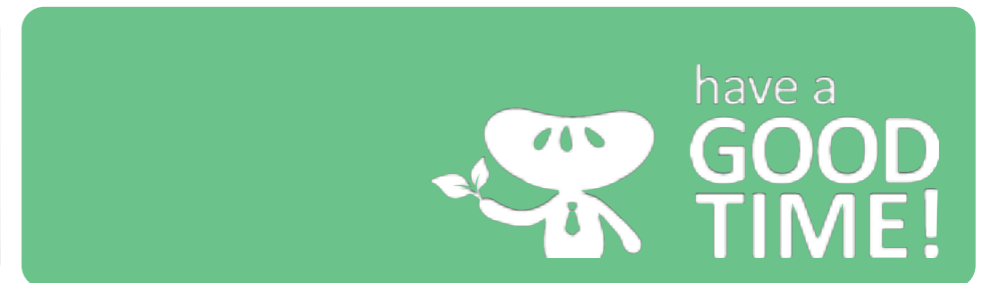
GREEN GAME EARTH | Gamania
Plays Seriously with the Earth!



Green office


Gamania supports the mindset of green building and smart building. When leasing or purchasing real estate, we make sustainability issue assessment based on the details of design, decoration, site selection, and so on. The office of the Original Creation Center newly leased in August 2023 went through four major stages: “planning and design, building material application and management, decoration and environmental management, and final acceptance.” It also met 28 healthy design indicators, and was certified by the “Certificate of Green Design” of GGCB.

In the same year, to promote energy conservation and carbon reduction while taking care of the health of employees, the existing lighting equipment in the office areas, conference rooms, and business affair handling spaces of the headquarters building in Neihu was completely replaced with high-efficiency LED lamps, significantly reducing electricity consumption (saving approximately 170,000 kWh of electricity per year) and improving energy efficiency. Currently, we have applied to the Ministry of Environment for the title of voluntary carbon reduction project for the case; we are now in the stage of providing supplementary materials for review. In the future, we will continue to improve the lighting equipment of the rest of the space within the Group to include it in the control scope of the smart building.

Furthermore, due to the increasing tendency of aridity in Taiwan and the demand for healthy and high-quality drinking water, we have introduced Watergen’s high-tech atmospheric drinking water device, one of the seven great inventions in Israel. The device uses air as a raw material to produce healthy potable water that has the best quality while requiring low cost in an energy-efficient manner. With this innovative technology, we look forward to bringing a more healthy, environmentally friendly, and convenient green life to Gamania employees!



Other environmental symbiosis actions	Description	Outcome
<p>Shuttle bus service</p>	<p>Sympathizing with the employees who are long-distance commuters and encouraging carpooling, we have been running the shuttle bus service for commuting between Zhonghe and Neihu since the relocation of the headquarters. Due to the positive results, the headquarters has continued to communicate with employees about this service.</p>	<p>In 2023, the shuttle bus service was enjoyed by 20,595 people in total. Achieved the benefit of carbon reduction.</p>
<p>Waste free market</p>	<p>Gamania calls on group employees to participate in second-hand resource recycling, and holds a free market every six months, while donating the remaining resources to vulnerable groups and institutions in remote areas.</p>	<p>A total of 3,151 items of resources were raised, 2,050 items were recycled with an item recycling rate of around 65%, and 1,101 items were donated to disadvantaged groups and institutions in remote areas.</p>
<p>The Group's encouragement to recycling activities</p>	<p>Gamania calls on employees to collect and recycle PET bottles and batteries to the intelligent recycling machine "Bottle Man" and the battery machine "Ms Battery." The points accordingly collected and accumulated to a certain level can be exchanged for a bag of "ReTissue Tree Planting Tissue Paper," which collaborates with the international tree planting organization Trees for the Future to plant 1 tree for each box (10 bags) of tissue paper sold.</p>	<p>A total of 54 people participated in the two-day one bottle tree planting activity on Arbor Day, with a total of 6 trees planted.</p> <p>93 people participated in the daily recycling and gift exchange activities with a total of 10 trees planted.</p>
	<p>November 10 is the Gamania Festival, an exclusive festival of the Company. During the event, employees earning points by collecting batteries or PET bottles may exchange 11 points for a pack of eco-friendly toilet paper.</p>	<p>13 people participated and exchanged points for 13 packs of eco-friendly toilet paper.</p>
<p>Container rental service during internal events</p>	<p>Gamania Group's annual Sports Day is also known as the Gamania Family Day. It allows employees to take their families to relax outdoors and engage in pleasant group activities. The container rental service is provided for all the meals and drinks on the day, so that no disposable tableware is used. Moreover, employees are encouraged to bring water bottles; drinking water is provided for them to enjoy on the day of the event.</p> <div style="display: flex; justify-content: space-around;">   </div>	<p>Gamania Family Day</p> <p>Attended by 898 people and 1,200 PP square boxes, 500 PP antibacterial forks, and 500 PP antibacterial reusable cups were rented; the rental fee amounted to about NTD 20 thousand.</p>

Other environmental symbiosis actions	Description	Outcome
<p>Container rental service during internal events</p>	<p>Gamania Group hosts a Mid-Autumn Festival party every Mid-Autumn Festival. In addition to arranging buses for employees to go to the party location together so as to reduce carbon emissions from transportation, we also provide tableware rental service to avoid single-use waste.</p> 	<p>Mid-Autumn Festival party</p> <p>Attended by 855 people with a total of 1,200 units of eco-friendly tableware (cups + chopsticks + bowls) and 240 large plates were rented, the rental fee totaled about NTD 40 thousand.</p>
<p>Biodiversity</p>	<p>Biodiversity is a health indicator of the ecological environment. Although Gamania does not produce physical products, to fulfill our obligation of conservation, we have taken the following actions:</p> <ul style="list-style-type: none"> • Supporting green procurement by purchasing PEFC-certified timber and non-timber products to strictly ensure that the products come from sustainable forests. • Organizing the Gamania Summer School, an event held in the nature to enable the students to learn about mountains, forests and adventure-related knowledge, and further improve their self-efficacy, environmental awareness, and understanding of biodiversity in the process. • Making donations to support and encourage social welfare groups that are consistent with biodiversity, in the hope of contributing to environmental actions. 	<p>In 2023, we made 100% local procurement, and selected products certified by environmental protection labels, ISO or PEFC for sundry purchases. The Company also donated money to Greenpeace and the Society of Wilderness to support their environmental actions.</p>

