
nuvoTon
TCNFD
REPORT
2025

1 Climate- and Nature-related Governance

1.1 Climate and Nature Governance and Management Framework

1.2 Stakeholder Communication

2 Management of Climate Change-related Risks and Opportunities

2.1 Climate Change-related Risk and Opportunity Identification Process

2.2 Climate Change Risk and Opportunity Management

2.3 Risk and Opportunity Scenario Analysis Results

3 Management of Nature-related Risks and Opportunities

3.1 Adoption of the TNFD Framework and LEAP Approach

4 Climate Change Response Strategies

4.1 Net Zero Pathway

4.2 Green Products

5 Climate Change-related Metrics and Targets

6 Nature-related Response Strategies, Metrics and Targets

6.1 Metrics and Units for Managing Nature Dependency Risks in Own Operations

6.2 Metrics and Units for Managing Nature Impact Risks in Own Operations

6.3 Metrics and Units for Managing Nature Dependencies and Impacts in the Supply Chain

7 Biodiversity Conservation initiatives

7.1 Butterfly Revival - Protecting the Habitat of the Great Purple Emperor

7.2 2025 Biodiversity Conservation Initiatives Results

8 Appendix

Appendix 1: TWSE/TPEx-Listed Companies Climate-related Information

Appendix 2: TNFD Index

Climate-related Financial Disclosures (TCFD) and Nature-related Financial Disclosures (TNFD)

According to the World Economic Forum's (WEF) 2023 Global Risks Report, global risk trends have gradually shifted from being dominated by economic risks to environmental risks. Extreme weather events, failure of climate action, biodiversity loss, and ecosystem collapse have all been identified as major medium- to long-term risks. As the Paris Agreement seeks to limit global warming to 1.5℃, and governments around the world continue to announce net-zero commitments and strengthen related regulations, companies must address not only the impacts of climate change but also the risks and opportunities arising from changes in natural capital, biodiversity, and ecosystems. Responding to climate- and nature-related issues has therefore become a common global challenge.

Nuvoton Technology Corporation (hereafter referred to as "Nuvoton," "the Company," or "we") recognizes the importance of climate change and the natural environment to sustainable business operations. In addition to its long-term commitment to biodiversity conservation and active support for the goals of the Kunming-Montreal Global Biodiversity Framework (K-M GBF), Nuvoton is committed to minimizing the potential adverse environmental impacts of its operations. The Company has also adopted the management frameworks recommended by the Task Force on Climate-related Financial Disclosures (TCFD) and the Taskforce on Nature-related Financial Disclosures (TNFD). Through the core dimensions of governance, strategy, risk management / risk and impact management, and metrics and targets, Nuvoton identifies and assesses climate- and nature-related dependencies, impacts, risks, and opportunities. We continue to advance climate change mitigation and adaptation measures, biodiversity conservation[1], and natural resource management initiatives to reduce operational risks, enhance corporate resilience, and create sustainable value in harmony with the environment.

[1]Please refer to Biodiversity Conservation Initiatives. 7 Biodiversity Conservation initiatives

About this Report

This report has been prepared with reference to the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) issued by the Financial Stability Board (FSB), the framework of the Taskforce on Nature-related Financial Disclosures (TNFD), and the requirements of Taiwan's Financial Supervisory Commission for TWSE/TPEx-listed companies regarding climate-related risks and opportunities and corresponding response measures. The disclosure scope of this report covers Nuvoton Technology Corporation (NTC) in Taiwan and its subsidiary, Nuvoton Technology Corporation Japan (NTCJ). Unless otherwise stated, all data and monetary amounts disclosed in this report are presented in New Taiwan Dollars (NT$), with currency translations based on the 2025 average exchange rate.



1 Climate- and Nature-related Governance

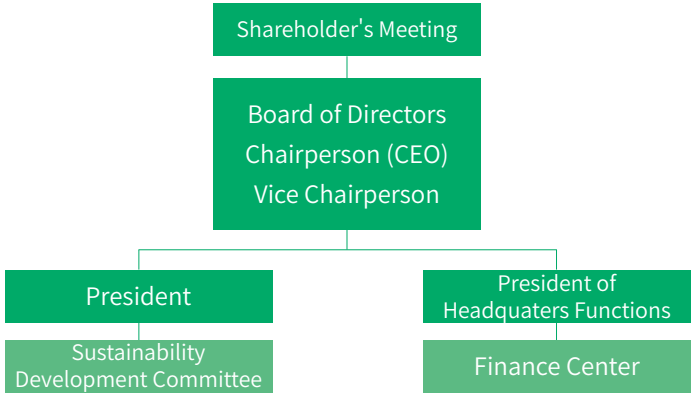
1.1 Climate and Nature Governance and Management Framework
1.2 Stakeholder Communication

1.1 Climate and Nature Governance and Management Framework

Nuvoton's climate and nature governance and management framework places ultimate oversight of material climate- and nature-related risks, dependencies, and impacts with the Board of Directors, which also provides guidance on management strategies, key action plans, and progress toward targets. The Sustainability Development Committee is chaired by the President or a senior executive appointed by the President and convenes its task forces to formulate the Company's sustainability strategies and vision, advance sustainability-related initiatives and management, and regularly report to the Board on sustainability implementation, including climate change and nature-related matters. The Finance Center is responsible for planning and guiding responsible departments in identifying and managing climate-related risks and opportunities and nature-related dependencies and impacts, and regularly reports relevant trends, impacts, and implementation performance to the Sustainability Development Committee. Climate- and nature-related responsibilities are described below:

Board of Directors：

(1) The Board of Directors is the Company's highest governance body and is responsible for major corporate decisions. The Sustainability Development Committee regularly reports to the Board on sustainability initiatives, including responses to climate- and nature-related risks, and implements strategies based on the Board's discussions and recommendations to ensure the Company's sustainable development.



(2) The Board reviews the Company's annual budget, business plans, and major capital expenditures. Business implementation plans and budget expenditures arising from responses to climate- and nature-related risks and opportunities or other sustainability issues are incorporated into the review and planning process.

(3) The Board of Directors and the Remuneration Committee regularly evaluate and determine the remuneration of directors and executives. In addition to individual performance and Company operating performance, non-financial sustainability performance related to economic, environmental, and people impacts is also considered.

Sustainability Development Committee：

(1) The Sustainability Development Committee is the organization responsible for implementing and managing climate- and nature-related risks and opportunities. Once a year, it reports to the Board on corporate governance and sustainability-related operational risk issues faced by the Company, including climate change and nature-related matters, as well as risk assessments and control measures. The Board makes decisions on material issues.

(2) The Sustainability Development Committee is responsible for implementing annually planned climate change and nature management policies and major resolutions. Five task forces operate under the Committee to implement climate risk mitigation and climate opportunities, and to manage nature-related dependencies and impacts.

Finance Center：

(1) The Finance Center regularly monitors information on international climate change and nature-related trends to enhance employees' awareness of global risk trends, climate change, and nature-related issues.

(2) The Finance Center is responsible for identifying and assessing climate- and nature-related risks and opportunities. It regularly coordinates climate change and nature-related discussion meetings, convenes the risk management team to identify physical risks, transition risks, and opportunities, and guides the development of corresponding improvement measures to strengthen the management of climate risks and opportunities and nature-related dependencies and impacts.

1.2 Stakeholder Communication

Nuvoton follows the five assessment principles of the AA1000 Stakeholder Engagement Standard (AA1000 SES), including responsibility, influence, tension, diverse perspectives, and dependency. We identify 7 categories of key stakeholders, including employees, customers, suppliers / contractors, government agencies / industry associations, shareholders / investors, communities and non-profit organizations, and the media.

The Company has a dedicated Investor Relations unit that responds to investors' inquiries by telephone or email on an ad hoc basis and maintains diverse and transparent communication channels. This enables Nuvoton to understand stakeholders' concerns and specific views regarding economic, environmental, and people-related topics, including human rights. The engagement results also help Nuvoton understand stakeholder concerns and expectations regarding climate change, biodiversity, natural resources, and the ecological environment.

Nuvoton has established comprehensive grievance mechanisms for each stakeholder group. Relevant departments are responsible for collecting and managing grievance cases, while designated management units oversee follow-up actions and resolution. Significant issues are escalated to the appropriate functional committees for discussion. Nuvoton engages with stakeholders and conducts consultations with relevant parties on a regular basis. Responsible units track issues based on their materiality and report progress periodically to the Board of Directors. In 2025, updates on stakeholder communication and the promotion of ethical business conduct were reported to the Board on August 1 and October 31, respectively. For details of stakeholder engagement, please refer to the Stakeholder Engagement section under Sustainable Governance in Nuvoton Technology's 2025 Sustainability Report.



2 Management of Climate Change-related Risks and Opportunities

2.1 Climate Change-related Risk and Opportunity Identification Process
2.2 Climate Change Risk and Opportunity Management
2.3 Risk and Opportunity Scenario Analysis Results

2.1 Climate Change-related Risk and Opportunity Identification Process

To effectively manage climate-related risks and opportunities, the Finance Center incorporates climate change-related risks into the Company's overall enterprise risk management tracking scope. It monitors climate risks that may affect operations, including international regulations and extreme climate events, estimates financial impacts and management costs, adjusts management mechanisms, and formulates response strategies to enhance operational resilience.

All departments jointly conduct climate risk assessments to comprehensively evaluate the potential impacts of relevant risks on operational processes. Training is provided to enhance employee awareness of global risk trends and climate change, guiding employees to identify potential climate-related risks and opportunities and assess their likelihood, impacts, and effects.

To establish a climate risk management mechanism and formulate response strategies, the Company convenes a meeting to review the consolidated risks and opportunities. Participants include managers at the department level or above, or employees familiar with departmental business processes. Appropriate management strategies are are then developed for the high-risk and high-severity risks identified by each department, such as reduction, transfer, acceptance, or control.

• Climate Change-related Risk and Opportunity Identification Process

Process	Work Item	Description
1 Collection	Compile a list of climate change risks / opportunities	Identify relevant risks and opportunities through scenario analysis and internal and external information.
2 Identification	Conduct a TCFD workshop	Each department assesses the climate change risk and opportunity factors with the greatest potential impact on its business.
	Consolidate identification results	The Finance Center consolidates climate change risk and opportunity factors related to each department's business.
3 Materiality Identification	Climate change risk / opportunity matrix	Calculate the likelihood and severity of climate change risks and opportunities and prepare the corresponding matrices.
4 Response Strategies and Financial Impacts	Develop response strategies	Responsible units develop response strategies for material climate risks and opportunities.
	Calculate financial impacts	Responsible units calculate the financial impacts of risks / opportunities and the costs of response measures.
	Set metrics and targets	Responsible units establish corresponding metrics and targets to evaluate implementation of response strategies.
	Climate change management policies and related initiatives	The Sustainability Development Committee regularly tracks implementation progress and reports to the Board as a reference for performance monitoring.

• Assessment Criteria

Risk Likelihood Assessment Dimensions	Opportunity Likelihood Assessment Dimensions
Past occurrence of risk Expected timing of future risk Likelihood of future risk occurrence	Past occurrence of opportunity Expected timing of future opportunity Likelihood of future opportunity occurrence

Risk Impact Severity Assessment Dimensions	Opportunity Impact Severity Assessment Dimensions
Operational impact Reputational impact People impact Early warning Magnitude of financial impact	Reputational impact Magnitude of financial impact

2.2 Climate Change-related Risk and Opportunity Identification Results

Nuvoton follows the TCFD guidelines and refers to different climate change scenarios to assess the potential impacts of climate change on the operating environment and stakeholders, and to identify climate-related risks and opportunities.

- **Climate Change-related Risk and Opportunity Identification Framework**

A

Set Climate Change Scenarios

Set four climate change scenarios based on the Company's operating conditions and locations to assess climate-related risks and opportunities.

B

Assess Impacts on the Operating Environment

Assess the impacts of climate change on the operating environment and stakeholders.

C

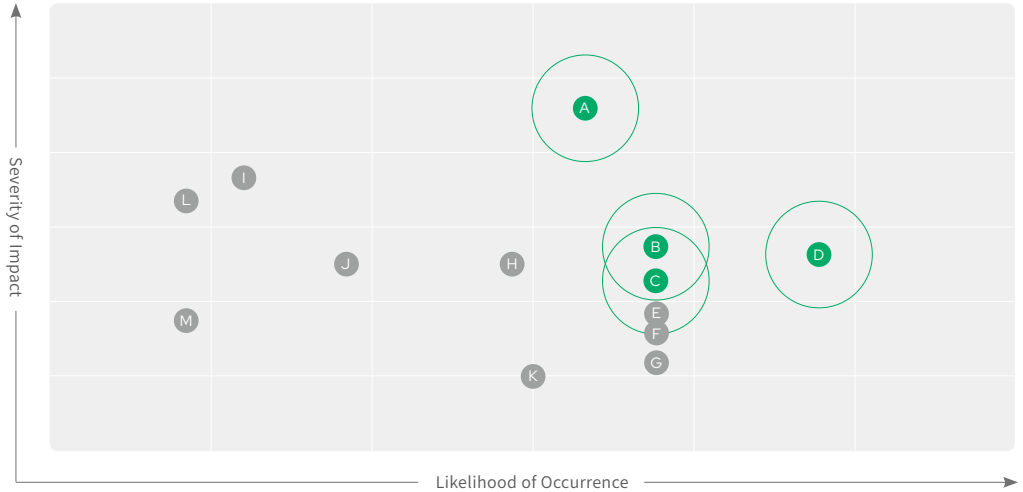
Identify Climate Risks and Opportunities

Use risk and opportunity assessment forms to identify climate-related risks and opportunities. Develop risk and opportunity matrices to confirm climate change risks and opportunities.



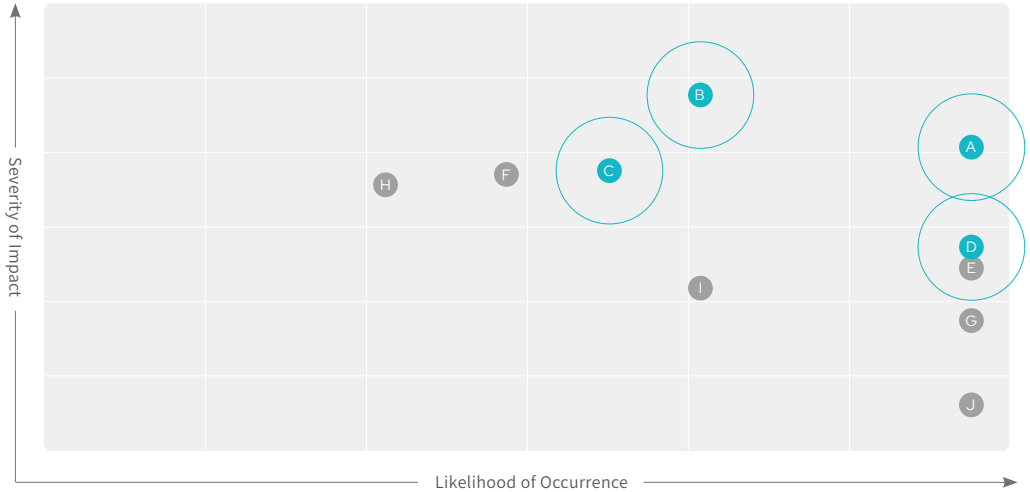
Following the identification of climate risks and opportunities, Nuvoton assesses their"likelihood"and"severity of impact"and identifies four high-priority climate risks and four high-priority climate opportunities. The climate risk and opportunity matrices are shown below:

2.2.1 Climate Change-related Risk Matrix



- A Increased severity of extreme weather events such as typhoons and droughts
- B Costs associated with the transition to low-carbon technologies
- C Increased pricing on greenhouse gas emissions
- D Increase in average temperatures
- E Changing customer behavior
- F Rising raw material costs
- G Failure in new technology investment
- H Replacing existing products and services with low-carbon alternatives
- I Changes in rainfall (water) patterns and extreme changes in climate patterns
- J Facing litigation risks
- K Strengthened emission reporting obligations
- L Shifting consumer preferences
- M Rising concern and increasing negative feedback from stakeholders

2.2.2 Climate Change-related Opportunity Matrix



- A Energy alternatives and diversification (use of low-carbon energy)
- B Research and innovation in developing new products and services
- C Engagement in incentive policies
- D Development of climate adaptation solutions
- E Use of new technologies
- F Access to new markets
- G Use of more efficient production and distribution processes
- H Participation in carbon markets
- I Use of renewable energy and adoption of energy-saving measures
- J Use of more efficient buildings

Risk Ranking	Risk No.	Risk Type	Risk Factor	Time Horizon
1	001	Physical Risk - Acute	Increased severity of extreme weather events such as typhoons and droughts	Short-term
2	002	Transition Risk - Technology	Costs associated with the transition to low-carbon technologies	Short-, mid- and long-term
3	003	Transition Risk - Policy and Regulation	Increased pricing on greenhouse gas emissions	Short-term
4	004	Physical Risk - Chronic	Increase in average temperatures	Short-, mid- and long-term

Opportunity Ranking	Opportunity No.	Opportunity Type	Opportunity Factor	Time Horizon
1	001	Opportunity - Resilience	Energy alternatives and diversification	Short-, mid- and long-term
2	002	Opportunity - Products and Services	Research and innovation in developing new products and services	Short-, mid- and long-term
3	003	Opportunity - Markets	Engagement in incentive policies	Short-, mid- and long-term
4	004	Opportunity - Products and Services	Development of climate adaptation solutions	Short-, mid- and long-term

Note: Time horizons are defined as follows: Short-term: 2026; mid- and long-term: 2030.

2.3 Risk and Opportunity Scenario Analysis Results

Scenario analysis was conducted for material climate risks and opportunities using the following scenario settings:

Climate-related Risk / Opportunity Type	Scenario Used to Assess Response Strategies	Scenario Description
1.Transition Risks 2.Opportunities	• NDC: Taiwan's Nationally Determined Contribution • IEA NZE 2050	• Taiwan's Nationally Determined Contribution assumes a pathway consistent with limiting global warming to within 1.5° C and is used to assess risks arising from companies' low-carbon transition. • Scenario analysis is conducted with reference to the World Energy Outlook (WEO) of the International Energy Agency (IEA), using a pathway in which global warming is stabilized at 1.5° C.
Physical Risks	• IPCC Sixth Assessment Report global warming scenario SSP3-7.0 • IPCC Sixth Assessment Report global warming scenario SSP5-8.5	• Based on scenarios used in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6), published in August 2021, to assess climate risks that companies may face. SSP3-7.0 is a medium-to-high emissions scenario in which greenhouse gas emissions peak around 2060. • Under the very high greenhouse gas emissions scenario SSP5-8.5, climate change intensifies future changes in average temperature, extreme heat, annual total rainfall, maximum one-day rainfall intensity, maximum consecutive dry days, and the proportion of severe typhoons, potentially affecting the operations of the Company and its value chain.



2.3.1 Risk 001 - Increased Severity of Extreme Weather Events such as Typhoons and Droughts

Impact Description:

Changes in climate patterns are increasing the frequency of floods and droughts, while their severity is also intensifying, raising the likelihood of damage to machinery, equipment, and plant facilities. Under these circumstances, business operations may be affected in multiple ways, including the Company's own production, upstream and downstream suppliers, and transportation disruptions. These factors may result in financial losses and physical damage, increase operating costs, reduce operational efficiency, and ultimately lead to lower revenue.

Scenario Description:

Scenario 1: The most severe global warming scenario in the IPCC Sixth Assessment Report (SSP5-8.5)
Scenario 2: High-emissions scenario in the IPCC Sixth Assessment Report (SSP3-7.0)
Using projection data from the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP), developed by the Ministry of Science and Technology and the National Science and Technology Center for Disaster Reduction, the Company assesses the financial impacts on Nuvoton Taiwan and Nuvoton Japan (NTCJ) under two scenarios of increasing extreme climate severity.

Risk Impact Dimensions

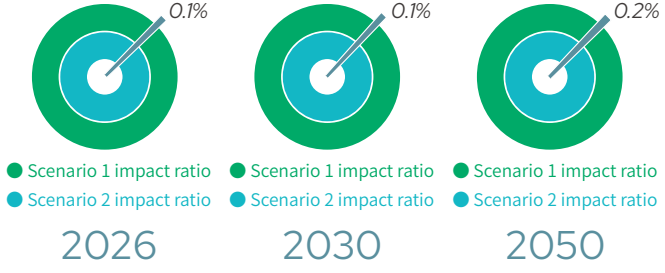
1. Reduced production capacity and revenue due to government restrictions on industrial water use during droughts: Depending on drought severity, plants may be required to implement voluntary water-saving measures of 5%–7%, increasing progressively as conditions worsen. If internal water-saving measures are insufficient to meet required reduction rates, water shortages may constrain production and require output reductions. Raw-material suppliers may also face production constraints and delayed deliveries due to water shortages, resulting in production delays.
2. Higher costs from securing alternative water sources: Plants may need to secure alternative water sources or further treat and reuse wastewater, resulting in additional costs. Suppliers may likewise need to purchase water externally and pass these costs on to the Company, increasing procurement costs.
3. Impacts on on-site services due to water shortages: Domestic water supply at plant sites may be affected, potentially suspending services in pantries, restrooms, kitchens and cafeterias, fitness facilities, and other areas.
4. Operational disruptions and reduced revenue: Extreme weather may disrupt the Company's or suppliers' operations, interrupt incoming materials or production, and reduce revenue.
5. Damage to machinery, equipment, and plant facilities, increasing operating costs: Extreme climate events may damage machinery, equipment, and facilities, increasing repair and operating costs.
6. Higher operating costs from climate impacts on the supply chain: Suppliers affected by extreme climate events or implementing response measures may incur higher operating costs, increasing the Company's procurement costs.
7. Reputational impacts: Customers may question whether products can be delivered on time and to the required quality, potentially shifting or diversifying orders. Investors or financial institutions may also reassess the potential impacts of water shortages on the Company's profitability, reducing investment willingness.

Response Strategies

1. Enhance water-supply resilience: Increase water storage capacity, improve process-water treatment efficiency, and increase water recycling rates.
2. Supply chain management: Identify suppliers vulnerable to extreme climate events, require them to strengthen Business Continuity Plans (BCPs), and assist them in reducing climate-related impacts. Assess conditions for selected raw materials every three years to strengthen supply chain resilience.
3. Enhance operational resilience: Develop or apply weather simulation and monitoring equipment to enable early responses to extreme climate events and reduce potential impacts and financial losses. Increase investment to strengthen building resilience to extreme climate events and install backup energy systems to support business continuity.

Response cost: NT$24 million

- **Potential Financial Impact** [2]



[2] The percentage of potential financial impacts is based on the Group's revenue contribution in fiscal year 2025.

2.3.2 Risk 002 - Costs associated with the transition to low-carbon technologies

Impact Description:

As greenhouse gas emissions reduction requirements become increasingly explicit, companies need to make additional capital investments in R&D for low-carbon products and services in order to provide green products and services. Developing green products increases R&D expenses. Failure to replace existing products and services with low-carbon alternatives may result in customer loss and reduced revenue.

Scenario Description:

Scenario 1: The NZE pathway presented by the IEA in the World Energy Outlook (WEO) 2022
Scenario 2: Taiwan's Nationally Determined Contribution (NDC)
Under these two scenarios, industries implement net-zero strategies and require carbon reductions throughout the value chain. The Company evaluates the potential financial impacts under each scenario.

Risk Impact Dimensions

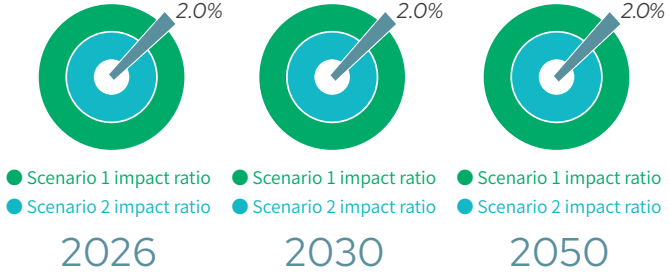
1. Higher R&D costs for low-carbon products: Companies need to invest additional R&D expenditure to develop new products that meet low-carbon requirements by reducing energy consumption while maintaining or even improving existing performance. If an excessive focus on reducing energy consumption causes product performance to lose competitiveness, the resulting waste of personnel and time may create additional R&D expenses. Some low-carbon technologies are still under development and may be immature or unstable, potentially causing project delays, unstable performance, or frequent maintenance and adjustments, thereby generating additional operating costs. As energy-efficiency requirements vary among countries, the Company must continuously monitor changes in national energy-efficiency standards, consider different standards, develop high-efficiency products with flexible functions, and flexibly conduct local development and production. The number of products to be developed is therefore expected to increase, resulting in higher operating costs.
2. Higher production costs from adopting new technologies: Companies need to transition manufacturing processes to reduce product energy consumption while maintaining performance. For the Company, process transitions require related experimental costs, and employees may need training and education to adapt to new workflows and operations so that new low-carbon technologies can be adopted successfully, increasing personnel training costs. Externally, more expensive processes must be selected, and the hardware and software required for advanced processes involve additional expenditure, such as more accurate and faster simulation software or more precise measurement instruments. Even if process adoption becomes widespread and wafer-start costs decline in the future, related incremental costs and expenses will remain. As capacity for advanced processes and advanced packaging is limited, supply-chain instability or delays may affect the Company's ability to secure business and customers and increase risks to stable profitability.
3. Reduced revenue if products fail to meet customer expectations for low-carbon performance: If customers demand low-carbon products but the carbon content of the Company's products does not meet their requirements, product demand may decline. During R&D to reduce product carbon content by lowering energy consumption, product performance may lose competitiveness, causing the relevant low-carbon products to fail to meet customer needs. This may adversely affect sales and operating revenue and may even create a crisis of customer trust that damages corporate reputation. Failure to capture the energy-efficiency market and provide energy-efficient products may also result in lost sales opportunities and lower profits, such as reduced sales of energy-efficient semiconductor products for electric vehicles and semiconductor products for motor-control applications.
4. Higher operating costs from low-carbon operations: Changes in transportation and design processes, such as adopting electric vehicles or reducing equipment electricity use, may increase operating costs.
5. Higher raw-material costs from suppliers: Suppliers affected by carbon taxes or carbon fees may pass incremental costs through material prices, increasing operating costs.

Response Strategies

1. Conduct early-stage market research: Assess demand for low-carbon products in key customer regions, understand market needs and customer preferences, and focus R&D on low-carbon product innovation and optimization to improve performance, reduce costs, and meet market acceptance.
2. Improve design and production efficiency: Advance digital transformation and introduce AI technologies to improve low-carbon design efficiency and reduce development costs. Strengthen digital transformation in procurement and logistics and enhance regional supply chain resilience.
3. Enhance supply chain resilience: Assess supplier capability and reliability, select partners that meet environmental requirements, establish stable long-term relationships, and develop contingency plans for supply chain disruptions.
4. Optimize capital allocation: As low-carbon transition-related capital expenditure increases, capital allocation may need to be adjusted and new financing plans may be required to ensure stable initial cash investment.

Response cost: NT$47 million

- Potential Financial Impact



2.3.3 Risk 003 - Increased Pricing on Greenhouse Gas Emissions

Impact Description:

As greenhouse gas reduction regulations become more stringent and greenhouse gas emissions pricing increases, greater regulatory intensity may result in higher carbon tax and carbon fee expenditures and increased greenhouse gas management costs. Greenhouse gas emissions generated during operations may be subject to carbon taxes or carbon fees, increasing operating expenses; managing greenhouse gas emissions may also increase operating costs.

Scenario Description:

Scenario 1: The NZE pathway presented by the IEA in the 2022 World Energy Outlook (WEO)
Scenario 2: Taiwan's Nationally Determined Contribution (NDC)
Under these two scenarios, the Company's financial impacts are assessed based on projected carbon prices in different countries over different time horizons.

Risk Impact Dimensions

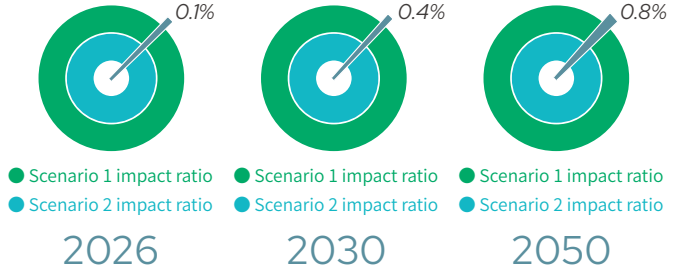
1. **Higher operating costs reflected in product prices, resulting in lower revenue**: Carbon fees increase operating costs. Organizational GHG inventories, product carbon footprint inventories, related system implementation, and verification also increase operating expenses. Cost pressure may lead to higher product prices, affecting demand and market competitiveness and reducing sales and revenue.
2. **Higher raw-material costs in response to GHG emissions requirements:** Customers increasingly require supply chains to provide low-carbon services and GHG emissions information. Suppliers may prioritize low-carbon materials, energy-efficient manufacturing processes, and green logistics, and related incremental costs may be passed on to the Company, increasing procurement costs.
3. **Greater supply chain uncertainty:** The semiconductor supply chain spans multiple countries and regions. Different GHG emissions pricing policies may lead to supply chain disruptions, adjustments, or restructuring, affecting production and delivery schedules and increasing uncertainty and risk.

Response Strategies

1. **Increase investment in low-carbon equipment:** Install greenhouse gas abatement or capture equipment and energy-saving production equipment to reduce GHG emissions.
2. **Enhance supply chain resilience:** Diversify raw-material sources, identify alternative materials, or modify product designs to reduce reliance on specific materials and exposure to material-cost risks. Establish stable long-term supply chain relationships to reduce the impact of raw-material price volatility.

Response cost: NT$246 million

- **Potential Financial Impact**





2.3.4 Risk 004 - Increase in Average Temperatures

Impact Description:

Rising surface temperatures and an increasing number of hot days raise employees' exposure to heat-related illnesses such as heat exhaustion, while higher temperatures also increase electricity demand. Heat can reduce employee productivity, increase health and safety risks, and increase electricity use during operations, resulting in higher operating expenses.

Scenario Description:

Scenario 1: The most severe global warming scenario in the IPCC Sixth Assessment Report (SSP5-8.5)
Scenario 2: High-emissions scenario in the IPCC Sixth Assessment Report (SSP3-7.0)
Using projection data from the Taiwan Climate Change Projection Information and Adaptation Knowledge Platform (TCCIP), developed by the Ministry of Science and Technology and the National Science and Technology Center for Disaster Reduction, the Company assesses the financial impacts on Nuvoton Taiwan and Nuvoton Japan (NTCJ) under two scenarios of increasing extreme climate severity.

Risk Impact Dimensions

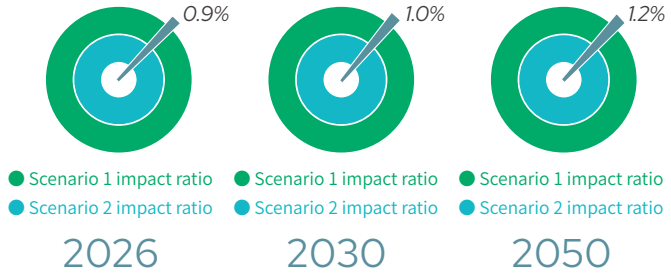
1. **Increase in average temperatures, leading to greater disease transmission as well as health and safety risks, resulting in higher labor costs:** Higher temperatures increase the risk of heatstroke, cardiovascular and respiratory illnesses, and vector- or virus-borne infectious diseases such as malaria and dengue fever. Greater employee health risks may lead to labor shortages and higher labor costs, potentially affecting product prices and operations such as procurement, production, warehousing, and logistics.
2. **Higher summer temperatures increase operating costs:** Higher summer temperatures increase air-conditioning demand and electricity consumption, resulting in higher operating costs.

Response Strategies

1. Increase investment in health and safety improvements to the operating environment to prevent health hazards.
2. Continuously identify heatstroke risks and work to reduce identified risks.

Response cost: NT$26million

- **Potential Financial Impact**





2.3.5 Opportunity 001 - Energy Alternatives and Diversification

Impact Scenario:

Companies develop low-carbon products and services in response to growing customer demand for low-carbon products, helping customers improve the energy efficiency of product use, meet customer needs, and strengthen customer relationships. This can increase revenue from low-carbon products. In addition, miniaturized development and design can reduce production costs.

Impact Dimensions

1. **Diversify energy sources and reduce operational risks:** Increase the use of diversified energy sources, including solar power, natural gas for fluorinated-gas exhaust treatment equipment, and natural-gas boilers replacing electric boilers, thereby reducing the risk of operational interruptions caused by power outages.
2. **Meet customer requirements for green / low-carbon products and increase revenue:** Using low-carbon energy can meet customer requirements for low-carbon products and reduce emissions of air pollutants, such as sulfur oxides (SOx), nitrogen oxides (NOx), and particulate matter. This supports the Company's energy transition initiatives and environmental protection commitments, enhances its corporate image, strengthens the trust of existing customers, attracts new customers, and contributes to revenue growth. Continued investment in low-carbon product R&D can reduce GHG emissions during end-product use, support customer decarbonization, and increase operating revenue.
3. **Reduce supply-chain carbon emissions and GHG-related costs, increasing profitability:** Require suppliers to use low-carbon or alternative energy and build a low-carbon supply chain to reduce Scope 3 emissions and provide low-carbon products that meet stakeholder expectations.
4. **Maturing low-carbon technologies reduce operating expenses:** Low-carbon energy can reduce GHG emissions and carbon tax / fee costs. Although operating costs may increase in the short term, costs may decline over the long term as low-carbon technologies mature. Investment in the development of low-carbon products helps reduce the power consumption of end products.

Response Strategies

1. **Build on-site renewable energy capacity:** Solar power generation systems have been installed at the Hsinchu plant, and a solar power system is planned for the Tainan building.
2. **Increase diversified energy use:** Replace electricity with natural gas where appropriate, install fluorinated-gas exhaust treatment equipment using natural gas, and replace electric boilers with natural-gas boilers. Nuvoton Japan (NTCJ) plans to introduce long-term and stable renewable energy supply agreements.
3. **Strengthen GHG emissions management:** Nuvoton Japan (NTCJ) provides customers with third-party verified GHG inventory reports and continues to install energy-saving equipment, including LED lighting. Suppliers are required to set GHG reduction targets and regularly update reduction results. For residual emissions, carbon credits have also been purchased since 2023 and afforestation initiatives are used to support net-zero efforts, while carbon-footprint reduction progress is communicated to customers.

2.3.6 Opportunity 002 - Research and Innovation in Developing New Products and Services

Impact Scenario:

Companies develop low-carbon products and services in response to increasing customer demand, helping customers improve product energy efficiency, meet customer needs, strengthen customer relationships, and increase revenue from low-carbon products. Product miniaturization through R&D and design can also reduce production costs.

Impact Dimensions

1. **Low-carbon products enhance competitiveness and increase revenue:** Low-carbon development is a future industry trend. As customer demand for low-carbon products increases, including products related to energy efficiency, the Internet of Things (IoT), sensors, and advanced weather forecasting, the development of new low-carbon products and services can meet market demand, gain customer trust, enhance product competitiveness in the market, increase market share, and strengthen the Company's position within the industry. By actively promoting low-carbon products and improving energy efficiency, companies can become industry leaders and drive industry development.
2. **Expanded low-carbon product applications support entry into new markets:** A broader low-carbon product portfolio can meet the needs of different customer groups and create new market opportunities. It can also increase product sales and operating revenue. Power Management IC (PMIC) products used in electric vehicles align with Nuvoton's high-voltage process platform and can support customers entering automotive markets, increase customer demand for and trust in Nuvoton's platform, strengthen long-term partnerships, and create revenue.
3. **Enhance corporate reputation:** Investments in low-carbon R&D, energy efficiency, and customer decarbonization can strengthen the Company's sustainability image. Promoting low-carbon products and helping customers improve product energy efficiency can reduce GHG emissions. Advanced processes and packaging can also increase sales of higher-value products and enhance the Company's positive corporate image.
4. **Maturing low-carbon supply chain technologies reduce production costs:** As low-carbon technologies in the automotive and industrial sectors mature, market demand for electric vehicles and related industries is increasing, and expanding supply and value chains for electric-vehicle solutions may reduce procurement costs.

Response Strategies

1. **Increase investment in R&D and innovation:** The budget will be allocated to professional R&D teams to strengthen technological innovation and product design; to support the development and production of low-carbon products; to develop power management ICs and electric-vehicle products; and, in addition to R&D expenditures, to support marketing promotion and training activities. Artificial intelligence technologies will also be introduced to improve design productivity.
2. **Focus R&D and innovation on improving product power efficiency:** Assess energy-efficiency standards and green-product requirements of key customers and develop relevant semiconductor products, including products for electric vehicles. This can increase product sales opportunities, improve profitability, and support market expansion across different regions.
3. **Collaborate across the value chain to enhance resilience and new-product production capacity:** Work with suppliers to assess carbon emissions and energy consumption of raw materials and products, prioritize low-carbon and environmentally preferable inputs as references for low-carbon design to meet customer demand for low-carbon products, and use advanced processes and packaging to improve performance while reducing energy and material use. This can contribute to overall technological advancement within the industry and support low-carbon development. For example, using a 40nm process can miniaturize products, improve performance, reduce energy consumption, and require fewer production materials. Implement sustainable supply chain management using efficiency and environmental indicators covering raw material procurement, production cycles, and logistics, including environmental impact indicators such as carbon emissions, resource consumption, and waste management, and conduct due diligence on new suppliers to ensure they meet the Company's environmental and quality requirements.
4. **Business development and marketing strategy:** Expand sales channels and marketing to communicate the value of low-carbon products, increase awareness and market share, and strengthen brand image while adhering to sustainability principles. At the same time, remain committed to sustainability principles throughout product development and operations, focus on environmental protection and social responsibility, and strive to reduce environmental impacts.

2.3.7 Opportunity 003 - Engagement in Incentive Policies

Impact Scenario:

Governments introduce policies in response to climate change. By continuously monitoring relevant government policies, including energy and environmental policies, companies can evaluate and plan participation in incentive programs. Implementation of such programs may increase revenue or reduce operating costs.

Impact Dimensions

1. **Apply for incentives and obtain subsidies:** By reducing organizational GHG emissions and energy use, launching products aligned with low-carbon trends, or participating in renewable energy programs and carbon markets, companies may qualify for government incentives such as subsidies, emissions allowances, or tax reductions.
2. **Increase access to investment and financing opportunities:** Financial institutions are strengthening carbon inventory and tracking mechanisms for financed entities in line with ISO 14097 international financial standards and advancing climate action and engagement activities to understand the GHG emissions information of financed entities and support the achievement of the Paris Agreement goals. Active climate management can help the Company obtain preferential lending conditions, lower financing costs, and enhance corporate reputation.

Response Strategies

1. **Assessing and planning participation in government incentive schemes:** Continue to pay attention to the government's incentive schemes, coordinate with relevant departments for evaluation, and plan to apply for incentive schemes.
2. **Establishing and implementing greenhouse gas management:** Carry out greenhouse gas inventory and set carbon reduction goals and pathways based on our own operating conditions, implement relevant carbon reduction actions, and communicate and discuss the results with external stakeholders to achieve the purpose of applying for relevant incentive schemes.
3. **Implementing sustainability-related management plans:** Identify and address sustainability risks through self-assessment and stakeholder engagement. Execute risk response and mitigation measures in accordance with the Company's internal risk management workflow, while also aligning with the assessment standards of investment and financing institutions.

2.3.8 Opportunity 004 - Development of Climate Adaptation Solutions

Impact Scenario:

Resilience to increasingly extreme climate conditions and events can reduce the risk of operational disruption, strengthen customer trust, and enhance corporate reputation to attract talent. Greater operational resilience and reputation can help attract customers and increase operating revenue, while attracting talent can support corporate growth and revenue.

Impact Dimensions

Strengthening operational and supply chain resilience: By implementing Business Continuity Planning (BCP) or Business Continuity Management (BCM), the Company has prioritized key product lines based on business criticality during extreme weather events to ensure stable supply. This enhances customer trust, improves corporate reputation, and contributes to revenue growth. Additionally, systematic supplier and customer management helps strengthen supply chain resilience and reduce operating costs.

Response Strategies

System implementation assessment and application: Establish BCP/BCM systems, including selection of suppliers that meet BCP requirements, and supplier and customer management systems. This will increase related development and assessment costs. Obtain and maintain third-party certifications including ISO 14001, ISO 45001, ISO 14064, ISO 50001, ISO 22301, and ISO 27001, requiring related development, maintenance, IT system implementation and operating costs, as well as corresponding investments in IT and human resources.





3 Management of Nature-related Risks and Opportunities

3.1 Adoption of the TNFD Framework and LEAP Approach

3.1 Adoption of the TNFD Framework and LEAP Approach

Nuvoton has proactively referenced the methodology of the Taskforce on Nature-related Financial Disclosures (TNFD) and adopted the LEAP approach. First, Locate is used to map the geographic locations of the Company's operations and supply chain. Second, Evaluate examines the organization's and value chain's dependencies and impacts on nature. Assess is then used to evaluate potential nature-related risks and opportunities. Finally, Prepare is used to formulate subsequent management actions and disclosure plans. Through this approach, Nuvoton is progressively establishing links between nature-related issues and risk management, providing the foundation for this report.

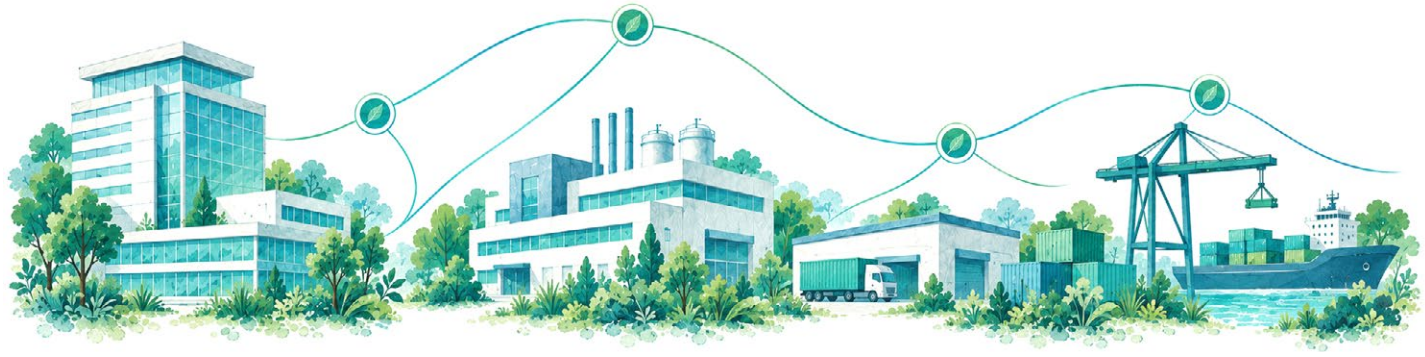
3.1.1 Locate

This report prioritizes eight Nuvoton-owned sites with production facilities in Taiwan and Japan as the assessment scope. Offices in other regions were not included as priority assessment sites because their dependencies and impacts on nature are relatively low. The assessment scope will be adjusted as appropriate in the future.

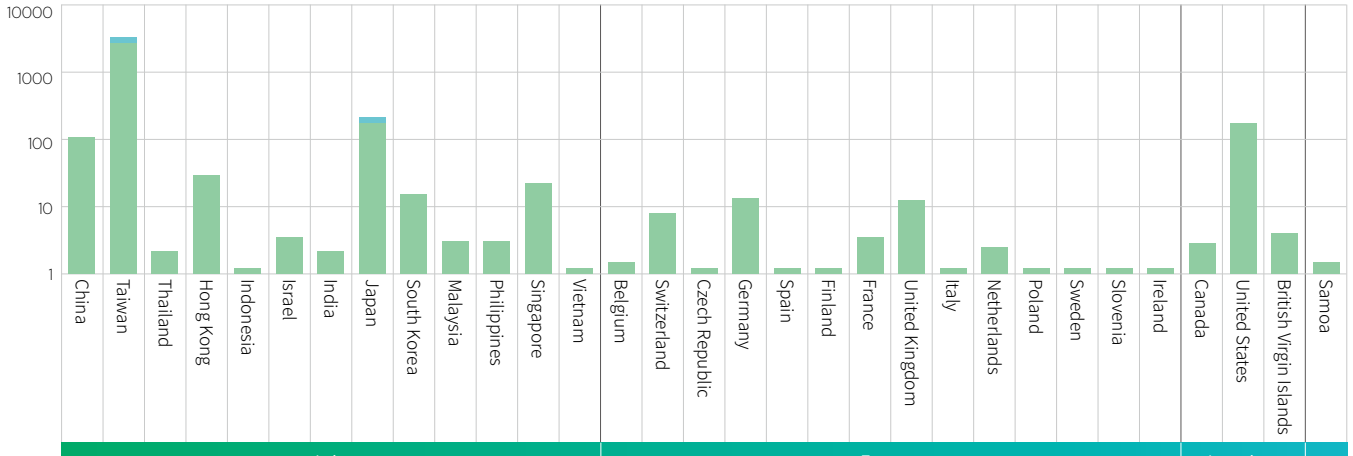
For suppliers, biodiversity impact assessments were conducted for 4,813 sites worldwide, including 4,244 sites in Taiwan and 569 overseas sites. Each site was used as the spatial center of analysis, with a 2-kilometer radius defined as the potential area of influence. Geographic information systems (GIS) were used to overlay global and local protected-area datasets, enabling a scientific and data-driven assessment to comprehensively summarize and identify potential ecological impacts associated with operational activities.

- Global Distribution of Nuvoton Sites





• Number of Nuvoton Global Sites



	China	Taiwan	Thailand	Hong Kong	Indonesia	Israel	India	Japan	South Korea	Malaysia	Philippines	Singapore	Vietnam	Belgium	Switzerland	Czech Republic	Germany	Spain	Finland	France	United Kingdom	Italy	Netherlands	Poland	Sweden	Slovenia	Ireland	Canada	United States	British Virgin Islands	Samoa
Owned Sites	0	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Suppliers	101	4244	3	44	1	6	3	139	20	5	5	29	1	2	9	1	19	1	1	6	13	1	4	1	1	1	1	4	138	7	2

The analysis shows that 1 owned site overlaps with the mapped boundary of a legally designated protected area. The sensitive-area type is a wetland of importance, specifically the "Nangang 202 Arsenal and Surrounding wetland of importance (regional level)." This result indicates that the area surrounding the site overlaps with the protected-area boundary; it does not mean that the site itself is located within a protected area. For suppliers, 913 sites overlap with legally designated protected areas. These sites are mainly concentrated in the Greater Taipei area, the coastal and irrigation-corridor areas of Taoyuan, Hsinchu, and Miaoli, and extend southward to important coastal ecological habitats in central and southern Taiwan. In addition, 2 owned sites overlap with non-statutory protected areas, involving conservation corridors (the Fengshan River and Touqian River basin conservation corridor and the Southern Chianan Plain grassland conservation corridor). For suppliers, 2,084 sites overlap with non-regulatory areas.

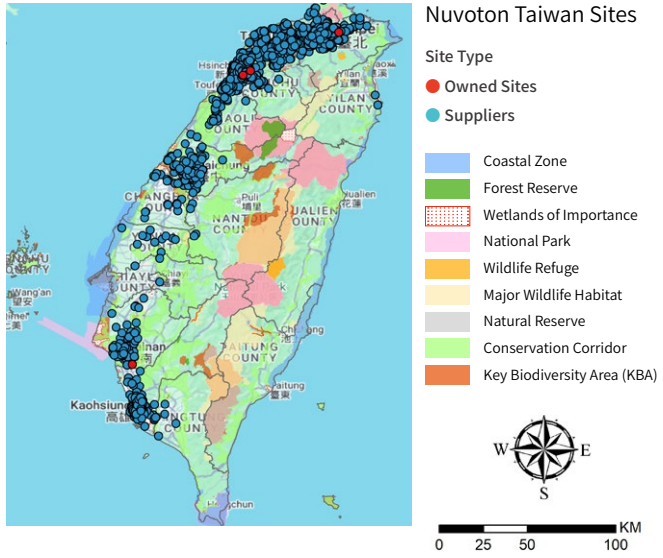
3.1.1.1 Biodiversity Analysis and Results for Taiwan Sites (Protected Areas)

Nuvoton reviewed protected areas designated under Taiwan's ecological conservation regulations and by non-governmental organizations, compiling 9 types of protected areas. To align with international analysis, this report analyzes the basis and conservation targets for each protected area and maps them to the International Union for Conservation of Nature (IUCN) protected area categories.

• Taiwan Protected-area Datasets and Related Legal Basis

Legal Basis		Protected-area Dataset	IUCNCategory
Regulatory scope	Coastal Zone Management Act	Coastal zone	V
	Wetland Conservation Act	Wetlands of importance	IV
	National Park Law	National parks	II
	Act on Wildlife Conservation	Wildlife refuge and major wildlife habitat	IV
	Cultural Heritage Preservation Act	Nature reserve	Ia
	The Forestry Act	Forest reserve	III
Non-regulatory scope		Conservation corridors and key biodiversity areas (KBA)	-

• Distribution of Nuvoton Taiwan Sites and Protected Areas



3.1.1.2 Biodiversity Analysis and Results for Global Sites (Protected Areas)

This report uses the World Database on Protected Areas (WDPA), jointly developed by the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) and the International Union for Conservation of Nature (IUCN), as the core dataset for ecological sensitivity analysis of global sites. The WDPA is one of the most authoritative and comprehensive global spatial databases of protected areas. To establish a consistent scientific assessment basis, Nuvoton applies the IUCN protected area classification system, including Categories Ia through VI, as well as not reported and unassigned categories, to identify spatial relationships between sites and ecologically sensitive areas.

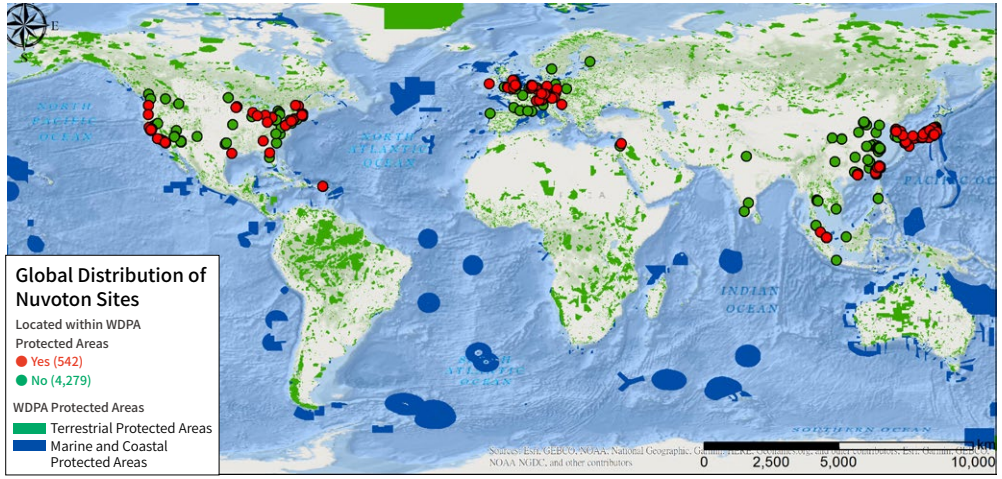
The global biodiversity spatial sensitivity analysis shows that one Nuvoton-owned site in Japan intersects with an IUCN protected area. Among supplier sites, 541 sites intersect with protected areas. Of these, 456 are in Asia, including 342 in Taiwan, 74 in Japan, 30 in Hong Kong, 6 in South Korea, 2 in Singapore, and 1 each in Israel and Malaysia; 48 are in the Americas, including 39 in the United States, 7 in the British Virgin Islands, and 2 in Canada; 35 are in Europe, including 13 in Germany, 7 each in Switzerland and the United Kingdom, 4 in the Netherlands, and 1 each in Belgium, the Czech Republic, Slovenia, and Ireland; and 2 are in Oceania.



- IUCN Protected Area Categories

Category	Name
Ia	Strict nature reserve
Ib	Wilderness area
II	National park
III	Natural monument or feature
IV	Habitat or species management area
V	Protected landscape or seascape
VI	Protected area with sustainable use of natural resources
Not reported / Not applicable / Not assigned	Not reported / Not applicable / Not assigned

- Distribution of Nuvoton Sites and WDPA Protected Areas



3.1.1.3 Analysis and Results for Global Cultural and Natural Conservation Areas

Based on internationally recognized scientific criteria, Nuvoton conducted spatial overlay and impact assessments for global sites against the following four major cultural and natural conservation-area datasets:

- Key Biodiversity Areas (KBA): Established by organizations including the IUCN to identify areas of global importance for species and ecosystems.
- Ramsar Convention areas: Areas covered by the world's first international agreement dedicated to the conservation of important wetlands, waterbird habitats, and water-regulation functions.
- World Heritage sites: Led by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to promote international cooperation in protecting cultural and natural sites of Outstanding Universal Value.
- Man and the Biosphere Programme (MAB): Initiated by UNESCO to promote harmonious coexistence between people and nature through the designation of core and buffer zones in biosphere reserves.

The analysis shows that 1 Nuvoton site in Japan overlaps with a cultural and natural conservation area, specifically the Yodo River System Key Biodiversity Area. Among supplier sites, 551 sites fall within cultural and natural conservation areas. By region, 541 are in Asia, including 464 in Taiwan, 33 in Hong Kong, 25 in Japan, 7 each in China and Singapore, 2 each in South Korea and Thailand, and 1 in Malaysia; 7 are in Europe, including 3 in Germany, 2 in Switzerland, and 1 each in Slovenia and Ireland; and 3 are in the Americas, all located in the United States.

3.1.1.4 Global Biodiversity Impact Analysis and Results (Threatened Species)

This report uses the IUCN Red List of Threatened Species (IUCN Red List) as the basis for biodiversity risk assessment. Based on criteria including population size, trends, geographic distribution, population structure, habitat requirements, and specific threats, species are classified into eight conservation status categories.

Among the 8 owned sites, Taiwan sites have a larger total number of threatened species, with 201 species identified, compared with 115 species at Japan sites. Looking specifically at the proportion of Critically Endangered (CR) species, Taiwan sites account for 17%, while Japan sites account for 2%. Among supplier sites, Malaysia has the highest total number of threatened species (391), followed by Singapore (357). In terms of the proportion of CR species, however, the British Virgin Islands rank highest, followed by Vietnam and Thailand.

- **IUCN Red List Conservation Status Categories**

Conservation Status	Description
Extinct (EX)	The species no longer exists in the wild or in captivity and has completely disappeared.
Extinct in the Wild (EW)	The species is extinct in the wild but survives in captivity or other managed environments; its natural population can no longer be maintained without human intervention.
Critically Endangered (CR)	The species faces an extremely high risk of extinction, with populations having declined sharply due to habitat loss, disease, climate change, or other threats.
Endangered (EN)	The species faces a very high risk of extinction, with populations having declined significantly and potentially facing extinction in the near future.
Vulnerable (VU)	The species faces a high risk of endangerment. Without effective conservation measures, it may become endangered.
Near Threatened (NT)	The species does not currently meet the criteria for the three threatened categories above but faces threats that may cause it to become Vulnerable or Endangered in the near future.
Least Concern (LC)	The species is not currently considered to face serious threats and its population is relatively stable.
Data Deficient (DD)	Insufficient information is available for assessment, generally due to limited research or incomplete data.

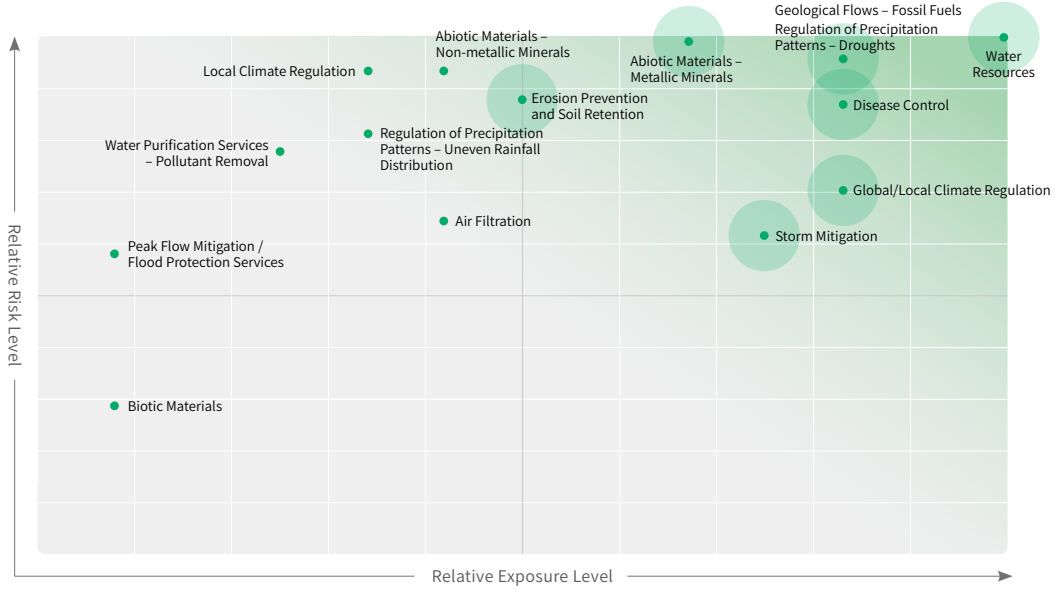
3.1.2 Evaluate

3.1.2.1 Dependencies and Impacts in Own Operations

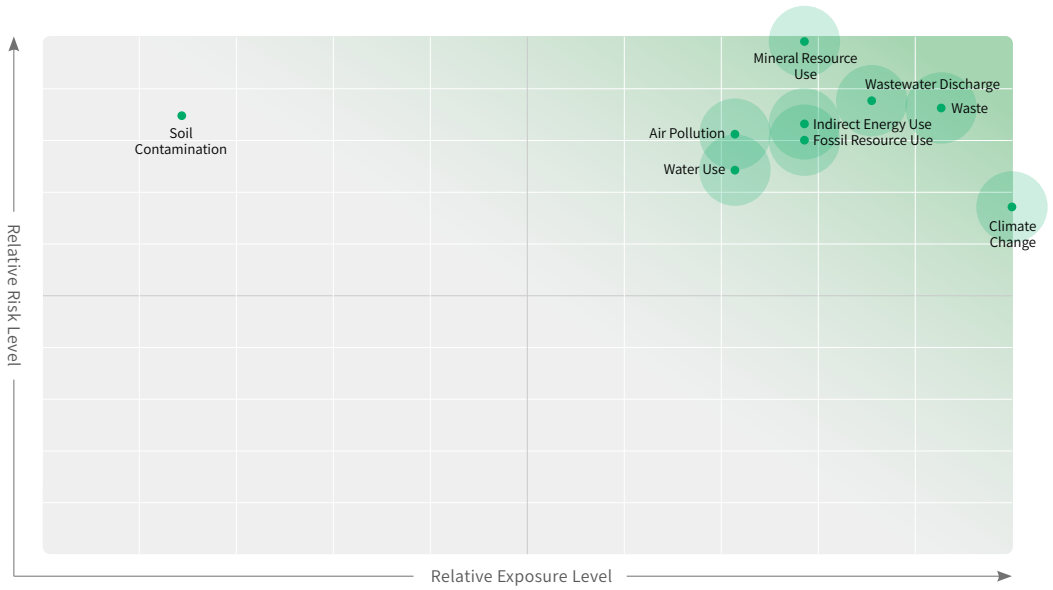
This year, Nuvoton conducted a nature dependency and impact assessment for its owned operating sites in Taiwan and Japan. A total of 15 valid questionnaires were received, including 14 from Taiwan and 1 from Japan. The results show that 9 respondents indicated a thorough understanding of changes in nature-related risks around their operating locations, while 6 indicated partial understanding. This suggests that internal awareness of nature-related issues has begun to develop and provides a reference for subsequent initiatives and data collection.

Dependencies were assessed primarily based on exposure and risk level, with conditions distinguished before and after adaptation. According to the nature dependency matrix for own operations, prior to adaptation, items with relatively high exposure and risk were concentrated in water supply, regulation of precipitation patterns (such as drought and uneven rainfall), global and local climate regulation, and abiotic materials. This reflects the semiconductor manufacturing industry's fundamental reliance on stable external environmental conditions. After existing adaptation measures were taken into account, the relative risk levels of all issues showed a marked downward trend and all items moved out of the high-risk quadrant. However, the relative exposure of core issues such as water resources and climate regulation remained broadly unchanged, indicating that hydrological and climate factors remain key areas of long-term attention in the Company's environmental management and adaptation planning.

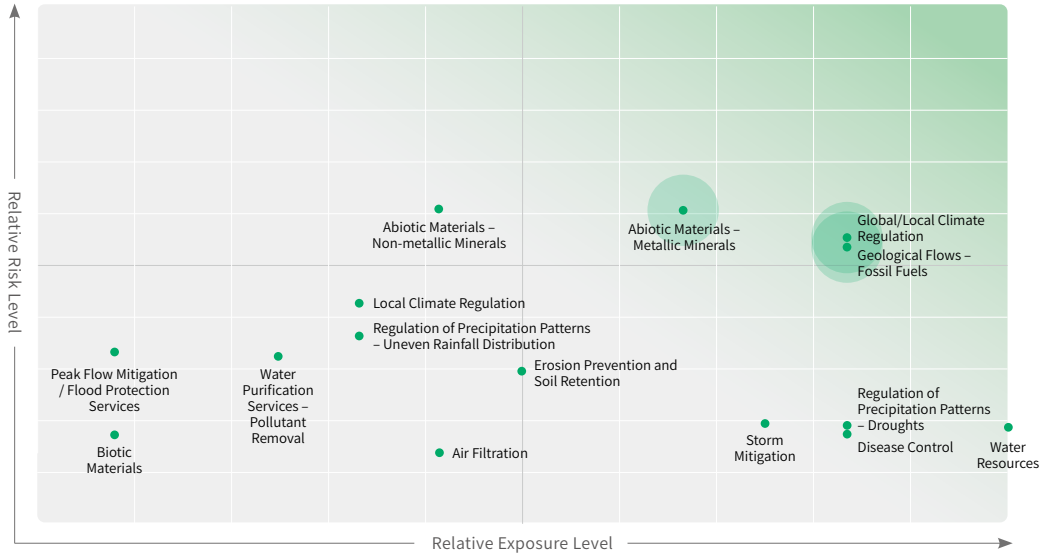
- Nature Dependency Matrix - Own Operations (Before Adaptation)



- Nature Impact Matrix - Own Operations



- Nature Dependency Matrix - Own Operations (After Adaptation)



For impacts, materiality was analyzed by considering exposure, management measures, and mitigation targets. The main areas of focus were waste, wastewater discharge, resource use, climate change, and air pollution, reflecting the direct relationship between routine production processes and environmental indicator management.

Overall, the assessment results are aligned with the Company's existing environmental management direction and indicate that routine operations already incorporate fundamental environmental considerations. Going forward, Nuvoton will use the inventory results as a reference and, where appropriate, link them with relevant indicators or internal management processes to continue integrating green manufacturing and sustainable operations into day-to-day management.

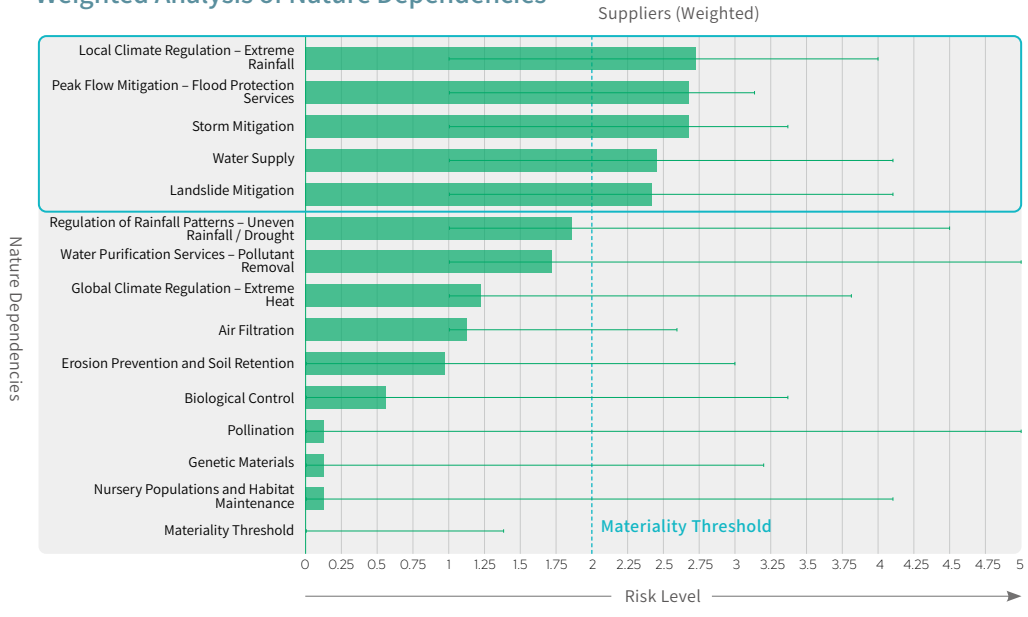
3.1.2.2 Supply Chain Dependencies and Impacts

This report utilizes the international ENCORE database and incorporates the industry classification system issued by the Directorate-General of Budget, Accounting and Statistics (DGBAS), Executive Yuan, Taiwan, for analysis. This report conducted a natural capital materiality analysis of 1,122 Nuvoton suppliers. The supplier base is primarily composed of wholesale and retail businesses, followed by construction engineering, electronic component manufacturing, and computer and machinery equipment manufacturing. This diverse industry structure indicates that nature-related risks are not limited to direct manufacturing activities but are also widely distributed across indirect support activities.

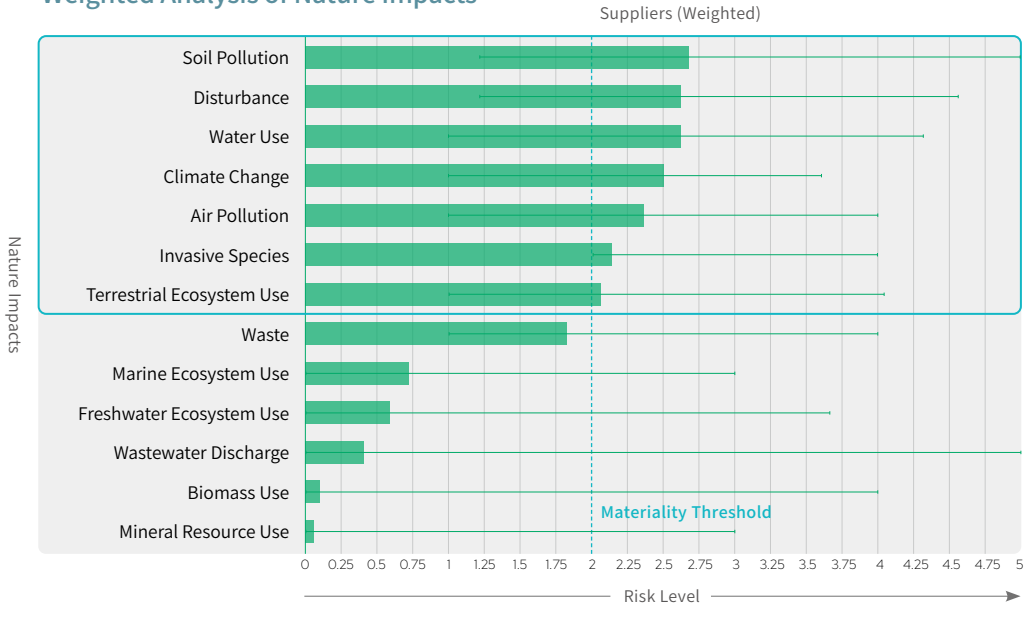
Nuvoton calculates risk exposure on a weighted basis according to each industry's share of overall supply chain operations. Based on the weighted assessment results, the key nature dependencies exceeding the materiality threshold of 2.0 are local climate regulation - extreme rainfall (2.72), peak flow mitigation - flood protection services (2.67), storm mitigation (2.66), water supply (2.44), and landslide mitigation (2.41). In addition, regulation

of rainfall patterns - uneven rainfall / drought (1.86) is approaching the materiality threshold. These results indicate specific supply chain dependencies on environmental adaptation and water resource availability. Seasonal climate fluctuations such as extreme rainfall, typhoons, or droughts may indirectly affect the stability of upstream raw material supply, logistics and transportation, and the schedules of related engineering projects.

- **Weighted Analysis of Nature Dependencies**



- **Weighted Analysis of Nature Impacts**



For nature-related impacts, after weighting and normalization, the categories exceeding the material impact threshold of 2.0 are soil pollution (2.70), disturbance (2.63), water use (2.63), climate change (2.52), air pollution (2.38), invasive species (2.15), and terrestrial ecosystem use (2.08). These results primarily reflect potential relationships between the geographic distribution of a diverse industrial supply chain and surrounding environmental factors; they do not indicate that actual environmental damage has occurred. From a management perspective, the analysis enables the Company to take a broader view and incorporate nature and ecological adaptation into routine supply chain management and resilience assessments, in line with international customers' expectations for sustainable supply chains.

The nature dependency and impact assessment at this stage can be summarized into two core management areas. First, nature dependencies clearly converge on climate regulation and water-resource stability, particularly extreme rainfall, flood protection services, storm mitigation, and water supply. Second, environmental impacts focus on routine operational emissions and interactions with the local environment.

These assessment trends complement Nuvoton's existing sustainable supply chain management priorities, including enhancing supply chain resilience, responsible sourcing, and advancing sustainable supply chain. The results not only validate the coverage of existing internal management mechanisms but also support the Company's long-term planning to continuously optimize its sustainable supply chain.

3.1.3 Assess

3.1.3.1 Risks and Opportunities in Own Operations

Integrating the internal nature dependency and impact assessment results, nature-related issues in the Company's own operations are highly concentrated. For dependencies, as shown in the pre-adaptation matrix, items with relatively high exposure and risk are concentrated in water supply, regulation of precipitation patterns (such as drought and uneven rainfall), global and local climate regulation, abiotic materials, and geological flows. After existing adaptation measures are incorporated, the relative risk levels of all items show a marked downward trend, reflecting the effectiveness of existing environmental management. However, the relative exposure of water resources and climate regulation remains largely unchanged and therefore continues to be a key focus of long-term environmental management. For impacts, as shown in the materiality matrix, most core issues, including waste, wastewater discharge, resource use, climate change, and air pollution,

are concentrated in the upper-right high-priority area, reflecting their direct relevance to routine production processes and environmental indicator management. Soil pollution, meanwhile, is positioned as relatively low exposure but high risk.

The potential risks identified above can be grouped into three categories. First, operational physical risks arise mainly from changes in environmental conditions such as drought, abnormal rainfall, or extreme weather, which may indirectly affect stable water supply and production continuity at operating sites. Second, environmental management risks relate to regulatory compliance and day-to-day performance management for water use, resource use, and pollutant emissions. Third, transition risks arise as external expectations for resource efficiency and environmental disclosure maturity continue to evolve, requiring the Company to maintain appropriate management mechanisms and capital expenditure planning. Together, these risks provide a basis for assessing operational resilience under changing environmental conditions.

The assessment results also provide practical reference points for further operational optimization. Because nature dependencies are concentrated in water resources and climate conditions, the Company can more clearly prioritize improvements in water-saving measures, backup water supply, and energy efficiency. At the same time, because impact issues are closely related to routine management of water, energy, pollution, and waste, the Company's existing environmental management systems, energy-saving and emissions-reduction projects, and resource-circulation measures already provide a solid foundation for alignment with international nature-related management frameworks. Nuvoton will continue to follow evolving international sustainability trends and appropriately incorporate nature and biodiversity considerations into daily operations.

3.1.3.2 Supply Chain Risks and Opportunities

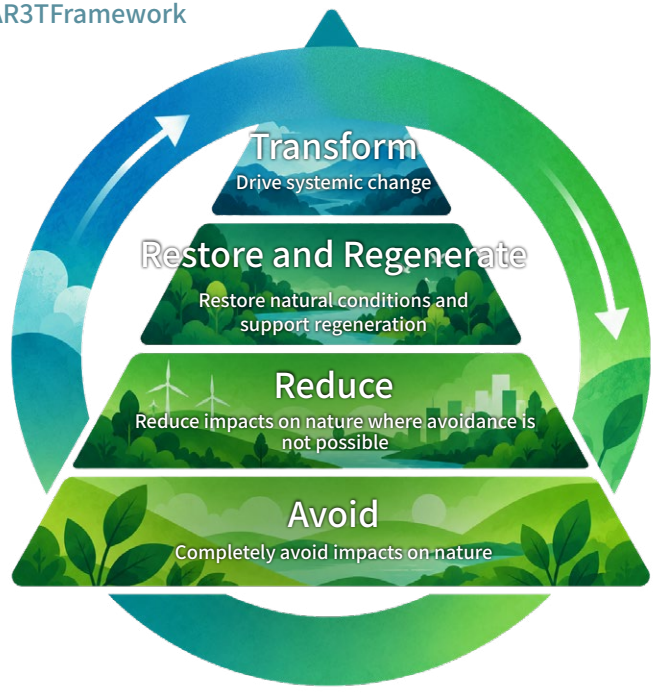
The Company uses weighted risk levels as the screening basis for material nature-related issues in the supply chain. When the weighted risk level of a specific category exceeds the threshold of 2, it is defined as a material nature-related area for priority attention and is linked to subsequent management indicators and risk communication. This method combines risk intensity with the geographic distribution of the supply chain to ensure that the analysis provides meaningful management reference. The weighted analysis shows that supply chain nature-related issues are highly concentrated. Dependencies focus on climate regulation, hydrological stability, disaster buffering, and stable water supply, including extreme rainfall, flood protection, storm mitigation, and landslide mitigation. Impacts focus on resource inputs and routine emissions management, including water use, climate change adaptation, soil and air quality, invasive species, and local disturbance. These trends mainly reflect the overall dependency characteristics of the semiconductor manufacturing value chain rather than specific events at individual links in the chain.

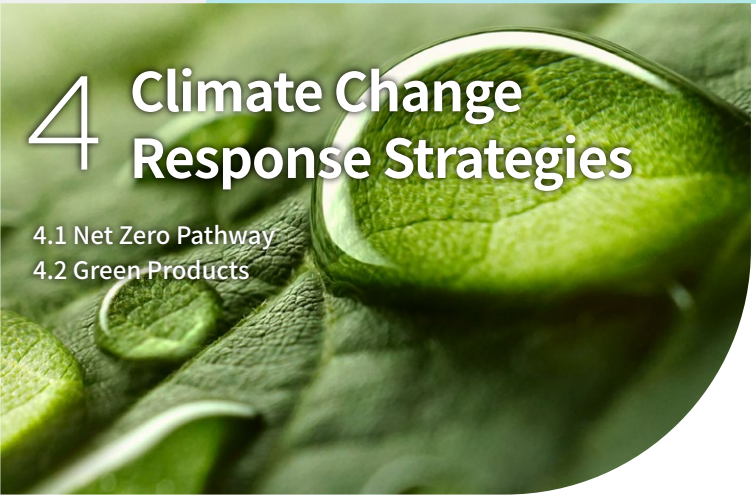
From a management perspective, the potential operational impacts of these issues can be grouped into three categories. First, physical impacts arise from seasonal climate fluctuations such as heavy rainfall, typhoons, or droughts, which may indirectly affect upstream material supply and logistics scheduling. Second, transition impacts arise as environmental regulations and compliance requirements continue to evolve, requiring supply chain adaptation in routine decarbonization, water conservation, and pollution prevention. Third, market impacts relate to compliance expectations from international customers and investors regarding sustainable supply chain ratings and environmental performance management. The assessment results also provide clear directions for supply chain optimization. For dependencies, the Company can guide key suppliers to continue strengthening business continuity plans and water-risk response capabilities. For impacts, existing supplier sustainability grading and environmental performance guidance mechanisms can be used to appropriately integrate nature-related issues into long-term green supply chain planning.

3.1.4 Prepare

Nuvoton applies the AR3T framework (Avoid, Reduce, Restore & Regenerate, Transform) to review interactions between its operations and the natural environment. Through assessment of financial impacts, the Company continues to advance sustainable business practices. For specific response strategies, metrics, and targets, please refer to Section 6: Nature-related Response Strategies, Metrics and Targets.

- AR3TFramework





4 Climate Change Response Strategies

4.1 Net Zero Pathway
4.2 Green Products

To address the risks and opportunities arising from climate change, Nuvoton follows its vision of being a "Hidden Champion in Providing Sustainable Semiconductors to Enrich Human Life." The Company actively advances carbon reduction initiatives and has established Group-wide greenhouse gas reduction targets. Nuvoton has formed an Energy Saving and Carbon Reduction Task Force to build a green and low-carbon operating model. Through continuous technological innovation and R&D capabilities, the Company advances green manufacturing processes (sustainable semiconductor technologies) and continues to improve green products.

4.1 Net Zero Pathway

To address the risks and opportunities arising from climate change, Nuvoton has made achieving Net Zero by 2050 the core objective of its long-term carbon reduction strategy and has developed an evidence-based decarbonization roadmap in accordance with international scientific standards. On March 28, 2025, Nuvoton received official validation of its targets from the Science Based Targets initiative (SBTi), demonstrating the Company's commitment to participating in global climate action.

In line with the scientific basis of the SBTi, Nuvoton commits to:

- Reduce absolute Scope 1 and Scope 2 greenhouse gas emissions by 48.8% by 2030 from a 2022 baseline, covering emissions from direct operations and energy use.
- Reduce absolute Scope 3 greenhouse gas emissions by 25% by 2030 from a 2023 baseline, focusing on indirect emissions from sources such as supply chain procurement and product use.

SBTi applies rigorous validation criteria. Validation confirms that the Company's emissions reduction targets are science-based and aligned with the climate goal of limiting global warming to within 1.5° C by the end of the century. Going forward, Nuvoton will continue to integrate climate action into corporate decision-making to ensure achievement of its short- and mid-term 2030 SBT reduction targets and its long-term commitment to Net Zero by 2050.

• Nuvoton (Global) Net Zero Decarbonization Pathway (Scope 1 + Scope 2)

Operating Site	Scope	Baseline Year (2022) Emissions (tCO_2e)	2024 Emissions (tCO_2e)	2025 Emissions (tCO_2e)	2030 Target Emissions (tCO_2e)
Nuvoton Taiwan	Scope 1	70,523	20,547	14,275	8,800
	Scope 2	35,786	33,771	32,383	31,400
	Scope 1 + Scope 2	**106,309**	**54,318**	**46,658**	**40,200**
Nuvoton Japan	Scope 1	28,603	17,920	13,398	12,234
	Scope 2	66,189	49,465	48,023	49,566
	Scope 1 + Scope 2	**94,792**	**67,385**	**61,421**	**61,800**
Other Overseas Subsidiaries	Scope 1 + Scope 2	**1,261**	**1,824**	**1,388**	**2,000**
	Total	**202,362**	**123,527**	**109,466**	**104,000**

Note: Greenhouse gas emissions are inventoried using the operational control approach. Emissions are calculated as activity data × emission factor × GWP value. Nuvoton Taiwan uses emission factors announced by Taiwan's Ministry of Environment in 2024 and GWP values from IPCC AR6 (2024); Nuvoton Japan uses emission factors from the 2013 IPCC Guidelines for National Greenhouse Gas Inventories and GWP values from IPCC AR6 (2021).

• Nuvoton (Global) Net Zero Decarbonization Pathway (Scope 3)

	Baseline Year (2023) Emissions (tCO_2e)	2030 Target Emissions (tCO_2e)	Emission Reduction (tCO_2e)	Reduction from Baseline
Nuvoton Taiwan	2,295,497	**6,306,451**	**2,102,150**	25%
Nuvoton Japan	6,113,104			
Total	**8,408,601**			

Note: Global warming potential (GWP) values for greenhouse gases are based on the IPCC Sixth Assessment Report (AR6).

• Greenhouse Gas Reduction Strategies

Strategic Pillar	Action Plan	2025 Performance
Green Production	• GHG abatement equipment (local scrubbers) • Develop renewable energy • Implement energy-saving programs	• Nuvoton Taiwan installed 2 new combustion-type local scrubbers. • Nuvoton Japan purchased 2,204 tons of non-fossil fuel certificates. • Nuvoton Japan signed an off-site renewable energy Power Purchase Agreement (PPA); annual renewable electricity procurement is expected to reach approximately 6.94 million kWh, reducing approximately 3,270 tCO_2e per year. • OSAT partners purchased 1 million kWh/year of renewable electricity. • Nuvoton Taiwan generated 1.03 million kWh/year of self-consumed solar power. • Nuvoton also implemented energy-saving programs, including equipment replacement and process optimization, achieving planned annual emissions reductions of 908 tCO_2e.
Green Supply Chain	• Improve energy efficiency • Supplier carbon reduction	Supplier Carbon Reduction: • Require major suppliers to obtain ISO 14064 or equivalent international standards verification; 100% of major suppliers have achieved this. • Short-, mid-, and long-term GHG reduction targets have been established (2025 target: 6% reduction from the 2021 baseline). • Suppliers are required to set 2030 reduction targets; all major suppliers have established long-term targets.

• Supplier Carbon Reduction

Short-, mid-, and long-term greenhouse gas reduction targets have been established (4% reduction in 2024 compared with 2021).

Green Products	• Sustainable products • Chip size optimization	• Sustainable products accounted for **65%** of the Manufacturing Business Group's products. • Compared with the previous generation of products, chip area was reduced by approximately **12%–80%**. • Continued to develop energy-efficient and high-performance green products to reduce energy consumption of end products.

• Low-carbon R&D and Investment

Nuvoton continues to invest in advanced processes. Through process improvements, the Company significantly reduces chip size, improves resource utilization efficiency, and lowers energy consumption and greenhouse gas emissions, thereby reducing the overall carbon footprint of its products. Advanced processes also help improve product performance and reduce energy consumption. Nuvoton will continue advancing green products and investing in advanced processes, with the following R&D objectives:

Short-term:
In 2025, the number of products using advanced processes increased by more than *60%* compared with 2023.
Mid-and long-term:
By 2030, the number of products using advanced processes is projected to increase by more than *90%* compared with 2023.

4.2 Green Products

Design Stage

- **Low-power design:** The low-power, high-performance NuMicro® M2L31 series microcontroller incorporates up to eleven power-saving modes. Compared with the previous-generation NuMicro® M253 series, full-speed operating power consumption was reduced by 40% (from 110 µA/MHz to 66 µA/MHz). Intelligent hardware circuitry also enables normal communications and data acquisition in certain use cases without waking the CPU; in this automated mode, power consumption can be reduced by more than 90% compared with the previous generation. The series received the 2024 EE Awards Asia Product Award (Taiwan) for Best MCU / Driver IC of the Year.
- **Low-power design:** For mobile notebook computers and high-productivity PCs, Nuvoton collaborates with computer-system companies to develop Embedded Controller (EC) chips featuring low power consumption, high computing performance, and high security.

Production Stage

- **Green manufacturing:** Through process and equipment optimization, Nuvoton Taiwan achieved total electricity savings of 1.172 million kWh in 2024.
- **Packaging material recycling:** Through OSAT recycling mechanisms, recycled wafer boxes are used for chip shipments, and recycled trays are used wherever possible to extend packaging-material life cycles, reduce material use and costs, and reduce waste.

Transportation Stage

- Optimize transportation routes to reduce energy consumption.

Use Stage

- **Product efficiency improvement:** The low-power, high-performance NuMicro® M2L31 series includes up to 11 power-saving modes. Compared with the previous generation, full-speed operating power consumption was reduced by 40% (from 110 µA/MHz to 66 µA/MHz), and automated hardware functions can reduce power consumption by more than 90% in certain use cases. EC products help PC users achieve higher productivity while reducing PC power consumption and energy demand.
- **Energy-efficient microcontrollers:** Nuvoton microcontrollers help reduce carbon emissions during global IC product use. High-temperature-resistant, interference-resistant, small-package MCUs support conventional and electric vehicle manufacturers in developing more efficient body-control products.

End-of-life Stage

- **Chip miniaturization:** By reducing chip size, Nuvoton reduces raw-material use in end devices and the amount of waste generated at end of life, thereby reducing environmental impacts.

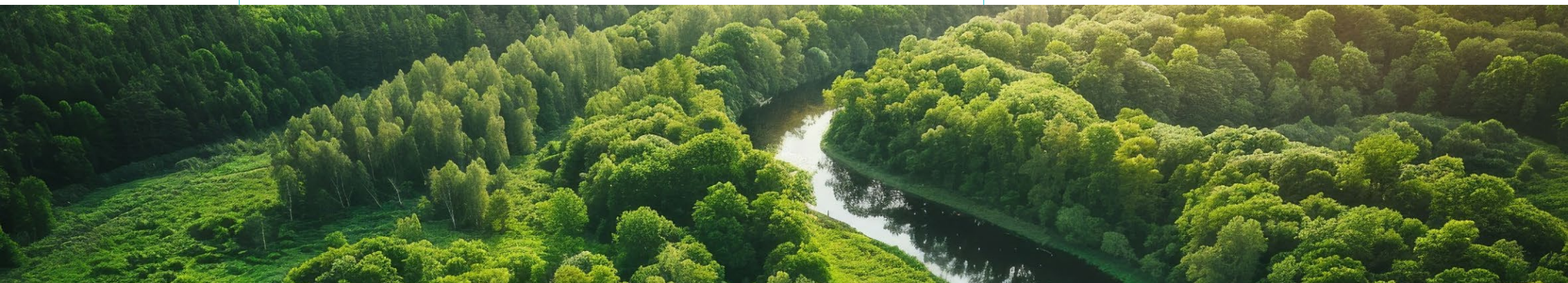
5 Climate Change-related Metrics and Targets





Item	Metric	Target
Risk 001 - Increased Severity of Extreme Weather Events such as Typhoons and Droughts		
Risk Assessment	• Conduct risk assessments for each operating site with reference to SSP5-8.5	• Progressively complete risk assessments for 100% of operating sites by 2030
Risk Mitigation Plan	• Develop or apply weather simulation and monitoring equipment to enable early response to extreme weather and reduce impacts and financial losses; invest in strengthening building resilience and install backup power to support business continuity • Promote water-use reduction	• Progressively equip 100% of applicable operating sites with effective backup power by 2030 • Reduce water use by 10% by 2030 (2021 baseline)
Risk 002 - Costs associated with the transition to low-carbon technologies		
Early-stage Market Research	• Assess global energy-efficiency regulatory risks and market demand, understand customer preferences, focus on low-carbon product innovation and optimization, and develop miniaturized, lower-carbon green products	• Conduct market-demand research for 90% of sales markets • Complete early-stage market-demand research for 100% of new products submitted for review
Improve Design and Production Efficiency	• Advance digital transformation and introduce AI technologies to improve low-carbon design efficiency and reduce development costs and adverse financial impact	• Reduce product-development labor costs
Risk 003 - Increased Pricing on Greenhouse Gas Emissions		
Establish a Carbon Accounting System	• Introduce internal carbon quantification in phases, translate GHG emissions into internal quantitative data, strengthen internal decarbonization drivers, and manage the financial impacts of external policie	• Complete the carbon accounting system in 2026 • Complete product carbon-footprint calculations in 2026
GHG Reduction	• Participate actively in domestic carbon-credit mechanisms and use high-quality carbon credits to offset residual emissions toward carbon neutrality • Establish and collect GHG emissions baselines and reduction targets for major suppliers and assist suppliers without targets in setting GHG reduction targets	• Add another 5,000 tons of carbon credits in 2027 • By 2035, Nuvoton Taiwan will hold reserves equivalent to one year of regional Scope 1 and Scope 2 emissions • Reduce GHG emissions of Nuvoton Taiwan major suppliers by 15% by 2030 (2021 baseline)
Increase Investment in Low-carbon Equipment	• Install fluorinated greenhouse gas abatement equipment to reduce greenhouse gas emissions • Install energy-efficient production equipment to reduce greenhouse gas emissions	• Nuvoton Global Scope 1: follow the SBT pathway (2022 baseline), with targets of >29.5% reduction in 2025 and >78.6% in 2030; a 72.1% reduction was achieved in 2025 • Nuvoton Global Scope 2: follow the SBT pathway (2022 baseline), with targets of >7.4% reduction in 2025 and >19.7% in 2030; a 20.1% reduction was achieved in 2025, achieving the 2030 target ahead of schedule
Risk 004 - Increase in Average Temperatures		
Periodic High-temperature Risk Assessment	• Identify potential risks from global warming and improve workforce management	• Progressively complete global-warming potential assessments for 100% of production operating sites by 2030
Reduce Health Risks	• Develop programs to prevent disasters arising from global warming and avoid employee health impacts	• Continue increasing consecutive days without accidents

Item	Metric	Target
Opportunity 001 - Energy Alternatives and Diversification		
Ensure Renewable Energy Generation Capacity	• Install solar power generation systems	• In 2025, solar generation at Nuvoton Taiwan sites will account for 1.5% of total electricity consumption. • In 2025, Nuvoton Japan (NTCJ) will sign a long-term contract with an electricity producer for stable solar-power supply.
Increase Diversified Energy Use	• Assess diversified energy sources to strengthen energy-supply resilience; replace electricity with natural gas where appropriate, install natural-gas local scrubbers, and replace electric boilers with natural-gas boilers	• Install 2 additional local scrubbers in 2025 • Install 1 additional natural-gas boiler
Opportunity 002 - Research and Innovation in Developing New Products and Services		
Increase R&D and Innovation Investment	• Invest in professional R&D teams and resources for technological innovation and low-carbon product development, including equipment, power-management ICs, automotive products, third-generation semiconductor process platforms, R&D, marketing, training, and AI technologies to improve design efficiency	• Nuvoton Japan products with green, energy-saving, or equivalent labels account for 4.5% of total output value. • Compared with 2023, the number of products using advanced processes increased by more than 60% in 2025. Maintain the patent portfolio and file 132 new patent applications
Focus R&D and Innovation on Product Power Efficiency	• Assess national energy-efficiency standards and green-product requirements, develop semiconductor products for rapidly decarbonizing markets such as electric vehicles, expand regional markets, and strengthen regional supply continuity • Increase the number of mass-produced green products	
Opportunity 003 - Engagement in Incentive Policies		
Implement Sustainability-related Management Programs	• Identify and manage sustainability risks through self-assessment and stakeholder engagement, implement risk response and mitigation through internal risk management processes, and align with evaluation criteria used by financing institutions • Continuously monitor government incentive policies and notify relevant units of specific program information for assessment	• Set sustainable management targets based on financial-institution evaluation indicators, government policies, and incentive-program criteria, such as GHG reductions and intensity, energy and resource use, and waste generation. • Apply for and obtain a preferential carbon-fee rate in 2025
Opportunity 004 - Development of Climate Adaptation Solutions		
System Implementation Assessment and Application	• Obtain third-party certifications including ISO 14064, ISO 50001, and ISO 22301 to establish BCP/BCM systems and strengthen supplier and customer partnerships, thereby increasing Nuvoton's operational resilience	• Complete ISO 14064 and ISO 50001 certification • Determine the plan for obtaining ISO 22301 certification



6 Nature-related Response Strategies, Metrics and Targets

6.1 Metrics and Units for Managing Nature Dependency Risks in Own Operations
6.2 Metrics and Units for Managing Nature Impact Risks in Own Operations
6.3 Metrics and Units for Managing Nature Dependencies and Impacts in the Supply Chain

6.1 Metrics and Units for Managing Nature Dependency Risks in Own Operations

The dependencies of the Company's own operations on natural resources reflect fundamental needs for water resources, climate regulation, and other ecosystem services. As these factors are generally related to stable day-to-day plant operations and facility functioning, they are managed in practice through routine environmental monitoring indicators and existing site-level response mechanisms. The management indicators and measurement units listed below are based on the issues identified in this assessment and are intended to provide baseline information for internal review of nature dependencies in own operations, as well as an ongoing reference for subsequent comparison and accumulation of environmental data.



Corresponding Ecosystem Service	Screened Issue	Indicator	Unit	Early-warning Mechanism	Scenario Analysis and Financial Impact	Target
Water Resources	Water Supply	• Weather data - rainfall forecast • Water Resources Agency water conditions	Drought days	Nuvoton Taiwan 1.Water-condition alert level 2.Reservoir water-level changes Nuvoton Japan 1.Groundwater-level changes and withdrawal conditions	Revenue loss from operational disruption caused by drought	Nuvoton Taiwan 1.Publish reservoir hydrology monthly when reservoir levels are above warning thresholds 2.Weekly reservoir hydrological updates (applicable when reservoir water levels fall below the warning threshold or when mandatory 5-7% water conservation measures are implemented in Science Park) 3.Administration meetings when alert levels change and implement internal measures as appropriate 4.Hold water-condition meetings and discuss water-saving measures according to conditions Nuvoton Japan 1.Evaluate improvements in water recycling and reuse and implement water-saving measures
Geological Flows - Fossil Fuels	Fossil-fuel supply shortage	• Total fossil-fuel consumption	• Metric tons • GJ • Price • CO_2e	1.Total fossil-fuel consumption 2.Fuel energy 3.Oil-price monitoring 4.Scope 1 combustion emissions	Higher cost of fossil-fuel use	1.Reduce fossil-fuel consumption 2.Reduce emissions

Corresponding Ecosystem Service	Screened Issue	Indicator	Unit	Early-warning Mechanism	Scenario Analysis and Financial Impact	Target
Regulation of Precipitation Patterns	Drought Changes in rainy season	• Rainfall forecast • Water conditions	Reservoir storage (%) 24-hour cumulative rainfall (mm/day)	1.Water-condition alert levels 2.Heavy-rain, flood, and debris-flow warnings 3.Daily checks 4.Internal reporting of heavy-rain indications 5.Monitoring of wastewater-treatment and related facilities	Average annual revenue loss from typhoon-related operational disruption	Nuvoton Taiwan 1.Participate in Science Park Bureau meetings when water-condition alert levels change, and convene regular water-condition meetings to discuss water-saving measures 2.When heavy-rain warnings or advisories are issued, conduct site inspections in response to alarms from the on-site rain gauge cumulative rainfall monitoring system and the site drainage abnormal warning system, and confirm on-site flooding conditions. 3.During the period from the issuance of a sea typhoon warning until the cancellation of a land typhoon warning, closely monitor on-site environmental conditions. 4.Plan and implement rooftop drainage pipe cleaning projects to maintain smooth drainage and ensure proper operation of rooftop drainage systems Nuvoton Japan 1.Establish emergency response and notification mechanisms in accordance with Business Continuity Management (BCM) standards, and activate relevant disaster prevention measures when warning conditions are met to reduce the risk of operational disruptions
Erosion Prevention and Soil Retention	Debris flow or landslide	• Landslide potential • Debris-flow warning thresholds	Rainfall forecast	1.Monitor heavy-rain, debris-flow, and disaster warnings issued by the Central Weather Administration and local authorities 2.Track rainfall forecasts, 24-hour cumulative rainfall, and yellow debris-flow warnings 3.Monitor surrounding conditions and critical infrastructure risks	1.Revenue loss from operational disruption 2.Facility and pipeline repair costs 3.Operating losses from logistics disruption	Nuvoton Taiwan 1.Keep operational disruption caused by heavy rain, debris flows, or landslides within 12 hours 2.Establish slope monitoring and inspection and complete preventive measures before yellow debris-flow warnings. Nuvoton Japan 1.Establish emergency response and notification mechanisms in accordance with Business Continuity Management (BCM) standards, and activate relevant disaster prevention measures when warning conditions are met
Disease Control	Large-scale infectious disease outbreak	Information from disease-control authorities	Number of infections	1.Information monitoring 2.Prevention and control tracking 3.Tiered warning response 4.Documentation	Revenue loss from pandemic-related operational disruption	Nuvoton Taiwan 1.Monitor disease information and issue alerts 2.Expand and manage epidemic-prevention supplies 3.Prevent outbreaks within organizational premises 4.Strengthen disinfection and management to avoid infections and control spread Nuvoton Japan 1.Establish emergency response and notification mechanisms in accordance with Business Continuity Management (BCM) standards, activate relevant disaster prevention measures when warning conditions are met, and implement business continuity measures in accordance with communicable disease prevention and control standards

Corresponding Ecosystem Service	Screened Issue	Indicator	Unit	Early-warning Mechanism	Scenario Analysis and Financial Impact	Target	
Global / Local Climate Regulation	Extreme heat	Temperature forecast	Temperature (° C)	1.Government high-temperature and heat-injury warnings 2.Real-time weather monitoring 3.Monitor site temperature changes 4.Monitor air-conditioning and cooling equipment operation	1.Revenue loss from heat-related operational disruption 2.Compensation for employee injuries 3.Higher electricity costs from heat	Nuvoton Taiwan 1.Keep operational disruption caused by temperatures >40° C within 12 hours 2.Implement the Company's emergency response measures and ensure the timely activation of response systems under temperatures exceeding 40° C, including chilled-water air-conditioning systems and humidification, dehumidification, or heating systems, to ensure the continuity of critical operations 3.Monitor and maintain the proper operation of climate-control equipment to support corrective actions under extreme weather conditions, including AI-controlled operating parameters 4.Keep emergency power generation facilities on standby at all times to minimize operational disruptions caused by extreme high temperatures	Nuvoton Japan 1.Implement heatstroke-prevention measures for outdoor work and projects 2.Inspect air-conditioning and cooling equipment to ensure backup capacity
Storm Mitigation	Storm disasters	• Typhoon warnings • Estimated wind speed	Tropical cyclone category	1.Monitor typhoon warnings, heavy-rain advisories, and local disaster-prevention information 2.Monitor typhoon paths, estimated wind speed, and rainfall 3.Activate typhoon preparedness and response measures	1.Revenue loss from operational disruption 2.Facility repair costs 3.Backup-power and operating costs	Nuvoton Taiwan 1.Keep typhoon-related operational disruption within 12 hours 2.Conduct inspections of the site, drainage systems, and critical facilities to ensure normal equipment operation 3.Continuously monitor wind conditions, rainfall, and related electromechanical systems, and immediately report abnormalities and implement corrective actions when required.	Nuvoton Japan 1.Establish emergency response and notification mechanisms in accordance with Business Continuity Management (BCM) standards, and activate relevant disaster prevention measures when warning conditions are met
Abiotic Materials - Metallic Minerals	Shortage of abiotic materials (metals)	Material use	Metric tons	1.Monitor changes in metallic mineral use 2.Track supply conditions and risks across the supply chain.	Higher cost of metallic minerals	Nuvoton Taiwan 1.Build supply chain resilience to ensure uninterrupted production 2.Develop recycling and reuse initiatives 3.Identify alternative materials	Nuvoton Japan 1.Maintain tactical safety stock and contingency inventory for key purchased raw materials 2.Assess the adequacy of suppliers' Business Continuity Plans (BCPs)
Abiotic Materials - Non-metallic Minerals	Shortage of abiotic materials (non-metals)	Material use	Metric tons	1.Monitor changes in non-metallic mineral use 2.Track supply conditions and risks across the supply chain. 3.Monitor the stability of key raw-material supply	Higher cost of non-metallic minerals	Nuvoton Taiwan 1.Select suppliers that comply with environmental regulations 2.Establish alternative supplier mechanisms to ensure an uninterrupted supply of raw materials 3.Continue to develop and adopt alternative materials to reduce supply risks	Nuvoton Japan 1.Maintain tactical safety stock and contingency inventory for key purchased raw materials 2.Establish a safety stock management mechanism for key raw materials 3.Assess the adequacy of suppliers' Business Continuity Plans (BCPs)

6.2 Metrics and Units for Managing Nature Impact Risks in Own Operations

Nature-related impacts from own operations mainly include resource inputs, energy use, and routine emissions management. Most of these factors are already incorporated into the Company's existing environmental management mechanisms. At this stage, the focus is on organizing them into corresponding quantitative environmental data to align with internationally recognized frameworks. The indicators and measurement units listed below are intended to provide baseline data for internal review of nature-related impacts and to serve as a basis for comparison with existing management policies and future information accumulation.

Impact	Indicator	Unit	Scenario Analysis and Financial Impact	2025 Response Actions	2030 Response Actions
Water Use	Water consumption	m^3	1.Higher water-truck dispatch costs during water shortages 2.Revenue loss from production constraints caused by water restrictions	1.Continue monitoring water use at all sites 2.Promote water-saving measures: Nuvoton Taiwan to save 7.3 million liters annually; Nuvoton Japan to reduce water use by 1% from the previous year.	1.Continue monitoring water use at all sites 2.Promote water-saving measures: Nuvoton Taiwan to achieve a cumulative 10% reduction in water use from the 2021 baseline.
Mineral Resource Use	Mineral use	Metric tons	1.Higher procurement costs from mineral-resource price increases 2.Operating losses from production constraints caused by mineral-resource shortages	Nuvoton Japan promotes reuse of recycled materials.	Nuvoton Japan promotes reuse of recycled materials.
Indirect Energy Use	Electricity consumption	MJ / MWh	1.Higher energy procurement costs from electricity price increases 2.Revenue loss from production constraints caused by power restrictions	Strengthen electricity management and energy-saving measures: 1.Nuvoton Taiwan targets annual electricity savings of 2.2 million kWh and a renewable electricity share of 1.5%. 2.Nuvoton Japan continues electricity monitoring and energy-saving measures, improves energy efficiency by an average of 1% per year, and introduces 15% renewable electricity at the Arai plant.	Strengthen electricity management and energy-saving measures: 1.Nuvoton Taiwan continues existing energy-saving and efficiency initiatives. 2.Nuvoton Japan continues electricity monitoring and energy-saving measures, maintains an average 1% annual improvement in energy efficiency, and increases renewable electricity use at plants to 30%.
Climate Change	1. GHG emissions 2. Emissions of specific GHGs	tCO_2e	Higher costs from carbon fees	1.Nuvoton Taiwan advances absolute GHG reductions toward at least 48.8% for Scope 1 and 2 and 25% for Scope 3 from the relevant baseline years. 2.Nuvoton Japan maintains emissions monitoring and reduction measures, targeting a 34% reduction from 2022.	1.Nuvoton Taiwan continues existing absolute reduction initiatives. 2.Nuvoton Japan increases its target to a 35% reduction from 2022 while maintaining existing monitoring and reduction measures.
Air Pollution	Air pollutant emissions	Metric tons of pollutants	1.Higher pollution-control costs from stricter emissions standards 2.Capital expenditures for environmental-equipment upgrades	100% compliance with regulatory requirements	100% compliance with regulatory requirements
Wastewater Discharge	Regulated water-pollutant discharge	mg/L COD	1.Higher wastewater-treatment costs from stricter water-pollution controls 2.Capital expenditures for wastewater-treatment facility upgrades	100% compliance with regulatory requirements	100% compliance with regulatory requirements
Waste	By treatment method: 1. General industrial waste 2. Hazardous industrial waste	Metric tons of waste Waste recycling rate (%)	Higher operating costs from increased waste-treatment fees	1.Nuvoton Taiwan targets a plant waste recycling rate of 78%. 2.Nuvoton Japan maintains a recycling rate above 99.5%.	1.Nuvoton Taiwan plans to increase the waste recycling rate to 85%. 2.Nuvoton Japan continues to maintain a recycling rate above 99.5%.

6.3 Metrics and Units for Managing Nature Dependencies and Impacts in the Supply Chain

Nuvoton's supply chain includes suppliers of wafers, chemicals, gases, targets, quartz, components, outsourced processing, and contract manufacturing. Their operations involve the use of water, energy, minerals, and other natural resources, and may also affect the natural environment through raw material extraction, manufacturing, and waste treatment. Nuvoton therefore incorporates supply chain nature dependencies and impacts into its sustainable supply chain management mechanisms. Through supplier assessments, environmental management requirements, responsible minerals management, and green procurement, the Company progressively reduces value-chain dependencies on natural resources and potential environmental impacts.

Nuvoton requires suppliers to comply with relevant environmental regulations and hazardous-substance management requirements for products, and encourages major suppliers to obtain ISO 14001, ISO 14064, or equivalent international standards verification. Nuvoton Japan has also established Green Procurement Standards that suppliers are required to follow, reducing environmental impacts from the procurement stage.

In addition, for the use of mineral resources, Nuvoton conducts supply chain due diligence in accordance with the Responsible Minerals Initiative (RMI) and requires suppliers involving RMI-designated minerals to establish conflict minerals management systems to reduce potential environmental and social risks arising from raw material sourcing. In 2025, 100% of the smelters used by Nuvoton were RMI-recognized smelters.

The supply chain nature dependency assessment primarily reflects the fundamental need of the Company's value chain for specific ecosystem services in raw material supply and related logistics activities. As these dependency factors are generally related to routine changes in external environmental conditions, supply chain management in practice mainly uses routine weather information, local water-condition fluctuations, and existing response mechanisms of key suppliers as ongoing references. The management indicators and measurement units listed below are intended to provide baseline information for internal review of supply chain nature dependencies and as an ongoing basis for subsequent comparison of environmental information.

Corresponding Ecosystem Service	Indicator	Unit	Early-warning Mechanism	Management Target
Local Climate Regulation - Extreme Rainfall	Rainfall forecast	24-hour cumulative rainfall (mm/day)	1. Heavy-rain warnings / advisories 2. Daily checks by designated personnel 3. Internal reporting of heavy-rain indications	1. Completeness of flood-control or drainage facilities at high-risk suppliers 2. Continue BCP emergency drills for flood risk to ensure uninterrupted critical operations
Peak Flow Mitigation - Flood Protection Services	Rainfall forecast	24-hour cumulative rainfall (mm/day)	1. Heavy-rain warnings / advisories 2. Daily checks by designated personnel 3. Internal reporting of heavy-rain indications	1. Completeness of flood-control or drainage facilities at high-risk suppliers 2. Continue BCP emergency drills for flood risk to ensure uninterrupted critical operations
Storm Mitigation	Typhoon warnings and estimated wind speed	Tropical cyclone category	1. Central Weather Administration typhoon warnings 2. Regular tracking of climate conditions 3. Follow typhoon and flood prevention procedures	1. Keep typhoon-related operational disruption below 2 hours 2. Follow the Company typhoon and flood-prevention procedures to ensure uninterrupted critical operations
Landslide Mitigation	Rainfall forecast / landslide potential	24-hour cumulative rainfall (mm/day)	Heavy-rain warning / advisory	Keep operational disruption caused by landslides below 2 hours
Water Supply	Weather data - rainfall forecast / Water Resources Agency water conditions	Drought days	1. Water-condition alert level 2. Reservoir water-level changes	1. Keep operational disruption caused by water shortages below 2 hours 2. Establish water-storage and dispatch plans



Nuvoton has inventoried nature-related impacts in its supply chain, covering resource inputs and routine emissions management. Going forward, the Company will use this inventory as a reference and, in line with evolving international sustainability trends and ongoing adjustments to its internal green supply chain management mechanisms, incorporate nature-related impact factors into supplier management and procurement decisions to enhance supply chain resilience and reduce negative impacts of the value chain on the natural environment.

- Soil Pollution
- Disturbance
- Water Use
- Climate Change
- Air Pollution
- Invasive Species
- Terrestrial Ecosystem Use



7 Biodiversity Conservation initiatives

7.1 Butterfly Revival - Protecting the Habitat of the Great Purple Emperor
7.2 2025 Biodiversity Conservation Initiatives Results

Despite the semiconductor manufacturing industry not being heavily reliant on or adversely impacting natural resources, Nuvoton recognizes the relationship between its operations, the natural environment, and biodiversity. The Company is committed to long-term support for biodiversity conservation and actively responds to the goals of the Kunming-Montreal Global Biodiversity Framework (K-M GBF), striving to reduce potential adverse impacts of its operations on the natural environment.

Nuvoton continues to cooperate with organizations focused on biodiversity and is actively involved in various environmental protection initiatives, fostering exchanges among governmental, academic, and research institutions. The Company evaluates biodiversity projects promoted by the Forestry and Nature Conservation Agency, Ministry of Agriculture, and participates in ecological conservation and restoration initiatives, thereby supporting nature and biodiversity conservation through concrete action.

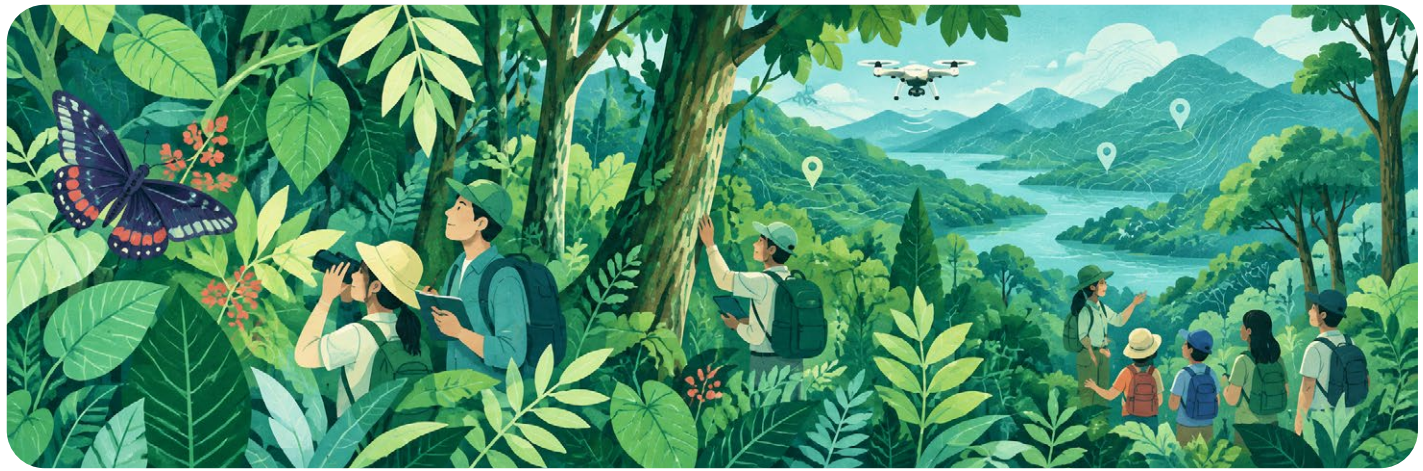
7.1 Butterfly Revival – Protecting the Habitat of the Great Purple Emperor

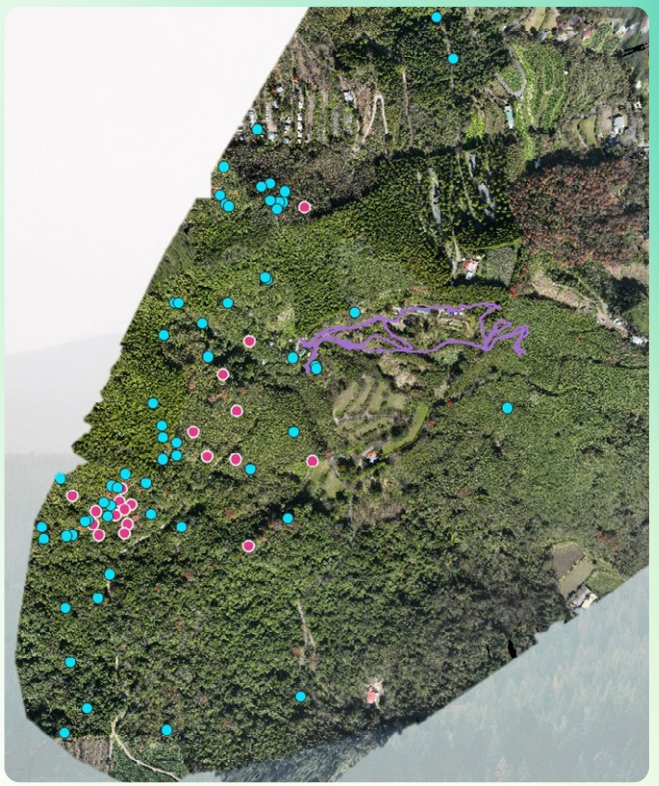
Since December 2024, Nuvoton has engaged in the Forestry and Nature Conservation Agency Bureau, Ministry of Agriculture project focused on natural carbon sequestration and biodiversity conservation, titled "Butterfly Revival - Protecting the Habitat of the Great Purple Emperor." In collaboration with the Butterfly Conservation Society of Taiwan, the Taiwan Biodiversity Research Institute of the Ministry of Agriculture, and the National Yunlin University of Science and Technology, Nuvoton jointly conducts natural environment surveys, Great Purple Emperor habitat surveys, and hackberry forest monitoring in the R'uzyan Tribe of Wufeng Township, Hsinchu County. As hackberry trees are a food source for Great Purple Emperor larvae, the project uses hackberry forest monitoring to establish imagery and distribution maps for specific growth periods and assesses the distribution and growth conditions of hackberry trees. The project helps provide a stable food source and habitat for juvenile butterflies and serves as a basis for subsequent habitat management and restoration.

7.2 2025 Biodiversity Conservation Initiatives Results

In 2025, Nuvoton and its partners continued Great Purple Emperor habitat surveys and hackberry forest monitoring in the R'uzyan Tribe. Aerial surveys, GIS, and ground surveys were used to establish baseline habitat data for subsequent habitat management.

2025 Conservation Action	Performance
Biodiversity Habitat Survey	Conducted hackberry forest and Great Purple Emperor habitat surveys in the R'uzyan Tribe, Wufeng Township, Hsinchu County
Aerial Survey and GIS Development	A total of 80 survey points were recorded in the GIS system.
Ground Survey	Confirmed 20 hackberry tree locations
Aerial Survey	Identified 60 potential hackberry tree locations for subsequent field verification
Ecological Interpretation Capacity Building	Held 2 Great Purple Emperor ecological interpretation workshops with 16 participants
Environmental Education	Held 1 environmental education activity with 45 participants
Habitat Management	Survey results serve as a basis for subsequent habitat management.





Distribution map of aerial survey points for hackberry trees in Bailan Community, Wufeng Township, Hsinchu County

- Field survey of hackberry tree locations on Dec 11, 2024
- Potential hackberry tree locations identified from aerial imagery (pending field verification)

Image Source: Intelligent Unmanned Aircraft Systems and Image Recognition Lab., National Yunlin University of Science and Technology



Exploration of the Great Purple Emperor Butterfly ecological camping



"Butterfly Revival - Protecting the Habitat of the Great Purple Emperor" Seminar



Ecological Seminar at Taiping Elementary School, Guanxi Township, Hsinchu County

Nuvoton also expanded participation in biodiversity conservation through community engagement and environmental education, inviting Indigenous communities and tourism operators to participate in habitat maintenance and ecological interpretation, thereby raising local community and public awareness of the Great Purple Emperor and hackberry ecology.

Internally, the Company also held a biodiversity seminar titled "Butterfly Revival - Protecting the Habitat of the Great Purple Emperor" and, together with an employee club, organized the "Butterfly Dance in the Forest - 2025 Exploration of the Great Purple Emperor Ecological Camping" activity. Through Indigenous community cultural tours, ecological interpretation, and habitat restoration activities, the program enhanced employee awareness of ecological conservation and biodiversity issues.

Appendix 1: TWSE/TPEx-Listed Companies Climate-related Information

Item	Report Section
1. Describe the Board's and management's oversight and governance of climate-related risks and opportunities	1 Climate- and Nature-related Governance
2. Describe how the identified climate risks and opportunities affect the business, strategy, and finances of the business (short, medium, and long term)	2.1 Climate Change-related Risk and Opportunity Identification Process
3. Describe the financial impacts of extreme weather events and transition actions	2.3 Risk and Opportunity Scenario Analysis Results
4. Describe how climate risk identification, assessment, and management processes are integrated into the overall risk management syste	2.1 Climate Change-related Risk and Opportunity Identification Process
5. If scenario analysis is used to assess resilience to climate change risks, describe the scenarios, parameters, assumptions, analytical factors, and major financial impacts item	2.3 Risk and Opportunity Scenario Analysis Results
6. If there is a transition plan for managing climate-related risks, describe the content of the plan, and the indicators and targets used to identify and manage physical risks and transition risks	5 Climate Change-related Metrics and Targets
7. If internal carbon pricing is used as a planning tool, the basis for setting the price should be stated	5 Climate Change-related Metrics and Targets
8. If climate-related targets have been set, the activities covered, the scope of greenhouse gas emissions, the planning horizon, and the progress achieved each year should be specified. If carbon credits or renewable energy certificates (RECs) are used to achieve relevant targets, the source and quantity of carbon credits or RECs to be offset should be specified	5 Climate Change-related Metrics and Targets 4.1 Net Zero Pathway
9. Greenhouse gas inventory and assurance status	4.1 Net Zero Pathway

Appendix 2: TNFD Index

Pillar	TNFD Recommended Disclosure	Report Section
Governance	A.Describe the board's oversight of nature-related dependencies, impacts, risks and opportunities	1.1 Climate and Nature Governance and Management Framework
	B.Describe management's role in assessing and managing nature-related dependencies, impacts, risks, and opportunities	
	C.Describe the organization's human rights policies and engagement activities, and oversight by the Board and management, with respect to Indigenous Peoples, local communities, affected stakeholders and other stakeholders, in the organization's assessment of, and response to, nature-related dependencies, impacts, risks, and opportunities	1.2 Stakeholder Communication
Strategy	A. Describe the nature-related dependencies, impacts, risks, and opportunities the organization had identified over the short, medium, and long term	3 Management of Nature-related Risks and Opportunities
	B. Describe the effects of nature-related dependencies, impacts, risks, and opportunities on the organization's business model, value chain, strategy, and financial planning, as well as any transition plans or programs in place	6 Nature-related Response Strategies, Metrics and Targets
	C. Describe the resilience of the organization's strategy to nature-related risks and opportunities, taking into consideration different scenarios	
	D. Disclose the locations of assets and/or activities in the organization's direct operations and, where possible, upstream and downstream value chain(s) that meet the criteria for priority locations	3 Management of Nature-related Risks and Opportunities 6 Nature-related Response Strategies, Metrics and Targets
Risk and Impact Management	A(i). Describe the organization's processes for identifying, assessing, and prioritizing nature-related dependencies, impacts, risks, and opportunities in its direct operations	3 Management of Nature-related Risks and Opportunities
	A(ii). Describe the organization's processes for identifying, assessing, and prioritizing nature-related dependencies, impacts, risks, and opportunities in its upstream and downstream value chain(s)	
	B. Describe the organization's processes for managing nature-related dependencies, impacts, risks, and opportunities	6 Nature-related Response Strategies, Metrics and Targets
	C. Describe how processes for identifying, assessing, prioritizing, and monitoring nature-related risks are integrated into the organization's overall risk management processes	
Metrics and Targets	A. Disclose the metrics used by the organization to assess and manage material nature-related risks and opportunities in line with its strategy and risk management processes	
	B. Disclose the metrics used by the organization to assess and manage dependencies and impacts on nature	
	C. Describe the targets and goals used by the organization to manage nature-related dependencies, impacts, risks, and opportunities, and performance against these targets and goals	


nuvoTon