



**GRAPE KING BIO**








# CH6

## Green Environment

[Target Formulation](#) | [6.1 Grape King Bio Climate Actions Under the Task Force on Climate-Related Financial Disclosures \(TCFD\)](#) | [6.2 Management of Energy Resources and Greenhouse Gases](#) | [6.3 Management of Water Resources](#) | [6.4 Waste Management](#) | [6.5 Biodiversity](#)

## Target Formulation

	Energy and Process Water Management	Wastewater Management	Management of Toxic Substances and Waste
Progress achieved in 2024	<ol style="list-style-type: none"> <li>The electricity savings reached 1,582,324 kWh, resulting in a reduction of carbon emissions by 781,668 kg CO<sub>2</sub>e, with an average electricity savings of 5.5% for the three factories compared to the 2023 electricity consumption.</li> <li>The Longtan factory generated 178,611 kWh of solar power, reducing carbon emissions by 88,233 kg CO<sub>2</sub>e, and obtained 177 renewable energy certificates.</li> <li>The Pingzhen factory accumulated a total of 900,000 kWh of green energy supply, securing 900 renewable energy certificates.</li> <li>The Zhongli factory successfully completed the Ministry of Economic Affairs' Energy Saving Project Subsidy Program on schedule, achieving an overall energy saving rate of 39.5%, exceeding the target of 33.2%.</li> </ol>	<ol style="list-style-type: none"> <li>In 2024, 100% of wastewater met regulatory discharge standards, with an average Chemical Oxygen Demand (COD) that is 30% better than the standard.</li> <li>Wastewater discharge: The Zhongli factory reduced discharge by 19,739 tons, a decrease of 13%. The Pingzhen factory increased discharge by 1,842 tons, an increase of 9%.</li> </ol>	<ol style="list-style-type: none"> <li>In 2024, eight waste disposal factories have been audited and are operating legally (annual target: at least once per year).</li> <li>Enhancing the value of sludge reuse: Food sludge has been repurposed as R-0902, reducing environmental burden, with 204.3 metric tons cleared in 2024.</li> <li>Increasing the resource recovery rate: We have identified a recycling channel for waste plastic (R-0201) and are currently executing the cleanup, with 20.01 metric tons cleared in 2024.</li> </ol>
Short-term targets for 2025-2026	<ol style="list-style-type: none"> <li>Continue to promote energy conservation and set targets for a total energy saving of 462,657 kWh and a carbon reduction of 228,552 kg CO<sub>2</sub>e (energy saving rate of 1.5%) for our four factories based on the 2023 reference year.</li> <li>Transfer solar power to our Pingzhen Factory and Zhongli Factory, and target to transfer 1,440,000 kWh in 2025.</li> <li>Implement the ISO 50001 Energy Management System and obtain SGS certification at our Longtan Factory.</li> <li>Establish an energy visualization system, along with energy-saving maps and categorized measure lists for our four factories.</li> <li>Achieve water savings exceeding 2% of the 2023 water usage across our four factories.</li> </ol>	<ol style="list-style-type: none"> <li>Ensure all wastewater is legally discharged and the quality of water discharge exceeds average Chemical Oxygen Demand (COD) standards by 35%.</li> <li>Reduce the average amount of water discharge by more than 2%.</li> <li>Implement the following initiatives:               <ol style="list-style-type: none"> <li>Improve wastewater pipelines and catch basins at our Zhongli Factory to enhance emergency response capacity;</li> <li>Replace the roots blowers with air bearing blowers at our Pingzhen Factory to optimize equipment energy efficiency and reduce carbon emissions;</li> <li>Install fine screening conveyor equipment at our Yungfeng Factory to improve personnel operational efficiency.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>Conduct at least 8 audits of waste disposal and reuse vendors per year.</li> <li>Enhance the reusability value of sludge and reuse food sludge (waste code R-0902) to reduce environmental impacts.</li> <li>Enhance the reusability value of waste plastics and reuse waste plastics (waste code R-0201) to reduce environmental impacts.</li> <li>Enhance the reusability value of waste cooking oil and reuse waste cooking oil (waste code R-1702) to reduce environmental impacts.</li> </ol>
Mid-term targets for 2027-2028	<ol style="list-style-type: none"> <li>Continue to promote energy conservation and set targets for total energy saving of 462,657 kWh and a carbon reduction of 228,552 kg CO<sub>2</sub>e (energy saving rate of 1.5%) for our four factories based on the 2023 reference year.</li> <li>Increase total tap water usage at all four factories by no more than 3% compared to 2023.</li> <li>Plan to upgrade the air handling units at our Pingzhen Factory by replacing traditional belt-driven fans with EC fans to reduce electricity consumption.</li> <li>Gradually increase renewable energy consumption and achieve a target of over 5% of renewable energy consumption across all four factories.</li> </ol>	<ol style="list-style-type: none"> <li>Ensure all wastewater is legally discharged and the quality of water discharge exceeds average Chemical Oxygen Demand (COD) standards by 40%.</li> <li>Reduce the average amount of water discharge by more than 3%.</li> <li>Actively obtain ISO14001 and other environmental management system certifications (Pingzhen Factory has certified; plan to obtain ISO14001 at our Yungfeng Factory).</li> <li>Continuously implement improvement plans for wastewater pipelines and catch basins at each factory.</li> </ol>	<ol style="list-style-type: none"> <li>All waste disposal vendors hold legal licenses.</li> <li>Reduce waste and target domestic waste reduction at all factories by 1-3%.</li> <li>Actively obtain ISO14001 and other environmental management system certifications.</li> </ol>
Long-term targets for 2029 and beyond	<ol style="list-style-type: none"> <li>Continue to promote energy conservation and set targets for a total energy saving of 462,657 kWh and a carbon reduction of 228,552 kg CO<sub>2</sub>e (energy saving rate of 1.5%) for our four factories based on the 2023 reference year.</li> <li>Gradually increase renewable energy consumption and achieve a target of 5-15% of total renewable energy consumption across all four factories.</li> <li>In 2029, increase natural gas usage at our all 4 factories by no more than 5% compared to 2023.</li> <li>In 2029, increase total tap water usage at all four factories by no more than 4% compared to 2023.</li> </ol>	<ol style="list-style-type: none"> <li>Ensure all wastewater is legally discharged and the quality of water discharge exceeds average Chemical Oxygen Demand (COD) standards by 40%.</li> <li>Continue to reduce the average amount of water discharge by more than 4%.</li> <li>Achieve company-wide environmental protection targets and become an environmentally friendly enterprise.</li> <li>Obtain awards related to environmental protection.</li> </ol>	<ol style="list-style-type: none"> <li>Achieve company-wide environmental protection targets and become an environmentally friendly enterprise.</li> <li>Obtain awards related to environmental protection.</li> </ol>
Corresponding SDGs		 	 

Director of Manufacturing  
Division  
Yi-Ru Hu



*Grape King Bio strives to co-exist with nature. Our manufacturing processes incorporate energy-saving, carbon-reduction, water-saving, and waste-reduction concepts into all stages of product life cycle to minimize environmental impacts.*

## 6.1 Grape King Bio Climate Actions Under the Task Force on Climate-Related Financial Disclosures (TCFD)

Recognizing the urgent issue of global climate change, Grape King Bio has adopted the "Task Force on Climate-related Financial Disclosures" (TCFD) recommendations issued by the Financial Stability Board (FSB) since 2020. This framework is used to assess the impact of climate change on Grape King Bio, identify climate-related risks and opportunities, and mitigate and manage the effects of environmental changes on the company. In 2021, we became the first health care industry in Taiwan to officially sign on as a TCFD Supporter. In 2023, we initiated the Science-Based Targets initiative (SBTi) to set a 1.5°C target, and we successfully passed the target review in 2024. As a member of RE100 and an expert in caring for the health of the public, we are committed to fulfilling our responsibilities to the environment and the planet.

### 1. Governance

We stay highly attentive to our climate change risks and opportunities to ensure that we fulfill our responsibilities to society, the environment, and all our stakeholders. All members of our management team from our chairman to senior managers consider climate change to be an important corporate issue and work to monitor and manage climate topics using an effective governance framework.

Additionally, we actively participate in industry initiatives associated with sustainability and climate change. We joined related associations, and our chairman serves as a director of the Taiwan Center for Corporate Sustainability (TCCS). The mission of this organization includes "addressing the challenges of climate change, mitigating overexploitation, minimizing environmental impact, and safeguarding a sustainable ecological habitat," which aligns with our commitment to mitigating climate change. Our chairman attends quarterly director meetings and collaborates with other enterprises to discuss strategies for addressing climate change.



## Sustainability and ESG Committee

The Chairman serves as the Chief Commissioner of the Sustainability and ESG Committee. Under the ESG Committee, there are project groups, including those focused on climate risks, greenhouse gas issues, and the RE100 implementation group. These groups meet at least once a quarter and are responsible for setting the company's targets and actions on these issues. The relevant units coordinate and communicate with the departments involved according to the requirements and suggestions of the current period, obtaining related information, and regularly review and report on the implementation results and direction of improvement to the Chairman and the Board of Directors.

### Climate change implementation team

Convenes once every quarter

Finance Division

Manufacturing Division

Administration Division

Supply chain

### Greenhouse gas implementation team

Convenes once every quarter

Administration Division

Manufacturing Division

### RE100 implementation team

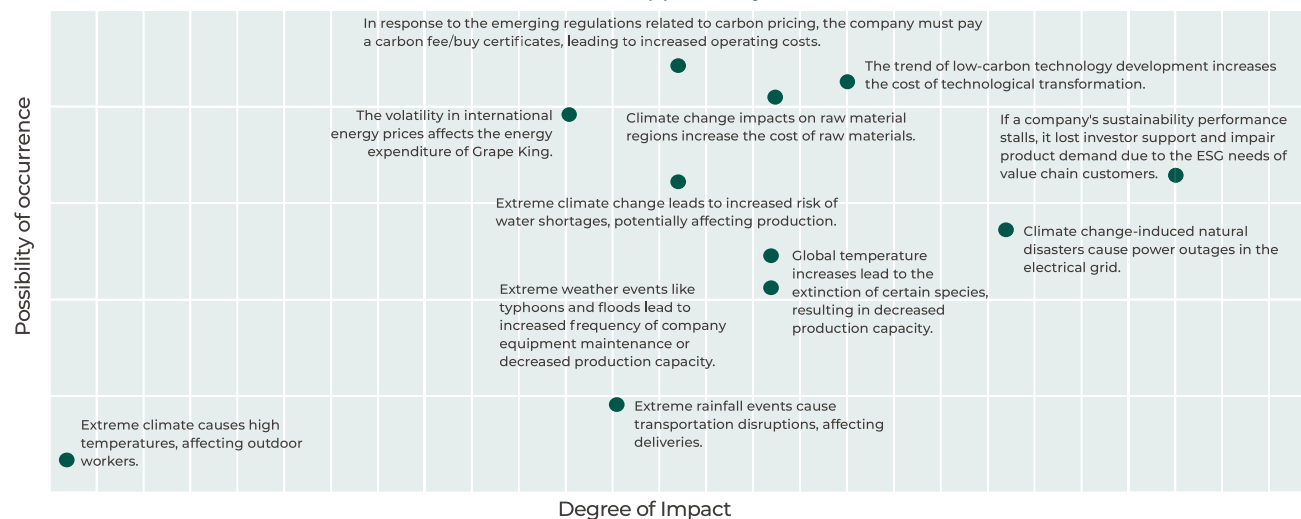
Convenes once every quarter

## 2. Strategies

Grape King Bio conducts an annual assessment of climate-related risks and opportunities. Regarding the assessment results for 2024, we will update the information on the new year's climate-related risk and opportunity identification and analysis results on our official website in mid-2025. Below are the assessment results from the previous year, 2023:

The Sustainability and ESG Committee invited the heads and executives of each implementation team to assess the current major climate risks and opportunities faced by Grape King Bio through the TCFD questionnaire in 2023. We collected a total of 20 responses and used these to build a TCFD climate change risks and opportunities matrix as shown below:

Climate Risk and Opportunity Matrix



Additionally, regarding timelines and financial impacts of climate risks and opportunities, we use the following definitions based on consensus reached by internal and external experts and internal managers:

### Timeline

Short-term	2024-2025
Mid-term	2026-2030
Long-term	2031-2050

### Level of Financial Impacts

Material	5% of net profits before tax in 2022
High	3.75%-5% of net profits before tax in 2022
Medium	0.25%-3.75% of net profits before tax in 2022
Low	0.25% of net profits before tax in 2022



## Climate Related Risk and Opportunity Analysis

Grape King Bio considers the "degree of impact" and "likelihood of occurrence" of climate-related risks and opportunities for prioritization and setting threshold value for materiality. Therefore, we have identified four major climate-related risks and one climate-related opportunity.

Climate Related Risks		Transition-Market	Transition-Costs to transition to lower emissions technology	Transition-Mandates and Regulation of Existing Products and Services	Transition-Reputation
	Description	In response to customer demand, international advocacy, and the company's own set emission reduction targets, our factories continue to increase the use of renewable energy, leading to a rise in operational costs.	To adapt to the development of low-carbon technology, Grape King Bio needs to use recycled materials in product packaging, which increases the cost of lower emissions technology.	To achieve our carbon reduction goals, operational costs have increased.	In response to the ESG demands of customers in the value chain, if the company's sustainability performance does not progress, it could lose favor with investors and impact product demand.
	Timeline	Short to mid-term	Short to mid-term	Mid-term	Mid-term
	Level of financial impacts	Medium to high	Medium to high	Medium to high	Medium to high
	Financial impacts	Increased operating costs	Capital investments in technology development	Increased operating costs	Reduced revenue from decreased demand for goods/services
	Response Measures	Grape King Bio joined the RE100 in 2019. We plan to achieve our first-stage target of 15% renewable energy consumption by 2030 and achieve full use of renewable energy by 2035. In 2024, we achieved an average 5.5% energy saving across all three of our factories. Moreover, we completed the installation of our solar photovoltaic system at the Longtan Factory in November 2022, which generated 384,376.2 kWh of cumulative electricity. Additionally, we made a cumulative purchase of 1,800,000 kWh of renewable energy by December 2024.	We actively work to reduce the environmental impacts from our product lifecycles. In terms of sustainable packaging, recyclable plastic materials are one of the main packaging products used by Grape King Bio, and we will continue to increase recycling sites. We also continue to assess and develop products which use packaging made from plastic-free paper materials and recyclable materials.	In 2022, Grape King Bio established four strategies to prevent stockouts, including completion rates of customer orders, Pro-Partner's continuous supply goals, raw materials and spare components assessment goals, response rates of sustainability self-assessment surveys from significant suppliers, and SIMP promotion rates. For more information, please refer to 2.1.1 Procurement Strategy.	In response to the heightened focus of investors on the ESG performance of the company, Grape King Bio is proactively addressing this issue. To meet investors' expectations and maintain market competitiveness, we have been striving to improve our ESG performance, enhance communication with investors, and incorporate feedback into our strategic planning.
Climate Related Opportunities		Access to new markets			
	Description	Expand ESG disclosures to attract investor interest: In the face of climate change, Grape King Bio is responding to global climate goals by committing to join the RE100 initiative and disclose information through TCFD (Task Force on Climate-related Financial Disclosures). This allows investors to better understand the company's emphasis and actions on climate change-related issues, gaining their attention.			
	Timeline	Short to mid-term			
	Level of financial impacts	Medium to High			
	Financial impacts	Increased revenues through access to new and emerging markets.			
	Response Measures	In response to the impacts of climate change, Grape King Bio has pledged to join the RE100 initiative and has signed on as a TCFD (Task Force on Climate-related Financial Disclosures) Supporter to disclose information. This demonstrates our commitment to global climate goals and underlines our focus on climate change risk.			

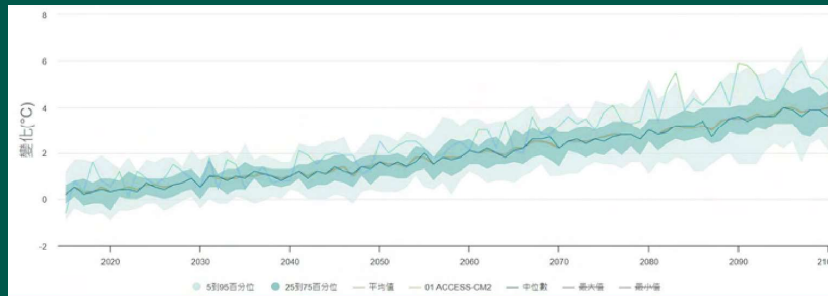
## Physical Risk Climate Scenario Analysis

Grape King Bio is concerned about climate-related issues, utilizing the AR6 statistically downscaled data proposed from the Taiwan Climate Change Projection Information and Adoption Knowledge Platform (TCCIP) to run analyses in Taoyuan City (where main production bases of Grape King Bio and Pro-Partner are located) to understand the “changes in annual maximum value of daily maximum temperature (Note 1)” and “rate of change in annual maximum 1-day precipitation (Note 2)” under the worst-case scenario (SSP5-8.5). Compared with the base period (1995-2014), Taoyuan City is expected to see an average rise in temperature of 1.6°C and reach maximum temperatures of 35.4°C in 2050.

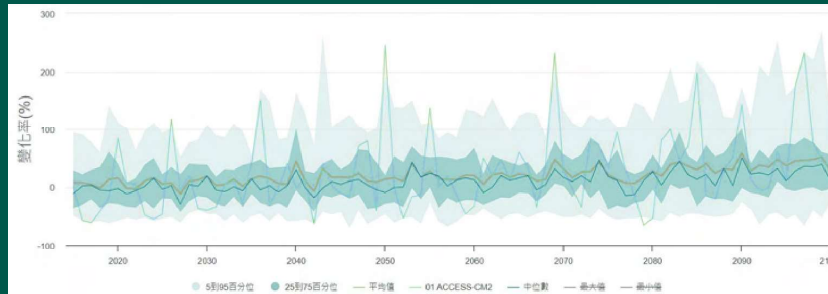
Research conducted by Academia Sinica based on information taken from the National Health Insurance Research Database shows that the number of days where the temperature was higher than 34°C has increased, and this has increased the number of emergency patients suffering from heat stroke and other associated conditions.

Additionally, the rate of change in annual maximum 1-day precipitation will increase by 13.8% in 2050, reaching 213.5 mm, thereby increasing the risks of “short-duration intense rainfall.” Current municipal drainage systems may not be able to drain the excess water in a timely manner, so cities and factories are at risk of flood, and people outdoors may be at risk of emergencies.

**Annual maximum value of daily maximum temperature in Taoyuan city under SSP5-8.5 scenario;**  
**Subtitle: Observational base period: 33.8°C**



**Annual maximum 1-day precipitation in Taoyuan city under SSP5-8.5 scenario;**  
**Subtitle: Observational base period: 187.6mm**



Based on the aforementioned analysis, Grape King Bio has established the following strategies:

Item	Strategy
Increased likelihood of heat injuries in employees	<ul style="list-style-type: none"> <li>We conduct an annual scenario analysis every year to analyze the management systems at our factories so we can understand the conditions, risks, and opportunities faced by factory personnel and propose improvement plans based on these issues.</li> <li>We facilitate regular health checks for our employees.</li> <li>Our chairman signed a workplace health promotion declaration, and we continue to host occupational health and safety activities each year to help our employees build their safety inspection, emergency first-aid, and health management capabilities.</li> </ul>
Increased likelihood of short-duration intense rainfall	<ul style="list-style-type: none"> <li>We continue to evaluate flood prevention measures at our factories and strengthen our responses to acute flooding disasters.</li> <li>We monitor water conditions using real-time information provided by the Water Resources Agency and formulate corresponding countermeasures.</li> </ul>

Note:

- Maximum daily high temperature: The maximum value of the daily high temperature within a year, measured in °C.
- Annual maximum one-day rainfall change rate: The maximum value of daily rainfall within a year, measured in millimeters.

## 3. Risk Management

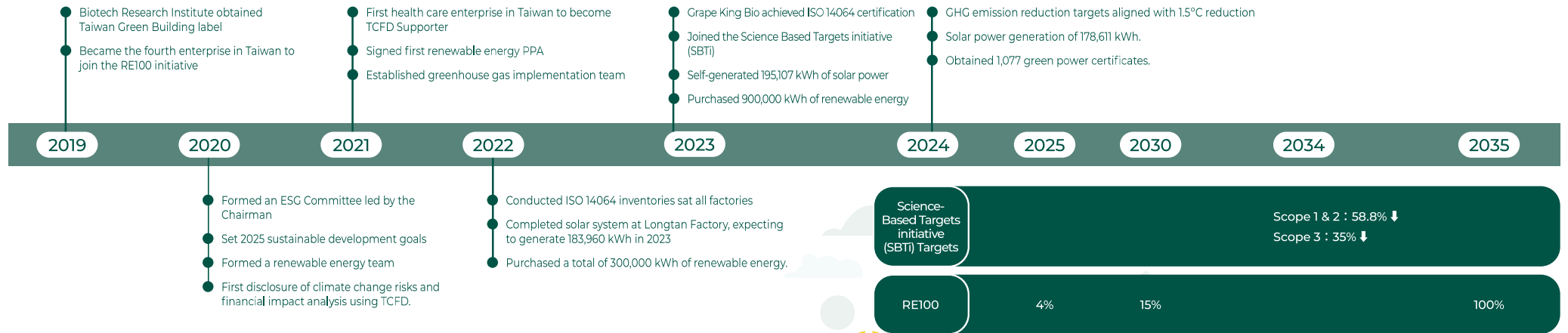
Climate change related issues are reported twice a year in the committee meetings by our Climate Change Implementation Team and Greenhouse Gas Implementation Team under the "Sustainability and ESG Committee". Additionally, we are also planning to organize a “Risk Management Committee” to manage responses to climate risks. In terms of processes for identifying and assessing risks, we currently use a bottom-up approach where frontline units report on-site climate issues and formulate related strategies (please refer to the Chapter 3: listed companies’ climate related information in our 2024 Annual Report for further information).

## 4. Metrics and Targets

Grape King Bio is a company with many food manufacturing factories. Therefore, energy usage, greenhouse gas emissions, water consumption, and waste management are all indicators that have direct impacts on operations (please refer to 6.2 Management of Energy Resources and Greenhouse Gases, 6.3 Management of Water Resources, and 6.4 Waste Management). Please refer to the following image for information on our timeline of climate change responses, future plans, and targets:

### Grape King Bio Science-Based Targets initiative (SBTi) Targets

In 2024, Grape King Bio established targets aligned with the 1.5°C reduction pathway based on the Net-Zero Standard released by the Science Based Targets initiative (SBTi) at the end of 2021, officially receiving SBTi recognition in the same year, successfully passing the review of our Science-Based Targets.

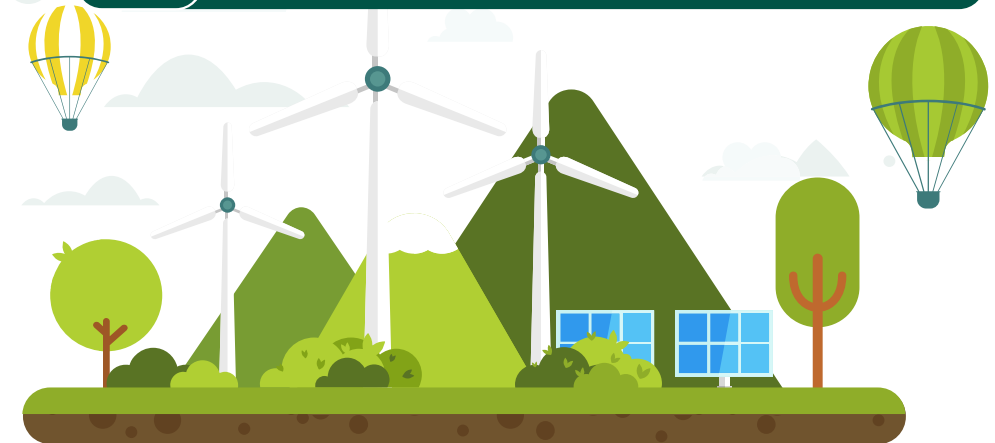


### Grape King Bio Science-Based Targets initiative (SBTi) Targets

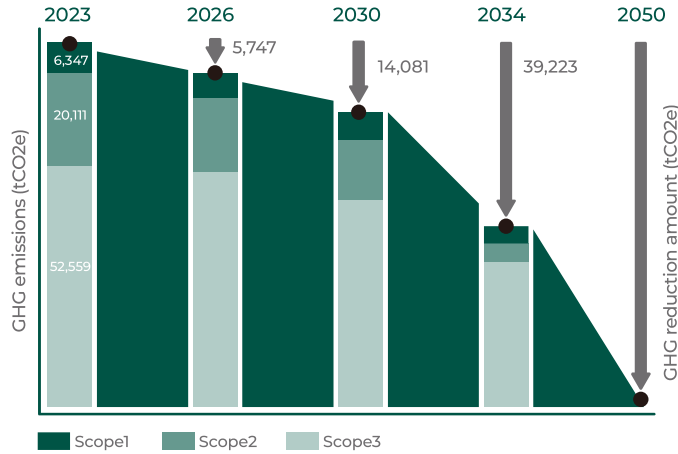
In 2024, Grape King Bio established targets aligned with the 1.5°C reduction pathway based on the Net-Zero Standard released by the Science Based Targets initiative (SBTi) at the end of 2021, officially receiving SBTi recognition in the same year, successfully passing the review of our Science-Based Targets.

<b>Near-Term Targets</b>	Grape King Bio sets the climate target consistent with limiting temperature rise to 1.5°C, with 2023 as the base year. We aim to achieve an absolute reduction of 58.8% in scope 1 and scope 2 emissions by 2034, and an absolute reduction of 35% in scope 3 emissions (including purchased goods and services, fuel- and energy-related activities, upstream transportation and distribution, downstream transportation and distribution, and end-of-life treatment of sold products) by 2034.
<b>Net-Zero Targets</b>	Grape King Bio commits to achieving net-zero emissions by 2050, with 2023 as the base year. We aim to achieve an absolute reduction of 90% in scope 1, scope 2, and scope 3 emissions by 2050.

Note: 100% of our factories are included in the Near-term targets and Net-Zero targets.



## Grape King Bio Carbon Reduction Roadmap



## Our Carbon Reduction Actions

Scope	Strategy	Reduction Action
Scope 1 and Scope 2	<ul style="list-style-type: none"> <li>Energy Transition</li> <li>Energy Usage Efficiency Improvement</li> </ul>	<ul style="list-style-type: none"> <li>Grape King Bio has implemented a Manufacturing Execution System (MES) as part of the factory digital transformation. Through visualization charts of the energy management system, we can monitor real-time energy consumption, carbon emissions, and water usage across both office spaces and production processes.</li> <li>Grape King Bio actively enhances energy usage efficiency in our production operations. In 2024, we engaged colleagues from plant production, manufacturing, and other departments involved in factory operations to brainstorm and propose various energy-saving and carbon reduction initiatives. These initiatives include optimizing warehouse air handling units' schedules, adjusting the operating hours of kitchen oil-water separators, installing variable frequency drives on process chiller pumps, replacing exhaust gas scrubbers at wastewater treatment facilities with ozone deodorizers, and reusing cold energy from GEA nitrogen exhaust systems. These implementations are expected to reduce carbon emissions by approximately 765 metric tons of CO<sub>2</sub>e annually.</li> </ul>
	<ul style="list-style-type: none"> <li>Renewable Energy use</li> </ul>	<ul style="list-style-type: none"> <li>Generated 178,611 kWh of total electricity and reduced 88,234 kg CO<sub>2</sub>e of carbon emissions by solar photovoltaic system at Longtan Factory in 2024.</li> <li>Transferred solar power to our Pingzhen headquarters and achieved the phased target of 1.8 million kWh by the end of 2024.</li> </ul>
Scope 3	<ul style="list-style-type: none"> <li>Raw Materials</li> </ul>	<ul style="list-style-type: none"> <li>We are committed to promoting a local procurement strategy to minimize the carbon footprint generated during the transportation of raw materials.</li> <li>Taiwan-based Grape King Bio sourced 57.12% of raw materials locally, while Shanghai Grape King Bio Enterprise Corporation in mainland China achieves a local procurement rate of 99%.</li> </ul>
	<ul style="list-style-type: none"> <li>Packaging</li> </ul>	<ul style="list-style-type: none"> <li>Starting in September 2024, our Grape King online store channels began using recycled boxes that can be returned to designated locations managed by partnered cleaning services after use, where they will be cleaned and reused. Compared to traditional cartons, each use of a recycled box can reduce carbon emissions by approximately 0.38 kg. In 2024, a total of 2,382 recycled boxes were used, resulting in a carbon emission reduction of 905 kg.</li> <li>Pro-Partner launched a circular cardboard box initiative in 2024, recycling and donating a total of 1,053 cardboard boxes.</li> </ul>



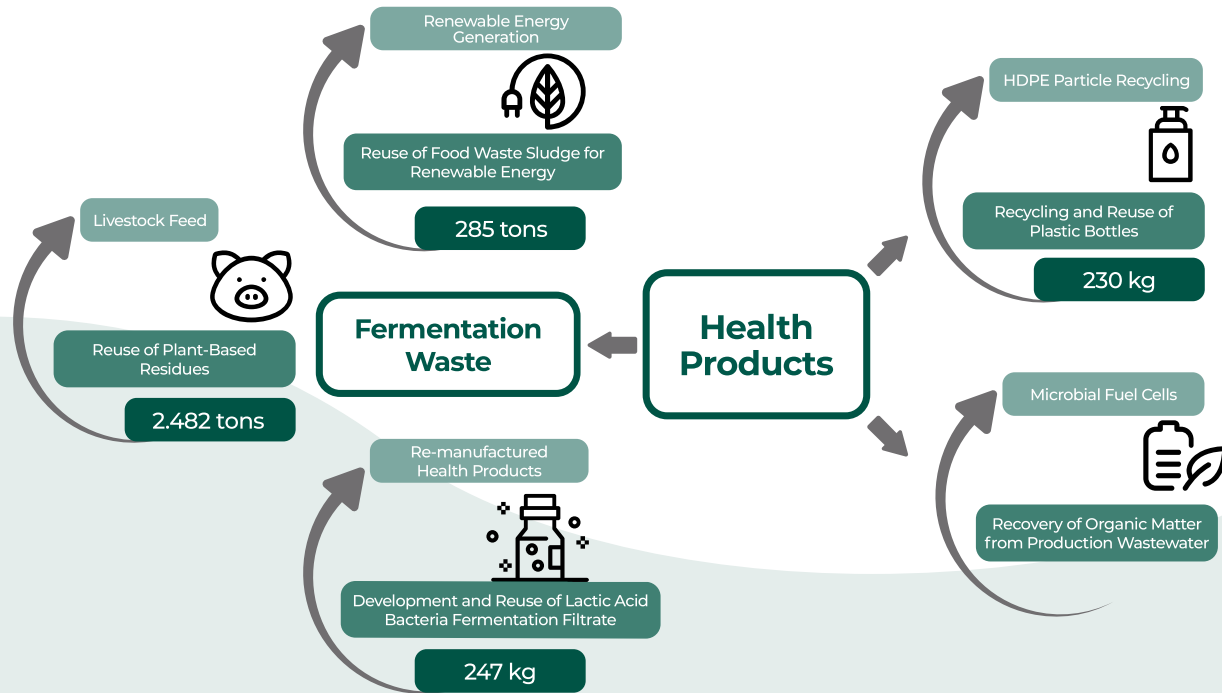
## 6.2 Management of Energy Resources and Greenhouse Gases

Climate change issues have become an operational focus for corporations seeking to achieve sustainable development. Green operations, environmental protection, and sustainable development are part of Grape King Bio's social responsibility and commitment. Our environmental safety and health management policies stipulate that we have a responsibility to implement environmental protection actions.

Grape King Bio adheres to the ISO14001 environmental management system and adopts the PDCA methodology for continued implementation of key environmental protection and management tasks. Our Pingzhen headquarters has already obtained ISO14001 environmental management system certification.

Fulfill compliance obligations Reduce hazard risks Implement environmental protection Build friendly work environments  
Support low-carbon energies Enhance energy efficiency Promote full employee participation Improve sustainability cycles

### Grape King Bio's Product Lifecycle Management



### RE100: Working with Global Enterprises to Achieve 100% Renewable Energy

"Grape King Bio is committed to RE100 targets and will continue to improve energy efficiency and use of renewable energies to generate value from waste, create positive environmental impacts, and maximize benefits from energy consumption."

Grape King Bio joined the international RE100 renewable energy initiative in 2019, committing to the first stage of 15% renewable energy usage by 2030 and the second stage of 100% renewable energy usage by 2035. In June 2022, we began supplying solar power to our Pingzhen headquarters, and as of December 2024, we have completed the first stage contract supply amounting to 1,800,000 kWh. The primary energy sources used by Grape King Bio are electricity and natural gas, with electricity mainly utilized for public system equipment and production machinery, while natural gas is used as fuel for the boilers within the plant.

The main energy sources used at Grape King Bio are electric power and natural gas. Electricity is mostly used to power common systems and production equipment, while natural gas is used for boiler fuel within factories.

**RE 100**



## 6.2.1 Energy Management Measures

Grape King Bio completed the re-evaluation of the ISO 50001 Energy Management System in October 2024. We continue to adhere to the PDCA energy management system and have set an energy-saving target of 5% for all three factories in 2024. We utilize energy performance indicator baseline tools to survey the electricity usage of key energy-consuming equipment and areas within our factories, tracking and managing overall power consumption.



Additionally, we have developed internal training programs, conducted internal audits and management reviews, and regularly updated documentation regarding internal and external risk issues. The strategies for 2024 include:

1. Utilizing energy performance indicator baseline tools to survey the electricity usage of key energy-consuming equipment and areas within our factories, tracking and managing overall power consumption.
2. Developing internal training programs, conducting internal audits and management reviews, and regularly updating documentation related to internal and external risk issues.

### The following measures were formulated in 2024:

Factory	Measures
Pingzhen Factory	<ol style="list-style-type: none"> <li>1. Adjusted the schedules of 14 air handling units (AHU) to operate at reduced frequency during nights and holidays, saving 302,151 kWh of electricity.</li> <li>2. Ceased the operation of 3 DAH air handling units and 2BA6 EAF exhaust fans on the second floor of the production area during non-production weekends and holidays, saving 114,400 kWh of electricity.</li> <li>3. Shut down the low-temperature, low-humidity air handling unit (4BA6) in the section during non-production periods, saving 67,205 kWh of electricity.</li> <li>4. Adjusted operation schedules for 100HP blowers in wastewater plants every Sunday, saving 37,091 kWh of electricity.</li> </ol>
Zhongli Factory	<ol style="list-style-type: none"> <li>1. Installed variable frequency drives on 60HP blowers in Phase 2 of the wastewater treatment system, saving 152,686 kWh of electricity.</li> <li>2. Shut down 30HP brine plate-type primary motors, saving 115,170 kWh of electricity.</li> <li>3. Replaced aeration towers in Phase 1 of the wastewater treatment system with ozone deodorizers, saving 84,884 kWh of electricity.</li> <li>4. Adjusted the temperature of the GEA freezers during non-production periods from -25°C to -20°C, saving 84,016 kWh of electricity.</li> </ol>
Longtan Factory	<ol style="list-style-type: none"> <li>1. Adjusted the operational standby time of the entire GEA system equipment (freezers and compressors) in line with production schedules, saving 134,354 kWh of electricity.</li> <li>2. Reduced the load for MBR blowers on the first floor of wastewater plants from 4 units to 2 units, saving 111,318 kWh of electricity.</li> <li>3. Adjusted the operational numbers of high-pressure dryers according to the production line's requirements, saving 35,682 kWh of electricity.</li> <li>4. Adjusted the operation schedules for the air conditioning chilled water supply fans on the fourth and fifth floors of the laboratory (22 units on the fourth floor and 23 units on the fifth floor), saving 25,777 kWh of electricity.</li> </ol>

We convene EHS and Energy Management Committee meetings hosted by our chairman every quarter to report on implementation status, project progress, internal and external issues, and follow-up items relating to ISO14001/ISO50001 systems.

### Environmental Management Plans for Grape King Bio Biotech Research Institute (Longtan Branch)

Our Biotech Research Institute was officially launched in 2019. We regularly repair and maintain all of our environmental protection equipment to ensure they operate normally. To fulfill our corporate social responsibilities, we installed gas collection devices in our production areas and linked these to our gas processing equipment to improve environmental air quality.

Our Biotech Research Institute has passed Green Building label evaluations. To enhance overall production capacity and maximize resource usage rates, we continue to implement environmental management facilities such as heating, ventilation and air conditioning (HVAC) designs, steam condensate recovery equipment, boiler economizers, and so on.

### Other Environmental Highlights

1. We continued to enhance circular recycling of water resources and accumulated 66,087 tons of ROR recycled water in our three factories as of 2024, reducing carbon emissions by 10,310 kgs; In 2024, we also implemented the recovery and reuse of effluents as recycled water for the scrubbers, with an estimated annual water savings of 2,190 tons.
2. The flash steam heat recovery and reuse project at our Longtan Factory was completed and put into operation on November 27, 2023. The operational efficiency statistics in 2024 are as follows:
  - (1) The energy saved by condensate water and flash steam recovery amounted to N\$380,311.
  - (2) The system reduced cumulative carbon emissions by 47.8 tons.



## 6.2.2 Energy Usage

Total natural gas, electric power, diesel, and gasoline energy usage for the past three years is shown in the following table:

Item (Unit: MWh)		2022 (Note 1)	2023	2024		
				Taiwan	China	total
Direct energy use	Natural Gas Energy Consumption	18,434	19,931	20,615	4,641	25,256
	Diesel Energy Consumption	76	83	75	0	75
	Gasoline Energy Consumption	177.45	198	202	0	202
Indirect energy use	Electric Power Consumption	32,178	33,114	33,432	3,355	36,787
	Purchasing of Renewable Energy (Power Purchase Agreement ,PPA)	300	600	900	0	900
	Renewable energy from Self-generation and Self-consumption (Solar Photovoltaic, PV)	12	195	179	0	179
Total energy consumption		51,177	54,121	55,403	7,996	63,399

Notes:

1. Starting from 2022, the energy usage data includes Pro-Partner in addition to Grape King Bio and Rivershine Co. Ltd.
2. Starting from 2024, the energy usage data will include Shanghai Grape King Bio Enterprise Corporation.
3. Taiwan region includes Grape King Bio, Pro-Partner, and Rivershine Co. Ltd.
4. China region includes Shanghai Grape King Bio Enterprise Corporation.

### Energy Intensity

Production weight was used as a basis for calculating our energy intensity levels. Our energy intensity levels for the past three years are shown below.

Item	Unit	2022	2023	2024	
				Taiwan	China
Total energy consumption	GJ	184,226	194,777	199,391	28,780
Production weight	kg	7,835,000	7,884,489	8,617,923	1,623,093
Energy intensity	GJ/kg	0.0235	0.0247	0.0231	0.0177

Notes:

1. Taiwan region includes Grape King Bio, Pro-Partner, and Rivershine Co. Ltd.
2. China region includes Shanghai Grape King Bio Enterprise Corporation.

Grape King Bio has introduced the external inventory of ISO 14064-1:2018, conducted by using the operational control method. The organizational boundary includes Grape King Bio, Pro-Partner, Rivershine Co. Ltd. and Shanghai Grape King Bio Enterprise Corporation.

Item (Unit: tons CO <sub>2</sub> e)	2022			2023			2024(voluntary)		
	Grape King Bio	Pro-Partner	Total	Grape King Bio	Pro-Partner	Total	Grape King Bio	Subsidiaries	Total
Scope 1	5,620.7264	12.9961	5,633.7225	6,184.3812	63.6897	6,248.0709	6,368.9658	189.6295	6,558.5953
Scope 2	15,340.2627	1,203.7914	16,544.0541	15,425.4568	969.0220	16,394.4788	15,526.3052	2,947.9149	18,474.2201
Total	20,960.9891	1,216.7875	22,177.7766	21,609.8380	1,032.7117	22,642.5497	21,895.2710	3,137.5444	25,032.8154
GHG emissions per unit of revenue (tons CO <sub>2</sub> e /per million NTD)	2.13			2.13			2.24		

Note 1: In 2021, Grape King Bio used ISO 14064-1:2018 and the "GHG Protocol" to conduct voluntary greenhouse gas inventories. Relevant parameters were taken from the Greenhouse Gas Emission Factor Table (version 6.0.4) released by the Ministry of Environment.

Note 2: The Global Warming Potential (GWP) adopts the factors of Sixth Assessment Report (AR6) of Intergovernmental Panel on Climate Change (IPCC).

Note 3: Grape King Bio introduced ISO 14064-1:2018 inventories for the first time in 2022. Due to changes in organizational boundaries in 2023, the base year has been set as 2023.

Note 4: The emissions of Grape King Bio include the emissions of Rivershine Co. Ltd.

Note 5: The subsidiaries include Pro-Partner and Shanghai Grape King Bio Enterprise Corporation.

Scope 3 (Unit: tons CO <sub>2</sub> e)	2022	2023	2024 (Voluntary)
Category 4 Indirect greenhouse gas emissions from products used by the organization			
Purchased goods and service	16,947.1729	17,182.4308	15,269.2663
Fuel- and energy-related emissions (not included in scope 1 or scope 2)	3,584.5053	4,242.3611	4,303.1046
Waste generated in operations	105.4835	92.6555	381.0524
Total	20,637.1617	21,517.4474	19,953.4233

Note 1: Grape King Bio (including Rivershine Co. Ltd.) introduced ISO 14064-1:2018 inventories for the first time in 2022 and underwent external verification by SGS.

Note 2: Scope 3 inventory boundaries include Grape King Bio and Rivershine Co. Ltd. in 2022. Note 2: Pro-Partner was added in 2023, and Shanghai Grape King Bio Enterprise Corporation was further included in 2024.

After obtaining verification of our ISO 14064 greenhouse gas inventory system in the second half of 2025, we will release the details of the final greenhouse gas emission figures for Grape King Bio. on our website (Green Environment: Energy and greenhouse gas management). Please refer to our corporate website for more information.



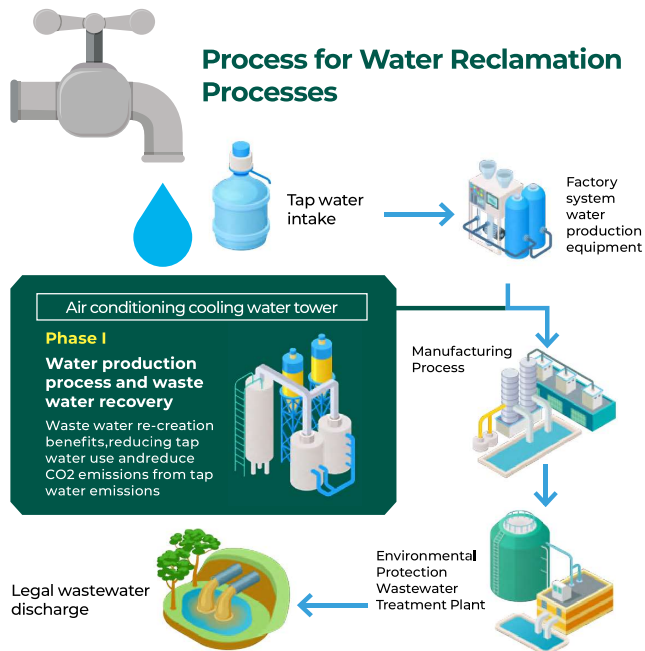
## [Column] Leading the Way: Collaborating with Suppliers to Promote Smart Manufacturing and Assist in Establishing Smart Projects

Grape King Bio is responding to the Ministry of Economic Affairs' Industry Development Bureau's "Large firms help smaller ones" initiative by collaborating with four suppliers to promote smart manufacturing. We are assisting our important supplier partners in establishing AOI inspection systems, IoT device networking, and data collection systems, which will be integrated into connected industrial computers and linked to both the suppliers' and Grape King Bio's operational dashboards, smartly connecting the production system information across the supply chain. By 2024, we plan to establish visual management systems at our Pingzhen and Zhongli factories. In addition to real-time tracking of production line status, we will also be able to monitor water usage, energy consumption, and carbon emissions data, precisely understanding energy consumption during the production process.



## 6.3 Management of Water Resources

In appreciation of our precious water resources, Grape King Bio values the importance of preventing water wastage and ensuring the efficient use of energy resources. We have developed a "Process Water Recirculation System" based on a circular economy framework. By making simple adjustments to existing equipment and systems, we are able to recycle and reuse high-concentration process water generated during the production process, which was originally discharged to wastewater plants. This initiative reduces wasted water resources and wastewater volumes. Our manufacturing department manages this system, and we monitor our water management goals quarterly through the Sustainable Development and ESG Committee. We expect the total water consumption from our four factories to decrease by more than 5% in 2030 compared to 2022. As of 2024, we have saved a total of 13,027 tons of process water, accumulating to 66,087 tons of water saved since 2021.



Additionally, as a food manufacturer, Grape King Bio places high importance on the control and management of water quality inspection and wastewater discharge. We are also evaluating the introduction of water-saving manufacturing equipment and the expansion of wastewater treatment facilities. By increasing our water recovery rate, we can effectively reduce water usage and wastewater discharge, thereby reducing our impact on the environment.

Year		2022		2023		2024		
		Manufacturing sites (Note 4)	Office sites (Note 5)	Manufacturing sites (Note 4)	Office sites (Note 5)	Manufacturing sites in Taiwan (Note 4)	Office sites in Taiwan (Note 5)	China
Water withdrawal (million liters) (Note 1)	Groundwater withdrawal (million liters)	119.40	0	122.16	0	105.10	0	0
	Water from third party- municipal potable water withdrawal (million liters)	206.33	12.38	218.82	14.20	213.64	17.78	44.54
	Total water withdrawal (million liters)	338.11		355.18		336.52		44.54
Water discharge (million liters) (Note 2)		260.03	NA <sup>Note 6</sup>	238.55	NA	232.81	NA	18.73
Water consumption (million liters) (Note 3)		65.71		102.43		85.93		25.81
Water use intensity (million liters/million NTD in revenue)		0.033		0.033		0.034		
Wastewater disposal intensity (million liters/million NTD in revenue)		0.025		0.022		0.023		

Note 1: All water was freshwater, sourced from ground water and third party- municipal potable water, and was not taken from any other sources. All water was taken from Taiwan, not from water-stressed sites.

Note 2: All discharged water is freshwater. After the sewage treatment, it will be discharged into the sanitary sewer.

Note 3: Water consumption = Water withdrawal - Water discharge

Note 4: Manufacturing sites included Pingzhen Factory, Zhongli Factory, Longtan Branch, and Yungfeng Factory.

Note 5: Office sites included Logistics center, Taipei Operational Headquarters, Telesales call center, Taichung Office, Pro-Partner.

Note 6: Because the amount of water discharge of office sites could not be calculated, the amount of water discharge and water consumption only included Pingzhen Factory, Zhongli Factory, Longtan Branch, and Yungfeng Factory.

Note 7: Due to the use of recycled water (such as rainwater and domestic water) solely for irrigation of landscaping, it does not re-enter the production process, and therefore, no data is disclosed.

### 6.3.1 Production and Related Inspections for Process Water

The pure water used in manufacturing processes at Grape King Bio passes through multiple stages to remove impurities and hazardous substances. We continually inspect and monitor water quality to ensure compliance with standards of raw materials used for health food manufacturing.

Pure water production process

- (1) Impurities are removed by quartz filter machines
- (2) Activated carbon is used to neutralize residual chlorine and absorb dissolved organic substances
- (3) Water softener machines are used to filter out calcium and magnesium ions
- (4) Finally, reverse osmosis and UV sterilizers are used to remove heavy metals, bacteria, hazardous substances, and dead bacteria to meet the requirements for pure water.

In 2024, Grape King Bio invested NT\$ 500,000 in outsourced water quality inspections. Grape King Bio not only conducts internal monitoring procedures but also commit external institutes to conduct periodic water quality inspections. A total of 1,569 items were inspected internally this year. Quality assurance specialists periodically collect water samples and perform multiple inspection procedures under relevant regulations (please refer to Appendix Table 3. Water Quality Inspection Items at all Grape King Bio Factories for more information).



## 6.3.2 Wastewater Discharge Management

To expand green benefits, Grape King Bio adheres to the 3R principles (reduce, recycle, reuse) to further optimize waste classification processes for recyclable items while also working to create additional value from waste sludge. Grape King Bio has formulated comprehensive operational procedures for management of wastewater disposal. All discharged wastewater must pass through specific processing procedures. Water quality is inspected periodically to ensure compliance with governmental regulations. We implemented the following wastewater management measures:

### 1. Production EHS requirements:

For water pollution prevention and control management, in addition to complying with laws and regulations, it is also oriented towards water-saving planning and management.

(1) Daily tests of water quality: To strengthen wastewater management, we require our wastewater treatment plants to regularly inspect water quality at frequencies higher than that required by law, to ensure that the quality of our discharged water adheres to environmental regulations.

(2) Water-saving improvements for process water: Installed new machinery and equipment with water-saving designs that can be used during planned periods to reduce the amount of water consumption and wastewater discharge.

(3) Reusing reclaimed water: Our Pingzhen and Longtan factories are respectively equipped with 690-ton and 400-ton rainwater storage tanks for water for non-process and non-contact personnel use.

### 2. Preventive maintenance procedures:

As part of our aim to become an eco-friendly company, we not only replace old equipment and pipelines from time to time, but also implement preventive maintenance procedures and regular internal water quality inspections to ensure that our discharged water adheres to relevant standards.

### 3. Upgrades to wastewater treatment equipment:

(1) We voluntarily conduct irregular sampling and testing of the water quality discharged by our treatment vendors and train professional technicians responsible for wastewater treatment.

(2) The Zhongli factory has completed the sealing of nine idle manholes with cement, repaired any broken or incomplete structures, and conducted proper labeling.

(3) The Pingzhen factory has completed repairs on the aerobic tank and the leaking areas of the rainwater drainage system to reduce environmental impact.

Process wastewater which has undergone chemical treatment and biological decomposition processes can only be discharged when water quality adheres to legal standards. Additionally, hazardous industrial waste is collectively stored and managed before periodic disposal and treatment by government-approved vendors.

## Wastewater Quality Inspections: Inspection Items for Discharged Water

Zhongli Factory							
Inspection Items	Standard Range	2022 (First half)	2022 (Second half)	2023 (First half)	2023 (Second half)	2024 (First half)	2024 (Second half)
pH value	6~9	7.3	7.5	7.4	8.1	7.8	7.8
COD (Chemical oxygen demand)	<100mg/l	30.8	67.3	42.7	17.2	39.7	29.2
BOD (Biochemical oxygen demand)	<30mg/l	2.9	17.5	2.4	1	4.2	17.3
True color	<400ADMI	<25	63	46	<25	45	34
SS (Suspended solids)	<30mg/l	12.2	18.3	13.1	5.3	10	8.7
Water temperature	<38°C (May to September) <35°C (October to April)	28.9	31.9	29.1	26.2	31.6	26.7
Free available residual chlorine	<2.0mg/l	ND	0.03	0.05	0.03	ND	0.06
Coliform levels	<200,000 CFU/100 ml	—	—	85,000	45,000	30,000	58,000
Yungfeng Factory							
Inspection Items	Standard Range	2022 (First half)	2022 (Second half)	2023 (First half)	2023 (Second half)	2024 (First half)	2024 (Second half)
pH value	6~9	-	-	-	-	8.7	8.4
COD (Chemical oxygen demand)	<100mg/l	-	-	-	-	16.0	18.4
BOD (Biochemical oxygen demand)	<30mg/l	-	-	-	-	<1.0	<1.0
True color	<400ADMI	-	-	-	-		
SS (Suspended solids)	<30mg/l	-	-	-	-	4.2	19.9
Water temperature	<38°C (May to September) <35°C (October to April)	-	-	-	-	28.7	28.3
Oil levels	<10mg/l	-	-	-	-	<0.4	<0.4
Coliform levels	<200,000 CFU/100 ml	-	-	-	-	2,900	85

Pingzhen Factory							
Inspection Items	Standard Range	2022 (First half)	2022 (Second half)	2023 (First half)	2023 (Second half)	2024 (First half)	2024 (Second half)
pH value	6~9	7.6	8.0	7.9	8.2	8.0	7.9
COD (Chemical oxygen demand)	<100mg/l	18.2	8.2	16.4	14.3	6.2	15.4
BOD (Biochemical oxygen demand)	<30mg/l	7.4	<1.0	4.4	1.1	4.1	7.1
True color	<400ADMI	----	----	----	----	----	----
SS (Suspended solids)	<30mg/l	7.8	<2.5	9.9	2.6	1.7	3.8
Water temperature	<38°C (May to September) <35°C (October to April)	32.4	28.6	31.5	27.2	31.3	26.5
Oil levels	<10mg/l	<0.5	<0.5	<5	<5	4.2	2.6
Coliform levels	<200,000 CFU/100 ml	57,000	310	16,000	<10	59,000	52,000
Longtan Factory							
Inspection Items	Standard Range	2022 (First half)	2022 (Second half)	2023 (First half)	2023 (Second half)	2024 (First half)	2024 (Second half)
pH value	6~9	7.8	8	8.3	8.2	8.2	8.3
COD (Chemical oxygen demand)	<100mg/l	27.7	19.2	13.6	ND	13.5	15.9
BOD (Biochemical oxygen demand)	<30mg/l	1.5	1.3	<1	<1	<1	3.2
True color	<400ADMI	69	44	<25	<25	58	27
SS (Suspended solids)	<30mg/l	<2.5	10.2	2.7	<1.25	<1.25	10.1
Water temperature	<38°C (May to September) <35°C (October to April)	27.9	28.4	27.5	24.7	26.1	21.8
Oil levels	<10mg/l	<0.5	0.8	<0.5	0.5	0.6	1.1
Coliform levels	<200,000 CFU/100 ml	—	—	—	—	—	—

## 6.4 Waste Management

Grape King Bio conducts waste classification, collection, storage, management, and disposal to effectively manage industrial waste and other types of waste. Disposal, handling, and reuse of waste materials are conducted per environmental laws and regulations. Other relevant management measures included:

1. In accordance with environmental laws and regulations, our factories have formulated industrial waste disposal plans and implement waste management procedures in accordance with law.
2. In accordance with ISO 14001 environmental management system requirements, our factories have established waste management operational standards and implement waste management procedures in accordance with our management regulations.
3. We have signed waste disposal and treatment contracts with authorized public and private waste disposal and treatment companies to handle relevant procedures.
4. In accordance with laws and regulations, waste disposal and treatment processes are filed online, and tracking and confirmation of final processing statuses are implemented within required time limits.
5. Our environmental management personnel conduct irregular on-site inspections of waste treatment companies to ensure that waste disposal and treatment processes adhere to relevant regulations. Our Longtan Factory has completed 2 audits of waste treatment and reuse vendors in 2024 and our Zhongli, Pingzhen Factory and Yungfeng Factory have completed 8 audits of waste treatment and reuse vendors.
6. To increase the resource recovery rate, the Zhongli factory has repurposed food sludge as R-0902, thereby reducing environmental impact. In 2024, a total of 204.3 metric tons have been cleared by the removal vendor and the treatment vendors.
7. To enhance the resource recovery rate, the Pingzhen factory has repurposed waste plastic as R-0201, thus reducing environmental impact. In 2024, a total of 20.01 metric tons have been cleared by the removal vendor and the treatment vendor.



Waste disposal amounts for Grape King Bio from 2022 to 2024 were as follows:

Types and disposal method Unit (ton)		2022	2023	2024		
				Taiwan	China	total
Non-Hazardous Waste	Reuse and recycling	2,407.39	3,256.91	2,759.88	21.33	2,781.21
	Incineration	112.09	124.38	121.84	66	187.84
	Landfill disposal	0	0	0	0	0
	Other disposal methods (physical treatment)	18.93	14.19	29.19	0	29.19
	Other disposal methods (thermal treatment)	276.69	29.93	36.70	0	36.70
	Total	2,815.10	3,425.41	2,947.61	87.33	3,034.94
Hazardous Waste	Reuse and recycling	0	0	0	0	0
	Incineration	10.81	4.49	4.71	0.83	5.54
	Landfill disposal	0	0	0	0	0
	Other disposal methods	0	0	0	0	0
	Total	10.81	4.49	4.71	0.83	5.54
Recyclable		94.68	93.23	146.75	0	146.75

In 2024, there was a significant decrease in the non-hazardous waste generated, attributed to a reduction in the annual production of lactic acid bacteria. This decline resulted in a decrease in the waste categorized as "Plant-Based Residue (R-0120)" generated during the production process of lactic acid bacteria, which falls under non-hazardous waste.

### Grape King Bio Environmental Program Investments in 2024 (NTD):

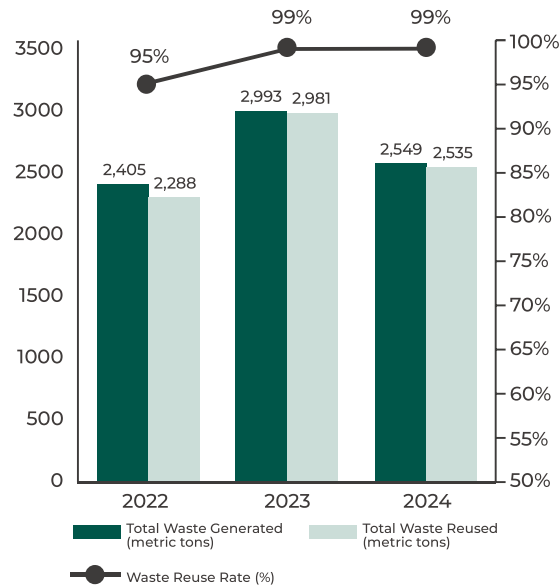
Air pollution management costs	818,754
Wastewater management costs	47,542,610
Waste management costs	8,738,756
Noise management costs	470,000
Total	57,570,120

### Waste Management Highlights

- Enhanced the reusability value of sludge and reused food sludge (waste code R-0902), with 204.3 metric tons processed in 2024. (Zhongli Factory)
- Enhance the reusability value of waste plastics and reuse waste plastics (waste code R-0201), with 20.01 metric tons processed in 2024. (Pingzhen Factory)
- Under the CSR “Bottles of Love” charity event, our Environmental Protection Administration collected and temporarily stored 230 kgs of recycled bottles, which are sent to vendors for processing into reusable plastic pellets in 2024, supporting recycling and reuse as part of our environmental protection initiative. (Pingzhen Factory)
- Our Longtan Factory has actively promoted the utilization of waste resources and achieved a waste recycling rate of over 95% in the past three years, progressing towards a circular economy. Please refer to the following figure for details.
- Our Longtan Factory promoted charity activities related to environmental protection, actively facilitating the recycling of waste batteries and donating them to the Hsinchu City Disability Welfare Association as charitable assistance for disabled people. Please refer to the following figure for details.

### Longtan Factory Management Highlights

- Environmental and Social Initiatives: Participated in the Hsinchu Science Park Occupational Safety and Environmental Protection Month Activities.
- Environmental and Social Initiatives: Participated in the Environmental Education and Demonstration under the Taoyuan Green Factory Guidance Program.
- Environmental Certification: Received the Certificate of Cleaner Production Assessment.
- Environmental Certification: Earned the Green Factory Label.
- Environmental Awards: Received the Hsinchu Science Park Outstanding Environmental Protection Personnel Award.
- Environmental Awards: Received the SGS ISO PLUS Awards for Excellence in Environmental Management System Performance
- Environmental Awards: Received the Taoyuan Golden Award - ESG Environmental Sustainability



## 6.4.1 Prevention of Air Pollution

Grape King Bio has installed and maintained air pollution prevention equipment to enhance and improve the environmental protection. All of our factories implement regular maintenance procedures for our equipment to ensure that they operate normally.

### Results of Air Pollution Inspections at Zhongli Factory

Inspection Items	Standard Range (2022)	Boiler (E001)			
		2021	2022	2023	2024
Particulate contaminants	<30mg/Nm3	—	—	No inspection required.	3
Sulfur oxides	<150ppm	—	—		—
Nitrogen oxides	<100ppm	24	26		25.5
Inspection Items	Standard Range (2022)	Boiler (E002)			
		2021	2022	2023	2024
Particulate contaminants	<30mg/Nm3	—	—	No inspection required.	2.7
Sulfur oxides	<150ppm	—	—		—
Nitrogen oxides	<100ppm	52	67		43.2

Note: In 2023, the factory was exempt from testing due to the previous two consecutive tests showing concentrations below the emission standards by 50%. According to the "Regulations for the Management of Monitoring and Reporting of Stationary Air Pollution Sources," the testing frequency can be adjusted from annually to biennially. Therefore, an exemption for testing in 2023 was applied, with testing scheduled for 2024 as part of the biennial assessment.

### Results of Air Pollution Inspections at Yungfeng Factory

Inspection Items	Standard Range (2022)	Boiler (E001)			
		2021	2022	2023	2024
Particulate contaminants	<30mg/Nm3	—	—	—	ND <0.1
Sulfur oxides	<150ppm	—	—	—	—
Nitrogen oxides	<100ppm	—	—	—	33.8

### Results of Air Pollution Inspections at Longtan Factory









Inspection Items	Standard Range (2022)	Boiler (E001)			
		2021	2022	2023	2024
Nitrogen oxides	<100ppm	42	43	34	37
Particulate contaminants	<30mg/Nm3	No inspection required.	No inspection required.	No inspection required.	2

Note: At present, all boilers at Grape King Bio use natural gas as fuel. We conduct inspections according to regulations, with regular inspections of nitrogen oxide emissions each year, and measurements of particulate contaminants taken in the years when permits are being renewed.



## 6.5 Biodiversity

Biodiversity is a critical factor for the health, stability, and prosperity of ecosystems. It refers to the richness of biological species in a specific region, ecosystem, or the entire planet, encompassing species diversity, genetic diversity, and ecosystem diversity. To support biodiversity, Grape King Bio evaluates the potential impacts of our operations on biodiversity, such as conducting environmental impact assessments prior to the construction of plants in protected areas. We also actively participate in and support various projects aimed at protecting and restoring ecosystems, as well as raising public awareness of the importance of this issue. In 2024, our projects were conducted as follows:

SDGs	Issue	Collaborating Unit	Project Name	Description	Total Input
 	Clean water	Northern Region Water Resources Branch of the Water Resources Agency under the Ministry of Economic Affairs	Subscription of farmland utilizing rationalized fertilization	Grape King Bio collaborated with the Northern Region Water Resources Branch of the Water Resources Agency under the Ministry of Economic Affairs and farmers to subscribe to farmland utilizing rationalized fertilization. This initiative not only reduces soil degradation and preserves biodiversity but also conserves water resources. The Oldham bamboo shoots produced by farmers not only serve as our company's lunch and catered meals for colleagues but also benefit children in orphanages, individuals with Down Syndrome and solitary seniors, which achieves multiple positive outcomes at once.	NT\$200,000 starting from 2023
	Environmental education	Taiwan RE-THINK Environmental Education Association	Environmental education program	Grape King Bio supports environmental protection, education, and promotion. We have made donations to the Taiwan RE-THINK Environmental Education Association, which builds interactive educational websites and teaching materials with innovative designs that integrate board games and design thinking concepts. Their materials have been promoted to schools all over Taiwan, and cover issues such as marine waste, plastic reduction, resource recycling, and circular economy. The Recycling Encyclopedia designed interactive and educational board games and websites around concepts such as "the myths of classification" and "the value of recycling," enabling students to understand systemic factors behind resource recycling and changes that can be made on a personal level by playing games. This corresponds to SDG 12 "Responsible Consumption and Production."	NT\$1,500,000 starting from 2023
	Ocean conservation	Taiwan Cetacean Society	Cetacean stranding rescue van program	The Taiwan Cetacean Society initiated the establishment of a Marine Wildlife Medical Rehabilitation Station in northern Taiwan to address the shortage of medical resources for marine wildlife. To support marine wildlife protection, Grape King Bio donated funds to the Society, enabling timely rescue and rehabilitation of stranded whales, dolphins, and sea turtles. The donation also helped establish holding pools, medical rooms, and autopsy facilities, allowing the training of more marine veterinarians and improving the overall quality of marine wildlife care in northern Taiwan. Grape King Bio adopted one 3.5-ton and one 2-ton rescue pool, aiming to support more sea turtle rescues. The company also promoted the Society's mission internally by offering beachside rescue training and education to its employees. Employees were also invited to join naming and blessing activities, with the hope that more "GK Little Turtles" would be successfully rescued and one day return to the ocean to live freely.	NT\$1,300,000 starting from 2022
	Biodiversity	WildOne Wildlife Conservation Association	Wild animal rescue support program	Grape King Bio has donated medical expenses required by 1,600 wild animals over the past four years, including fruits and vegetables, feed, live bait, nutritional supplements, materials for surgery and care, animal medications, autopsies, pathological examinations, and materials to enrich the environments of veterinarian hospital cages to enhance the immediate medical resources used by wild animals in the eastern region and increase the number of rescued wild animals.	NT\$2,700,000 starting from 2020
 	Biodiversity	Taiwan People's Food Bank Association	Restoration program for Taiwan oil millet	The program is based on food and agriculture education and strives to integrate local knowledge and professional education. By teaching about the restoration of the "Taiwan oil millet," we enabled children to participate in growing "future foods" while also gaining an understanding of the history and culture of their ancestors, so they could become a protector of sustainable climate goals and take actions corresponding to SDG 13 "Climate Action." We plan to establish exhibition rooms on campuses all over Taiwan as well as a demonstration area of around 20 pings for food and agriculture education, where we will arrange professional teachers to promote the Taiwan oil millet, invite tribe elders to participate in farming activities, promote local education by cultivating and training teachers, and finally disseminate these concepts domestically and internationally in hopes of restoring growth of the Taiwan oil millet both at home and overseas as it is a super crop which can adapt to climate change and regions lacking arable land.	NT\$1,500,000 starting from 2022
	Biodiversity	Taiwan Environmental Information Association	Commitment to a sustainable Earth	To protect and establish low-altitude forests as well as expand community conservation areas, and build an environmental learning center for all, we implemented the habitat management program to protect and establish low-altitude forests, promote biodiversity, eliminate Mikania micrantha (an exotic species which kills other plants), and maintain environmental protection by establishing automatic infrared cameras at four activity hotspots for wild animals to provide round-the-clock ecological monitoring. Additionally, we aim to promote our environmental education program and build an environmental learning center for all, which participates in environmental education classes in elementary schools, designs teaching activities, exchanges educational resources, and trains volunteer guides to strengthen environmental education and cultivate relevant sensibilities.	NT\$900,000 starting from 2022

## Sustainable Use and Conservation of the Ocean

### Grape King Bio assisted the Taiwan Cetacean Society in rescuing sea turtles and promoting marine education

In the event of marine wildlife stranding incidents along the northern coast, the best time for emergency rescue is often missed due to the absence of nearby temporary rescue stations.

Therefore, the “Taiwan Cetacean Society” initiated the establishment of “Marine Wildlife Medical Rehabilitation Stations” in the northern region to address the shortage of medical resources for marine wildlife.

Grape King Bio sponsored one 3.5-ton and one 2-ton rescue pools, aiming to save more stranded sea turtles. We also promoted this organization's concepts internally, providing education and training on beachside rescue for marine wildlife to employees. We further invited employees to participate in naming and blessing activities, hoping for the successful rescue of more “Grape King Little Turtles” that can return to the ocean in the future and enjoy a carefree life.

Our other assistance includes:

1. Mini Grape Camp on the Theme of Marine Conservation: Grape King Bio has hosted several parent-child workplace experience activities and invited the Taiwan Cetacean Society to promote ocean conservation among employees' children, enabling the concept of ocean conservation to take root in the young.
2. Visit to Medical Rescue Stations Where Chairman Serving as a One-Day Care Volunteer for Sea Turtles: This visit includes a tour of the rescue station, assisting in the medical treatment of sea turtles, maintaining water quality in turtle pools, preparing bait and feeding turtles, and examining turtle feces.

### Collaborate with ReThink to develop marine educational materials and conduct beach cleanup activities

Grape King Bio supports environmental protection, education, and promotion. We have made donations to the Taiwan RE-THINK Environmental Education Association (ReThink), which builds interactive educational websites and teaching materials with innovative designs that integrate board games and design thinking concepts. Their materials have been promoted to schools all over Taiwan, and cover issues such as marine waste, plastic reduction, resource recycling, and circular economy.

The Recycling Encyclopedia designed interactive and educational board games and websites around concepts such as “the myths of classification” and “the

value of recycling,” enabling students to understand systemic factors behind resource recycling and changes that can be done on a personal level by playing games. This corresponds to SDG 12 “Responsible Consumption and Production.”

Additionally, Grape King Bio’s volunteers, along with our 11 suppliers and the Taiwan RE-THINK Environmental Education Association, joined our first beach cleanup event at Houcuo Harbor in Taoyuan and worked together to remove marine debris from the beach. A total of 45 volunteers participated in this event and successfully cleared a total of 65.5 kg of garbage in 2024.

