



2024 TNFD·TCFD Report

Task Force on Nature and
Climate-related Financial Disclosure Report

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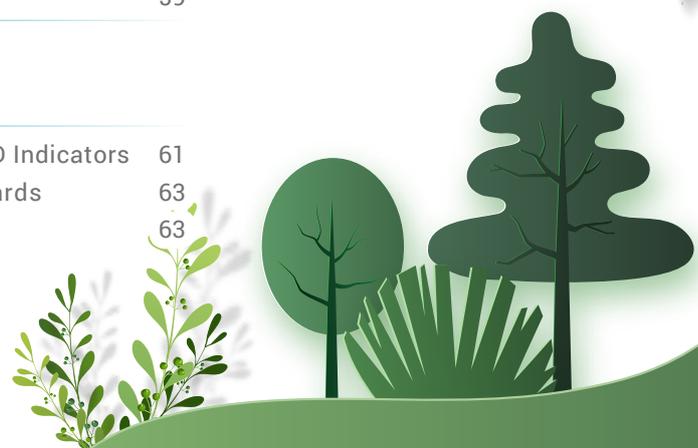
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Chapter 0. Introduction

Publication Date

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About This Report

At the 15th Conference of the Parties to the United Nations Convention on Biological Diversity (COP15), the Kunming-Montreal Global Biodiversity Framework (GBF) was adopted. It outlines 23 action-oriented target, one of which is “30×30”—protecting 30% of the world’s terrestrial and marine areas by 2030. Among the targets, Target 15 calls on companies to regularly test for, assess, and disclose their risks, dependencies, and impacts on biodiversity. It also encourages companies to shift toward sustainable consumption patterns to mitigate negative impacts on biodiversity.

The Task Force on Nature-Related Financial Disclosures (TNFD) provides an assessment and disclosure framework that fully aligns with GBF targets, supporting the implementation of Target 15. TNFD enables companies to establish nature-related risk management mechanisms that are clear-cut and further promotes the transition of companies around the globe toward sustainable development.

Demonstrating our commitment to the environment, Nanya Technology became the first memory company to register as a TNFD Early Adopter following the official release of the TNFD framework in September 2023. We adopted the LEAP approach (Locate, Evaluate, Assess, Prepare) to identify nature-related material issues at our operational sites. By integrating the TCFD and TNFD frameworks, we have established a comprehensive climate and nature risk assessment process and implemented corresponding management measures to enhance our corporate resilience to climate and nature-related risks.

This report primarily covers the operations of Nanya Technology Corporation Co., Ltd. and its subsidiaries. Greenhouse gas (GHG) emissions, energy usage data, and identification of nature-related operational sites do not yet include the design house in Hsinchu, Taiwan, nor the overseas design houses and sales offices (located in San Jose, Houston, Burlington in the U.S.; Düsseldorf in Germany; Shenzhen in China; and Tokyo in Japan). Since these locations are non-manufacturing sites, their environment-related usage and consumption volumes have no significant impact—especially when compared to Nanya Technology’s 12-inch wafer fab in New Taipei City, Taiwan.

Nanya Technology is located in a mountainous region, so we are committed to zero deforestation and to preserving nature. Streams begin at their sources, flow through the land, and eventually reach the sea. Our protection of the environment extends along these rivers as they travel downstream, ensuring every drop of water flows freely carrying our respect for the natural world and our responsibility towards it.

Reporting Period	January 1, 2024–December 31, 2024
Reporting Scope	The operations of Nanya Technology Corporation Co., Ltd. and its subsidiaries
Data Quality Management	Financial Data: KPMG Taiwan Organizational GHG Inventory (ISO 14064-1): SGS Sustainability Information (AA1000AS V3): bsi
Management System Certifications	Quality Management (ISO 9001, IATF 16949): LRQA Environmental Management (ISO 14001): LRQA Information Security Management (ISO 27001): SGS Energy Management (ISO 50001): LRQA Occupational Health and Safety (ISO 45001/TOSHMS): LRQA RBA Validated Assessment Program: SGS
Guidelines and Standards Referenced	TNFD TCFD GRI 101: Biodiversity 2024 Rules Governing the Preparation and Filing of Sustainability Reports by TWSE Listed Companies
Contact Point	Sustainability and Risk Management Division, President Office Email: NTCESG@ntc.com.tw



1 Nature and Climate Sustainability Governance

Nanya Technology has established a comprehensive governance framework in which the board of directors and the management jointly participate in nature- and climate-related governance to ensure the implementation of sustainable development strategies. Through stakeholder engagement, the Company incorporates external perspectives and adopts TNFD and TCFD methodologies to identify material issues related to nature and climate, ensuring the Company's resilience in the midst of environmental change.

1.1 Governance Structure and Responsibilities

1. Board of Directors' Participation and Oversight



The operations of Nanya Technology's Board of Directors are carried out in accordance with applicable regulations and shareholder resolutions as well as in adherence with the principle of sustainable management to maximize value for stakeholders. The Board of Directors' primary responsibilities include ensuring the transparency and accuracy of the Company's information, compliance with laws and regulations, appointment of senior executives, formulation of profit distribution proposals, and overall supervision and guidance of company operations. On matters concerning nature and climate, the Board also provides oversight and guidance. In 2024, the Board convened six times, with agenda items covering the sustainability report; TNFD and TCFD reports; progress and planning for the GHG inventory; continuing the implementation of the Life Cycle Assessment (LCA) and subsequent improvements for hotspots; formulation and approval of a sustainable materials policy; enhancement of the Carbon Reduction Task Force's functions; and implementation of carbon reduction action plans.

To fulfill its responsibilities, Nanya Technology's Board of Directors has established three functional committees, each playing its role in addressing nature- and climate-related issues.

Audit Committee

Monitors the execution of the Company's operations and its finances, assists the Board in fulfilling its duties in oversight, and performs tasks mandated by applicable laws and international standards (e.g., the Renewable Energy Development Act and the Climate Change Response Act).

Remuneration Committee

Formulates and regularly reviews policies, systems, standards, and structures for evaluating the performance and remuneration of directors and executives. Adjustments to the salaries, bonuses, and other compensation of the Company's senior executives take into account their contributions and performance across economic, environmental, and social aspects.

 **Sustainable Development Committee**

Reviews policies, strategies, and management guidelines related to sustainable development and risk management; oversee the implementation of initiatives related to sustainable development and risk management, such as nature and biodiversity, climate change, and greenhouse gas management; and reviews disclosures of material information concerning sustainable development, such as the sustainability report and the TCFD & TNFD reports, with results reported to the Board.

The Sustainable Development Committee is composed of the Chairman of the Board, four independent directors, and two executive directors. The committee members designate the President as the convener. The committee convenes at least twice annually to further efforts across three key areas: Work-planning for sustainable development, risk management assessment, and regulatory compliance. It presents reports to the Board and conducts discussions to elevate sustainability governance, strengthen internal organizational reform, and have the Company advance toward sustainable development. In addition to establishing the Sustainable Development Steering Center to manage and promote items related to sustainability, a Risk Management Steering Center was also created by Nanya Technology to identify physical and transitional risks associated with nature and climate. The Center also formulates strategies and targets to integrate manageable risks into daily operations while continuously monitoring uncontrollable risks, allowing the Company to build resilience and minimize overall operational risk.

Key Nature and Climate Change-Related Initiatives of the Sustainable Development Committee in 2024

 **2024 Initiatives**

-  Continued promotion of the GHG inventory program, with improvements in Scopes 1, 2 and 3
-  Continued promotion of the Life Cycle Assessment and improvement measures for hotspots
-  Publication of TNFD and TCFD reports to integrate a management framework for nature- and climate-related risks, thereby building a green, low-carbon value chain
-  Obtained Platinum-level certification from the Alliance for Water Stewardship (AWS)
-  Published a Human Rights Protection and Due Diligence Report, disclosing information on the Company's protection of the human rights of stakeholders, as well as its mitigation and compensation measures
-  Continued participation in domestic and international sustainability assessments, such as DJSI, CDP, Taiwan Corporate Sustainability Awards, and the Taiwan Circular Economy Outstanding Enterprises Award
-  Continued optimization of corporate governance, including revisions to the Sustainable Development Committee's charter
-  Formulated and approved a sustainable materials policy
-  Strengthened the Carbon Reduction Task Force's functions and implemented carbon reduction action plans in response to the Ministry of Environment's carbon fee policy
-  Drafted an implementation plan aligned with the Financial Supervisory Commission's Plan for Introducing IFRS Sustainability Disclosure Standards, completing phased action plans and declarations
-  Advanced the development of the Sustainable Supply Chain Co-Prosperty Initiative (including Scope 3, product carbon footprints, and low-carbon transition programs pairing large companies with smaller ones)

2. Responsibilities of the Management

In order to address the challenges and capitalize on the opportunities presented by international trends, Nanya Technology has organized two major management platforms, led by senior executives who review performance and progress through regular meetings to ensure the implementation of nature and climate governance.

Sustainable Development Steering Center

The director of the Company's Sustainable Development Steering Center is the Chief Sustainability Officer (CSO). Meetings are held every quarter, and the outcomes of its operations are reported to the Board twice a year through the Sustainable Development Committee. The Sustainability and Risk Management Division, under the jurisdiction of the president office, was established as a dedicated unit responsible for planning and managing action plans related to sustainability assessments, trends and initiatives. It also sets natural and climate-related strategies and targets, integrates and monitors the progress and effectiveness of Related programs (such as ISO 14001 and ISO 50001 management systems), and ensures effective communication both horizontally and vertically within the organization in order to implement sustainable development. Each year, material risks related to nature and climate are identified, and the results are submitted to the risk management steering center for risk evaluation.

2024 Outcomes

- The Company Implemented **27** energy conservation programs (total energy savings of 5,513 MWh)
- **79** process improvement initiatives
- The CDP Climate Change **A List** and Water Security **A-**

Risk Management Steering Center

The Company has established a Risk Management Steering Center, which is responsible for promoting and monitoring the work execution of various risk management teams and ensuring overall risk control. The director of the Center is the Executive Vice President, and meetings are held quarterly. The outcomes of its operations are reported to the Board twice a year through the Sustainable Development Committee. Sustainability and Risk Management Division, a dedicated unit under the President Office, reviews the performance of risk management teams and Business Continuity Plans (BCP) to ensure their continued applicability, appropriateness, and effectiveness. The Risk Management Steering Center consolidates and integrates all of the Company's risks. In accordance with the CNDBA-0001 Risk Management Procedures, the Center evaluates potential risks across areas such as operations, technology, customers, finance, environment, health and safety, information security, legal compliance, climate, nature, and biodiversity. Then it identifies the most relevant risks, conducts assessments on each, sets management indicators, and conducts target management.

2024 Outcomes

- 164 risks were assessed.
- **0** required immediate improvement
- **4** required improvement plans
- **71** were assigned monitoring indicators
- **89** were under observation

In addition to monitoring our progress in sustainability initiatives through the Sustainable Development Committee, we strengthen the committee's awareness of sustainability governance by offering a variety of training courses; topics include economics, corporate governance, risk management, ESG sustainability governance, climate change, sustainable finance, green finance, nature-related financial disclosures, insider trading prevention, artificial intelligence, and regulatory compliance. In 2024, the Board completed a total of 96 training hours. Board members not only come from diverse professional backgrounds, but also include individuals with experience as senior executives, government officials, or elected representatives, equipping them with the multifaceted competencies required to fulfill their duties. We will continue to plan courses focused on sustainability, corporate governance, and risk management for Board members to keep pace with evolving trends in sustainability and corporate governance.

Nanya Technology continues to enhance its capabilities and literacy in climate governance. By participating in international initiatives and evaluations to stay abreast of key indicators and trends and quantifying the outcomes of our climate actions, the Company was included in the CDP Climate Change A List and Water Security A- in 2024. We were also selected for the DJSI World Index for the fourth time. The Company actively promotes the importance of climate change and risk management, and therefore issues related to climate change have been included in employee performance evaluations since 2018. For general staff as well as managers at the second level and above, climate change accounts for approximately 7% of evaluation criteria. Given the broader impact of the CEO's strategic decisions on climate change, the weight of climate change in the CEO's performance evaluation is increased to 10%.

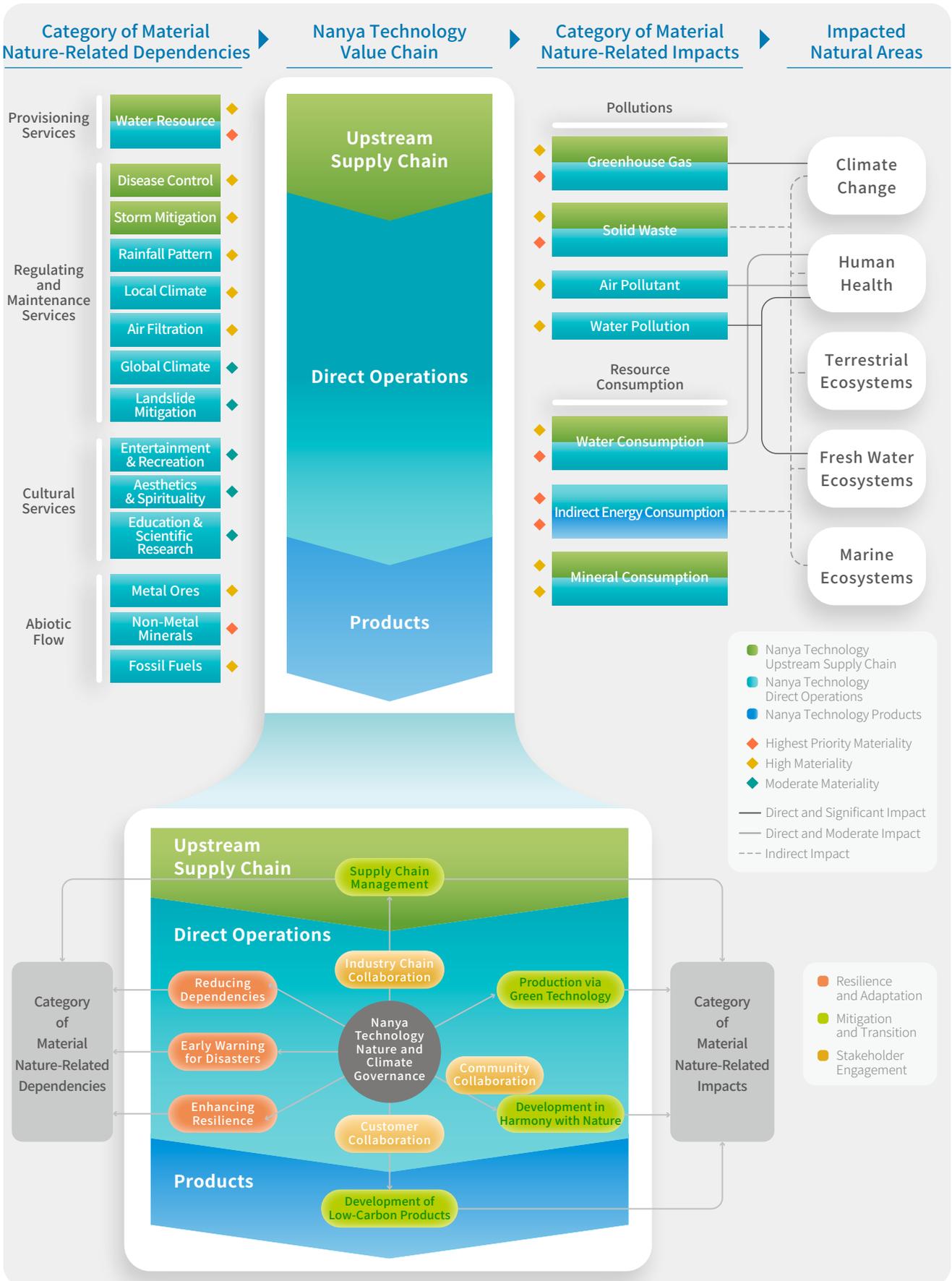
1.2 Nature and Climate Strategy

1. Nanya Technology's Strategic Approach to Nature and Climate

In 2024, Nanya Technology continued its identification efforts from the previous year on nature- and climate-related dependencies and

impacts across its value chain, gradually analyzing the risks and opportunities associated with each type of dependency and impact, and developing future management indicators for the supply chain.

Relation Diagram: Identification of Material Nature-Related Issues



Resilience and Adaptation Strategies

Resilience and adaptation is the first and foremost of Nanya Technology's strategies to respond to climate change and global environmental shifts, and consist of three areas: Reducing dependency, early warning for disasters, and enhancing resilience.

Reducing dependency		Reduce Nanya Technology's dependency on critical ecosystem services to prevent short-, medium-, and long-term physical risks associated with the disappearance of these services due to changes in the external environment.
Early warning for disasters		Diversify Nanya Technology's supply risk for materials and energy by establishing robust early warning systems for natural disasters.
Enhancing resilience		Improve the overall resilience of Nanya Technology's facilities, both in their ability to withstand natural disasters and in their capacity for rapid recovery afterward.

Mitigation and Transition Strategy

Mitigation and transition is Nanya Technology's strategy to reduce its impact on nature and the climate. This strategy focuses on four areas: R&D of low-carbon products, production via green technology, sustainable supply chain management, and development in harmony with nature.

R&D of Low-Carbon Products		Offer customers high-performance, energy-efficient products with low embodied carbon and reduced environmental impact.
Production via Green Technology		Implement carbon pricing to help Nanya Technology reduce GHG emissions, which improves group-wide production and energy efficiency, and reduces emissions of various pollutants at the same time.
Development in Harmony with Nature		Focus on ecological monitoring and restoration in areas surrounding Nanya Technology's facilities. As we continue to expand our operations, we aim to avoid causing damage to critical local ecosystems and to utilize ecological restoration as a means of environmental compensation.
Supply Chain Management		Closely tied to emission reduction and the R&D of low-carbon products along Nanya Technology's value chain, this strategy will also strengthen Nanya Technology's collaboration with suppliers through joint projects to manage nature- and climate-related issues.

Stakeholder Engagement

Nanya Technology takes into full account the perspectives of external stakeholders in its strategies to address nature-related issues and climate change. This is done to ensure harmonious development with nearby communities and society, and encompasses three areas: Value chain engagement platforms, community collaboration and environmental education, and environmental compensation.

Value Chain Engagement Platforms		We collect feedback from external stakeholders through various platforms, and actively participate in industry associations to co-lead nature- and climate-related initiatives, sharing Nanya Technology's experience in implementing measures.
Community Collaboration & Environmental Education		We actively collaborate with Ming Chi University of Technology, with which we share the surrounding environment, to jointly organize activities related to environmental education for local communities, environmental public welfare, and cultural preservation. The aim of these efforts is to build closer ties with local residents and educate stakeholders on sustainability through such initiatives.
Environmental Compensation		We are actively planning and discussing potential approaches to environmental compensation. In the future, Nanya Technology aims to protect and restore natural habitats near its facilities. We hope to build a better community environment with local residents.

1.3 Stakeholder Engagement

In the application of nature transition planning, an engagement strategy proposed by TNFD, Nanya Technology has strengthened its involvement in landscapes, river basins, and marine areas during the implementation of its transition plans. We have also established communication mechanisms with various stakeholders to ensure that environmental protection, social responsibility, and economic growth are all considered in the process of sustainable development. Through engagement platforms, we work to build consensus and jointly drive the sustainable transition of the value chain.

Engagement Strategies for Nanya Technology's Nature Transition Planning and Outcomes

Participation of landscape, river basin, and marine governance

Nanya Technology joined the "River Waste Survey and Training Program" co-organized by Ming Chi University of Technology and the Society of Wilderness. Beginning in March, employees received professional training, and starting in May, they launched environmental monitoring activities at Dake River in Taishan. Through site visits and surveys, we have documented the types and quantities of river waste. By harnessing the power of citizen scientists, we aim to develop collaborative solutions to river waste issues through public-private partnerships.



Suppliers

Nanya Technology communicates with suppliers through multiple channels. In addition to requiring the signing of a Supplier Code of Conduct and conducting sustainability risk assessments, the Company regularly hosts training sessions and Sustainable Supply Chain Seminars. Such events provide a platform to exchange insights on ESG trends and identify areas for project-based collaboration, enabling carbon reduction actions to be jointly implemented along the value chain.

Customers

Nanya Technology actively responds to customers' requests for information related to climate change issues. Through online meetings, in-person visits, or surveys, the Company engages with customers on topics such as science-based carbon reduction targets, use of low-carbon energy, and availability of low-carbon products. We also review customers' sustainability reports and other public disclosures to identify customers' needs and incorporate them into the Company's low-carbon strategies.

Engagement with the Value Chain



Interactions with Industry Peers

Through participation in international sustainability ratings and conducting annual materiality assessments for the annual sustainability reports, Nanya Technology tracks investor concerns related to ESG issues. We strive to enhance the quality of our disclosures in sustainability reports to make them a more effective communication tool. As a member of the global semiconductor industry, Nanya Technology not only pursues excellence in its core business but also actively participates in exchanges with external entities to promote shared progress in the industry. Under our Sustainable Development Steering Center, we have established the Public Affairs Participation Group to evaluate and deliberate decisions related to participating in public affairs. In accordance with the Company's Guidelines on Public Affairs Participation, we review annually whether our participation in industry associations aligns with the goals of the Paris Agreement. The Company is committed to controlling global warming to well below 2°C through collaborations with industry peers. Through international advocacy and organizational partnerships, we hope to work with partners to expand our influence and accelerate the industry's sustainable transition.



Collaborations with Public and Private Sectors

On nature-related issues, Nanya Technology has established an engagement platform for external stakeholders at Nanlin Technology Park, holding quarterly meetings to give routine reports on the results of our environmental and ecological monitoring. The members of the platform include a diverse group of stakeholders, such as senior executives of Nanya Technology, relevant department heads, local community representatives, and academics. This enables multi-faceted communication and effective stakeholder engagement.



1. SBTN—Science-Based Environmental Governance Targets

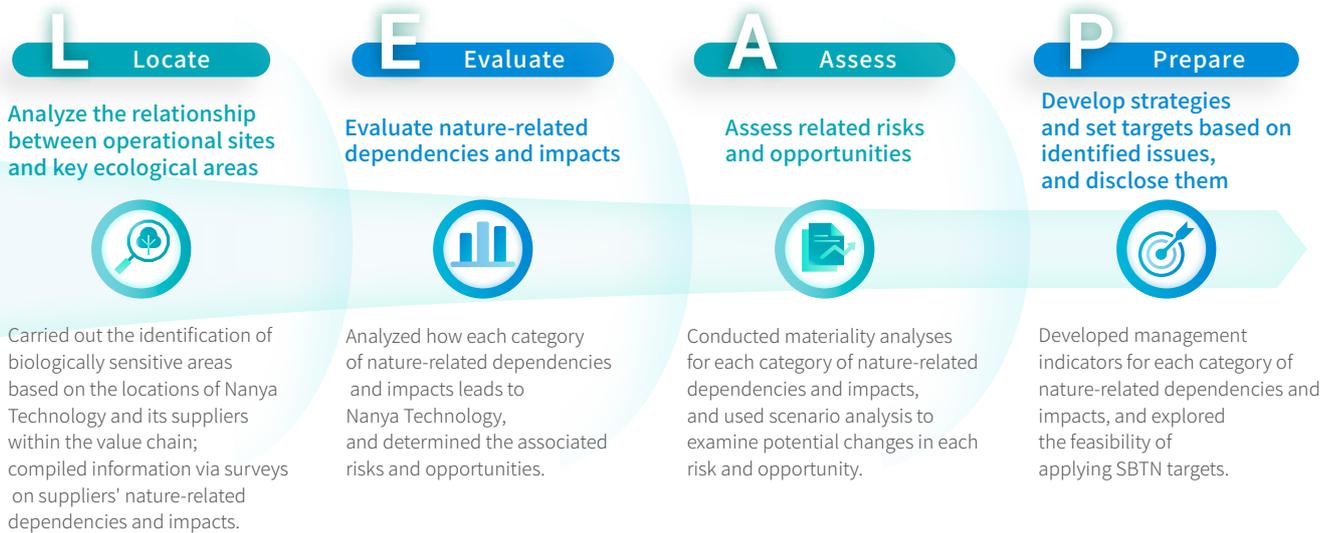
The development of modern civilization has occurred in a relatively stable environment over the past millennium. If this environment disappears, can humanity adapt or survive in one that is starkly different from the past? In the face of global environmental collapse, how can we ensure that there are appropriate early warning indicators as humanity develops?

The Science Based Targets Network (SBTN) offers companies facing these two challenges in environmental governance a more comprehensive and rigorous scientific framework. Since the scientific targets set by the Science Based Targets initiative (SBTi) for climate change has been widely adopted by many companies, SBTN further expands its scope to include other nature-related topics—freshwater, land, oceans, and biodiversity. It provides science-based targets for nature that are measurable, actionable, and time-bound, and the targets help companies align their actions with science and reverse nature loss. Ultimately, the goal is to define how humanity can continue to develop while protecting the environment and ensuring equity in society, outlining a way toward equity and sustainability.

Based on the results of Nanya Technology's 2023 materiality assessment, we identified climate change and water resources as the two most significant nature-related material topics. We have already formulated corresponding science-based targets (SBT) and received approval. In the current phase, we are studying the SBTN formulation process, and have prioritized freshwater resources as the next issue for SBTN target setting. At present, we are researching how to take global freshwater thresholds and scale them down fairly and scientifically so they can be applied to our operational sites in order to ensure such targets align with the realities that Nanya Technology faces.

1.4 Materiality Identification Methodology for Nature- and Climate-Related Issues

Nanya Technology conducts its materiality analysis of nature- and climate-related issues using the LEAP framework developed by TNFD. In 2023, the Company initiated the Locate and Evaluate phases for upstream suppliers of concern in the value chain, and conducted the Locate phase for downstream activities. In 2024, we went further and took into consideration the risks and opportunities connected to nature-related dependencies and impacts, completing the Assess phase for materiality in these categories. At the same time, the Company also began to explore the integration of the Science Based Target Network (SBTN) framework into nature-related issues beyond climate change in 2024 to eventually implement a comprehensive LEAP analysis.



Nature- and climate-related issues are long-term issues. Nanya Technology plans to carry out the LEAP process every two years. In the first year, we will formulate related strategies and indicators based on the integration of nature- and climate-related material topics and the results of the risk and opportunity analysis. In the second year, we will reassess whether new risk issues have emerged and review progress on existing targets to determine if strategy adjustments are necessary.



 **Identifying Biologically Sensitive Areas in the Value Chain**

Implementation method

In 2023, Nanya Technology used GIS data layers published by the Taiwanese government to conduct an environmental analysis within a 2-kilometer radius around the sites directly operated by the Company and suppliers of concern, and shipping locations.

Table of Figures and Data Used

Category	Unit	Item
Regulatory	Ministry of the Interior	Marine reserves
		National parks
		Important wetlands
	Ministry of Agriculture	Important wildlife habitats
		Wildlife reserves
Non-regulatory	Ministry of Agriculture	Nature reserves
		Forest reserves
		Conservation corridors
		Key biodiversity areas

 **Materiality Analysis of Nature- and Climate-related Financial Risks in Direct Operations and the Supply Chain**

Implementation method



Operations

In 2023, Nanya Technology integrated climate- and nature-related issues for the first time, guided by the TNFD's LEAP framework. Through training sessions and workshops, the Company initiated analyses from nature-related dependencies and impacts. With cross-departmental brainstorming sessions, we gathered insights and awareness gained from operations, and nature-related issues that may emerge during operational processes were explored. The result was the Company's first materiality assessment of nature-related dependencies and impacts. In 2024, the Company reviewed these material issues, and updated the results on the materiality of nature-related dependencies and impacts accordingly. We also conducted in-depth analyses into specific dependency and impact pathways.



Value chain

Through meetings and workshops, we worked to raise awareness of nature- and climate-related issues among suppliers. We developed surveys with detailed explanations to foster a shared understanding of the issues and ultimately collected responses from our suppliers. In 2024, prior shortcomings in the survey's design were addressed. The updated version considered definitions of nature-related dependencies and impacts from the TNFD and the System of Environmental-Economic Accounting (SEEA), and allowed suppliers to determine their degree of concern for dependencies during operations as well as the likelihood of impacts. For climate transition and physical risks, suppliers were asked to assess the probability and severity of different risks—categorized by regulation, technology, market, reputation, for both the short and the long term. This helped to determine the materiality of transition and physical risks related to climate change.

Q What are nature-related dependencies?



A Corporate nature-related dependency

This refers to the environmental assets and ecosystem services that an organization relies on for operations². For example, a company may depend on services provided by nature, such as water flow, water quality regulation, pollination, and carbon sequestration.

A Corporate nature-related impacts

This refers to the changes to the state of the environment resulting from a company's operations, which in turn alter the environment's ability to provide services to society or economic activities. The term impact is neutral and may refer to negative effects (e.g., deforestation, water pollution) or positive effects (e.g., afforestation, lake restoration). These impacts may be direct, indirect, or cumulative.



Q What are nature-related impacts?

1. This definition has been adapted from the first edition of the TNFD Glossary, published in September 2023.
2. Ecosystem services: This refers to the benefits or contributions that ecosystems provide to economic activities and other human activities (SEEA, Version 29, 2021). These services are divided into three categories:
 - Provisioning services: the contributions to benefits that are extracted or harvested from ecosystems.
 - Regulating and maintenance services: the ability of ecosystems to influence climate, hydrological and biochemical cycles, and thereby maintain environmental conditions.
 - Cultural services: elements of ecosystems that provide experiential or cultural value.



List of Categories of Nature-Related Dependencies (Ecosystem Services and Abiotic Flows)

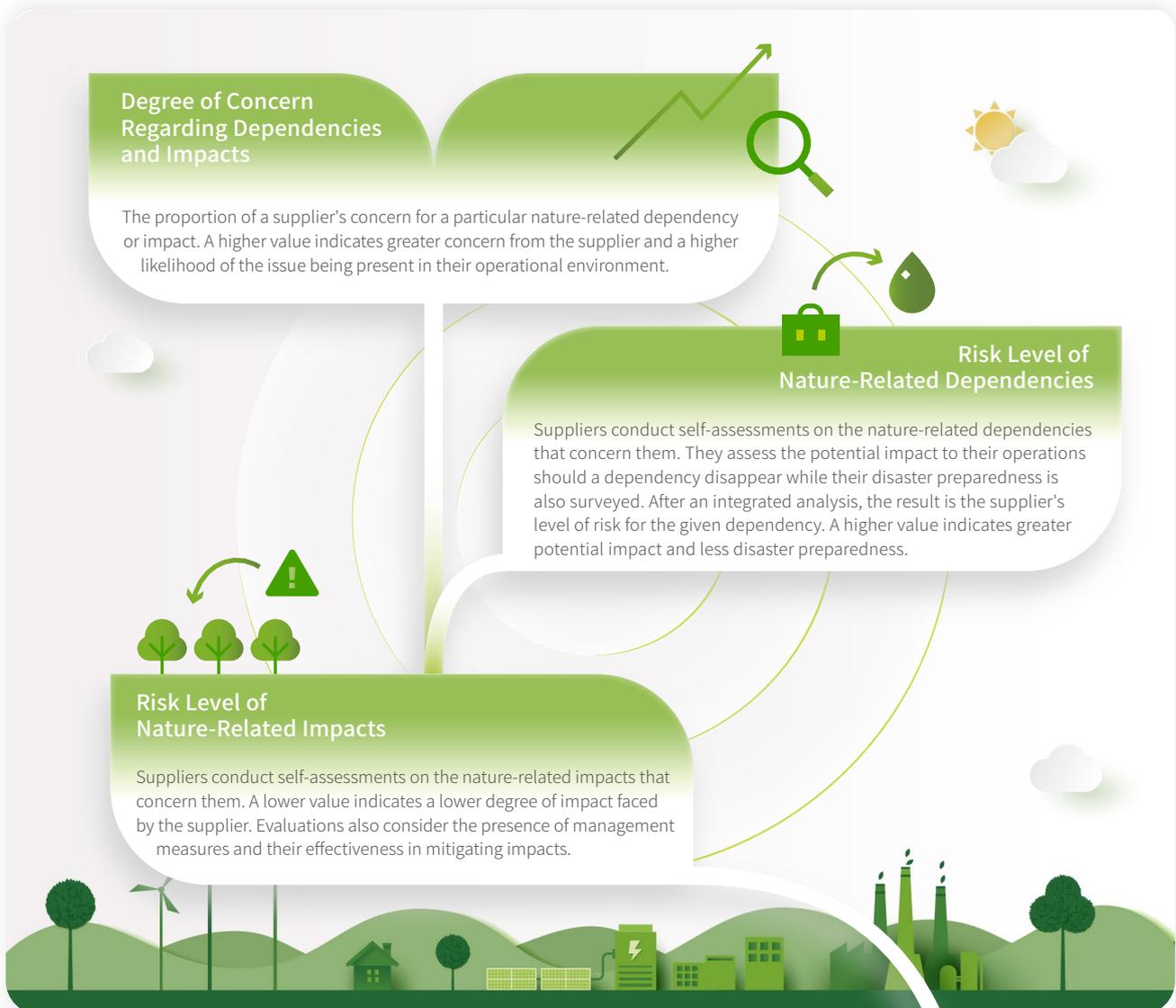
Main Service	No. Item (SEEA/TNFD)	Main Service	No. Item (SEEA/TNFD)	
<p>Provisioning services</p>	1 Biomass Provisioning	<p>Regulating & Maintenance Services</p>	16 Flood Mitigation: River Flood Prevention	
	2 Genetic Material		17 Storm Mitigation	
	3 Water Supply (Abiotic)		18 Noise attenuation	
<p>Regulating & Maintenance Services</p>	4 Global Climate Regulation		19 Pollination	
	5 Rainfall Pattern Regulation (Subcontinental Scale)		20 Biological Control: Pest Control	
	6 Local (Micro and Meso) Climate Regulation		21 Biological Control: Disease Control	
	7 Air Filtration		22 Nursery Population and Habitat Maintenance	
	8 Soil Quality Regulation		23 Other Regulating and Maintenance Services	
	9 Soil and Sediment Retention: Protection against Erosion		<p>Cultural services</p>	24 Recreation-Related Services
	10 Soil and sediment retention: Landslide Mitigation			25 Visual Amenity Services
	11 Solid Waste Remediation			26 Education, Scientific and Research Services
	12 Water Purification (Water Quality Regulation): Nutrient/Pollutant Retention and Decomposition		<p>Abiotic Flows</p>	27 Spiritual, Artistic and Symbolic Services
	13 Water Flow Regulation: Baseline Flow Maintenance			28 Metallic Minerals
	14 Water Flow Regulation: Peak Flow Mitigation			29 Non-Metal Minerals
	15 Flood Mitigation: Coastal Protection			30 Fossil Fuels



List of Categories of Nature-Related Impacts

Main Service	No. Item	Main Service	No. Item
Ecosystem Change	1 Terrestrial Ecosystem Use	Climate Change	9 GHG Emissions
	2 Fresh Water Ecosystem Use		10 Non-GHG Air Pollutant Emissions
	3 Marine Ecosystem Use	Pollution	11 Water Pollution
4 Water Resources Consumption	12 Soil Pollution		
5 Mineral Consumption	13 Solid Waste		
6 Fossil Resources Consumption	14 Invasive Species		
7 Indirect Energy Consumption	15 Disturbances		
Resource Consumption	8 Biomass Consumption	Invasive Species and Other	

Key Evaluation Indicators for Suppliers' Self-Evaluation of Nature and Climate



2 Nanya Technology's Nature and Climate Actions

Nanya Technology assesses its nature-related dependencies and impacts, and identifies related risks and opportunities. Through both transition and adaptation actions—which cover water resource management, energy management, and biodiversity conservation—we have strengthened our operational resilience, raised climate awareness among our employees, and ensured that we develop sustainably in the face of challenges related to nature and climate change.

2.1 Nature-Related Dependencies and Impacts

1. Identification Results of Biologically Sensitive Areas Near Operational Sites

Biologically Sensitive



Based on a comparative analysis using nine types of high-sensitivity biodiversity gis datasets, no highly sensitive areas fall within a 2-kilometer radius of nanya technology's operational sites.



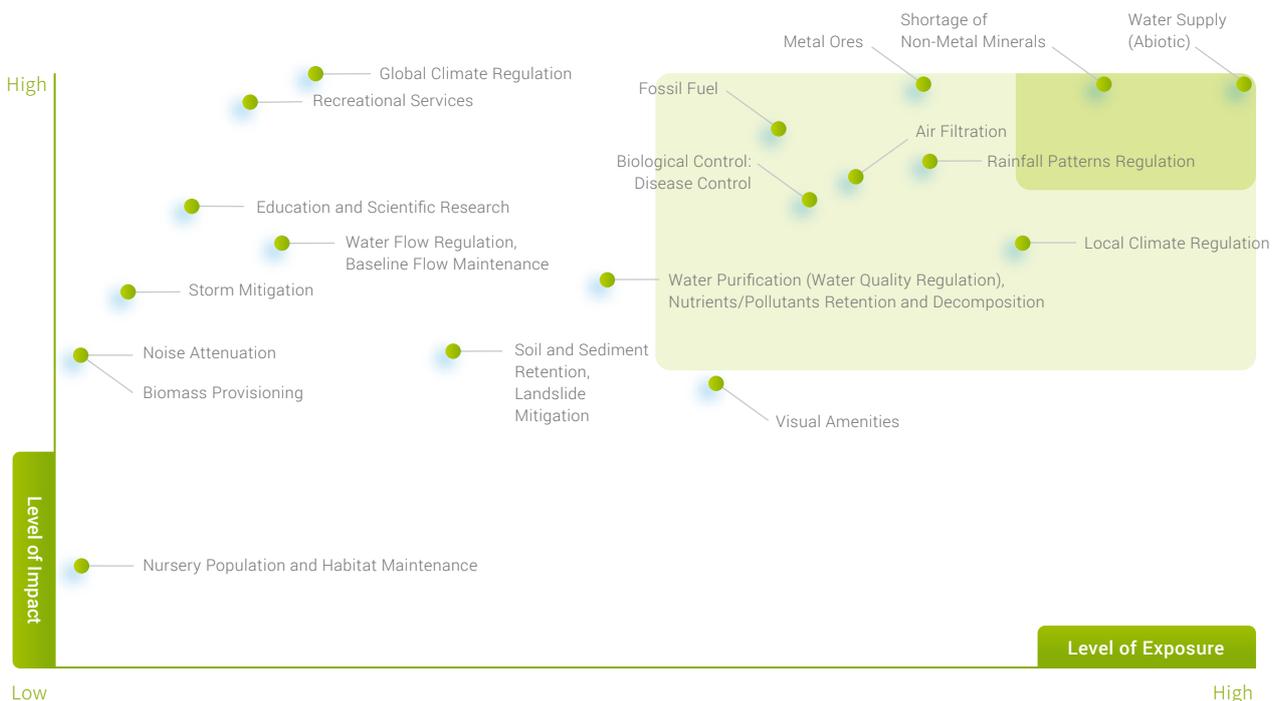
2. Materiality Identification Results of Nature-Related Dependencies

Nature-Related Dependencies



In 2024, we re-examined potential changes in the natural environment surrounding our operations and the nature-related dependency risks we face. Ultimately, we identified two nature-related dependency issues as the highest in priority: Water Supply and Non-Metallic Minerals. Additionally, six nature-related dependency issues were determined to be of high materiality: Metallic Minerals, Fossil Fuels, Rainfall Pattern Regulation, Local Climate Regulation, Disease Control, and Air Filtration.

Materiality Identification of Nanya Technology's Nature-Related Dependencies



We use dependency pathways based on Natural Capital and TNFD recommendations to conduct an in-depth analysis of how each nature-related dependency affects Nanya Technology, and identify potential driving factors outside of the Company.

Main Service	Subcategory (SEEA/TNFD)	Materiality	Relevance to Nanya Technology (Dependency Pathway)	Associated Risk	External Driver Analysis			
					Climate Change	Industry Policy	Society & Environment	Other Factors
 Provisioning Services	Water Supply (Abiotic)	Highest Priority	Inadequate water supply caused by drought, high turbidity from typhoons, or government-imposed restrictions can affect production processes, ultimately delaying product delivery and impacting revenue.	Seasonal water shortage	●	●	●	●
	Global Climate Regulation	Medium	Climate change has led to extreme weather events that have disrupted operations along the Panama Canal and certain sea and air freight lanes, impacting delivery schedules. Additionally, a warming atmosphere may trigger Arctic oscillation, resulting in colder cold waves in winter.	Disrupted air freight	●	●	●	●
 Regulating & Maintenance Services	Rainfall Pattern Regulation (Subcontinental Scale)	High	Reduced rainfall, extended droughts, or heavy rainfall can lead to inadequate water supply from source areas or flooding around operational sites, ultimately disrupting operations.	Heavy rain and floods	●	●	●	●
	Local (Micro and Meso) Climate Regulation	High	Driven by climate change, temperatures are reaching record highs every year, which increases Nanya Technology's electricity and water demands. Prolonged periods of extreme heat may lead to droughts, wildfires near operational sites, negative impacts on employee productivity, and hazards to employee health.	Extreme heat	●	●	●	●
	Air Filtration	High	If air quality worsens, clean room consumables will need to be replaced more frequently, raising the Company's costs. It can also pose negative impacts to employee health, especially those who need to work outdoors for prolonged periods during expansion projects.	Air quality deterioration	●	●	●	●
	Soil and Sediment Retention: Landslide Mitigation	Medium	Nanya Technology's facility is located on hilly terrain in Taishan District, New Taipei City, where debris flows are possible. Should an extreme weather event occur, it may lead to an increased risk of slope failure.	Risk of debris flows	●	●	●	●
	Water Purification (Water Quality Regulation): Nutrient/Pollutant Retention and Decomposition	Medium	Water quality is essential in semiconductor production. High turbidity or pollution in raw water increases the load on Nanya Technology's water purification equipment, raising the Company's costs.	Poor water quality caused by typhoons	●	●	●	●

Main Service	Subcategory (SEEA/TNFD)	Materiality	Relevance to Nanya Technology (Dependency Pathway)	Associated Risk	External Driver Analysis			
					Climate Change	Industry Policy	Society & Environment	Other Factors
 Regulating & Maintenance Services	Water Flow Regulation—Baseline Flow Maintenan	Medium	River flow is a key indicator of whether a location can provide a stable water supply. Inability to keep base flow at a stable level indicates the possibility of water supply disruptions during droughts, impacting local agriculture and residential water use.	Seasonal water shortage	●	●	●	●
	Biological Control: Disease Control	High	Studies indicate that climate change may increase the risk of zoonotic diseases, potentially triggering pandemics similar to COVID-19. Such outbreaks pose significant risks to the Company's operations.	Outbreak of epidemic	●	●	●	●
 Cultural Services	Recreation-Related Services	Medium	The greenery and landscaped environment surrounding Nanya Technology's facility provides an important recreational space for local residents (e.g., hiking and flower viewing).	Community perception and employees' work environment	●	●	●	●
	Visual Amenity Services	Medium	Greenery in the facility supports the physical and mental well-being of employees.	Community perception and employees' work environment	●	●	●	●
	Education, Scientific and Research Services	Medium	The ecosystem surrounding Nanya Technology's facility serves as a valuable setting for environmental education and family-oriented learning activities hosted by the Company.	Community perception and employees' work environment	●	●	●	●
 Abiotic Flows	Metallic Minerals	High	Shortages or disruptions in the supply of metallic materials will impact production. It may also raise equipment maintenance and product manufacturing costs, and even halt production.	Supply chain shortages	●	●	●	●
	Non-metallic minerals	Highest Priority	Geopolitical conflicts may lead to supply shortages or price increases. Nanya Technology relies heavily on specialty gases as key production materials. A lack of supply would impact the production process or raise procurement costs, increasing operational costs.	Supply chain shortages	●	●	●	●
	Fossil Fuels	High	Fossil fuels remain a major energy source for Nanya Technology's operations and are also the primary energy source for Taiwan's power grid. Geopolitical risks can drive up the cost of fossil fuels, in turn increasing electricity costs.	Supply chain shortages	●	●	●	●

3. Materiality Identification Results of Nature-Related Impacts

Nature-Related Impacts



In 2024, Nanya Technology identified a total of nine nature-related impacts. Following internal analysis and discussion, four were classified as the highest priority: Greenhouse Gas (GHG) Emissions, Water Use, Indirect Energy Use, and Solid Waste. Three impacts were determined to be of high materiality: Water Pollution, Non-GHG Air Pollutant Emissions, and Mineral Use.

Materiality Identification Results of Nanya Technology's Nature-Related Impacts



Nanya Technology conducted impact pathway analyses for different high-materiality nature-related impacts based on the Natural Capital Protocol and TNFD suggestions. This allows us to better understand how each type of impact is linked to the Company, the natural environment, and biodiversity.

Categories of Nature-Related Impacts	Subcategory	Materiality Identification	Impact Pathway	Corresponding Transition Risk
<p>Resource Exploitation</p>	Water Use	Highest Priority	Water is a critical ecosystem service on which Nanya Technology depends. The substantial water use in semiconductor manufacturing can also lead to additional impacts—from the competition for water with nearby communities or businesses to possible ecological degradation from overconsumption.	<ul style="list-style-type: none"> Risks and opportunities related to climate change
	Mineral Use	High	Use of minerals may lead to reduced supply in the future. Shortages will lead to rising prices, increasing the Company's procurement costs. It can also indirectly lead to biodiversity loss at mining sites.	<ul style="list-style-type: none"> Supply chain shortages
	Indirect Energy Use	Highest Priority	High electricity usage at our facilities may strain regional power supply, increase GHG and air pollutant emissions, and cause biodiversity loss near power stations.	<ul style="list-style-type: none"> Risks and opportunities related to climate change
<p>Pollution</p>	Non-GHG Air Pollutant Emissions	High	The Company's operations release air pollutants such as VOCs, which can impact human health and draw attention from stakeholders (e.g., local communities), potentially damaging our corporate reputation.	<ul style="list-style-type: none"> Air pollution regulations Odor Stricter emission controls

Categories of Nature-Related Impacts	Subcategory	Materiality Identification	Impact Pathway	Corresponding Transition Risk
 Pollution	Water Pollution	High	Nanya Technology discharges wastewater during its operations. Even if the wastewater discharged is compliant with regulations, it may still exceed the local environmental capacity, leading to biodiversity loss.	<ul style="list-style-type: none"> Water pollution regulations Poor river water quality Stricter emission controls
	Solid Waste	Highest Priority	Our operations generate large volumes of industrial and general solid waste. Not only must qualified vendors be selected to handle waste, but improper handling can result in various negative environmental impacts.	<ul style="list-style-type: none"> Waste regulations

In accordance with the third phase of the Global Life Cycle Impact Assessment Method (GLAM)—published in 2024 by the UN Life Cycle Initiative—impact categories are organized into the following table by analyzing the pathways through which they contribute to potential damages across different environments.

Categories of Nature-Related Impacts	Subcategory	Potential Damage				
		Climate Change	Human Health	Biodiversity (Ecosystem Quality)		
		Atmosphere	None	Terrestrial	Freshwater	Marine
Ecosystem Change	Terrestrial Ecosystem Use	●	○	●	○	○
 Resource Exploitation	Water Use	○	●	○	●	○
	Mineral Use	○	○	○	○	○
	Fossil Fuel Use	●	○	○	○	○
	Indirect Energy Use	●	●	●	●	●
Climate Change	GHG Emissions	●	○	○	○	○
 Pollution	Non-GHG Air Pollutant Emissions	●	●	●	●	●
	Water Pollution	○	○	●	●	●
	Solid Waste	●	●	●	●	●

- Studies found that the impact pathway would directly lead to significant effects.
- Studies found that the impact pathway would directly lead to effects.
- The impact does not originate from Nanya Technology directly, but from suppliers or
- According to current scientific evidence, no impact or very minimal impact has been observed, and exposure risk is deemed to be very low.

Nanya Technology has long implemented a [value chain sustainability impact review](#), identifying GHG emissions as the material topic with the highest negative externality, followed by water use, process gas emissions, and waste. These findings closely align with the results from the identification of material nature-related issues presented in this report, providing dual verification. The monetization of the costs of externalities in corporate sustainability perfectly matches the material topics identified through the Company's operations.

In summary, the identification results of nature-related dependencies and impacts show that Nanya Technology has a high level of dependency on water resources, climate regulation, and mineral and non-mineral raw materials. Also, impacts arising from GHG emissions are identified as priority issues. In response, the Company has launched relevant management strategies and measures, and established indicators for monitoring and tracking.

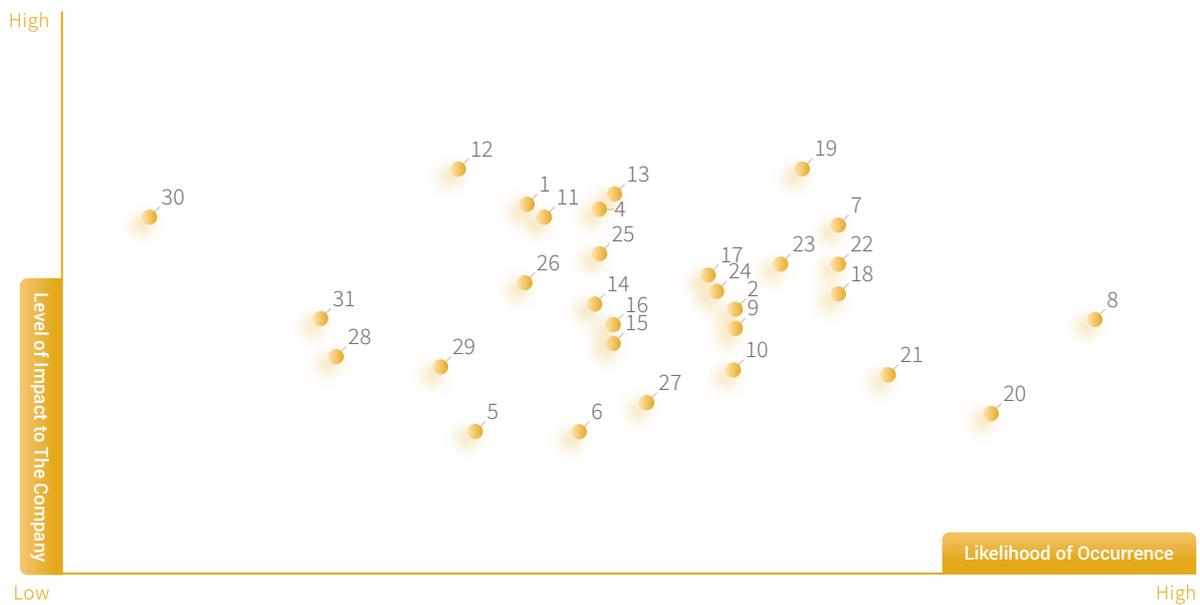
4. Identification of Material Climate Change-Related Risk Factors

Climate Change-Related



In 2024, Nanya Technology reviewed climate-related risks across previously identified regulatory (both existing and new), reputational, market, technological, and physical (both immediate and long-term) categories. An internal materiality analysis was conducted based on each risk's likelihood and potential impact on the Company's operations. The scope of the value chain analysis covers the upstream, the Company's own operations and the downstream while the time scales include short-term, mid-term and long-term. The results showed that the most material risk was the imminent implementation of a carbon fee in Taiwan, which is expected to increase Nanya Technology's costs. The second most material risk is carbon pricing, which will influence budget allocation within the Company. Ranked third to fifth are potential instability in power supply arising from the development of renewable energy, s' demands for product decarbonization, and market demand for low-carbon products. All of these are linked to Nanya Technology's transition toward low-carbon operations and market demand for products. Nanya Technology will develop financial impact analyses, identify opportunities, and formulate response strategies for the top ten climate-related risk factors identified.

Identification Results of Material Climate Change-Related Risk Factors



No.	Risk Factor	Ranking	Materiality	No.	Risk Factor	Ranking	Materiality
1	Regulatory risk—2050 net zero target	15	◆	16	Reputational risk—stakeholder/investor concerns	22	◆
2	Regulatory risk—carbon tariffs at borders	14	◆	17	Market risk—customer demand for higher percentage of renewable energy use	13	◆
3	Regulatory risk—carbon fee imposition and regulations on carbon inventory	1	◆	18	Technology risk—demand for energy conservation	6	◆
4	Reputational risk—net-zero target	10	◆	19	Technology risk—stability of power supply	3	◆
5	Reputational risk—building climate awareness among employees	30	◆	20	Reputational risk—sustainability ratings and disclosures	9	◆
6	Reputational risk—building climate awareness among executives	26	◆	21	Reputational risk—collaboration on sustainability issues across the industry chain	11	◆
7	Market risk—demand for product decarbonization	4	◆	22	Market risk—market expansion for products	5	◆
8	Technology risk—internal carbon pricing	2	◆	23	Technology risk—emerging technologies and innovative R&D	6	◆
9	Technology risk—high-quality carbon credits	15	◆	24	Technology risk—strategies for green patents	12	◆
10	Regulatory risk—imposition of water conservation charges	20	◆	25	Long-term—water shortage	15	◆
11	Reputational risk—water shortage affecting stock performance	15	◆	26	Long-term—long-term changes in rainfall patterns	23	◆
12	Market risk—water shortage affecting revenue	15	◆	27	Long-term—extreme heat	25	◆
13	Technology risk—investment in water recycling systems	8	◆	28	Immediate—heavy rain and floods	30	◆
14	Regulatory risk—regulations related to energy	21	◆	29	Immediate—excessive turbidity in raw water due to landslides or typhoons	27	◆
15	Regulatory risk—regulations related to environmental impact assessments and construction	24	◆	30	Immediate—landslides/debris flow	28	◆
				31	Immediate—extreme weather events	29	◆

◆ High ◆ Medium ◆ Low

2.2 Nature- and Climate-Related Risks and Opportunities

1. Risks, Opportunities, and Response Strategies Concerning Nature-Related Dependencies

Nature-Related Dependencies



In line with the Company's Risk Management Procedure, we assess the materiality of risks and opportunities arising from various scenarios related to natural factors and climate change. Relevant response plans are formulated, integrated into the Enterprise Risk Management (ERM) framework, and regularly confirmed by senior management.

Nanya Technology identified ecosystem services on which it depends, and nature-related dependencies with varying degrees of physical risk due to external factors. These dependencies are matched with potential long-term and immediate physical risks. For example, climate change leads to inadequate water supply, creating a long-term physical risk of water scarcity. Through workshops, Nanya Technology collaborated with designated personnel from relevant departments to brainstorm and compile different physical risks, formulate management measures to respond to those risks, and explore potential opportunities, hoping to reduce risk and achieve sustainable operations.

Risk Type	Risk Item	Responsible Unit	Nature-Related Dependency (Ecosystem Service)	Materiality	Financial Impact Analysis	Potential Opportunity	Response Strategy
Long-Term Physical Risk	Seasonal water shortages	Facility Division Plant Director's Office	Water Supply	Highest Priority	Revenue Seasonal water shortages driven by climate change impact on production capacity and revenue.	Corporate performance Improvement of water conservation performance. Sustainable resource Enhancement of the Company's drought resilience and water recycling capabilities.	Production via green technology Reduction of dependency
	Extreme Heat	Facility Division Plant Director's Office Human Resources Division	Local (Micro and Meso) Climate Regulation	High	Operational costs Summer heat would increase the load on ACs and electricity demand.	Corporate performance Improvement of the Company's energy efficiency	Early warning systems
Immediate Physical Risk	Heavy Rain and Floods	Facility Division Plant Director's Office Sustainability and Risk Management Division	Rainfall Pattern Regulation (Subcontinental Scale)	High	Capital expenditure Heavy rainfall may cause flooding near facilities and disrupt production. Operational costs Heavy rainfall would delay construction projects.	Corporate performance Reduction of short-term risks during operations and disaster-related losses	Early warning systems Enhancing resilience
	Disrupted Air Freight	Safety & Hygiene Department Plant Director's Office Facility Division	Global climate regulation ¹	Medium	Procurement costs Droughts or reduced water levels in key routes due to climate change would drive up shipping costs.	Corporate performance Improvement of organizational responsiveness	Early warning systems
	Outbreak of Epidemic	Human Resources Division Safety & Hygiene Department	Biological Control: Disease Control	High	Operational costs Disruptions from pandemics would increase overall operational costs.	Corporate performance Reduction of medium- to short-term risks	Early warning systems

Risk Type	Risk Item	Responsible Unit	Nature-Related Dependency (Ecosystem Service)	Materiality	Financial Impact Analysis	Potential Opportunity	Response Strategy
Immediate Physical Risk	Air Quality Deterioration	Safety & Hygiene Department Plant Director's Office Public Utility Department	 Air filtration	High	Capital expenditure Increased cost to filter air for clean rooms.	Corporate performance Reduction of medium- to short-term risks	Early warning systems
	Risk of Debris Flows	Public Works Department	 Soil and Sediment Retention: Landslide Mitigation ²	Medium	Capital expenditure Occurrence of debris flows would damage capital equipment. Operational costs Operational disruptions from debris flows would increase operational costs.	Corporate performance Improvement of organizational responsiveness Reputation Slope stabilization helps to reduce rockfall risks for nearby residents, improving corporate reputation.	Early warning systems
Long-Term/Immediate Physical Risk	Poor Water Quality Caused by Typhoons	Facility Division	 Water Purification (Water Quality Regulation): Nutrient/Pollutant Retention and Decomposition	Medium	Operational costs Additional chemicals would be required to treat high-turbidity raw water. Capital expenditure Investment in new treatment equipment will be required.	Corporate performance Improvement of organizational responsiveness Sustainable resource use Water use	Early warning systems
	Supply chain shortages	Materials & Assets Division	 • Shortage of non-metallic minerals • Metallic Minerals • Fossil Fuels	Highest Priority	Procurement costs Geopolitical conflicts would cause shortages or price hikes in specific minerals and fuels.	Corporate performance Resource efficiency	Early warning systems
Long-Term Physical Risk	Community perception and employees' work environment	Human Resources Division Public Works Department	 Visual Amenity Services	Medium	Operational costs Poor working conditions may lead to a higher turnover rate. Reputational risk Inadequate greening around facilities may lead to complaints from local residents.	Reduction in turnover rate Ecological conservation Improvement of corporate reputation	Enhancing resilience

Note 1: Although "global climate regulation" is categorized as a nature-related dependency of medium materiality for Nanya Technology, climate change is a global concern and a key sustainability issue for the Company. Therefore, all related risks are subject to management oversight.

Note 2: "Soil and sediment retention: Landslide mitigation" is also a nature-related dependency of medium materiality, but debris flow is considered a priority in risk management because the Company is located in a hilly area and is currently undergoing expansion.



2. Risks, Opportunities, and Response Strategies Concerning Nature-related Impacts

Nature-Related Impacts

Nanya Technology's nature-related risks are categorized into four groups: Regulatory, Reputational, Market, and Technology Risks. Regulatory risks arise from government requirements for sustainability disclosures. Market risks relate to growing investment in environmental governance by various countries and customers' expectations regarding Nanya Technology's performance in environmental governance. Technology risks stem from the possibility that industry peers may develop products and services with greater environmental benefits, thereby generating associated risks. Last but not least, reputational risks concern the emphasis that stakeholders—such as investors, local residents, and employees—place on corporate reputation.

Risk Category	Risk Subcategory	Description	Financial Impact	Opportunity for Organization	Impact Scope	Time of Occurrence	Response Strategy
<p>Regulatory Risk</p>	Demand for information disclosure	✔ Meeting sustainability disclosure requirements increases labor costs.	Operational costs	Alignment with sustainability ratings	Internal operations	Short-term	Sustainability governance
	Air pollution regulations	✔ Costs to comply with air quality regulations	Operational costs	Reduction of expenditures on air pollution control fees	Internal operations	Medium-term	Production via green technology
	Water pollution regulations	✔ Costs to comply with air quality regulations	Operational costs	Prevention from water pollution penalties	Internal operations	Medium-term	Production via green technology
	Waste regulations	✔ Costs to comply with air quality regulations	Operational costs	Reduction of expenditures on outsourcing waste disposal	Internal operations	Medium-term	Production via green technology
<p>Reputational Risk</p>	Poor performance in sustainability ratings	✔ Poor sustainability ratings reduce the chance to be included in specific indices.	Enhancement of corporate image and social capital	Opportunities to be considered for specific sustainability investments	Internal operations	Medium-to long-term	Sustainability governance
	Odor	✔ Residents near facilities may perceive odors as pollution caused by the Company.	Corporate reputation	Installment of monitoring equipment around facilities	Internal operations	Immediate	Production via green technology Actions beyond the value chain
	Poor river water quality	✔ Deterioration of river water quality may provoke protests from nearby residents.	Corporate reputation	Development of new treatment technologies to improve pollutant removal efficiency or recover water resources	Internal operations	Immediate	Production via green technology Actions beyond the value chain
<p>Market Risk</p>	Procurement costs for key materials increase	✔ External procurement of key minerals may increase procurement costs due to climate change and geopolitical conflicts.	Procurement costs	Reduction of supply chain volatility	Internal operations Upstream suppliers	Short-term	R&D of low-carbon products Supply chain management
<p>Technology Risk</p>	Emerging technologies and innovative R&D	✔ Procurement of new process equipment ✔ R&D costs	Capital expenditure Operational costs	Relationships Maintenance with Customers	Internal operations	Short-term	R&D of low-carbon products
	Stricter emission controls	✔ Procurement of new pollution control equipment ✔ Treatment costs	Capital expenditure Operational costs	Alignment with sustainability ratings Market development for new technologies	Internal operations	Medium-term	Production via green technology

3. Risks, Opportunities, and Response Strategies Concerning Climate-related Impacts

Climate-Related Impacts



Nanya Technology has analyzed the financial impacts of highly material risk factors related to climate change, and developed corresponding response strategies while exploring opportunities arising from these risks.

These risk categories include short-term risks such as energy regulations and carbon fees, which are expected to occur within one year. Other short-term risks, such as increased sustainability disclosure requirements, imposition of water conservation charges, and customer demand for decarbonization, have already occurred. As global sustainability trends evolve and stakeholders increase their focus on environmental issues, carbon credit systems—still under development internationally—have been identified as a long-term risk. Different nature- and climate-related risks may pose varying levels of impact on sustainable operations. In response to sustainability trends, Nanya Technology has identified both transition risks and opportunities associated with nature- and climate-related impacts.

Risk Category	Risk Subcategory	Description	Climate Change Risk Factors	Financial Impact	Opportunity for Organization	Impact Scope	Time of Occurrence	Response Strategy
 <p>Regulatory Risk</p>	Imposition of carbon fees	<ul style="list-style-type: none"> Imposition of carbon fees would increase operational costs of facilities. Suppliers' operational costs are passed on to Nanya Technology. 	Carbon fee imposition and regulations on carbon inventory	Operational costs Procurement costs	<ol style="list-style-type: none"> Carbon fee reduction Alignment with sustainability ratings Fulfillment of customer demands 	Internal operations Upstream suppliers	Short-term	Production via green technology Supply chain management
	Rising water costs	<ul style="list-style-type: none"> Imposition of water conservation charges would increase operational costs of facilities. 	Imposition of water conservation charges	Operational costs	<ol style="list-style-type: none"> Reduction of expenditures on water conservation charges Alignment with sustainability ratings 	Internal operations	Short-term	Production via green technology
	Energy regulations	<ul style="list-style-type: none"> Regulatory demand for obligatory capacity and installation of renewable energy equipment Expense of renewable energy procurement 	Demand for energy conservation Stability of power supply	Capital expenditure Procurement costs	<ol style="list-style-type: none"> Carbon fee reduction Alignment with sustainability ratings Fulfillment of customer demands 	Internal operations	Short-term	Production via green technology
 <p>Reputational Risk</p>	Carbon reduction targets	<ul style="list-style-type: none"> To achieve Nanya Technology's near-term SBTs, additional investments in renewable energy and carbon reduction equipment is required. 	Net-zero targets	Corporate reputation Operational costs	<ol style="list-style-type: none"> Carbon fee reduction Alignment with sustainability ratings Fulfillment of customer demands 	Internal operations	Medium-term	Production via green technology
	Lack of collaboration across the industry chain and industry	<ul style="list-style-type: none"> Insufficient emission reductions by suppliers would harm corporate image. Disruptions across the supply chain would increase operational costs. Lack of collaboration with industry peers would increase operational costs. 	Collaboration across the industry chain	Corporate reputation Operational costs	<ol style="list-style-type: none"> Building a supply chain that is more resilient and with lower risk Working with industry peers to advocate for a reduction in audit costs 	Upstream suppliers	Medium-term	Supply chain management

Risk Category	Risk Subcategory	Description	Climate Change Risk Factors	Financial Impact	Opportunity for Organization	Impact Scope	Time of Occurrence	Response Strategy
 <p>Reputational Risk</p>	Insufficient climate awareness among stakeholders	<ul style="list-style-type: none"> Lack of climate awareness may hinder the implementation of internal carbon pricing. The Company faces challenges with external communication. 	Internal carbon pricing	Increase in operational costs	<ol style="list-style-type: none"> Build solid relationships with employees Build robust capability in corporate governance 	Internal operations	Long-term	Actions beyond the value chain
 <p>Market Risk</p>	Demand for products/services that are low-carbon and use renewable energy	<ul style="list-style-type: none"> Cost of investments in R&D Cost of renewable energy procurement Low-carbon products may lack competitiveness, or the market may not be mature yet. 	Market expansion for products Demand for product decarbonization	Increase in operational costs Reduced revenue	<ol style="list-style-type: none"> Develop market for low-carbon products Build stronger relationships with customers 	Internal operations Downstream customers	Short-term	R&D of low-carbon products
 <p>Technology Risk</p>	Electricity supply and management	<ul style="list-style-type: none"> Instability in power supply requires investment in electricity-saving equipment and electricity management measures. 	Demand for energy conservation Stability of power supply	Capital expenditure Operational costs	<ol style="list-style-type: none"> Carbon fee reduction Alignment with sustainability ratings Fulfillment of customer demands 	Internal operations	Short-term	Production via green technology
	Investment in water reclamation systems	<ul style="list-style-type: none"> Water shortages arising from climate change require installation of new water reclamation systems. 	Investment in water recycling systems	Capital expenditure Operational costs	<ol style="list-style-type: none"> Alignment with sustainability ratings Reduction of expenditures on water conservation charges 	Internal operations	Short-term	Production via green technology
	Stricter PFC emission reduction technologies	<ul style="list-style-type: none"> Procuring new pollution control equipment aids in reaching PFC reduction targets and lowers carbon fee rates. 	Imposition of carbon fees	Capital expenditure Operational costs	<ol style="list-style-type: none"> Alignment with sustainability ratings Market development for new technologies Carbon fee rates reduction 	Internal operations	Medium-term	Production via green technology
	Carbon credit issues	<ul style="list-style-type: none"> New carbon credit regulations and related technological developments require further research. 	Carbon credit issues	Operational costs	<ol style="list-style-type: none"> Opportunities in carbon credit applications and carbon finance participation 	Internal operations	Long-term	Actions beyond the value chain

2.3 Nature and Climate Scenario Analysis

1. Nature Scenario Analysis (Storyline)

This year marks the first time Nanya Technology has incorporated nature scenarios into its organizational operations and followed the TNFD framework. In Chapter 2-1, Nanya Technology identified key drivers (Step 1), and then used the TNFD guidelines to construct scenarios (Steps 2 and 3). Ultimately, the Company completed a risk variation analysis of nature dependencies and impacts (Step 4).



Integrating Climate Scenarios into Nature Scenarios

In the TNFD guidelines, scenario analysis can be conducted in an exploratory manner, where scenarios are defined as plausible future storylines. Unlike traditional climate change scenario modeling, TNFD requires consideration of regional and locational differences, as well as uncertainties within human systems, in order to construct various transition and physical risk scenarios. The TNFD recommends that companies consider two key indicators when developing scenarios. The first is alignment, and the second is the severity of ecosystem degradation. Alignment refers to the degree of global uniformity in governmental regulations and policy frameworks. High alignment indicates stricter and more consistent nature-related regulations across countries, which in turn pushes market expectations for companies to meet specific standards—thus increasing transition risks for businesses. On the other hand, ecosystem degradation reflects the extent to which natural systems have deteriorated. The more degraded the ecosystem, the fewer services it can provide, leading to an increased frequency and intensity of natural disasters. This results in heightened physical risks faced by companies.

The climate scenarios available under the TCFD framework are highly diverse. To integrate both nature and climate-related considerations, Nanya Technology has chosen to adopt the Shared Socioeconomic Pathways (SSPs) framework used in the IPCC Sixth Assessment Report (AR6). The SSPs are based on different global socioeconomic trajectories and their associated greenhouse gas emission pathways. The AR6 ultimately outlines five representative SSP pathways, each reflecting varying levels of challenges related to climate mitigation and adaptation. Mitigation challenges refer to the extent to which governments have implemented policies and regulations to reduce greenhouse gas emissions. When such policies are lacking, it indicates a high global challenge in mitigating climate change; however, the transition risk faced by businesses remains relatively low. On the other hand, adaptation challenges reflect the degree of international cooperation in strengthening infrastructure to cope with extreme weather events and natural disasters driven by climate change. When adaptation challenges are high, it implies limited collaboration among countries, weakened societal infrastructure, and lower resilience to natural disasters, thereby increasing the physical risks faced by businesses.

Since both climate and nature-related scenarios recommended by the TNFD guidelines can fundamentally be designed based on physical and transition risks, the SSP climate scenarios and TNFD nature scenarios can be integrated by aligning them according to the respective levels of physical and transition risks. Taking into account both the SSP and TNFD scenario narratives, Nanya Technology has selected SSP1-1.9 and SSP3-7.0 as the primary climate scenarios. These have been matched with corresponding TNFD nature-related scenarios, as summarized in the table below:

IPCC AR6 SSP Climate Scenarios					Corresponding TNFD Scenarios			
Representative Scenarios of AR6	Mitigation Challenges	Adaptation Challenges	Temperature Increase (°C)	Climate Transition Risk	Non-Climate Transition Risk	Physical Risk	TNFD Scenarios and Their Corresponding Names	Adopted Scenarios
SSP1-1.9	Low	Low	1.4	High	High	Low	Nature #1: Ahead of the Game	V
					Low	Low	Nature #4: Back of the List	V

IPCC AR6 SSP Climate Scenarios					Corresponding TNFD Scenarios			
Representative Scenarios of AR6	Mitigation Challenges	Adaptation Challenges	Temperature Increase (°C)	Climate Transition Risk	Non-Climate Transition Risk	Physical Risk	TNFD Scenarios and Their Corresponding Names	Adopted Scenarios
SSP3-7.0	High	High	3.6	Low	Low	High	Nature #3: Sand in the Gears	V
					High	High	Nature #2: Go Fast or Go Home	

Finally, we consolidated the SSP and TNFD scenario storylines and excluded the TNFD Nature #2 scenario, "Go Fast or Go Home" following scenario after further analysis. This exclusion was because the narrative of this scenario is based on a global abandonment of emission reductions while more stringent demands are simultaneously imposed on nature conservation and ecological restoration. This contradicts the current policy development trends across countries worldwide. Therefore, we judged this scenario to be highly unlikely and excluded it from our scenario analysis. The inclusion of Nature #4 scenario, "Back of the List" in the TNFD scenarios reflects the consideration that many government departments may prioritize substantial climate mitigation policies and allocate funding accordingly, while neglecting nature conservation and related funding initiatives. This is a situation that could realistically occur in many regions. Finally, we consolidated the climate and nature scenarios and summarized their scenario storylines in the table below:

Scenario Description	SSP1-1.9 — Ahead of the Game	SSP1-1.9 — Back of the List	SSP3-7.0 — Sand in the Gears
 <p>Scenario Storyline</p> <p>Countries work closely together while governments implement extensive regulations on climate mitigation and pollution reduction. As climate change gradually slows down, the rate of ecosystem degradation caused by climate change also decreases. In this scenario, companies face high transition risks but low physical risks.</p>	<p>Countries collaborate closely while governments invest substantial resources in climate mitigation but neglecting regulations on pollution reduction. As climate change gradually slows down, the rate of ecosystem degradation caused by climate change also decreases. In this scenario, companies face high climate transition risks but lower non-climate transition risks. However, due to the slowed rate of ecosystem degradation caused by climate change, the physical risks faced by companies are also low.</p>	<p>The international system is fragmented due to trade barriers and the rise of nationalism. Although Taiwanese government implements regulations on climate mitigation and pollution reduction, the lack of international cooperation results in a global failure to curb climate change. Consequently, climate change intensifies, ecosystem functions gradually degrade, and natural disasters increase. Due to the failure of the global cooperative system, a large number of infrastructures lack the capacity to respond to extreme weather events, thereby increasing the physical risks faced by enterprises.</p>	

Based on the above narrative analyses, the potential transition and physical risks faced by enterprises under the three scenario storylines can be described to facilitate the analysis of Nanya Technology's risk profile changes under these scenarios.

Climate Scenarios	SSP1-1.9	SSP1-1.9	SSP3-7.0-
Nature Scenarios	Ahead of the Game	Back of the List	Sand in the Gears
 <p>Transition Risks</p>	<p>Climate Change Mitigation</p> <p>Companies need to achieve Science-Based Targets (SBT), facing significant transition pressures related to climate change.</p> <p>Mitigation of Other Environmental Issues</p> <p>Stricter regulations on water resources and air pollution emissions require companies to take proactive measures.</p>	<p>Companies need to achieve Science-Based Targets (SBT), facing significant transition pressures related to climate change.</p> <p>Companies do not need to face stricter non-greenhouse gas emission reduction requirements.</p>	<p>Although global decoupling is gradually taking place, local regulations in Taiwan continue to move toward transition, so companies will still experience a slight increase in transition risk.</p> <p>Companies face tightened regulations on water resources and air pollution emissions, resulting in a slight increase in their transition risks.</p>
 <p>Physical Risk</p>	<p>Natural Disasters</p> <p>Climate change-induced disasters will not show significant changes, resulting in fewer issues that the company needs to address.</p> <p>Material changes</p> <p>Due to strong international cooperation, the material risks caused by trade barriers are also relatively low.</p>	<p>Climate change-induced disasters will not show significant changes, resulting in fewer issues that the company needs to address.</p> <p>Due to strong international cooperation, the material risks caused by trade barriers are also relatively low.</p>	<p>The accelerated pace of climate change leads to faster ecosystem degradation and an increase in natural disasters, requiring the company to allocate substantial resources for adapting to these natural hazards.</p> <p>Due to the lack of international cooperation, trade barriers have caused significant increases in material costs.</p>

Analysis of Risk Variations in Nanya Technology's Nature-Related Dependencies and Impacts under Nature Scenarios

Nanya Technology conducted a qualitative analysis of the risks related to material dependencies and impacts on nature under these three scenarios to understand how each risk varies across different contexts.

Under the SSP1-1.9 "Ahead of the Game" scenario, most physical risks stabilize or slightly decrease as global warming gradually returns to 1.5°C, bringing climate-related disasters back to historical levels. However, to achieve the transformation targets, regulations and technological risks related to pollution reduction significantly increase, especially with more stringent requirements for sustainability-related information disclosure. Additionally, material costs rise slightly due to the higher expenses associated with the transition.

Under the SSP1-1.9 "Back of the List" scenario, physical risks are similar to those in the SSP1-1.9 "Ahead of the Game" scenario. However, transition risks only involve climate-related regulatory requirements, without the need to comply with stricter non-climate-related regulations. As a result, the increase in transition risks is lower compared to the SSP1-1.9 "Ahead of the Game" scenario.

In the fragmented and challenging future of SSP3-7.0 "Sand in the Gears," some countries will impose reduction requirements while others will not, causing climate change to continue worsening and physical risks to increase. Transition risks will also rise slightly, considering that the Taiwanese government's self-imposed regulations may ease but will neither stop nor relax entirely. In such a future, with international trade barriers significantly increased, Nanya Technology, which relies heavily on imported materials, will face higher procurement costs and a greater risk of supply chain shortages.

Risk Types	Risk Variability	SSP1-1.9- Ahead of the game	SSP1-1.9- Back of the List	SSP3-7.0- Sand in the Gears
Long-term Physical	Seasonal Water Supply Shortage	●	●	●
	Extreme Heat	●	●	●
Instant Physical	Heavy Rain and Flooding	●	●	●
	Shipping Disruption	●	●	●
	Outbreak of Epidemic	●	●	●
	Reduced Air Quality	●	●	●
Other Physical	Risk of Debris Flows	●	●	●
	Poor water quality caused by typhoons	●	●	●
	Shortages of Supply Chain	●	●	●
Regulation	Demand for Information Disclosure	●	●	●
	Related Regulations of Air Pollution	●	●	●
	Related Regulations of Water Pollution	●	●	●
	Related Regulations of Waste	●	●	●
Reputational Risk	Poor performance on sustainability ratings	●	●	●
	Odor	●	●	●
	Poor river water quality	●	●	●
	Increase in procurement cost of key materials	●	●	●
Technology	Emerging Technologies and Innovative R&D	●	●	●
	Stricter Emission Control Technology	●	●	●

Risk is significantly reduced Risk is slightly reduced Risk remains at the same level
 Risk is slightly increased Risk is significantly increased There is a significant increase in risk

2. Financial Impact Analysis of Nature- and Climate-Related Risks

Governments across the globe are internalizing the external costs of GHG emissions and encouraging GHG emitters to reduce carbon emissions in response to cost pressures. To address to this trend, Nanya Technology has estimated the financial impact of carbon fees (taxes) based on three scenarios centering around the phase 2 standard rate announced by Taiwan's Ministry of Environment and the carbon fees (taxes) published by the International Energy Agency (IEA) in its World Energy Outlook (WEO). Additionally, Nanya Technology examines its GHG reduction schemes, identifying and selecting the low-carbon energy approaches with the most potent carbon reduction potential. By referencing the Regulations Governing Self-determined Reduction Plans announced by Taiwan's Ministry of Environment and the SBT reduction pathway, the Company developed 4 scenarios assuming both national and international carbon reduction goals are to be achieved by 2030, and estimates the maximum financial impact of renewable energy purchase costs.

However, if we further compare the impact of the carbon tax (fee) with the impact of renewable energy, we can find that under the assumption of a high carbon tax (fee), early deployment of renewable energy and other low-carbon power use can create cost-saving benefits and relatively reduce the operational burden.

Scenario Analysis of Transition Risks in Nanya Technology's Operations

Financial Parameter	Scenario	2030 Impact to Cost (NT\$ million)	Assessment Methodology
Carbon Tax/Fee Imposition	National Target	176-432	Based on data from the Ministry of Environment's 5th Carbon Fee Review Meeting; estimated a standard Phase 2 rate of NT\$500–1,200 per metric ton of carbon
	2°C target	437-1,474	Based on IEA WEO 2024, APS; estimated US\$40–135 per metric ton of carbon
	1.5°C target	983-1,529	Based on IEA WEO 2024, NZE; estimated US\$ 90–140 per metric ton of carbon
Use of low-carbon energy	Self-initiated reduction plan	105-227	Clean energy investment required to qualify for carbon fee discount Rate B: 0.35%–0.76%
	National Target	299-359	Clean energy investment required to achieve 10% reduction from 2020 levels: 0.35%-0.76%
	SBT 2°C target	359-508	Clean energy investment required to achieve 25% reduction from 2020 levels: 1.2%-1.7%
	SBT 1.5°C target	478- 628	Clean energy investment required to achieve 42.5% reduction from 2020 levels: 1.6%-2.1%

To assess the physical risks arising from climate change, Nanya Technology conducted an analysis based on future climate modeling data from the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP). Using climate data of scenarios from RCP2.6 to RCP8.5, the analysis evaluates operational risks for Nanya Technology's facilities and northern Taiwan's catchment areas during the mid-century period (2040–2060). Risks include the impacts of rising temperatures, increased rainfall, and longer dry spells (for more details, please refer to section 2.5 for adaptation measures in response to physical risks).

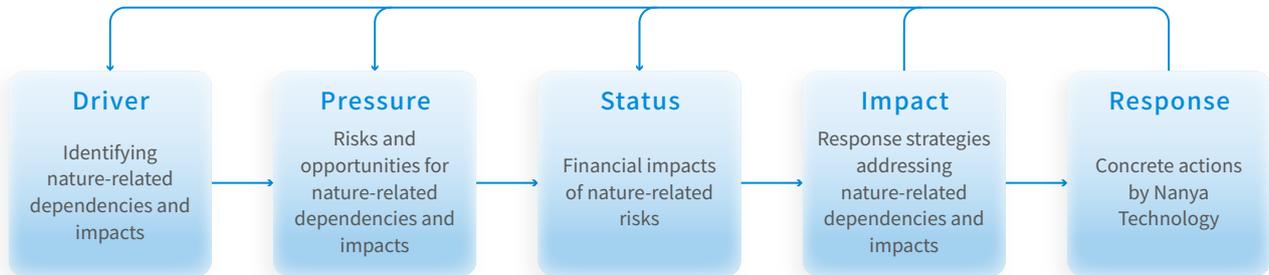
Scenario Analysis of Physical Risks

Scenario	Mid-Century Risk	Potential Impacts (Including Financial Impacts)	Operational and Financial Impacts
RCP2.6	 <ul style="list-style-type: none"> • Dry days increase by an average of 1.2 days • Dry season streamflow decreases by 6% 	<ul style="list-style-type: none"> • Water shortages and restrictions impact operations 	<ul style="list-style-type: none"> • Our facilities currently have a comprehensive framework for water resource management and a contingency plan in place to address water restrictions.
	 <ul style="list-style-type: none"> • Temperatures increase by an average of 1.2°C • Heatwave days increase by an average of 2.7 times 	<ul style="list-style-type: none"> • Electricity used for air conditioning increases by 3% • Facilities and Taipower's grid experience increased strain 	<ul style="list-style-type: none"> • Increased electricity cost leads to an added cost of NT\$29.3 million (<0.1% of revenue); an AI-controlled chilled water system has been installed to optimize air conditioning and conserve energy by up to 18% • UPS systems and diesel generators have been installed to ensure normal production
	 <ul style="list-style-type: none"> • Maximum rainfall increases by an average of 15% • Days with heavy rainfall increase by an average of 0.09 days 	<ul style="list-style-type: none"> • Occurrence of floods increases • Heavy rainfall causes delays in construction projects 	<ul style="list-style-type: none"> • Our facilities are located on higher ground, so heavy rainfall is unlikely to result in large-scale flooding that would affect operations or production. • Construction guidelines have been formulated for our facilities, and weather conditions are taken into account in schedules, so delays are unlikely.
RCP8.5	 <ul style="list-style-type: none"> • Dry days increase by an average of 2 days • Dry season streamflow decreases by 4% 	<ul style="list-style-type: none"> • Water shortages and restrictions impact operations 	<ul style="list-style-type: none"> • Our facilities currently have a comprehensive framework for water resource management and a contingency plan in place to address water restrictions.
	 <ul style="list-style-type: none"> • Temperatures increase by an average of 1.9°C • Heatwave days increase by an average of 3.9 times 	<ul style="list-style-type: none"> • Electricity used for air conditioning increases by 5% • Facilities and Taipower's grid experience increased strain 	<ul style="list-style-type: none"> • Increased electricity cost leads to an added cost of NT\$29.9 million (<0.1% of revenue). • UPS systems and diesel generators have been installed to ensure normal production
	 <ul style="list-style-type: none"> • Maximum rainfall increases by an average of 19% • Days with heavy rainfall increase by an average of 0.12 days 	<ul style="list-style-type: none"> • Occurrence of floods increases • Heavy rainfall causes delays in construction projects 	<ul style="list-style-type: none"> • Our facilities are located on higher ground, so heavy rainfall is unlikely to result in large-scale flooding that would affect operations or production. • Construction guidelines have been formulated for our facilities, and weather conditions are taken into account in schedules, so delays are unlikely.

RCP stands for "Representative Concentration Pathway." Identified by number, RCP represents distinct GHG concentration trajectories driven by different socioeconomic scenarios: RCP2.6 corresponds to a low emission mitigation scenario, while RCP8.5 represents a very high emission scenario.

2.4 Transition Actions

Nanya Technology applies the DPSIR (Driver-Pressure-Status-Impact-Response) framework to analyze the potential financial impacts of all identified material nature-related dependencies and impacts. Corresponding strategies are developed for each item and then translated into actions that implement nature-related transition.



Nanya Technology's strategy for mitigation and transition consists of R&D of low-carbon products in preparation for future opportunities in low-carbon markets; production via green technology; development in harmony with nature surrounding our facilities; and sustainable management of the value chain. Nanya Technology aims not only to drive its own transition, but also to guide the broader value chain toward a low-carbon, low-impact sustainability vision.

Response Strategy	Strategy Description	Concrete Actions
R&D of low-carbon products	We have introduced Life Cycle Assessments (LCA) and Design for Environment principles to support the development of advanced, high-efficiency, and environmentally friendly products. These efforts help customers create designs that consume less energy and generate lower environmental impact.	<ul style="list-style-type: none"> Product contributions to nature and climate
Production via green technology	Our strategy to produce via green technology aims to transform Nanya Technology into a low-carbon, low-pollution, and resource-efficient green enterprise. Specific actions include water and energy management, climate change mitigation, pollution reduction, and development in harmony with nature. Water and energy management can effectively reduce unnecessary waste and improve operational efficiency. Climate change mitigation focuses on actions to reduce Scope 1 and Scope 2 emissions, including direct abatement of PFC gases and long-term planning for renewable energy use. Pollution control emphasizes active waste reduction and the adoption of stricter standards that go beyond regulatory demands. Finally, we have monitored the environment surrounding our facilities for over a decade and documented the data.	<ul style="list-style-type: none"> Response actions to mitigate climate change Water resource management—water pollution reduction Air pollutant reduction Waste management
Actions beyond the value chain	Since 2013, Nanya Technology has conducted ongoing annual ecological monitoring surveys, gathering long-term data on species in the Nanlin Technology Park. By observing the number of dominant species, Nanya Technology assesses whether construction activities may have caused disturbances. As attention to biodiversity grows, Nanya Technology has broadened its focus of nature from flora and fauna to include ecosystem services. Nanya Technology not only uses monitoring data in our communication with stakeholders, but also partners with Ming Chi University of Technology to investigate and inventory waste in surrounding watersheds. Together with our partner, we aim to develop nature sustainability policies and strategies that also benefit communities.	<ul style="list-style-type: none"> Development in Harmony with Nature Beyond Value Chain Mitigation (BVCM) Community inclusion, and services to nature and culture
Sustainable management of value chain	To manage nature- and climate-related risks in the value chain, Nanya Technology requires suppliers to sign a "Supplier Corporate Social Responsibility Commitment" and undergo nature- and climate-related risk assessments. In 2024, Nanya Technology distributed a survey on nature-related dependencies and impacts on suppliers of concern, and collected 31 responses. The risk assessment process is scheduled for optimization in the following year to enhance our understanding of suppliers' dependencies and impacts, and to use the results of the assessment to inform our strategy and indicator formulation.	<ul style="list-style-type: none"> Identification of nature- and climate-related risks and opportunities in the supply chain Supply chain management Customer and investor engagement

1. Response Actions to Mitigate Climate Change

The complex challenges that have arisen from climate change require not only reducing GHG emissions but also many actions to address nature-related dependencies and impacts. Therefore, Nanya Technology has adopted a series of actions to meet these challenges. These actions include establishing a Climate and Carbon Reduction Task Force; conducting value chain GHG inventories and setting mitigation targets; advancing renewable energy strategies; implementing internal carbon pricing; executing energy management actions; enhancing resilience to energy transition risks; improving processes; and optimizing reduction-related equipment.

Establishment of the Climate and Carbon Reduction Task Force

On August 29, 2024, the Ministry of Environment announced the Designated GHG Emissions Reduction Goals for Entities Subject to Carbon Fees as well as Regulations Governing Self-determined Reduction Plans. Taiwan will formally enter the era of carbon pricing in 2026. Also, according to the Financial Supervisory Commission's announcement on August 17, 2023, listed companies with capital over NT\$10 billion must begin disclosing sustainability-related information in a dedicated chapter of their 2026 annual reports in line with IFRS sustainability standards. In 2024, Nanya Technology's President Office coordinated the establishment of a cross-departmental Climate and Carbon Reduction Task Force. Shifting from retrospective inventories to proactive advance deployment, the task force focuses on inventorying, target setting, disclosure, carbon reduction initiatives, R&D design, and implementation of digital management. These efforts strengthen Nanya Technology's climate change adaptation and mitigation while integrating information from financial impact assessments. The task force's 2024 priorities include:

1. Calculating baseline emissions for 2018–2022 in accordance with the Ministry of Environment's self-initiated reduction plan.
2. Planning a 2025–2030 reduction pathway and strategy based on the self-initiated reduction plan's Technical Benchmark B.
3. Completing phase one of the Sustainable Carbon Management Platform; phase two is scheduled for completion in 2025.
4. Expanding assessment of financial risks related to climate change and linking material risks to the enterprise risk management (ERM) framework.
5. Implementing International Financial Reporting Standards (IFRS) and gap analyses.

Structure of the Climate and Carbon Reduction Task Force



The Climate and Carbon Reduction Task Force has adopted the ISO Management System—such as ISO 14001 and ISO 50001—the PDCA (Plan-Do-Check-Act) framework, and life cycle perspectives to keep improving environmental and energy management. Progress is regularly reported at the quarterly Sustainable Development Committee meetings. Disclosure is based on the IFRS S2 industry-specific guidelines for semiconductors, and includes identification of material nature- and climate-related risks for Nanya Technology's direct operations and supply chain. Based on ISO 14064 and ISO 14067 standards, Nanya Technology inventories organizational GHG emissions and product carbon footprints. We continue to refine our methodologies for inventorying Scope 3 and product carbon footprint and to build our Sustainable Carbon Management Platform. We identify emission hotspots across Scopes 1, 2, and 3 as well as product carbon footprints. Reduction plans are formulated for all stages, beginning with R&D, to meet regulatory and initiative-based requirements.

Management Framework of the Climate and Carbon Reduction Task Force



2. GHG Inventory of the Value Chain and Formulation of Mitigation Targets

Nanya Technology conducts its GHG inventory with reference to ISO 14064-1, Ministry of Environment's Climate Change Response Act and Regulations on Greenhouse Gas Emissions Inventory, Greenhouse Gas Inspection Guidelines, Greenhouse Gas Registration Guidelines, and the WBCSD/WRI GHG Protocol. Organizational boundaries are defined using the 100% operational control approach. All Scope 1, Scope 2, and Scope 3 GHG emissions are verified by third-party certification institutions in accordance with international standards.

The inventory covers all of the Company's operational sites. The main sources of GHG emissions are purchased electricity and steam (approximately 87.45%) and process emissions (approximately 8.89%). In 2024, total GHG emissions amounted to 409,138 metric tons of CO₂e (tCO₂e). Scope 1 emissions were 39,063 tCO₂e, with no emissions resulting from combustion of biomass fuel. Scope 2 emissions were 370,075 tCO₂e.

Scope 1 and 2 Emissions from 2021 to 2024

Item	2021	2022	2023	2024
Scope 1 (tCO ₂ e, metric ton of CO ₂ e)	56,409	59,788	56,586	39,063
Scope 2 (tCO ₂ e)	373,639	381,166	374,412	370,075
Scope 1+2 (location-based emissions) (tCO ₂ e)	431,353	444,965	469,513	425,837
Scope 1+2 (market-based emissions) (tCO ₂ e)	430,048	440,954	430,998	409,138

Note 1: A total of 9 types of PFC emissions were recorded, including CF₄, C₃F₈, C₄F₈, C₄F₆, CHF₃, CH₂F₂, CH₃F, SF₆, and NF₃, which are used in processes.

Note 2: Other direct emissions include CO₂, CH₄, N₂O from processes, and HFCs and SF₆ from non-process sources, such as fire extinguishers, refrigerators, freezers, and switch gear.

Note 3: Energy indirect emissions include electricity and steam usage. The Energy Administration, the Ministry of Economic Affairs, published a factor of 0.474 kgCO₂e/kWh on April 14, 2025.

Note 4: In accordance with the GHG Protocol Scope 2 Guidance (2015), GHG emissions are calculated and disclosed using both "Location-based" and "Market-based" methods respectively since we purchased renewable energy. In the above table, the location-based Scope 2 GHG emissions are calculated by multiplying the total electricity used in each area by the average emission factor for that area. On the other hand, market-based emissions are calculated by multiplying contracted renewable energy by their corresponding emission factors.

To make value chain GHG inventories more comprehensive, Nanya Technology began conducting Scope 3 inventories of other indirect GHG emissions in 2018 under the Greenhouse Gas Protocol. Based on a materiality assessment of Scope 3 emission sources, ten categories were selected for inventory. In 2024, total Scope 3 emissions amounted to 817,588 tCO₂e. The top three contributors were: emissions from the use of sold products (501,684 tCO₂e, 61%), emissions from purchased goods and services (157,262 tCO₂e, 19%), and emissions from fuel- and energy-related activities not included in Scope 1 or 2 (77,817 tCO₂e, 10%). Emissions from seven of the categories—namely purchased goods and services; fuel- and energy-related activities not included in Scope 1 or 2; upstream transportation and distribution; employee commuting; business travel; waste generated during operations; and use of sold products—were verified, totaling 742,316 tCO₂e. Innovation and R&D of products, along with supply chain management, will be key to continuously reducing Scope 3 emissions. The Company is also actively collaborating with external experts to develop methodologies and databases to ensure that data from periodic inventories consistently reflect suppliers' reduction outcomes.

Scope 3 Emissions in 2024

Scope 3 category	Calculation basis	Scope 3 Emissions (tCO ₂ e)
Purchased goods and services*	Carbon emissions from purchased primary materials and auxiliary materials used in the production process	157,262
Fuel- and energy-related activities not included in Scope 1 or 2*	Upstream GHG emissions from purchased fuels and energy, covering extraction through delivery (B2B)	77,817
Upstream transportation and distribution*	Carbon emissions from transport of main and auxiliary materials from suppliers and packaging plants to the Company's facilities, calculated by ton-kilometers	2,372
Downstream transportation and distribution	Carbon emissions from product delivery from the Company's facilities to its customers, calculated by ton-kilometer	2,272
Investment	Carbon emissions caused by the investee associate company (Formosa Advanced Technologies) calculated based on the equity held.	35,841
Employee commuting*	Carbon emissions from company shuttles and employee commuting	1,723
Business travel*	Carbon emissions from employees' international business travel by air	130
Waste generated during operations*	Carbon emissions from waste generated during production, including transportation and treatment of waste	1,328
Use of sold products*	Carbon emissions from electricity consumed during customers' use of products	501,684
Capital equipment	Investments related to procurement of equipment and construction	37,159
Total		817,588

Note: Those marked with * indicate verified items

To reduce the impact of transition risk to Nanya Technology's operations, we apply our expertise and influence to reduce emissions in our operations and production processes, thereby lowering our GHG footprint and environmental impact. In 2022, Nanya Technology's existing operational sites passed SBT validation, and aligned with international standards. We've outperformed our annual SBT reduction goal for four consecutive years (2021-2024). Nanya Technology will continue to implement its SBT GHG emission reduction goal and lessen the risks and losses associated with transition risks that have arisen from climate change.

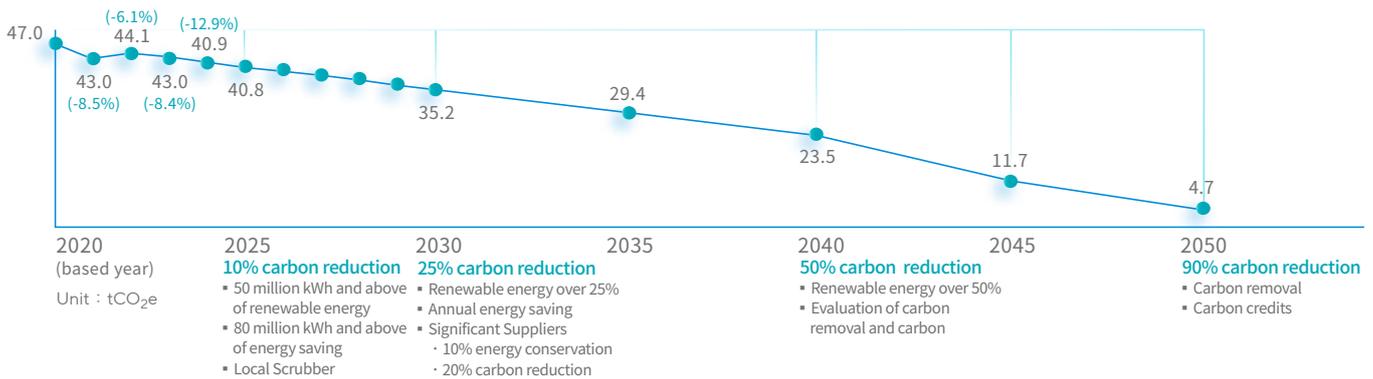
Item	2020	>	2021	>	2022	>	2023	>	2024
GHG emissions per unit of production capacity (kgCO₂e/kpcs)	420		383		405		431		416

Note: Production capacity is calculated using the output of good electronic chips; with the output of various products converted into the equivalent number of 4Gb chips. The unit of measurement is per thousand chips (kpcs).

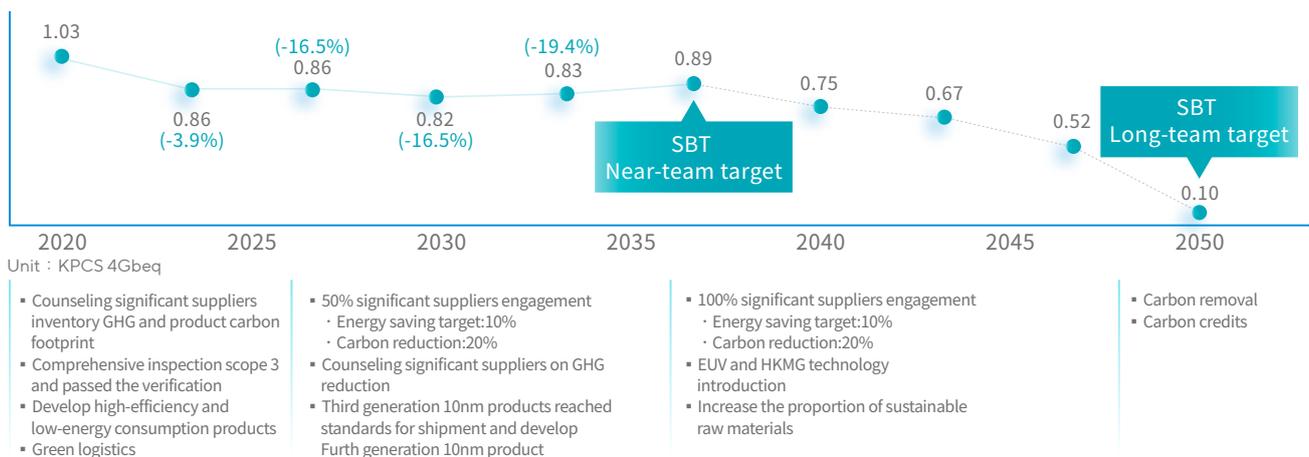
Nanya Technology's near-term target is to align with the goals of the Paris Agreement, which are to limit global warming below 2°C and to pursue efforts to cap it at 1.5°C by the end of the century. The Company has formulated its climate strategy with reference to international reports, such as the IPCC Sixth Assessment Report (AR6) and the IEA World Energy Outlook (WEO). We have also adopted the net-zero guidelines of the Science Based Targets Initiative (SBTi). In 2022, Nanya Technology's emissions reduction target passed the SBTi's validation, and we are pursuing emissions reduction under a well-below-2°C pathway, using 2020 as the base year.

Item	Base year (emissions)	Target year (emissions)	Total reduction rate
SBTi Pathway	2020 (470,000 tCO ₂ e)	2030 (353,000 tCO ₂ e)	25%
Net Zero Roadmap	2020 (470,000 tCO ₂ e)	2050 (47,000 tCO ₂ e)	90%

Nanya Technology's Net Zero Roadmap



Since Scope 3 emissions encompass products and supply chain aspects, the Company has set a target for low-carbon product innovation and is investing in R&D for 10nm products and process technologies. In 2024, verification and mass production were successfully achieved for 8Gb DDR4 and 16Gb DDR5 products on the second-generation 10nm-class DRAM process. In 2025, the company plans to follow up with LP 16Gb DDR4 and LP 16Gb DDR5—second-generation 10nm-class products which are more energy-efficient with lower emissions. Meanwhile, we are currently developing the third- and fourth-generation 10nm processes and products to offer DRAM products with even greater energy efficiency. In supply chain management, joint initiatives have been established with supplier partners, targeting a 20% carbon reduction and 10% energy savings by 2030 compared to 2020 levels. At the same time, Nanya Technology continues to prioritize uninterrupted operations and zero workplace injuries, strengthening facility infrastructure to enhance resilience to natural disasters, and setting adaptation targets accordingly. We also actively participate in DJSI, CDP, Climate Advocacy and Education programs to raise the visibility of climate issues and meet stakeholder expectations.



Nanya Technology continues to advance toward net zero by strengthening five key strategies: R&D of low-carbon products, production of green technology, supply chain management, development in harmony with nature, and awareness-building and communication. The Company is exploring feasible alternatives to process-related GHG emissions, while continuously increasing the amount and variety of renewable energy sources used (e.g., offshore wind Phase 3-2, small hydro power, etc.). In 2022, internal carbon pricing was introduced with the goal of achieving a 90% reduction in GHG emissions by 2050 compared to the base year. In addition, we referred to SBTi's Beyond Value Chain Mitigation (BVCM) guidelines and ISO 14068-1 carbon neutrality recommendations. The Company is assessing the feasibility of implementing carbon removal technologies and purchasing carbon credits to offset the remaining 10% of GHG emissions, with the long-term goal of achieving net zero by 2050.

3. Internal Carbon Pricing

Based on the identified interlinkages among nature, climate, and financial performance, and drawing from the three aforementioned nature and climate scenario models, we conducted an impact assessment on future business operations and financial outcomes. The analysis indicates that under Taiwan's carbon fee scenario, potential costs could amount to 1.2% of annual revenue, while scenarios aligned with the World Energy Outlook for 2°C and 1.5°C pathways could lead to revenue impacts of approximately 4.9%-5.1% (for more details, please refer to Section 2-3 of this report). As carbon pricing emerges as a key differentiating factor, we have formulated corresponding response strategies and targets (for more details, please refer to Sections 2-1 and 2-2), and integrated carbon management costs into our internal profit and loss tracking systems.

Furthermore, as countries progressively implement carbon taxes or carbon fees to accelerate the transition toward net-zero emissions, corporate carbon emissions are becoming monetized and subject to explicit pricing. Nanya Technology, drawing on publications from the World Bank and the International Energy Agency, implemented an internal carbon pricing mechanism starting in 2022. This initiative aims to raise company-wide awareness of carbon reduction and support the achievement of energy-saving and emission-reduction goals. In 2024, Nanya Technology's carbon emissions totaled 409,138 tCO₂e. Based on the Ministry of Environment's announced "The Designated GHG Emissions Reduction Goals for Entities Subject to Carbon Fees," which sets a standard carbon fee of NT\$100^[1] per metric ton of greenhouse gas emissions (Scope 1 and Scope 2), the estimated carbon cost for the year amounts to NT\$40,913,800—equivalent to 0.05% of the company's annual revenue. This pricing serves as the calculation basis for Nanya Technology's internal carbon pricing and is applied across 100% of its operational sites. The relevant management practices are outlined as follows:

Establishing management guidelines and tracking mechanisms

In line with its Sustainable Development Policy, Nanya Technology is committed to advancing environmental sustainability, green manufacturing, and a green supply chain. The company has set a target to reduce Scope 1 and Scope 2 GHG emissions by 25% in 2030 compared to its 2022 baseline, and to reduce Scope 3 product unit emissions by 27% over the same period. Internal carbon pricing is adopted as a key tool to accelerate the transition to net zero. We have established internal carbon pricing management procedures, under which carbon emission costs are consolidated monthly and quarterly into GHG carbon cost reports for ongoing monitoring and control. Any anomaly (e.g., a shift from profit to loss after inclusion of carbon costs, carbon costs exceeding 10% of total costs, or excessive carbon emissions) will be escalated and explained in time through the internal management platform before the 25th of the month for further decisions and adjustments.

Advancing Low-Carbon Projects

Beyond management measures, two key response strategies have been established on the production side—low-carbon products and production via green technology. In 2024, the projects we implemented included: product life cycle assessments to identify carbon emission sources and transformation opportunities, and the completion of 27 energy-saving initiatives through the ISO 50001 management system, achieving a total energy saving of 5,513 MWh. Additionally, the proportion of renewable energy usage increased to 4.4% in 2024. The total investment in low-carbon projects amounts to NT\$215 million. (for more details, please refer to Sections 2-4 and 2-5 of this report).

Operational Investments

Nanya Technology applies the internal carbon pricing mechanism to operational investment evaluations, and leads related corporations for low-carbon transitions. Take Formosa Advanced Technologies for example, this is a corporation which Nanya Technology holds a 32% ownership stake. We referenced Formosa Advanced Technologies' low-carbon transition scenario—specifically the 2030 electricity cost projection—in their 2023 Sustainability Report and assessed their potential impacts on Nanya Technology by conducting a stress test on increased investment costs:

Scenario	Increased Investment Costs (%)
Taiwan's net-zero transitions	3.59-4.11
Taiwan's net-zero transition +WB2°C	3.85-4.40
Taiwan's net-zero transition +WB1.5°C	4.03-4.61

Value Chain Engagement (Reducing Value Chain Emissions)

Energy consumption of electronic products in use is one of the most significant indicators of environmental impact. Given this fact, Nanya Technology takes the environmental impact of the products' entire lifecycle into consideration when developing new products. Our ongoing innovative R&D efforts focus on the three main areas: manufacturing process shrinkage, product specification enhancement, and 3D stacking technology development. These efforts enable our customers to reduce energy demand during their use of electronic products. In 2024, Nanya Technology helped customers save over 617.17 million kWh of electricity and reduce GHG emissions by 304,884 tCO₂e (for more details, please refer to Section 3-3 of this report).

In addition to setting its own net-zero transition pathway, Nanya Technology also hopes to work with its supply chain partners and move towards a net-zero future together through education, training and guidance. In 2024, we held one session of "Nature and Climate Synergistic Supply Chain Workshop" and initiated a two-year (2024-2025) project on low-carbon and upgrade for smart transformation. 10 suppliers were selected as they show higher potential GHG emissions. In the first year, we completed carbon inventory for 5 of their products and energy consumption monitoring and analysis for high-energy-consuming equipment for 2 suppliers and set 246 energy saving and carbon reduction targets in total (2% renewable energy, 4% energy saving, 6% carbon reduction). With these efforts, we hope to accelerate the suppliers' net-zero transition (for more details, please refer to Sections 3-2 and 3-4 of this report).

4. Energy Management Actions

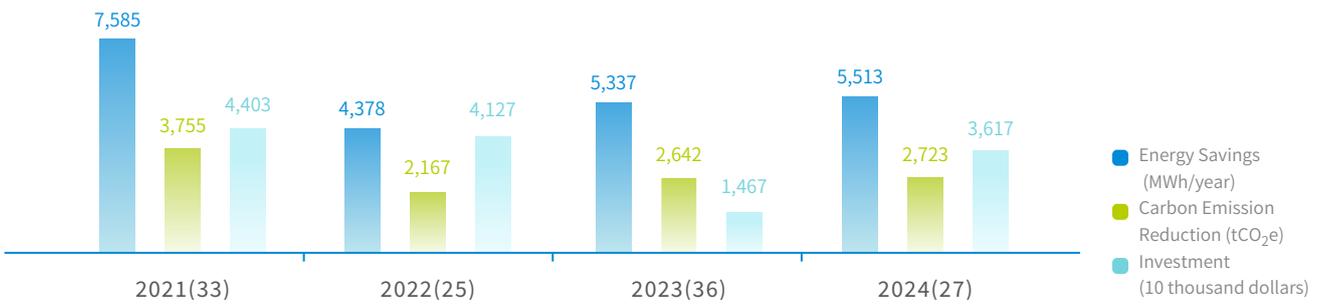
Nanya Technology adopted the ISO 50001 Energy Management System in 2018 and obtained certification. In 2020, the Company completed the establishment of our energy management platform. The establishment of the Energy Consumption Real-Time Monitoring Platform allows for various systems to conduct statistical analysis and smart energy conservation. Nanya Technology's energy conservation targets are as follows:



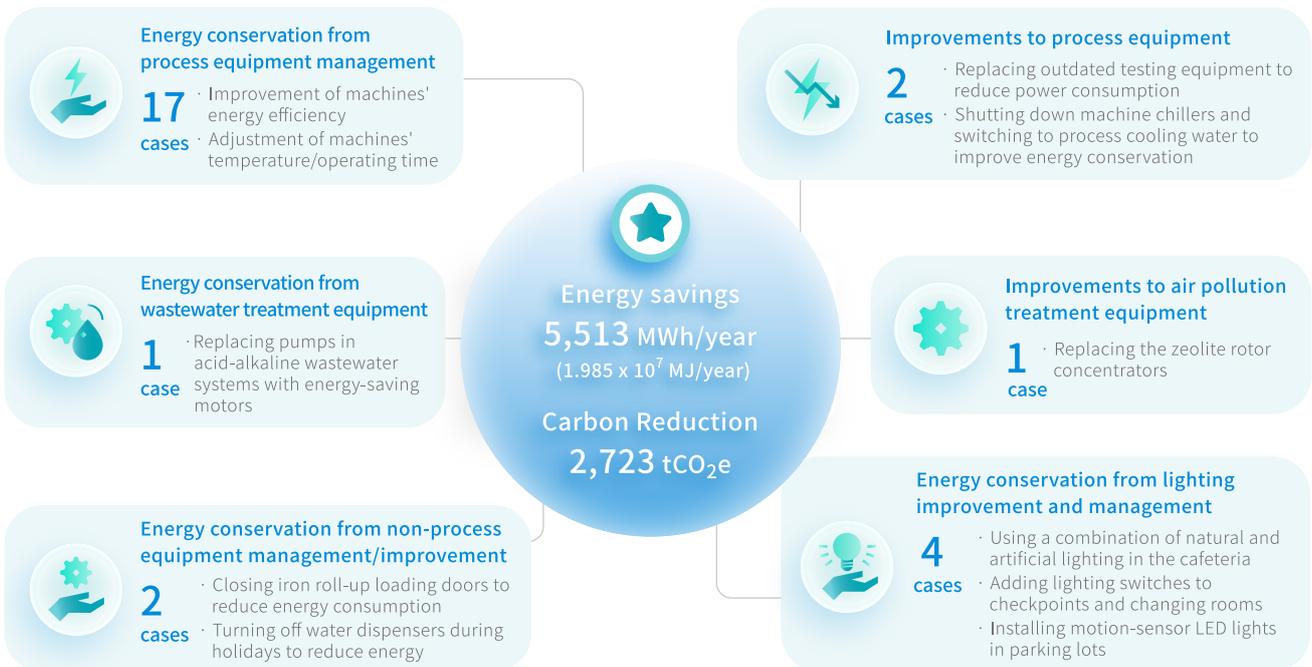
Nanya Technology's Energy-Saving Target for 2030

- 2017~2030** Cumulative energy savings of 103,000 MWh/year
- 2024** NT\$36.17 million was invested in 27 energy-saving projects, generating a total energy-saving benefit of 5,513 MWh/year (1.985×10^7 MJ/year).
- 2025** The Company plans to implement 30 projects (27 new and 3 continuing), with an estimated savings of 3,301 MWh/year (1.188×10^7 MJ/year).

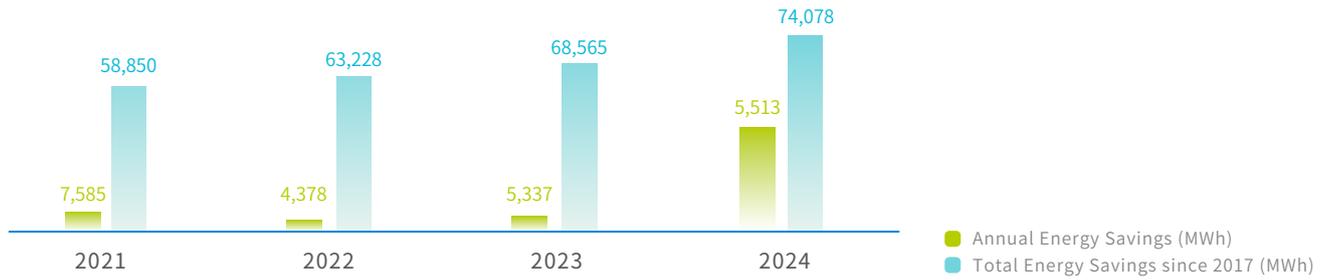
List of Energy Conservation Programs and Benefits



Energy Conservation Programs Completed in 2024



Historical Performance in Energy Conservation



5. Enhanced Resilience to Energy Transition Risks

In recent years, due to industrial development and changes in the power supply structure, grid pressure has significantly increased. When reserve capacity is insufficient, there may be risks of voltage sags, power rationing, or blackouts. Even minor power fluctuations can disrupt the precision operations of semiconductor processes. To ensure yield and production line stability, Nanya Technology has prepared contingency plans, including:

- 18 emergency generators and 26 DUPS systems have been installed at our facility; and are capable of supplying approximately 60% of the required power during shortages.
- All equipment in the facility must comply with SEMI-F47 standards to reduce sensitivity to voltage sags and minimize power tripping incidents.
- Our facility uses a dual-circuit power supply design to reduce the risk of single-circuit failures. Regular maintenance and testing are conducted to ensure stable power quality throughout the facility.
- Custom energy-saving plans are implemented to reduce overall electricity consumption.
- When the power supply is limited, non-production equipment undergoes load shedding to reduce power consumption.
- Emergency drills are regularly scheduled based on recent power supply issues to enable prompt response during disruptions.
- Government and Taipower's power development plans as well as stable power supply measures are regularly tracked to assess and respond to potential risks in a timely manner.

6. Process Improvements

Through new process formulations, reduced process times, and extended usage cycles, material consumption for processes was reduced. From 2022 to 2024, a total of 79 improvement projects were completed, cutting the use of chemicals, photoresists, and slurries by 1,261 metric tons, saving NT\$168,259,000.

Year of Process Improvement	2022	2023	2024	Total
Completed	24	35	20	79
Annual Reduction (metric ton)	400	691	170	1,261
Annual benefit (NT\$ thousand)	32,622	102,411	33,226	168,259

Key Areas of Focus in Process Improvements

2022

In the photolithography area, optimization of the verification of photoresist application improved usage efficiency, **reducing SHB1736/SH114A consumption by approximately 47 kg per month (6%)**, and yielding the greatest benefit.

2023

Recovered triethanolamine from single-wafer cleaning tools was reused, **reducing chemical use per wafer from 2.4 L to 0.13 L, reducing consumption by 296 metric tons annually.**

2024

In the CMP area, process parameter optimization and volume reduction improved slurry usage efficiency, **reducing consumption by 135 metric tons annually.**

7. Optimization of End-of-Pipe Reduction Equipment—Local Scrubbers

Given the high global warming potential of perfluorocarbons (PFCs) and their role as a major Scope 1 emission source, Nanya Technology has actively planned and implemented GHG reduction projects. During plant construction, high-efficiency local scrubber systems (LS) were installed, mainly for etching and film processes. These systems reduce final emissions by destroying gases through high-temperature combustion. In 2024, the total reduction achieved was approximately 531,000 tCO₂e. We also initiated discussions with exhaust treatment equipment vendors to optimize system management, ensuring consistent performance and improved accuracy in GHG inventory and management.



High-Efficiency Process Exhaust Gas Reduction and Treatment Equipment—Local Scrubbers (LS)

	2021	>	2022	>	2023	>	2024
PFC reduction performance (tCO₂e)	597,952		631,790		518,370		531,351

Types of gases used in processes	Reduction rate
N₂O 、 CF₄	90%
PFCs 、 HFCs 、 SF₆ 、 C₃F₈ 、 C₄F₆ 、 C₄F₈ 、 CHF₃ 、 CH₂F₂ 、 SF₆	95%
NF₃	99%

In response to the Taiwan Semiconductor Industry Association's GHG reduction initiative and to reduce the environmental impact of GHG emissions, Nanya Technology launched a project to optimize its process exhaust treatment equipment (local scrubbers). Automatic energy-saving devices were installed on clean room process tools and exhaust systems to control the timing of natural gas ignition. This helps reduce energy consumption during periods of low tool utilization or maintenance, thereby lowering both costs and CO₂ emissions. In addition, AI technology was applied by incorporating multiple feature parameters into machine learning models to establish health indicators that can predict remaining service life, prevent unexpected failures, and extend maintenance intervals. After full implementation, the project is expected to reduce emissions by an average of 1,078 tCO₂e per year.

Process Chamber



Local scrubber NG/O₂/Energy



The automatic energy-saving device of the Local scrubber activates only when the main machine introduces process gas, enabling combustion operation to save raw material usage.

To ensure the end-of-pipe reduction equipment effectively reduces process-related GHG emissions, we have optimized the management of both existing, newly acquired, and legacy end-of-pipe scrubbers according to the characteristics of the process gases being treated.

1.



Maintenance procedures for existing end-of-pipe scrubbers have been optimized, and the air-fuel ratio of the gas flow was calibrated after maintenance to ensure optimal combustion efficiency. Annual spot checks are conducted on existing scrubbers to verify the exhaust reduction effectiveness of older equipment.

2.



During process changes, if an older tool introduces new GHG emissions or if the flow rate of a GHG exceeds the original FTIR¹ detection specification, retesting is required.

3.



When expanding plants with new end-of-pipe scrubbers, verification is required if the process type or equipment model differs in order to confirm the new equipment's effectiveness of treatment.

4.



FTIR testing conditions have been enhanced to confirm the optimal combustion ratio.

Note 1: FTIR = Fourier-transform infrared spectroscopy

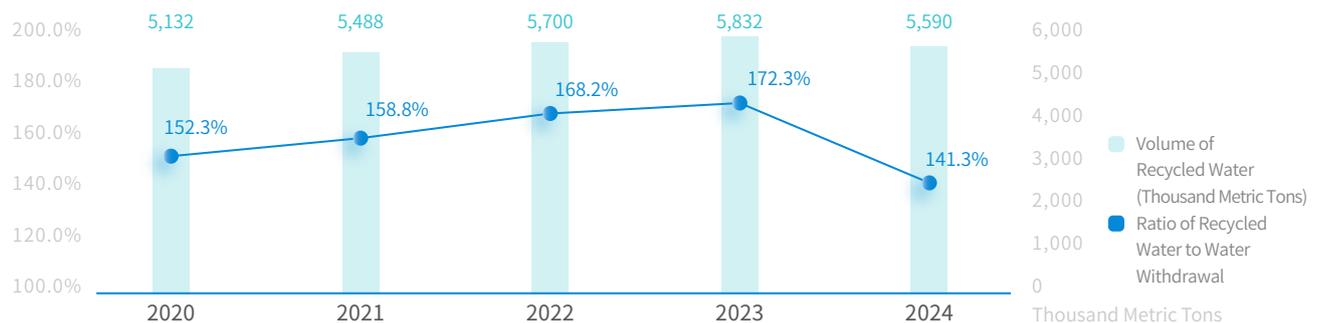
8. Water Resource Management Actions

In addition to designing water-saving processes, Nanya Technology prioritizes water reduction, recycling, and reuse. Acid-alkaline wastewater, hydrofluoric wastewater, and organic wastewater recycling systems have been installed at our facilities, and we have implemented a range of water-saving measures, with recovery rate steadily increasing year over year. Nanya Technology was awarded an A List rating on the CDP Water Security Questionnaire for two consecutive years (2022–2023) and adopted the AWS (Alliance for Water Stewardship) Standard in 2023. This standardized framework was used to review water management practices through stakeholder engagement, evaluating water governance, water balance, water quality, and relevant water-related areas to understand water use, watershed conditions, and associated risks. The Company developed and implemented water conservation and protection strategies based on these findings. The Company completed AWS verification in 2023 and officially received AWS international certification in 2024 and, in the same year, the Platinum Certification, the highest level of certification awarded by AWS. For ongoing improvement of water usage efficiency and water recovery volume, we aim to elevate our production processes and equipment. In 2024, 6 water-saving improvement projects have been completed, saving a total of 22,258 metric tons of water annually.

Projects to Improve Water Resource Management in 2024

Item	Project Description	Water Saving Effectiveness (Metric Ton/Year)
1	Replacing the hydrochloric acid scrubber in the ultrapure water system with reclaimed water	18,250
2	Installing water-saving valves on sensor-activated faucets	1,196
3	Two water-saving initiatives through equipment parameter adjustments	466
4	Two water-saving initiatives through reduced equipment operation	2,346

Amount of Water Recycled from 2020 to 2024

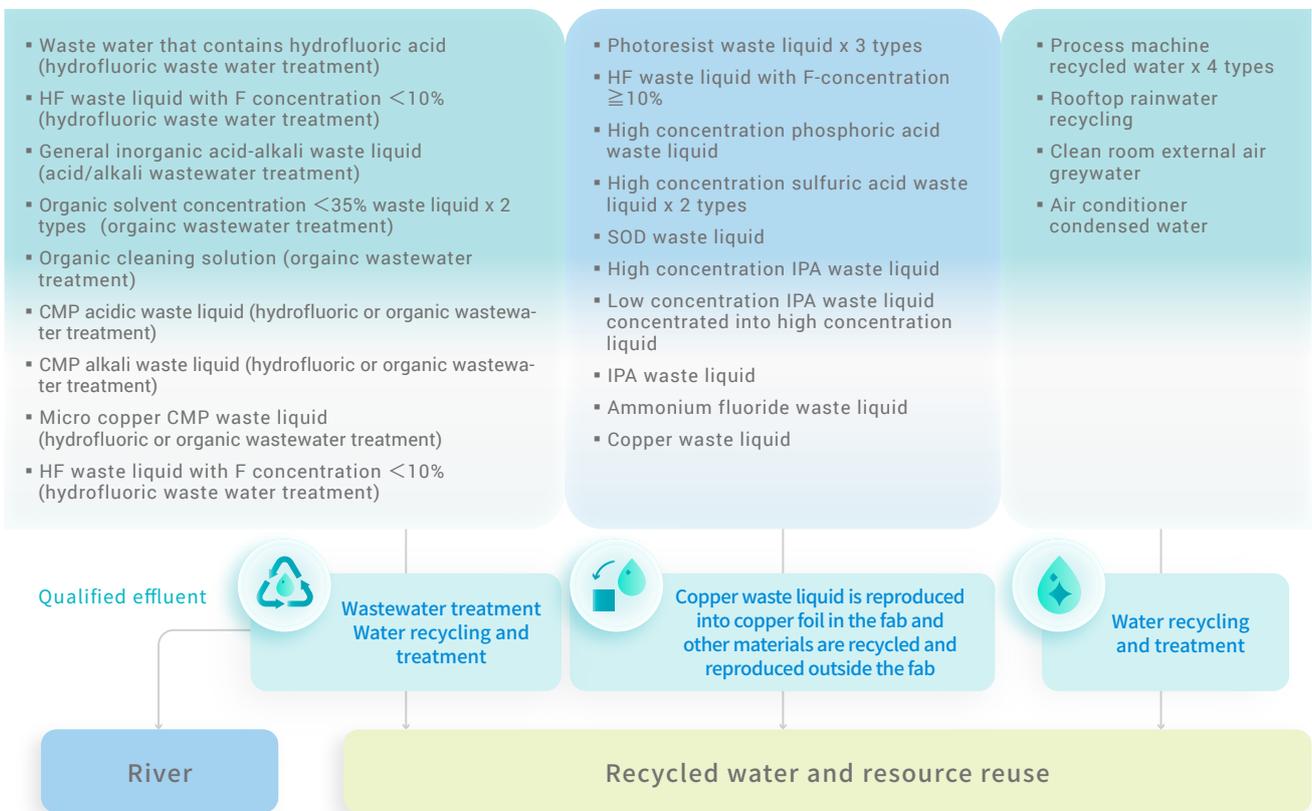


9. Performance and Measures for Water Pollution Reduction

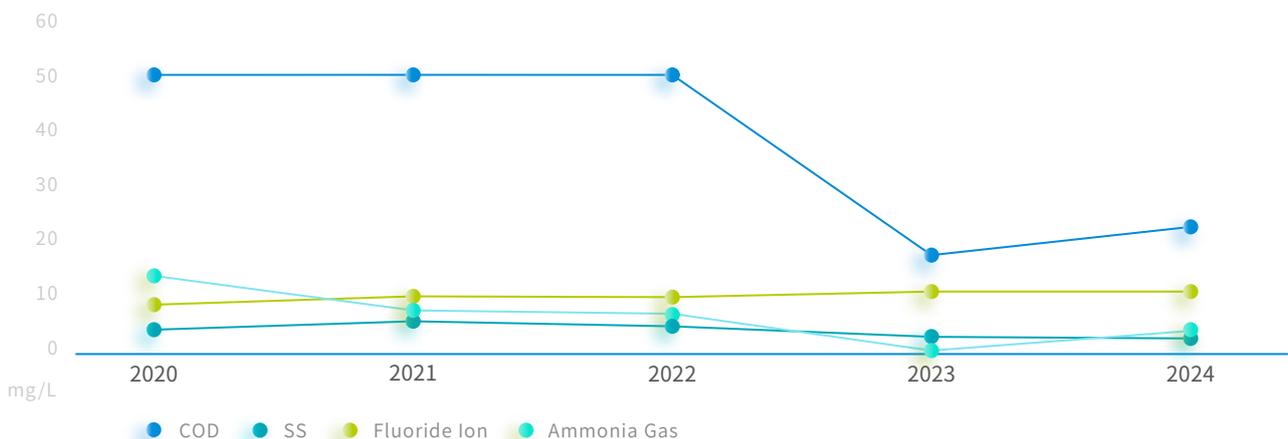
Based on the composition and concentration of process wastewater, Nanya Technology has established 28 separate drainage systems for subsequent treatment, recycling, and reuse. To ensure discharge quality meets standards, effluent is monitored in real time in coordination with the Environmental Protection Department, and monthly sampling and testing are conducted by third parties to enhance wastewater quality control. The Company has had zero discharge violations over the years.

To reduce wastewater discharge and improve the quality of treated effluent, Nanya Technology has continued to build recycling systems and expand wastewater treatment capacity in recent years. In response to high COD and total nitrogen levels in hydrofluoric acid wastewater from equipment, the Company invested NT\$430 million to construct a new COD and total nitrogen treatment system. Officially launched in 2023, the system uses biological treatment combined with a membrane bioreactor (MBR). Following implementation, the COD level in treated effluent dropped from 50 mg/L to 20 mg/L, enhancing effluent quality and treatment performance, and reducing annual water pollution control fees by approximately NT\$1 million.

Wastewater divided into 28 categories for treatment



2020-2024 Effluent Water Quality Monitoring Results



10. Performance and Measures for Air Pollutant Reduction

Since the establishment of its facilities, Nanya Technology has placed great emphasis on pollution prevention. In addition to implementing environmental management programs to effectively reduce raw material consumption and lower the concentration of exhaust emissions, Nanya Technology uses air pollution control equipment that meets regulatory standards. These include local scrubbers, acid/alkaline exhaust gas scrubbers, VOCs zeolite rotor concentrators, and afterburners (VOCs refers to volatile organic compounds; local scrubbers are point-source gas treatment devices). Testing has confirmed that pollutant emissions have consistently complied with, or been lower than, the limits set by government environmental regulations. The Company does not emit ozone-depleting substances (ODS). To maintain the optimal performance of treatment equipment, each unit undergoes regular maintenance and inspection. Operators receive thorough training to ensure the systems function properly and that emissions do not pose a threat to the surrounding environment.

The primary air pollutants generated by Nanya Technology include acidic, alkaline, and organic exhaust gases. Since trichloroethylene is not used as a raw material, no hazardous air pollutants (HAPs) are emitted. Based on the characteristics of each exhaust type, appropriate treatment processes and equipment are used. After being generated at the process level, emissions pass through local scrubbers to remove specific substances. Acidic and alkaline gases are routed to respective scrubbing towers before being discharged into the atmosphere. Organic exhaust is adsorbed by a zeolite rotor, concentrated, and then destroyed in afterburners, with combustion efficiency reaching 99%, well above regulatory standards. The overall VOCs (volatile organic compound) reduction rate is maintained at above 90% to meet regulatory requirements. In 2024, the VOCs emission intensity per unit of production capacity was 12.9 g VOCs/kpcs 4Gb eq.

Waste Treatment Flowchart

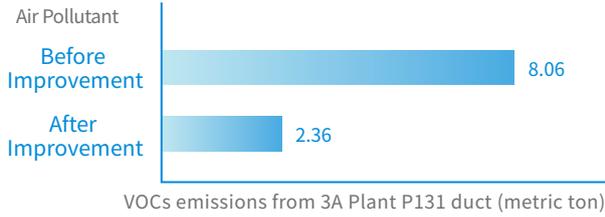


Emission Trends

	2021	2022	2023	2024
Volume of VOCs generated (metric ton)	15.68	17.31	14.24	12.72
VOCs emissions per unit wafer area (kg/wafer area m ²)	0.27	0.29	0.30	0.27
VOCs emission per unit of production capacity (g/kpcs)	14.0	15.9	14.2	12.9
VOCs emission per unit of revenue (g/NT\$ million)	183	304	476	373

Trends in Other Air Pollutant Emissions

	2021	2022	2023	2024
NOx (metric ton)	10.34	10.50	11.21	12.65
SOx (metric ton)	1.66	1.66	1.66	2.12



Nanya Technology is committed to enhancing its own capabilities in air pollution reduction. Regarding the reduction of inorganic acid waste gas emissions, in addition to the ongoing annual optimization of air pollution control equipment's operating parameters, the company invested NT\$55 million in its 3A and 3A-N facilities in 2024. A scrubbing tower was added and connected after the existing central scrubbing towers in both facilities. A two-stage scrubbing method will enhance the removal of inorganic acids from waste gas. This project is expected to finish by the end of 2025 and will increase the inorganic acid removal rate by over 80%. Regarding particulate matter emissions, a dust removal tower has already been installed in the 3A facility. Employing atomized water scrubbing and collision interception, this tower reduces particulate matter emissions and demonstrates a removal rate of up to 77% according to third-party verification. In 2024, an additional investment of NT\$30 million was made to install a dust removal tower in the 3A-N facility to further reduce particulate matter emissions there. This project is expected to be completed by the end of 2025. Regarding emissions of volatile organic compound (VOCs), in addition to existing monitoring pipelines, new monitoring equipment is also installed in the acidic and alkaline waste gas emission pipelines to ensure that air pollution control equipment can maintain optimal operating conditions.



11. Performance and Measures for Waste Management

In 2024, Nanya Technology generated a total of 22,732 metric tons of waste, of which 22,419 metric tons were recycled and reused, accounting for 98.6% of the total waste generated. All hazardous industrial waste—primarily acidic waste liquids such as sulfuric acid, phosphoric acid, and hydrofluoric acid—was 100% treated and recycled by vendors into other industrial raw materials.

General and hazardous industrial waste at Nanya Technology is managed in a centralized manner by the respective departments responsible for their generation. Activities include storage, removal, inspection, and reduction initiatives. Annual training is provided to relevant personnel to ensure familiarity with regulations and compliance. In addition, Nanya Technology conducts irregular audits of waste contractors to ensure that removal and treatment practices comply with regulations, verifying legality and ensuring that all waste is properly handled or reused to prevent further environmental impact. From 2014 to 2024, Nanya Technology did not engage in any transboundary movement of hazardous waste. All hazardous industrial waste was handled by qualified domestic contractors, with a total of 43 certified waste treatment vendors engaged in 2024.

Each year, Nanya Technology conducts a materiality assessment of environmental impacts using the ISO 14001 Environmental Management System. High-risk items are prioritized for management planning. After a comprehensive evaluation, feasible items are selected for implementation that year. To implement source reduction, manufacturing processes are streamlined to minimize raw material usage and reduce waste generation. In 2024, we completed 6 projects to reduce raw material consumption through the Kaizen Proposal System. These included reducing process duration, extending usage cycles, and cutting down process consumption. The most impactful improvement came from shortening pickling time in the wet etching area, effectively reducing the use of sulfuric acid and hydrogen peroxide by 12,064 liters and 6,032 liters per month, respectively.

Other cases of emission reduction projects

! Packaging Material Replacement Project

Issues and Actions

To minimize the frequency of cylinder replacements and residual gas, we replaced C₄F₆ packaging in 2024 to maximize resource usage efficiency.

Achieved Benefits

C₄F₆ cylinder residuals were reduced by **55** pounds per year.

! Calcium Chloride Reduction Project for Hydrofluoric Wastewater

Issues and Actions

Hydrofluoric wastewater treatment requires large quantities of calcium chloride to capture fluoride ions and convert them into calcium fluoride sludge to meet discharge standards. However, calcium chloride has a high carbon emission factor. Nanya Technology has implemented a phased approach over several years to reduce calcium chloride usage and is currently evaluating the use of AI for predictive chemical dosing to achieve long-term reduction goals.

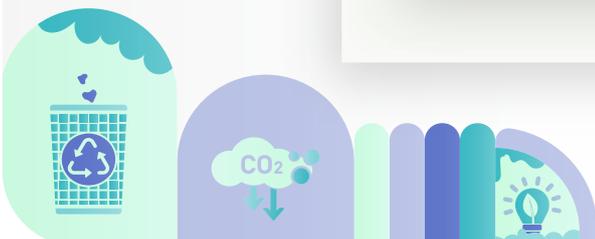
Phase 1 The discharge rate of resin regeneration wastewater from the ultrapure water system to the hydrofluoric wastewater treatment system was too fast, causing major water quality fluctuations and increased calcium chloride usage. A buffer tank was installed and batched discharge adopted to effectively reduce calcium chloride usage.

Phase 2 The original PAC chemical used primarily assisted in flocculating calcium fluoride particles. The new PAC formulation maintains this effect while further reducing calcium chloride consumption.

Achieved Benefits

Phase 1 After improvements were made, calcium chloride usage was reduced by approximately **2,400** metric tons annually.

Phase 2 After improvements were made, calcium chloride usage was reduced by approximately **1,500** metric tons annually. Total carbon reduction reached approximately **800** metric tons per year.



2.5 Adaptation Actions and Contingency Mechanisms

1. Adaptation to Heavy Rain and Flooding

With an increase in the number of rainy days, flooding could occur in the proximity of our facilities. Currently, 100% of Nanya Technology's facility infrastructure is designed based on past extreme weather events, with an added safety margin. For example, street gutters are designed based on the maximum rainfall in the past 25 years plus a 20% safety margin. This is combined with permeable pavement, often used in green architectural design. Flooding risks through the middle of the century remain minimal, though regular clearing of street gutters is necessary to maintain proper flow. Ongoing evaluations will be made based on updated scientific data and operational needs for the new fab to determine whether widening is needed.

2. Adaptation Measures for Drought

Through scenario analyses using the World Resources Institute Aqueduct Tools and Taiwan Climate Change Projection Information Platform (TCCIP)'s climate change water risk maps, Nanya Technology is aware that the Company's water sources are in a short-term low-to-moderate risk zone. The number of consecutive dry days in northern Taiwan may increase by an average of 1.2–2 days in the future. The Company uses a large amount of water for its manufacturing processes—approximately 11,000 cubic meters (metric tons) of water daily. An increase in water shortages or droughts can elevate the risk of operational disruption.

In line with international water security and management standards, Nanya Technology continues to strengthen its water management system and expand its water recycling capacity. The Company has established a robust contingency plan to mitigate the immediate impacts of short-term drought. The factory site includes a 43,000 m³ water reservoir, a 500 m³ detention basin (rainwater recovery is temporarily paused during FAB 5A construction), and seven wells. Nanya Technology also formed an emergency response organization for water shortages with neighboring plants of Formosa Plastics Group for mutual water-sharing support. Improvement work has been completed at the Shimen Reservoir watershed. The risk of service disruption due to turbidity from heavy rainfall has decreased. The Company can handle raw water turbidity up to 10,000 NTU, enabling it to manage most conditions. Through internal adaptation capacity and water recycling systems, Nanya Technology can operate for up to 21 days without an external water supply.

The Company was awarded the highest CDP Water Security rating (A List) in both 2022 and 2023, and received AWS Platinum Certification in 2024. Moving forward, we will continue to enhance our capacity for water use and management. Newly constructed plants will include water regeneration centers, storage reservoirs, and backup water sources to address the uncertainties of climate change.

Nanya Technology's complete process water recycling system



3. Water Stress Testing

Nanya Technology's Risk Management Steering Center conducts annual sensitivity analyses and stress tests on key financial and non-financial risks. The results of the stress test for nature-related risks are as follows:

Risk Item	Sensitivity analysis or stress test
 <p>Water Shortage</p>	<ul style="list-style-type: none"> • We reviewed internal and external water supplies and storage systems, and simulated various water restriction scenarios. The Company can draw from backup wells supplying 5,500 CMD, a 43,000-ton reservoir, and 3,600 CMD from the Chang Gung Golf Course well. Under total raw water shutdown, the factory can continue operating normally for 21 days. • We simulated Phase 1, 2, and 3 water restrictions. Note: None of the scenarios involving raw water supply being "five days on, two days off," "four days on, three days off," "three days on, four days off," and "two days on, five days off" affect production.

4. Water Resources, Reduction in the Water Conservation Charge, and Responses to Related Impacts

Based on the WRI Aqueduct Tools, we assessed our water risk as medium-low (10–20%) in the short term and also medium-low (10–20%) through 2050, indicating that Nanya Technology's sites of operation are not located in a water-stressed area. According to Taiwan's TCCIP Climate Change Water Hazard Map, the Company does not face the risk of water scarcity under the RCP 8.5 scenario for the middle of the century (2036–2065). In response to the Regulations on Water Consumption Charge Collection, Nanya Technology has focused on improving wastewater segregation, treatment, and recycling in recent years. After the water consumption charge was officially imposed in 2023, Nanya Technology's water recycling rate reached 95.9% in 2024, certified by a third-party auditor (Ernst & Young), based on guidelines and regulations issued by the Ministry of Economic Affairs, including the "Water Recycling Inspection Guidelines," "Water Use Plan Review and Management Regulations," and "Water Consumption Fee Collection Regulations." Our performance exceeds the government's industry benchmark range (50%~85%).

2.6 Awareness Building in Corporate Operations

Building awareness of climate change is not solely the responsibility of the management or specialized units—Nanya Technology encourages all employees to get involved. New hire training includes courses such as "Introduction to GHG Inventory and Carbon Footprint," "Introduction to the Green Product Management System and RBA," and "Introduction to the Sustainability of Nanya Technology Corporation," to give employees a foundational understanding of climate change issues and the Company's strategies and actions, enabling them to take these issues into consideration in their daily work.

Occasionally, the Company also organizes internal workshops and training on issues related to nature and climate, offering employee-requested courses such as "Equipment Energy Saving Design and GHG Reduction Solutions" and "Development of Industry Technology Within Global ESG Trends" to provide employees with the latest information. Educational activities are also held in alignment with environmental events, such as the "Eco-Quiz" program on Earth Day, which educates employees about the current status of waste in Taiwan, resource recycling, waste reduction, waste discharge, value estimation for recycled waste, and recycling practices. The program has an online test to encourage employee participation, with 162 employees earning perfect scores. These initiatives aim to raise awareness about resource consumption and encourage reflection on how individuals can reduce waste and make a positive impact on the planet.

The Company also shares its progress in related matters with employees through e-newsletters and press releases, fostering a sense of shared purpose among employees and encouraging broader participation in environmental and climate-related efforts.

3 Nature and Climate Actions in the Value Chain

A company's sustainable development encompasses not only its own operations, but also supply chain management and customer engagement. Nanya Technology conducts supply chain risk assessments, develops low-carbon products, and engages with investors to ensure upstream and downstream partners across the value chain that we can respond to risks related to nature and climate change and promote sustainable development across the industry, together.

3.1 Nature- and Climate-Related Risks and Opportunities in the Supply Chain

1. Biologically Sensitive Areas Near Suppliers of Concern' Operating Locations

Biologically Sensitive



According to a comparative analysis using nine types of high-sensitivity biodiversity GIS data layers, Nanya Technology had high-risk suppliers located within two kilometers of biologically sensitive areas in 2024. Taoyuan City had the most since some suppliers are located in the Dayuan Industrial Zone, a place close to a legally designated important wetland. However, none of the suppliers are operating right at the protected zone.

Among the 26 customer locations surveyed, 10 were found within two kilometers of protected areas, and were potentially in breach of Taiwan's regulations. When cross-referenced with IUCN classification standards, only 3 were potentially in breach. Further analysis confirmed that none of these companies were actively operating in areas of high biodiversity sensitivity.

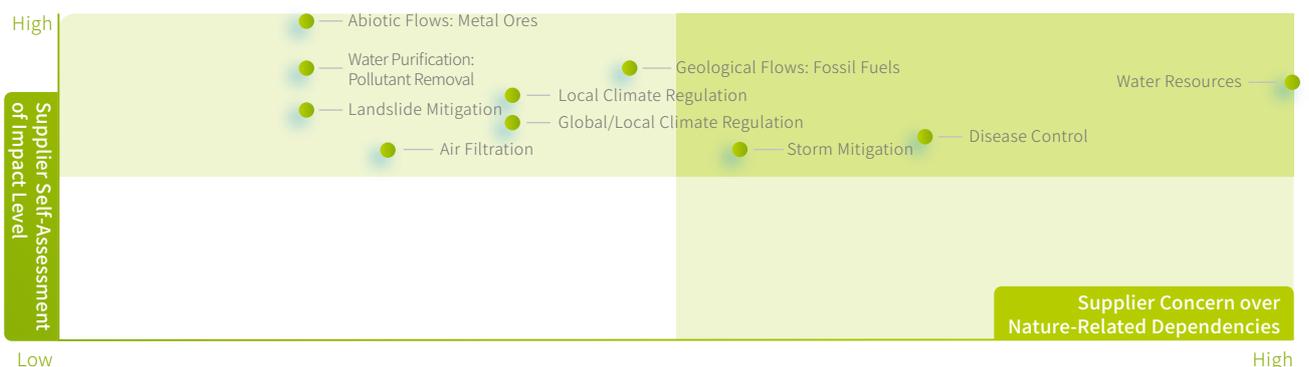


2. Material Issues, Risks, and Opportunities Regarding Suppliers of Concern' Nature Related Dependencies

Nature-Related Dependencies



This year, Nanya Technology received 31 valid responses from its key suppliers, covering sectors such as chemical manufacturing, electronics, and plastic products. According to self-assessments done by suppliers of concern, the most significant nature-related dependency of the overall supply chain was ecosystem services such as "water supply," "disease control," and "storm mitigation."



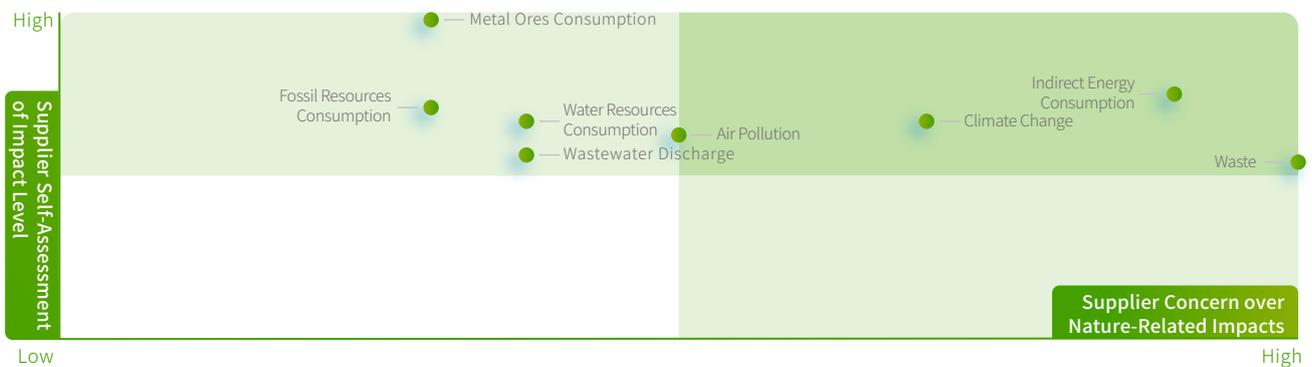
This indicates that Nanya Technology should make sure whether suppliers have comprehensive measures for water management, disease control, and disaster preparedness for extreme weather events, and review whether each supplier has adequate response plans to manage each nature-related risk. For nature-related dependencies that are of less concern but carry high impact—such as drought (local climate regulation) and related water stress—early warning mechanisms systems should be established to manage the risk of supply shortages due to natural disasters (including fossil fuel and metallic mineral shortages) in order to build a more resilient supply chain.

3. Materiality Identification Results of Suppliers of Concern' Nature Related Impacts

Nature-Related Impacts



In 2024, the most material nature-related impact across the supply chain was “waste,” followed by “indirect energy use” and “climate change.” These findings align with the Company’s current supply chain sustainability strategy. Since adopting science-based targets for carbon reduction, Nanya Technology has actively worked with suppliers to reduce emissions across the supply chain. Based on our experiences in carbon management across the supply chain, we plan to include “indirect energy use” and “waste management performance” in future sustainability audits of the supply chain to mitigate risks related to pollution and emissions in the upstream value chain.

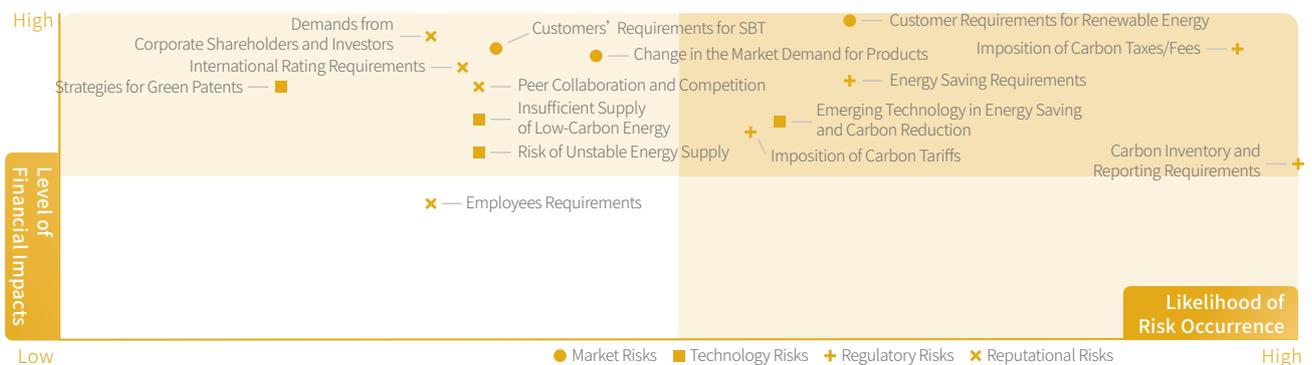


4. Suppliers of Concern' Climate Change-Related Transition Risks

Climate Change-Related

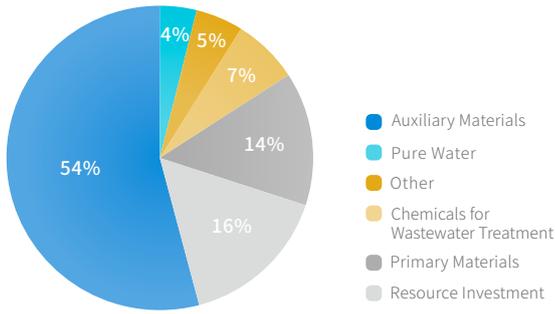


Nanya Technology conducts workshops to collect and compile climate transition risks and physical risks faced by suppliers. The results show that the most significant transition risk for suppliers comes from regulatory risks, such as carbon fee imposition, greenhouse gas (GHG) inventories, and related reporting requirements. The second most cited concern is the increasing pressure from suppliers’ customers regarding the use of renewable energy and energy efficiency during operations.



In addition to Nanya Technology’s own operations, upstream suppliers may also face operational impacts due to climate policies and regulations, including the introduction of carbon taxes/fees, government mandates for renewable energy use, and carbon tariffs affecting import and export. Nanya Technology is actively inventorying and assessing how suppliers are affected by these impacts. Through Scope 3 GHG inventory and product life cycle analysis, we have identified emissions hotspots and initiated collaborative efforts with key suppliers in the supply chain.

Carbon Footprint Proportion of Raw Material Procurement



Assessment and analysis show that suppliers' impact on Nanya Technology's operational costs under various transition risk scenarios is limited (approximately 1%). However, in order to meaningfully reduce product carbon footprints and meet climate goals, we have initiated high-level discussions with suppliers' executives on topics such as renewable energy, product carbon footprint, and circular economy. Sustainability officers from Nanya Technology have visited suppliers across various sectors—including wafer, chemical, gas, and contract manufacturing—and received positive feedback. The exchanges also helped clarify challenges in implementing net-zero strategies within industries. We will continue to share our experience and sustainability knowledge, help suppliers access external resources, and participate in industry associations in order to resolve shared issues.

Assessment of Impact to Revenue under Risk Scenarios

Risk Scenario	Impact to Revenue (NT\$ million)	Assessment Methodology
Regulations Requiring Large Electricity Consumers to Use Renewable Energy	24.5	According to the Taiwanese government, at least 10% of installed capacity is required to come from renewable energy; cost passed on by suppliers
Increase in Energy Usage Costs	557.4	Due to rising fossil fuel prices and changing energy structures, electricity costs in 2030 are projected to increase by 50%; cost passed on by suppliers
Imposition of Carbon Fees	23.6	Estimate based on current carbon fee range of NT\$300 per ton; cost passed on by suppliers ¹ .
Investment in GHG Reduction	87.5	Estimate based on suppliers who have set SBT with a minimum 25% GHG reduction by 2030. Cost passed on by suppliers ²

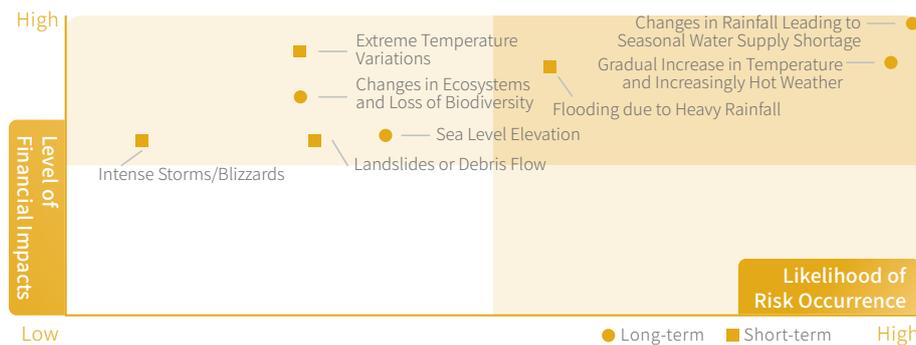
Note 1: Comparable to Taiwan's NDC scenario. Note 2: Comparable to the IEA APS scenario.

5. Suppliers of Concern' Climate Change-Related Physical Risks

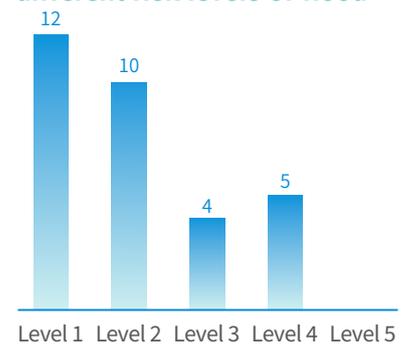
Climate Change-Related



During the identification of physical risks, the most significant climate-related risks affecting the supply chain are water scarcity and flooding caused by changing rainfall patterns. Additionally, increasingly hot weather patterns are also having a notable impact on supplier operations.

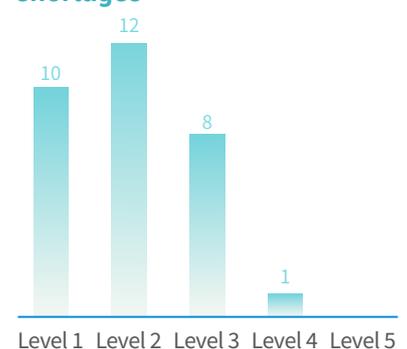


Distribution of suppliers with different risk levels of flood



In addition to the transition risks faced by the supply chain, Nanya Technology is proactively assessing trends in natural disasters in suppliers' operational locations. Our aim is to prevent supply disruptions in case supplier production is impacted by climate change-intensified disasters. The Company has prioritized assessment of 31 supplier production and delivery sites in Taiwan. Making use of IPCC AR5 RCP8.5 scenario data published by the Disaster Rise Adaptation platform (hereinafter referred to as "DR.A") of the National Science and Technology Center for Disaster Reduction (hereinafter referred to as "NCDR"), cross-comparisons showed that 22 supplier production sites are located in flood- and drought-prone high-risk areas (levels 4 and 5), mostly distributed across central and southern Taiwan.

Distribution of suppliers with different risk levels of water shortages



So far, Nanya Technology has already developed emergency response plans for high-risk supplier sites. As a result, we believe that physical climate-related risks have a limited impact on the Company's Taiwanese suppliers and are unlikely to cause production disruptions. We will continue to monitor these high-risk suppliers and expand climate risk assessments to supply chain production sites outside of Taiwan to ensure supply and production security throughout the supply chain.

3.2 Supply Chain Management and Performance

Nanya Technology is committed to building a responsible and sustainable supply chain. Through risk control, audit mechanisms, and responsible mineral management, the Company ensures stable operations while jointly advancing environmental and social responsibility with suppliers.

1. Sustainable Supply Chain Risk Management

Nanya Technology requires suppliers to sign the “Supplier Corporate Social Responsibility Commitment,” and has established a comprehensive process for sustainable supply chain management. This includes the development of standards, risk investigation, on-site audits, and capacity-building to enhance suppliers’ sustainability performance. In addition, water management and TCFD-related topics have been included in the Supplier Assessment Questionnaire (SAQ). The Company also uses the NCDR’s DR.A platform and IPCC AR5 RCP8.5 scenario data to cross-reference and assess suppliers’ water-related risks. In 2024, 31 suppliers of concern were assessed to ensure they had water management measures and emergency response plans in place. High-risk and key suppliers received on-site audits and guidance on improvements they could make, ensuring that the physical risks of climate change remain manageable for our suppliers in Taiwan and do not affect production stability.

Nanya Technology identifies high-risk suppliers based on an analysis of the SAQs, and conducts audits and follow-up guidance in accordance with supplier characteristics. For deficiencies identified during audits, suppliers are required to submit an improvement plan, and complete improvement measures within two years. Suppliers failing to complete improvements within the required timeframe will be reviewed by the Material Review Board (MRB). Depending on the severity of the issue, actions may include further communication, reduced orders, reallocation of orders, or termination of partnership to ensure risks remain manageable. In 2024, no partnerships with suppliers were terminated due to unaddressed deficiencies.

2. Responsible Mineral Management

Metallic minerals are a key component for natural resource-dependent industries. Nanya Technology is committed to following the standards of the Responsible Business Alliance (RBA) and the Responsible Minerals Assurance Process (RMAP) to ensure that mineral sourcing does not involve illicit financial flows or violations of human rights.



In response to global supply chain trends, Nanya Technology expanded the scope of responsible sourcing to include aluminum, copper, nickel, zinc, natural graphite, and lithium in 2024, and incorporated them into supply chain traceability investigations.

Nanya Technology will continue to strengthen sustainable supply chain management by enhancing risk management, implementing supplier audit mechanisms, and promoting responsible mineral sourcing. We will ensure that our supply chain complies with international standards, and work with suppliers to co-create a sustainable value chain.

Name	Description	Target	Benefit
 Product Carbon Footprint Inventory	Promote carbon footprint inventory among raw material suppliers and packaging/testing contractors.	<ol style="list-style-type: none"> (1) Align with global climate change initiatives. (2) Reduce the Company's product carbon footprint. (3) Achieve SBT certification and reach targets by 2030. 	We took part in a carbon footprint verifications and carbon reduction projects led by the Industrial Development Administration—with guidance from the Industrial Technology Research Institute—after promoting the project and communicating with our top 30 raw material and packaging/testing suppliers with the highest emissions. Together with 10 supply chain partners, Nanya Technology aims to collectively reduce emissions by 6,300 metric tons over two years (Nov 2023–Oct 2025).
 Low Carbon Transformation Transportation Project	To support green supplier development, a collaborative upstream-downstream decarbonization model was established. Nanya Technology partnered with wafer suppliers to switch from air to sea freight for wafer transportation, achieving low-carbon logistics in 2024.	<ol style="list-style-type: none"> (1) Reduce carbon emissions. (2) Optimize logistics to reduce loading/unloading frequency and labor costs. (3) Reduce reliance on high-carbon forms of transport, and enhance supply chain resilience and adaptability. 	<ol style="list-style-type: none"> (1) Annual emissions reduction: 35,162 kg of CO₂e reduced in 2024 through shifts in forms of transport. (2) Carbon reduction per unit: 0.671 kg CO₂e reduced per wafer.
 Collaboratively Procuring Renewable Energy with Supply Chain Partners	Aiming for the 2030 target of a 27% reduction in Scope 3 product unit emissions, we collaboratively procure renewable energy with our supply chain partners.	Implement low-carbon transition and realize sustainable manufacturing across the value chain.	Starting in 2024, Nanya Technology will procure 25 million kWh of green electricity annually, making 250 million kWh in total for ten years. Formosa Advanced Technologies, on the other hand, will procure 15 million kWh annually, making 150 million kWh in total for ten years.

3. Nature- and Climate-Related Training in the Supply Chain

To enhance suppliers' awareness of sustainable supply chain management and their understanding of the vision, we organized the 2024 Nanya Technology Sustainable Supply Chain Training and Sharing Seminar in June 24, 2024. A total of 50 participants from 33 Taiwan-based raw material suppliers attended the sessions. The seminar covered our water management, supplier training on environmental standards, supply chain cybersecurity, and targets for human rights and sustainability initiatives. Our goal was to work with suppliers to jointly create sustainable value and build a sustainable environment.



Suppliers share cases to facilitate exchanges on sustainability

In response to the new Taskforce on Nature-related Financial Disclosures (TNFD) framework, we hosted the Nature and Climate Synergistic Supply Chain Workshop on November 26, 2024. Nearly 30 suppliers sent their climate and nature personnel to join our workshop, ranging from chemical manufacturing, electronics to plastics. The goal of this workshop was to enhance supplier awareness of nature-related sustainability issues and strengthen upstream suppliers' strategic management in nature and climate topics. Experts from National Taiwan University of Science and Technology and National Taipei University of Technology were invited to present on theories and practices of climate and nature sustainability management. The sustainability team of Formosa Advanced Technologies also gave a talk about their projects on decarbonization and biodiversity under the theme "The Best Energy Is Energy Saving," showcasing case studies of energy-saving projects that reduced energy use and carbon emissions, and strengthening collaboration across the value chain.



2024 Nature and Climate Synergistic Supply Chain Workshop

Key Seminar Topics

2020	2021	2022	2023	2024
Trends in sustainable supply chain, achievements in energy conservation, and new energy technologies	Supply chain sustainability trends, Nanya Technology's sustainable supply chain strategy, supplier renewable energy plans, and outcomes of projects involving the human rights of migrant workers	Sustainability trends in the semiconductor industry, Nanya Technology's sustainable supply chain strategy for mutual good, suppliers' single-carbon finished product, and outcomes of circular economy initiatives	The net zero trend in ESG, digital carbon management and decarbonization hotspot analysis, the importance of nature and biodiversity—analysis of the TNFD trend, and future directions for collaborations on nature- and climate-related issues in the supply chain	Nature and Climate Synergistic Supply Chain Workshop

3.3 Product Contributions to Nature and Climate

1. R&D of Low-Carbon Products

As a critical part of the semiconductor industry, the DRAM industry's innovative R&D in memory products directly impacts computing device performance and efficiency. Nanya Technology has long been committed to development, design, manufacturing, and sales of DRAM products. In response to technological progress and market demand, three R&D directions have been established:

Manufacturing process shrinkage

The 1Bnm process technology has completed the R&D of DDR4 and DDR5 products, and entered mass production. The foundation for the 1Cnm process technology has been established, and R&D and design for DDR5 and LPDDR5 products are underway. R&D for the 1Dnm process is scheduled to begin in 2025, continuing to lower power consumption through process miniaturization. From the 1Bnm to the 1C- and 1D-nm process, each new process node has increased the per-wafer output by more than 30%. However, shrinking transistor channels presents challenges such as increased leakage current and greater process complexity—issues the R&D team works hard to address.

Nanya Technology's Manufacturing Process Shrinkage



Product specification enhancements

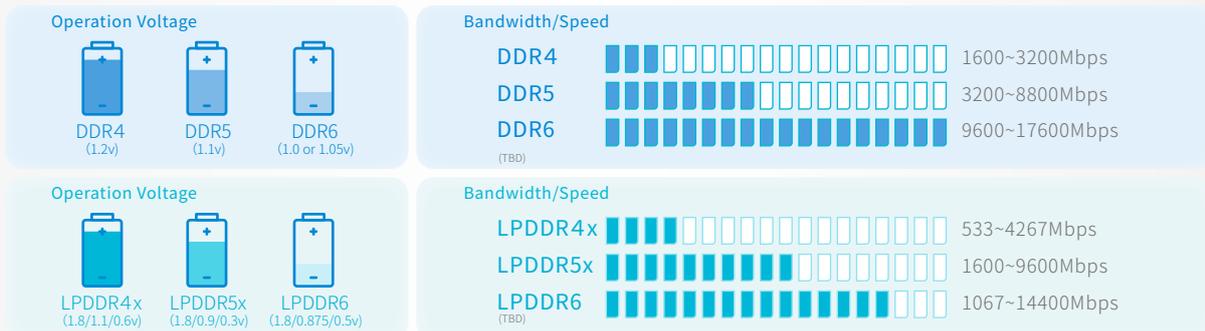
DRAM products are designed to meet evolving demands from 5G, AI, and high-performance computing. As application scenarios diversify, higher bandwidth, lower latency, and lower power usage significantly enhance platform performance. DDR5 and LPDDR5 products show substantial improvements in bandwidth, capacity, and power efficiency over DDR4 and LPDDR4 products.

Nanya Technology's Product Planning and the Evolution of Product Specifications

DDR5 Nanya Technology has completed the R&D and design of DDR5 supporting **6400 Mbps**, and plans to develop high-speed, high-bandwidth DDR5 products ranging from **7200-8800 Mbps** using 1Cnm and 1Dnm process technologies.

LPDDR5 As for low-power LPDDR5 products, target specifications are raised to **8533-9600 Mbps**. Furthermore

LPDDR6 R&D and design of LPDDR6 is planned for 2026, in line with the trend toward high speed and low power.



Development of 3D stacking technology

The rise of generative AI has led to higher demands for memory bandwidth and capacity. Nanya Technology has developed Through-Silicon Via (TSV) process technology and—starting with 1Bnm DDR5—offers high-capacity server modules using 3DS stacking technology to capture opportunities in cloud and AI server markets. In addition, edge computing is emerging, bringing AI capabilities to endpoint devices such as AI PCs, AI smartphones, and AI robots. To address this trend, Nanya Technology is also developing customized ultra-high-bandwidth memory combined with 3D stacking to provide high-performance, low-power solutions for customers.



From the outset of new product development, Nanya Technology keeps the environmental impact in mind throughout the entire product lifecycle. For electronic products, energy consumption during the usage phase is one of the most significant indicators of environmental impact. We are actively developing low-power products to help customers reduce energy consumption during use, thereby lowering GHG emissions.

Mainstream Process Products (low-power DRAM and 20nm consumer DRAM)

Scope: Total sales equivalent volume in 2024.
Calculation baseline: Energy consumption of mainstream process products in the current year compared with that of the previous generation.
Calculation method: Totalling the power consumption difference between all products in that year and their respective previous generation product.

Benefit

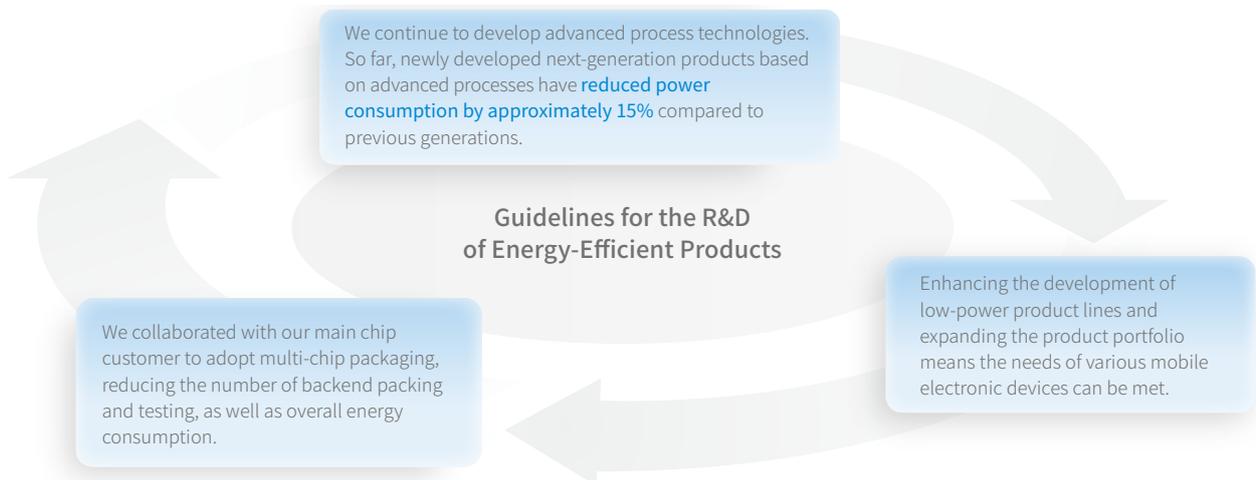
helped customers save over **617.17 million kWh** of electricity, equivalent to the average annual electricity usage of **167,000 households**¹. This also reduced GHG emissions by 292,540 tCO₂e², equivalent to the annual carbon absorption of 752 Daan Forest Parks³.

Note 1: Estimated using the monthly residential and small-scale commercial electricity usage data on Taipower's website; the annual household consumption is 3,699 kWh/year (as of June 20,2025).
 Note 2: Emission factor for electricity calculated based on the Energy Administration's 2024 published value of 0.474 kgCO₂e/kWh.
 Note 3: Based on the Energy Administration's estimate that one Daan Forest Park absorbs 389 metric tons of CO₂ annually.

2. Carbon Reduction Linkages in the Product Value Chain

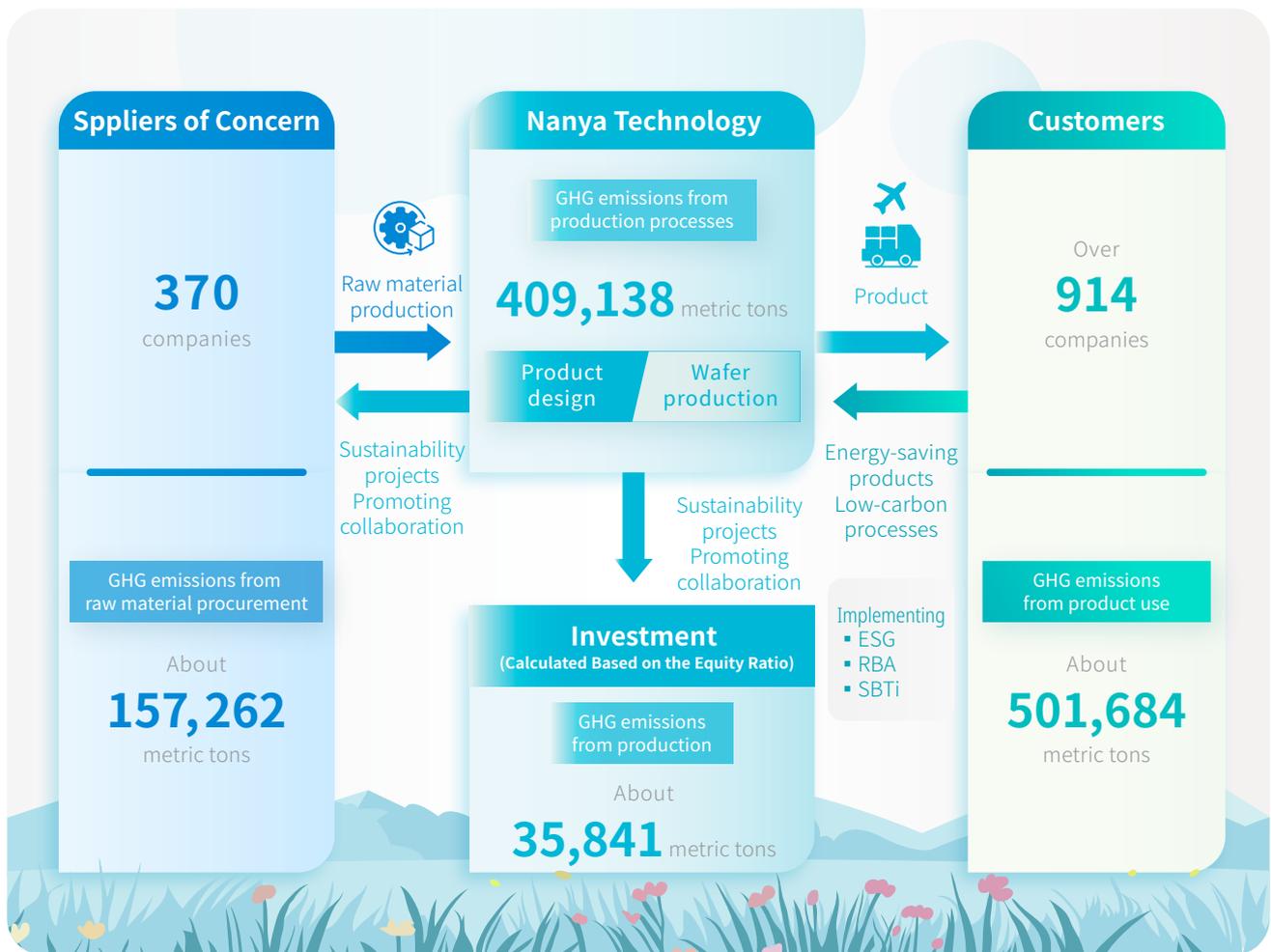
Having long been part of the DRAM industry, Nanya Technology aspires to become the Best Memory Partner for the Smart Generation. It is upon our foundations in innovative R&D that we continue to develop advanced process technologies (1Bnm, 1Cnm, 1Dnm) and products (DDR5, LPDDR5), enhance our portfolio of low-power products, and improve packaging methods. These efforts help the Company implement its low-power R&D strategy, and enable the delivery of high-efficiency, energy-saving products. By introducing new processes, the carbon footprint of each product can be further reduced, allowing the benefits to reach customers' end products.

Guidelines for the R&D of Energy-Efficient Products



Nanya Technology understands that many customers are concerned about climate change. In addition to regularly disclosing relevant information through sustainability reports, the Company also participates in domestic and international initiatives and ratings related to sustainability and climate change—including TCFD, SBT, the Taiwan Alliance for Net Zero Emission, DJSI and CDP. Through our comprehensive customer service management system, customers are provided with timely and transparent access to the Company's carbon reduction actions. At the same time, high-performance products also contribute to society's overall transition toward a low-carbon economy. This process contributes to avoided emissions throughout society's transition process. Avoided emissions have become an issue of concern for Nanya Technology in recent times. The Company is studying methodologies outlined in the guidelines on avoided emissions provided by the World Business Council for Sustainable Development (WBCSD) to effectively quantify how its products contribute to reducing carbon emissions across society.

Guidelines for the R&D of Energy-Efficient Products



Within the industry chain, Nanya Technology has not only established its own net-zero transition pathway, but also promotes supplier engagement in net-zero initiatives through training and guidance programs. In 2024, the Company hosted one Nature and Climate Synergistic Supply Chain Workshop. A two-year project (2024–2025) on low-carbon and smart upgrades was launched, targeting 10 suppliers with high GHG emission potential. In the first year, we assisted five suppliers with product carbon footprint verification and conducted energy-intensive equipment monitoring for two suppliers. A “246” reduction target was set for the project (2% renewable energy adoption, 4% energy savings, and 6% carbon reduction) with the aim of accelerating suppliers' net-zero transitions.

Nanya Technology also co-founded the Semiconductor Climate Consortium (SCC) with other leaders in the global semiconductor industry. As a founding member, the Company partners with the industrial chain to advance net-zero emissions through GHG inventories, education, innovative technology empowerment, and policy advocacy. We are also a member of the SEMI Taiwan Sustainable Manufacturing Committee, collaborating to integrate industry resources and shape a shared sustainability vision and action plan for the semiconductor sector.

3.4 Customer and Investor Engagement

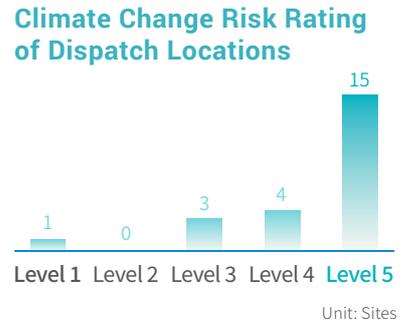
As awareness around sustainability initiatives and sustainable finance grows among customers and investors, customers and stakeholders are now looking beyond operational performance. They expect companies to disclose complete, transparent, and timely ESG information to understand how sustainability issues impact business operations and to assess the Company's long-term value, risk management, and sustainability performance. Nanya Technology engages proactively with customers and investors through three channels: Sustainability and finance-related disclosures, long-term two-way communication, and active participation in sustainability assessments.

In terms of sustainability and finance-related disclosures, Nanya Technology released its first Nature and Climate-related Financial Disclosure Report (TNFD-TCFD Report) in 2024, incorporating the LEAP (Locate, Evaluate, Assess, Prepare) framework to assess the materiality of nature-related issues at its operational sites. Unlike TCFD, which focuses on carbon reduction and net-zero, TNFD emphasizes the impact on the natural environment. Integrating both frameworks allows the Company to provide a more comprehensive perspective on the financial impact of climate- and nature-related risks and to explain the Company's management strategies to investors.

Nanya Technology compiles customer requirements and evaluates physical risks at delivery locations as a reference for ESG improvements. As of 2024, we serve 26 customers that are RE100 members, 48 customers with SBTs, and 52 customers participating in CDP assessments. 47 customers have actively advanced sustainable supply chain management by setting climate action target—including setting SBTs, adopting renewable energy, conducting GHG inventories, and participating in CDP assessments.



Nanya Technology assessed climate change risks at dispatch locations using data from the NCDR's DR.A database¹. Of the 23 dispatch locations in Taiwan, 15 were identified as high flood-risk areas. Nanya Technology has established internal procedures, including the "Incoming and Outgoing Product Management Process" and the "Product Transport, Storage, Packaging, and Delivery Procedures," along with contingency plans to address potential disruptions (including natural disasters), ensuring products are delivered to customers without any trouble. The Company plans to expand the scope of its inventories, continue to accommodate customer requirements, and monitor conditions at dispatch locations to ensure secure and complete product delivery.



Note 1: Analysis of the database is based on the IPCC AR5 RCP8.5 scenario.

As part of our ongoing communication mechanism with customers, sales representatives submit weekly feedback on customers' projected future demand. After they consolidate demand forecasts from global sales teams, the information is converted into production plans through the production and sales system. These plans are then distributed to relevant departments for evaluation and implementation via the Document Management System (DMS) and the Customer Requirement System (CRS). Adjustments are continuously made based on weekly feedback from sales personnel to ensure alignment with customer expectations.

We also engage in two-way communication with investors through multiple channels. These include quarterly investor conferences that brief investors on operational and sustainability performance, and investor forums where we get feedback from external investors about their expectations regarding the Company's sustainable development. In addition, we share real-time sustainability information with investors via press releases, ESG newsletters, and social media platforms such as Facebook and YouTube.

We also actively participate in domestic and international ESG ratings and initiatives, such as: DJSI, CDP, MSCI, and SBTi. These third-party assessments provide quantifiable, objective, and credible ESG performance indicators for investors. In 2024, we received an MSCI ESG rating of "AA" for the first time, placing us among the top 26% of enterprises in the semiconductor and semiconductor equipment industry. These assessments help us review our sustainability system, align our sustainability strategy and targets with global trends, and enhance the Company's resilience.

4 Actions Beyond the Value Chain

In addition to managing nature- and climate-related risks across its value chain, Nanya Technology actively engages in environmental protection and community development. Promoting both environmental stewardship and cultural preservation, our initiatives include on-site ecological surveys and nature-inclusive programs within communities. These efforts strengthen ties between the Company and the community, reflecting a commitment to harmonious coexistence with nature.

4.1 Development in Harmony with Nature

1. Ecological Monitoring Program

Since 2013, Nanya Technology has collected data on regional species, using the population of dominant species as an indicator to assess external construction disturbances, with ongoing monitoring and data updates.

The area covered is within a 500-meter radius from the site. The surveys follow the Ministry of Environment's Technical Specifications for Plant Ecological Assessment and Technical Specifications for Animal Ecological Assessment, and are conducted regularly on a quarterly basis. The flora survey uses transect and plot sampling methods, combining literature comparison with field collection and identification, followed by statistical analysis of plant species and calculation of diversity indices. The fauna survey employs line and point observations to record the community dynamics of mammals, birds, amphibians, reptiles, and butterflies.

Results of the 2024 Ecological Monitoring Survey

Flora	 <p>A total of 126 families, 360 genera, and 498 species of vascular plants were recorded within the site. Approximately 61.8% are native to Taiwan (including endemic species), while 14.5% are naturalized and 23.7% are cultivated species. The proportions of herbaceous plants, shrubs, vines, and trees are approximately 47.2%, 18.3%, 10.4%, and 24.1%, respectively, indicating a relatively balanced regional vegetation structure. Even though the endemic species here do not qualify as nationally rare, having 18 plant species endemic to Taiwan thrive at the site shows it is ecologically diverse and valuable.</p>
Fauna	 <p>The mammal species mainly recorded were the Japanese house bat and the Pallas's squirrel. The bird survey recorded 65 species, including resident and migratory birds. Overall biodiversity indices were relatively high, indicating that, despite urban and industrial influence, the site still provides stable habitats. In addition, records of amphibians, reptiles, and butterflies show distinct seasonal patterns. While the population of some species fluctuated because of construction or climate factors, comparisons with previous data indicate a stable trend.</p>

Ecological monitoring results were analyzed using diversity indices such as Shannon, Simpson, and Pielou's evenness to objectively assess community richness and species distribution evenness across sampling areas. Although the data fluctuated because of localized human activity and construction, the ecosystem still demonstrated strong resilience and stability. This year's monitoring reflects current ecological conditions and helps the Company continuously refine its operational and project management strategies toward harmonious coexistence with nature.

Nanya Technology's FAB 3A and the new FAB 5A are reconstructions of existing sites, not new land development projects. However, we fully understand that ongoing operations may still impact the surrounding environment and ecology. To address potential ecological impacts, the Company follows its established biodiversity management cycle and adopts the Biodiversity Impact Management Framework, which includes four strategies: avoidance, impact mitigation, restoration, and compensation. Among them, avoidance and impact mitigation are our main strategies. For new facility development, the Company has conducted ecological impact assessments on surrounding flora, fauna, and aquatic environments, as well as corresponding preventive measures. If ecological loss still occurs despite these efforts, we will prioritize restoration measures. When restoration is not feasible, we will implement compensation actions—such as reforestation or establishing environmental trust funds—and aim for zero net deforestation. Through nature-related risk assessment and implementation of a biodiversity policy, Nanya Technology promotes ecological sustainability and corporate environmental responsibility, ensuring operations coexist harmoniously with surrounding ecosystems.

4.2 Beyond Value Chain Mitigation (BVCM)

As global attention to TNFD topics and biodiversity grows, corporate sustainability efforts focus on achieving net-zero emissions or a nature-positive impact through compensation mechanisms beyond the value chain. This approach supports broader progress toward the global 2030 target of halving greenhouse gas (GHG) emissions and channels more funding into climate and nature-based solutions, advancing systemic transformation.

Nanya Technology has begun developing high-quality carbon credit mechanisms and nature restoration projects, drawing on SBTi's Beyond Value Chain Mitigation (BVCM) issued in February 2024, as well as the ISO 14068-1:2023 carbon neutrality standard:



4.3 Community Inclusion, and Services to Nature and Culture

Nanya Technology closely engages with local communities and is attentive to issues concerning the natural environment. According to *Guidance on engagement with Indigenous Peoples, Local Communities and affected stakeholders – TNFD*, meaningful engagement with these stakeholders is essential for assessing nature-related issues. Nanya Technology is highly attentive to labor rights and has established a Human Rights Policy as well as Labor and Ethics Policy. These policies follow international human rights standards, including the Responsible Business Alliance (RBA) Code of Conduct, SA8000 Social Accountability Standard, International Labour Organization (ILO) conventions, the Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, and the EU General Data Protection Regulation (GDPR), along with relevant local laws. Nanya Technology promotes human rights risk assessment and management across our value chain.

Nanya Technology understands that nature-related topics are closely tied to local communities. That is why the Company has promoted social engagement through "environmental conservation" and "community harmony" over the long term. We have also developed diverse engagement initiatives according to TNFD's emphasis on aligning nature and human rights. Community collaboration focuses on two themes: ecology and culture. Through voluntary employee participation, we work hand in hand with suppliers, non-profit organizations, local governments, and nearby schools to launch a series of initiatives that raise corporate awareness of environmental issues. Nanya Technology has also integrated the TNFD framework into its operations. Building on risk assessment results showing high dependence on water resources, we conducted a river survey in 2024 to strengthen our commitment to monitoring and protecting the surrounding environment.

Nanya Technology's Nature and Human Rights Engagement Network in 2024



1. Protecting Hills, Rivers, and Oceans

"A healthy forest gives rise to clear rivers, which in turn nurture clean oceans." Protecting the source is protecting the entire ecosystem. In 2024, Nanya Technology engaged volunteers and partnered with local schools and communities to host various ecological activities. We are committed to protecting the environment from hills to rivers and all the way to the sea.

 <p>Hill</p>	<p>Hill cleanups</p> <p>Species Survey</p>	<p>Volunteers and their families removed litter from the hilly area of Taishan and kept hiking trails clean.</p> <p>In collaboration with the Society of Wilderness, Nanya built an ecological database of the surrounding area on the globally recognized iNaturalist platform. The initiative fosters a deeper connection between people and the land, and raises awareness of local ecological sustainability. A total of 650 observation records covering 170 species were uploaded that day.</p>
 <p>River</p>	<p>River Waste Survey</p> <p>Wugu Wetland Restoration</p>	<p>This year, our volunteer team joined the "River Waste Survey Training Program" co-organized by Ming Chi University of Technology and the Society of Wilderness. Beginning in March, volunteers received professional training, and starting in May, they launched environmental monitoring activities at Dake River in Taishan. Through site visits and surveys, we have documented the types and quantities of river waste. By harnessing the power of citizen scientists, we aim to develop collaborative solutions to river waste issues through public-private partnerships.</p> <p>Nanya Technology mobilized 73 employee volunteers and their families to work with the Society of Wilderness in restoring the Wugu Wetland. Together, they removed 70.5 kg of mikania vine—one of the world's 100 worst invasive alien species—and cleared the reeds to create more habitat for crabs and other wildlife, protecting biodiversity and the wetland ecosystem.</p>
 <p>Ocean</p>	<p>Beach Cleanup</p> <p>Ocean Cleanup</p> <p>Taiwan Cetacean Society Volunteers</p>	<p>A low-carbon, low-plastic beach cleanup activity was held with 83 employees and their families participating. During the activity, employees brought their own water bottles to refill with on-site drinking water. The provided lunch boxes also featured plastic-free rice dumplings. We aim to lead by example in minimizing waste. A total of 63.6 kg of trash was collected during the beach cleanup.</p> <p>Since 2023, Nanya Technology's diving club members have participated in activities organized by the "Ocean Cleanup Club" for two consecutive years, integrating their regular diving activities with environmental action to help protect marine ecosystems.</p> <p>Nanya Technology invited employees who are highly attentive to environmental issues to join the Taiwan Cetacean Society's animal rescue volunteer training program. Through the training, they learned more about marine ecology and basic environmental education, and further developed skills needed to care for stranded wildlife, helping address the shortage of on-duty volunteers.</p>

				
<p>Annual hill cleanups help raise awareness of the surrounding environment and maintain its cleanliness.</p>		<p>Removing mikania vine is essential for maintaining wetland biodiversity. This year, a total of 70.5 kg was removed.</p>		<p>Employees participated in river waste training and surveying.</p>
				
<p>Parents and children picked up garbage on the beach.</p>		<p>Channeling their passion for diving into marine conservation, diving club members helped protect the planet.</p>	<p>Our volunteers learned how to care for stranded wildlife, so as to address the shortage of on-duty volunteers.</p>	

2. Environmental Advocacy and Education

Through education and action, Nanya Technology deepens understanding of ecology and transforms it into actions for change. By offering lectures and hands-on experiences, employees are able to recognize environmental issues and participate in protecting nature, contributing to a sustainable future.



<p>Marine Plastics Reduction Lecture</p>	<p>Lecturers explained the impact of ocean litter on ecosystems, enhancing employee awareness of marine conservation.</p>
<p>River Waste Survey Lecture</p>	<p>In collaboration with Ming Chi University of Technology, the lecture explained the causes of river pollution and fostered the citizen scientist mindset.</p>
<p>Volunteer Environmental and Ecology Day</p>	<p>In collaboration with the Butterfly Conservation Society of Taiwan, the event focused on butterfly ecology to enhance employees' and their families' understanding of biodiversity.</p>
<p>Elementary School Winter Camp</p>	<p>In collaboration with Ming Chi University of Technology, the event featured an environmental promotion lecture for local elementary schools, incorporating marine education plans developed by the Company's volunteer lecturers.</p>

<p>"Caring for Sea Turtles and Striving for a Plastic-Free Ocean" —A lecture on marine waste and environmental protection.</p>	<p>Lecture on river waste survey.</p>	<p>The area surrounding the plant boasts a rich variety of butterflies, making it an ideal location for butterfly education.</p>	<p>In the elementary school winter camp, extreme weather events were used to introduce ocean environmental issues.</p>
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3. Journey to Taishan—Coexistence with Culture and Nature

Culture and nature are the two pillars of local development. We partnered with Ming Chi University of Technology to preserve the traditional culture nurtured by Taishan's natural landscape. Together, we strive to keep local heritage and craftsmanship alive amid urban development, safeguarding the area's unique identity and history.



Taishan Renaissance Series

Nanya Technology and Ming Chi University of Technology have launched the "Taishan Renaissance Project." Guided tours and traditional craft work-shops were held to preserve local heritage and increase public interest and participation. Centering on temples, drum performances, and bamboo weaving:

Temples: Centered around Upper Taishan Temple, the project held couplet-writing and sketching competitions to promote traditional culture.

Drum performances: Taishan is renowned for its traditional drum-making craft. Through events like the Taishan Drum Performance Competition and Taishan Prayer Drums Celebration, local drum troupes presented innovative performances that helped bridge cultural traditions across generations. Survey results show that 70% of participants were residents of Taishan.

Bamboo weaving: In Dake Village, once known as the Hometown of Bamboo, traditional bamboo weaving has gradually been replaced by plastic products. In 2024, a bamboo wind chime workshop was organized, allowing employees and the public to experience the beauty of this traditional craft and rekindle interest in the art of bamboo weaving.



Taishan Lion Dance Cultural Festival

The New Taipei City Taishan Lion Dance Cultural Festival, an important cultural event in the Taishan area, has been hosted annually by the Taishan District Office and Nanya Technology serves as a co-organizer. This event began as a celebration of the birthday of "Master Xianying," the main deity of both Upper Taishan Temple and Lower Taishan Temple (celebrated annually on September 18 in the lunar calendar). Due to the frequent inclusion of lion dance performances in temple celebrations, the Taishan Lion Dance Championship was created to showcase this cultural tradition. As the ceremonial activities grew larger, what started as a local cultural event has since 2006 evolved into Taiwan's landmark lion dance competition, the Taishan Lion King Championship, which has been held for 18 consecutive years. Nanya Technology has sponsored this traditional local event for 6 consecutive years.

According to the survey of the Taishan Prayer Drums Celebration, 70% of participants are local residents. The results reflect that local revitalization and development of natural and cultural heritage is closely tied to community engagement. These initiatives strengthen the connection with the community, and protect local culture and ecological resources. In the future, Nanya Technology will continue to strengthen interactions between nature and human rights, allowing culture and nature to develop together, and achieving sustainable coexistence and shared prosperity.

5 Targets and Indicators

Nanya Technology has set measurable targets for nature- and climate-related action. We use indicators to track progress, ensuring the effective implementation of sustainability strategies. These key performance indicators (KPIs) include greenhouse gas (GHG) emissions, water resource usage, and supply chain emission reductions. Nanya Technology continues to refine them in alignment with international standards to enhance its competitive edge in sustainability.

5.1 Setting Targets Related to Nature and Climate

Table of Corresponding Targets and Indicators

Strategy	Topic	2024 Targets	2024 Performance	Goal Achievement	2025 Targets	2030 Targets
 Mitigation and Transition	Focus on Development of Low-Carbon Products	Second-generation 10nm-class DRAM process 8 GB DDR4 products meet shipping verification standards	Accomplished	 Achieved	Third-generation 10nm-class DRAM process and 16 GB DDR5 products meet shipping verification standards	Fourth-generation 10nm-class DRAM process and 16 GB DDR6 product development Introduction of EUV and HKMG technology
		Second-generation 10nm-class 16 GB DDR5 products meet shipping verification standards	Accomplished	 Achieved		
	Strategy for Production via Green Technology	10.0% reduction in Scope 1 and 2 emissions compared to 2020	12.9%	 Exceeded Goals	Reduction by 12.5% 	Reduction by 25.0% 
		10.8% reduction in Scope 3 emissions per product unit compared to 2020	19.4%	 Exceeded Goals	Reduction by 13.5% 	Reduction by 27.0% 
		Reduction of $\geq 93\%$ in process perfluorocarbon (PFCs) emissions	93%	 Achieved	$\geq 93\%$	$\geq 93\%$
		Implementation of energy-saving measures that result in a cumulative energy savings of 72,500 MWh from 2017 to 2024	74,078 MWh	 Exceeded Goals	$\geq 75,000$ MWh	$\geq 103,000$ MWh
		Renewable energy usage of $\geq 25,000$ MWh (9×10^7 MJ) in the entire year	35,230 MWh	 Exceeded Goals	$\geq 45,000$ MWh	Renewable energy accounts for 25% of total

Table of Corresponding Targets and Indicators

Strategy	Topic	2024 Targets	2024 Performance	Goal Achievement	2025 Targets	2030 Targets
 <p>Mitigation and Transition</p>	Partners in Sustainability	Use of conflict-free metals: 100%	100%	 Achieved		
		100% improvement rate in the audit findings of high-risk sustainable suppliers	100%	 Achieved		
		At least 2 supplier sustainability counseling cases	2 cases	 Achieved	2 cases	3 cases
 <p>Resilience and Adaptation</p>	Adaptation to Nature and Climate Change Risks	0 days of production interruption due to climate change-related disasters	0 days	 Achieved	Keep at 0	Keep at 0
		38.5% reduction in total water consumption per unit of production capacity compared to 2017	35.1%	Not achieved ¹	$\geq 35.5\%$ ²	Reduction by 37.0% 
		Production losses due to water restrictions: 0 wafer (chip)	0 wafer (chip)	 Achieved	0 wafer (chip)	0 wafer (chip)
 <p>Stakeholder Engagement</p>	Nature and Climate Advocacy and Education	Climate change-related activities for all employees	Earth Hour 60 Earth Day 365	 Achieved	Earth Hour 60 Earth Day 365	Earth Hour 60 Earth Day 365
		At least 3 volunteer projects related to nature themes	3 Projects	 Achieved	At least 5	At least 5

Note 1: Product capacity in 2024 decreased by approximately 1.7% compared to 2023, and abnormal MBR membrane in wastewater treatment led to a decrease in water recovery, resulting in unit production water consumption failing to meet the goal.

Note 2: The original target for reduction of water consumption per unit of production is >38.5%. However, this goal is re-evaluated based on product and production capacity and is adjusted as >35.5%.

6 Appendix

Appendix I—Table of Corresponding TCFD & TNFD Indicators

A table of corresponding TNFD and TCFD indicators and GRI standards, as well as relevant reference materials, is provided to ensure transparency and support stakeholder understanding of Nanya Technology's commitments and actions in nature and climate sustainability governance.

TCFD Index

Aspect	Information Disclosed	Chapter	Page
Governance	Description of the Board of Directors' oversight of climate-related risks and opportunities.	1-1	p.4-5
	Description of the role of the management in assessing and managing climate-related risks and opportunities.	1-1	p.6
Strategy	Description of the short-, medium-, and long-term climate-related risks and opportunities identified by the organization.	2-2	p.20-22
	Description of the impact of climate-related risks and opportunities on the organization's business, strategy, and financial planning.	1-2, 2-2	p.6-8 p.20-22
	Description of the organization's resilience in its strategy, considering different climate-related scenarios (including a 2° C or severer scenario).	2-3	p.23-24
Risk Management	Description of the organization's process for identifying and assessing climate-related risks.	1-4	p.10-13
	Description of the organization's process for managing climate-related risks.	1-4	p.10-13
	Description of how the identification, assessment, and management pro-cesses for climate-related risks are integrated into the organization's risk management system.	1-4	p.10-13
Indicators and Targets	Disclosure of the indicators used by the organization to assess climate-related risks and opportunities in accordance with its strategy and risk management processes.	Ch5	p.59-60
	Disclosure of greenhouse gas (GHG) emissions and related risks for Scope 1, Scope 2, and Scope 3 (if applicable).	2-4	p.30-33
	Description of the targets used by the organization to manage climate-related risks and opportunities, as well as its performance in implementing these targets.	Ch5	p.59-60

TNFD Index

Aspect	Information Disclosed	Chapter	Page
Governance	Description of the Board of Directors' oversight of the organization's dependencies, impacts, risks, and opportunities related to nature.	1-1	p.4-5
	Description of the role of management in assessing and managing the organization's dependencies, impacts, risks, and opportunities related to nature.	1-1	p.6
	Description of the organization's human rights policies and engagement activities in relation to assessing and responding to nature-related dependencies, impacts, and risks, as well as the Board of Directors and management's oversight of and opportunities for indigenous peoples, local communities, affected parties, and other stakeholders.	1-3	p.9
Strategy	Description of the organization's dependencies, impacts, risks, and opportunities related to nature identified in the short, medium, and long term.	2-2	p.20-22
	Description of the impact of nature-related dependencies, impacts, risks, and opportunities on the organization's business model, value chain, strategy, and financial planning, including any transition plans or analyses.	1-2, 2-2	p.6-8 p.20-22
	Description of the adaptability of the organization's strategy to nature-related risks and opportunities depending on different scenarios.	2-3	p.20-22
	Disclosure of the locations of assets and/or activities within the organization's direct operations and, where possible, the upstream and downstream value chain that meets priority location criteria.	2-1, 3-1	p.14 p.46
Risk Management	1. Description of the organization's process for identifying, assessing, and prioritizing nature-related dependencies, impacts, risks, and opportunities in its direct operations.	1-4	p.10-13
	2. Description of the organization's process for identifying, assessing, and prioritizing nature-related dependencies, impacts, risks, and opportunities in its upstream and downstream value chain.		
	Description of the organization's process for monitoring nature-related dependencies, impacts, risks, and opportunities.	1-4	p.10-13
	Description of how the process of identifying, assessing, prioritizing, and monitoring nature-related risks is integrated into the organization's risk management process and how it informs this process.	1-4	p.10-13
Indicators and Targets	Disclosure of the indicators the organization uses to assess and manage nature-related risks and opportunities, based on its strategy and risk management processes.	Ch5	p.59-60
	Disclosure of the indicators the organization uses to assess and manage its dependencies on and impacts to nature.	Ch5	p.59-60
	Description of the goals the organization sets to manage nature-related dependencies, impacts, risks, and opportunities, as well as its performance in implementing these targets.	Ch5	p.59-60

Appendix II—Table of Corresponding GRI Standards

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Aspect	Information Disclosed	Chapter	Page
Topic Management Disclosure	Disclosure 101-1 Policies to Halt and Reverse Biodiversity Loss	1-1	p.4-6
	Disclosure 101-2 Managing Biodiversity Impacts	4-1, 4-3	p.55 p.56-58
	Disclosure 101-3 Access and Benefit Sharing	N/A	N/A
Topic Disclosure	Disclosure 101-4 Identifying Biodiversity Impacts	3-1	p.46-48
	Disclosure 101-5 Locations with Biodiversity Impacts	2-1	p.14
	Disclosure 101-6 Direct Drivers of Biodiversity Loss	2-1	p.14-19
	Disclosure 101-7 Changes in Biodiversity Status	2-1	p.14-19
	Disclosure 101-8 Ecosystem Services	1-4	p.12

Appendix III—References and Citations

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