

# 2021

Nuvoton Technology Corporation

# ESG Report



Environmental Social Governance

**NUVOTON**



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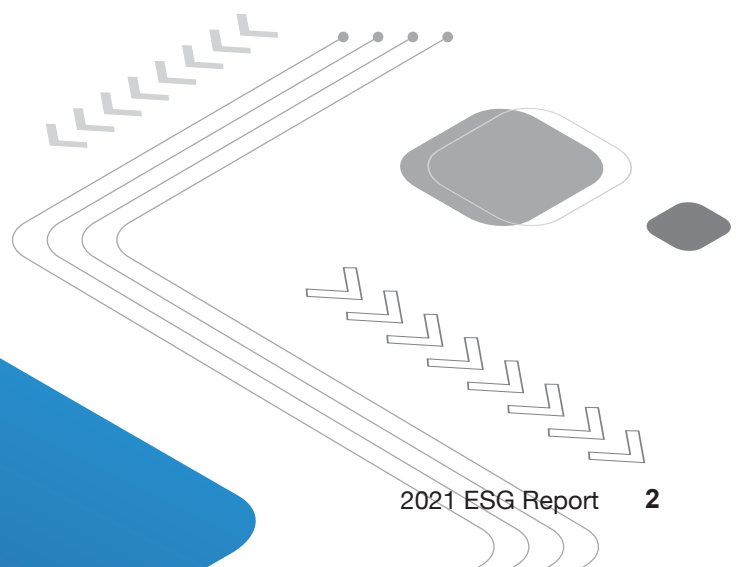
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# Reporting Principles and Guidelines

Nuvoton collects and researches important economic, environmental, and social issues at home and abroad, as well as issues of stakeholder concern. We understand stakeholder concerns through materiality analysis and conduct interviews with each department to understand implementation efficacy and make related topics the core disclosure focus of this Report. This Report follows the Core Option of the GRI Standards as published by the Global Reporting Initiative (GRI) and has been compiled in accordance with the SASB Standards.

# Report Assurance

This Report has been entrusted for verification with SGS Taiwan Ltd., an independent and impartial third-party, confirming that the content of this Report complies with the GRI Standards Core Option and meets the AA1000AS TYPE1 Moderate level assurance verification standard. The Statement of Verification is set forth in the Appendix of this Report for reference.

# Time of Issuance

Nuvoton regularly issues ESG Reports every year, with this year being the eighth issuance. In response to energy conservation and carbon reduction, environmental protection, and love for the Earth, Nuvoton has made every effort to implement paperless operations. This Report builds on this legacy and is disclosed in electronic form on the official website of Nuvoton for all parties to read.

**Current edition:** Issued September 2022

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**Next edition to be issued:** To be Issued June 2023

# Contact Information

If you have any suggestions for this Report, we very much welcome your valuable comments and you may contact us here:

Nuvoton Technology Corporation

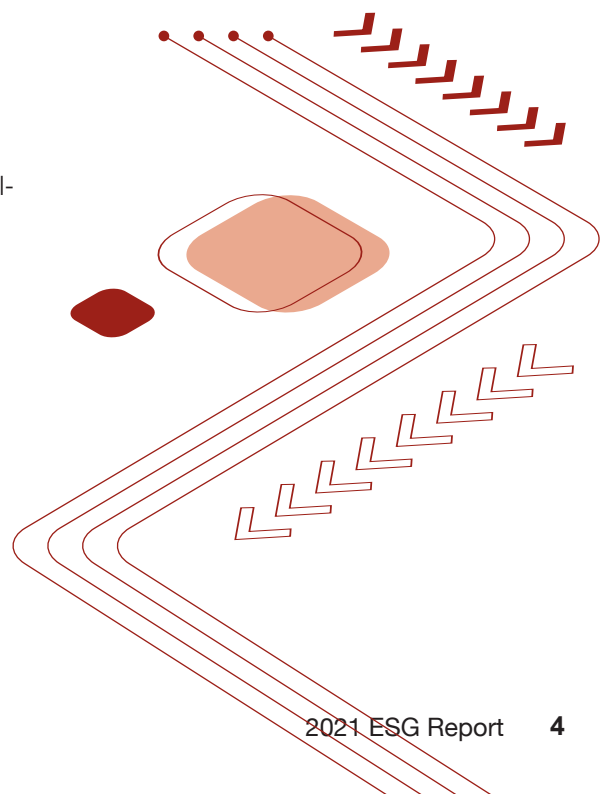
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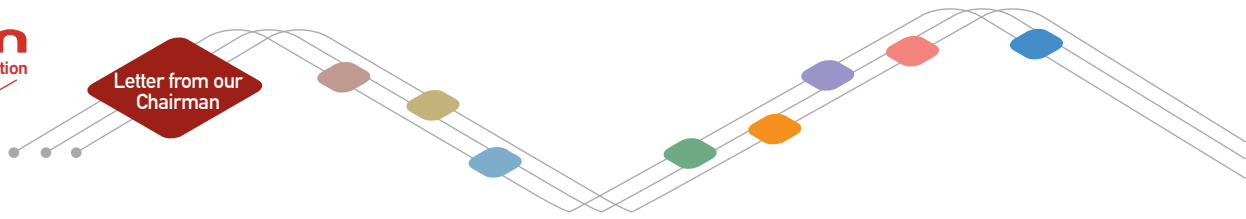


# About This Report

## Scope

The information period of this report runs from January 1, 2021 to December 31, 2021, and it explains the behavior and performance data of Nuvoton in various areas of sustainable development. The financial performance data in this report is based on consolidated statements, and the scope covers its offices around the world (including the United States, Israel, mainland China, Hong Kong, and India) but does not include ESG data associated with those offices. Information is in New Taiwan Dollars, and certification has been verified by Deloitte. In respect to other scope content, and considering that the main operating base of Nuvoton is located in the Taiwan headquarters, the scope of disclosure of environmental and social issues such as corporate governance and environmental friendliness is mainly based on the Taiwan operating base.





# Letter from our Chairman

The global semiconductor industry experienced a year of prosperity in 2021 as it benefited from booming demand for terminals and continuous business opportunities in each application field. According to World Semiconductor Trade Statistics (WSTS) data, the output value of the global semiconductor industry in 2021 increased by 25.6% compared with the prior year. In line with the market boom, Nuvoton demonstrated its solid operating capabilities by meeting market demand with more diversified product applications. In 2021, total consolidated revenue came to approximately TWD 41.5 billion while net profit after tax was approximately TWD 2.9 billion and after-tax earnings per share reached TWD 7.27. Nuvoton's consolidated revenues and profit thus attained record highs.



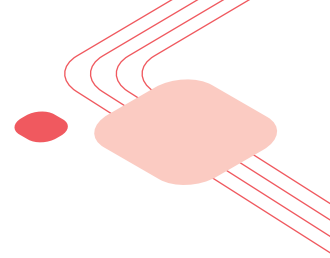
Nuvoton continued to grow steadily in its main business areas while adhering to the concepts of sustainable development and management, achieving excellent results in all three major aspects of environmental, social, and governance (ESG):

## ■ Environmental Aspect

Nuvoton is committed to investing in energy conservation, environmental protection, and other related issues. We have set two major climate change targets: namely, the completion of solar equipment installations in three years to reach 8% of the contracted capacity; and the installation of process gas treatment equipment that is expected to reduce process greenhouse gas emissions by 85% by 2030. Nuvoton's greenhouse gas emissions per product unit in 2021 came to 0.672 kg of CO<sub>2</sub>e/cm<sup>2</sup>-wafer, a 46.52% decrease compared to base year 2009. In addition, we replaced the high-pressure rotor of the CDA-6 air compressor to save about 80,000 kWh of annual electricity consumption in the factory area. In the future, we will keep reducing the Company's greenhouse gas emissions while continuing to expand the recovery of waste sulfuric acid and reducing the use of liquid caustic soda for wastewater treatment, to reduce the negative impact on the environment during operations and to fulfill our responsibility to the Earth.

## ■ Social Aspect

Beyond forming assets of a company, talent constitutes the foundation for the sustainable development of a business. Nuvoton's employee management policy provides for competitive salary and benefits, training and development, a comfortable working environment, and so on. In addition, Nuvoton encourages employees to have children in order to solve the problem of Taiwan's low birthrate and we implement a parenting support



program. In addition to providing maternity leave, paternity leave, family care leave, marriage leave, and so on above and beyond regulatory requirements, we also provide monthly childcare subsidies for children aged 1-4. Totaling up to TWD 240,000 and with a cumulative number of applicants of 140, the total disbursement amount was TWD 3.5 million. For external stakeholders, Nuvoton adheres to the principle of giving back to society. We thus continue to invest in society to have a positive impact that will continue to spread, and we cooperate with external partners to promote social welfare activities in the hope of creating a win-win society of common prosperity.

## ■ Governance Aspect

Nuvoton upholds the spirit of “ethical management” and continues to strengthen its management functions. We require all employees (including new employees) to complete courses on our corporate social responsibility code of conduct and ethical management, in order to achieve the goal of establishing a sound corporate governance structure and culture. Nuvoton continues to actively develop technologies by taking into account the concepts of economic growth and environmental protection. For example, each next-generation BCD process is better than the previous one, reducing mask production losses by 26% and increasing component efficiency by 20%-30%. This promotes energy efficiency and directly enhances the sustainable competitiveness of the Company, thereby consolidating its position and market share.

Nuvoton actively exerts its influence on upstream suppliers and downstream customers in the value chain. We require upstream suppliers to comply with all ESG-related regulations and requirements, while at the same time enhancing the sustainable competitiveness of suppliers through audits, supplier self-evaluations, and coaching. In respect to downstream customers, Nuvoton adheres to the concept of meeting customer needs as we provide high-quality business and excellent quality. Furthermore, we conduct regular customer satisfaction surveys in order to continuously improve product functions, product yield, and service quality, striving to be an optimal and irreplaceable partner for customers.

## ■ Business Operations and Outlook

Under the ongoing globalization, accelerated digital transformation, and supply chain restructuring brought about by the COVID-19 pandemic, Nuvoton will continue to provide high-performance, high-reliability, and high-security products by using a more complete product portfolio to promote innovative applications and services in the fields of 5G, smart life, cloud computing, vehicle and industrial automation, new energy applications, and so on. This in turn will allow Nuvoton to continue to play a key role in the technology industry.

Looking to the future, Nuvoton is conscious of its role as a global citizen. We will keep up with global trends, achieve the goal of carbon neutrality based on the principles of 3R (Reduce, Reuse and Recycle), and keep adhering to the tenets of green innovation and intelligent applications. In this way, we will exert a positive influence on corporate social responsibility and sustainable development issues.

Chairman

# List of Honors and ESG Performance for 2021

Awarded “Deal of the Year Award” as part of the 2021 MAPECT Taiwan M&A Awards

01

Nuvoton NuMicro M2354 Series MCU focused on IoT security was recognized as “Promising Product of the Year” by the 2021 EE Awards Asia

02

Obtained Internal Compliance Program (ICP) certification from the Bureau of Foreign Trade of the Ministry of Economic Affairs

03

## Environment



Greenhouse gas emissions per product unit in 2021 came to 0.672 kg of CO<sub>2</sub>e/cm<sup>2</sup>-wafer, a 46.52% decrease compared to base year 2009.



Energy consumption per product unit was 0.26 billion joules/layer-wafer mask, a 10.9% decrease compared to base year 2009.



In 2021, in per product unit water usage of 0.037/wafer mask layer, recycled water percentage increased by 1%.



In cases of stripper raw materials and stripper waste liquid reduction, the amount of stripper consumption per unit of product and the amount of stripper waste liquid produced were greatly reduced. Compared with the base year (2017), they were reduced by 35% and 50% respectively.



## Social



We provided monthly childcare subsidies for children aged 1-4, with one colleague receiving a subsidy of TWD 240,000 for one child. Altogether 122 staff applied in 2021, bringing the cumulative number of applicants to 140. The total disbursement amount was TWD 3.5 million.



Hours of training for employees of Nuvoton totaled 36,079 hours, for an average of 24.59 hours per employee.



In 2021, 84 safety and health education and training sessions were conducted, with 1,610 people participating.



We adhere to the principle of giving back to society. We thus continue to invest in society by making donations to the Hsinchu Renai Children's Home and to the Minxiong Heritage Second-Hand Bookstore in Chiayi, caring in this way for the learning and growth of disadvantaged children and of children in remote areas.

## Governance



Consolidated revenues and profits reached record highs in 2021. Consolidated revenues attained TWD 41.5 billion, net profit after tax reached TWD 2.9 billion, and after-tax earnings per share were TWD 7.27.



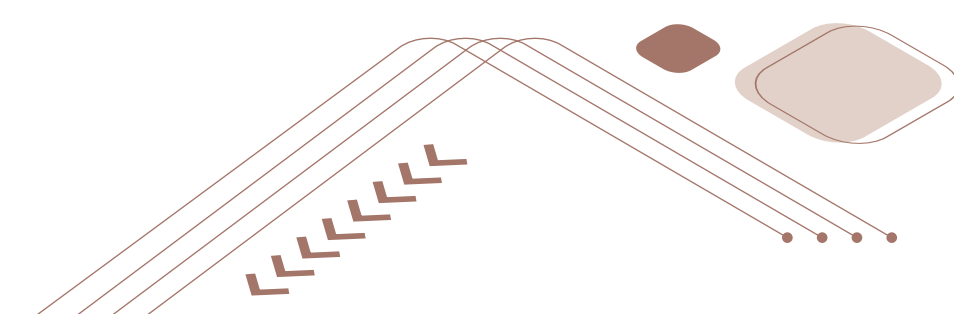
According to the results of our 2021 customer satisfaction survey, the overall satisfaction score reached 8.76 points, which was better than the 8.26 points seen in the industry.



Suppliers are required to self-evaluate their corporate social responsibility activities, and the self-evaluation results of each company reviewed by Nuvoton exceed 80 points and meet the Company's requirements.



In 2021, the proportion of localized procurement of raw materials in Taiwan was 31.7%, an increase of 3.9% over 2020.

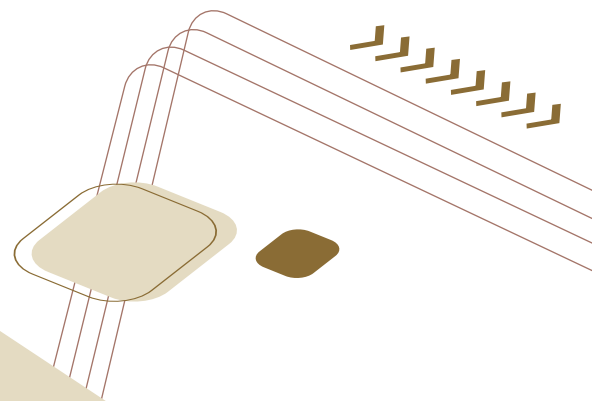


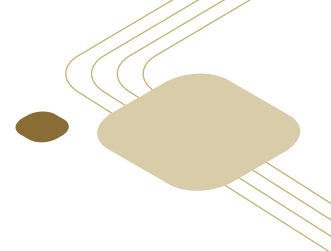




# Company Profile

- ▶ 1.1 Company Introduction
- ▶ 1.2 Corporate Vision
- ▶ 1.3 Stakeholder Communication and Materially topics of 2021





# 1.1 Company Introduction

Nuvoton was founded to bring innovative solutions to the semiconductor industry. The Company was spun-off from the logic IC business unit of Winbond Electronics in 2008 and established in July of the same year. In September 2010, it officially listed on the Taiwan Stock Exchange. Nuvoton focuses on the development of products including ICs for microcontrollers/microprocessors, smart home and cloud security-related applications, battery monitoring ICs, image sensing ICs, IoT application ICs, and semiconductor components. We enjoy a leading position for related products in the industrial, automotive, communication, consumer electronics, and computer markets. Beyond this, Nuvoton owns a 6-inch wafer fab equipped with diversified processing technologies to provide professional wafer foundry services.

The Company leverages flexible technology to provide customers with cost-effective products and advanced design capabilities. We attach great importance to long-term relationships with customers and partners, and we are committed to the continuous innovation of our products, processes, and services. Nuvoton has locations in Taiwan, the United States, mainland China, Israel, India, Singapore, South Korea, and Japan to strengthen regional customer support services and global operations management.

Worldwide location details

**Company name**

Nuvoton Technology Corporation

**Time of establishment**

2008

**Capital**

TWD 4,198 million

**Major products and technology**

Primary operational focus in integrated circuit design, sales, and foundry business

**Number of employees**

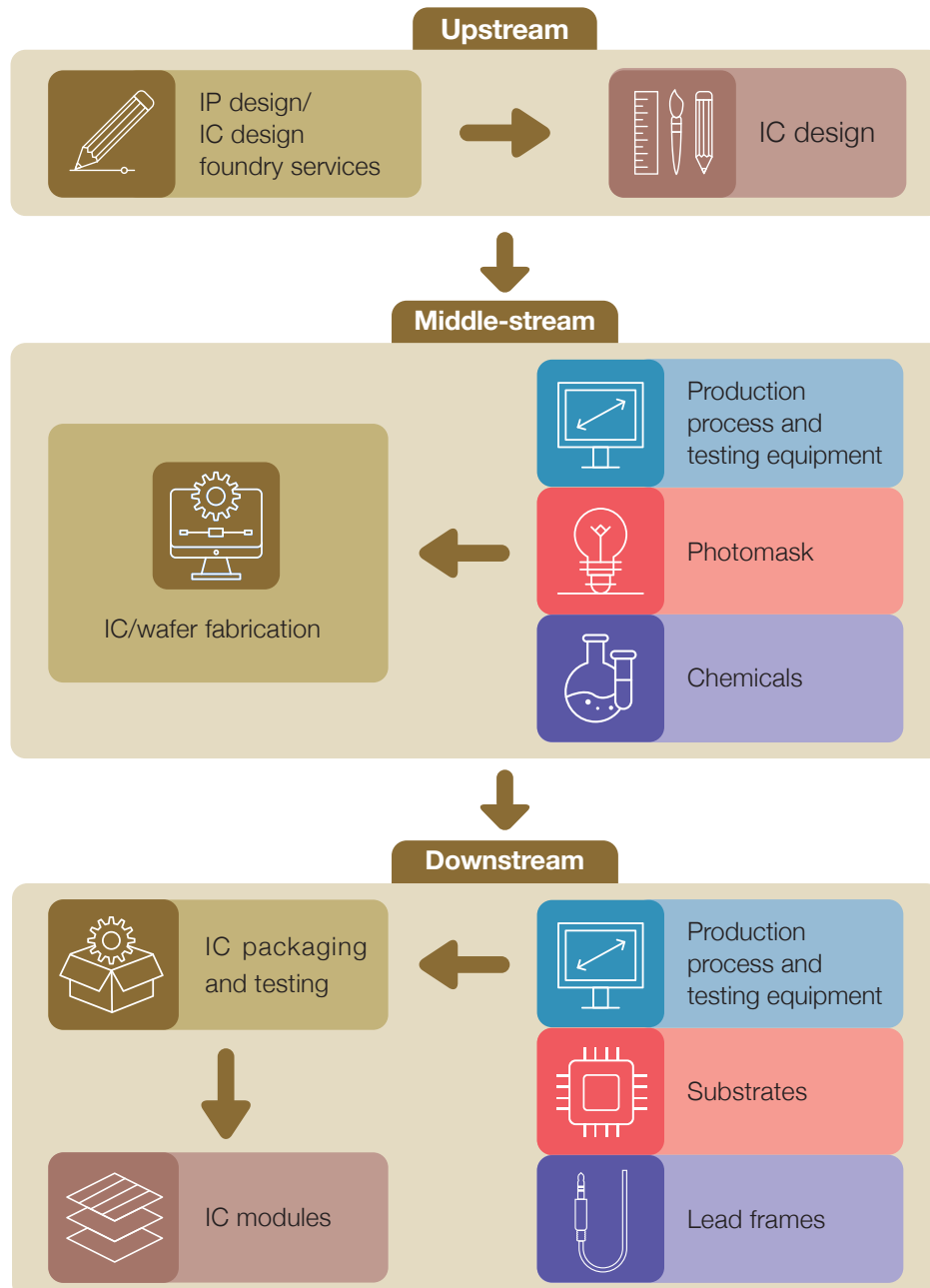
1,467

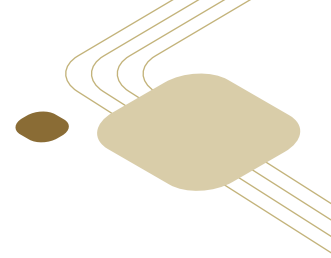
**Headquarters address**

No.4,Creation Rd.3, East District, Hsinchu City

## Value Chain Relationships

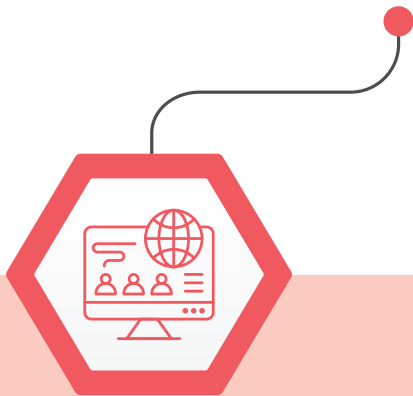
Relationships between the upstream, midstream, and downstream of the IC industry can be roughly divided into upstream IC design companies, midstream IC wafer fabs, and downstream IC packaging and testing plants. From the perspective of the supply chain, Nuvoton's products form the control and computing core of end products. In terms of cloud computing ICs, Nuvoton's downstream customers fall mainly within industries such as servers, desktop workstations, personal computers, smart handheld devices, network communications, and industrial computers. The Company maintains long and close partnerships in these sectors for many years, and has also established stable, long-term cooperation models with upstream industries.



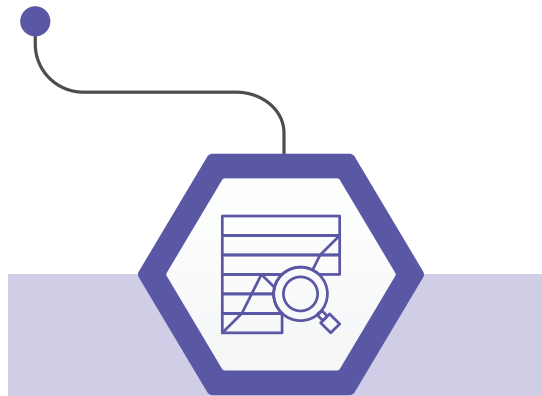


## 1.2 Corporate Vision

**Be a hidden champion in providing sustainable semiconductors to enrich human life**



Due to the development of semiconductor technology, the breakthrough of transmission bandwidths, and the popularization of information sharing, cloud computing has become the main focus of development of future digital life. The intensification of global warming, the limitations of natural resources, and the pressure of ecological balance have green technology crucial to the continuation of human civilization. We will experience unlimited possibilities in the aforementioned broad development space.



We bring together partners who love to learn and who have the courage to take responsibility, and we organize enthusiastic and creative teams to build a competitive advantage with innovation as the core. Nuvoton is committed to creating a happy working environment where staff can freely imagine and invent, realize their ideals, or learn and grow from failure. The purpose of innovation is to create user value, expressed in any form and from any source. We will work with customers and partners to create innovation, drive the development of the industry, and give specific feedback to employees, shareholders, and society in sharing the joy of innovation.



## ■ Sustainable Development Strategy and Goals

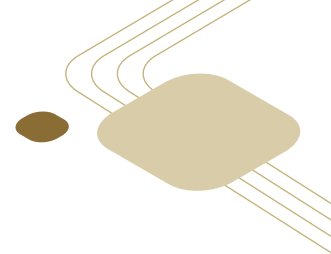


In 2015, the United Nations proposed the 2030 Agenda for Sustainable Development. Furthermore, it continued with the Millennium Development Goals (MDGs) and proposed the Sustainable Development Goals (SDGs) for 2015-2030. These have become important indicators for governments and businesses around the world in promoting sustainable development.

Adhering to the Company's vision of being “Be a hidden champion in providing sustainable semi-conductors to enrich human life,” Nuvoton is committed to promoting environmental, social, and governance (ESG) performance growth. At the same time, we incorporate the United Nations Sustainable Development Goals (SDGs) into our operational strategy considerations, utilizing our own core capabilities and resources to facilitate the United Nations and the country in moving towards the 2030 Agenda for Sustainable Development.







**Sustainable Development Goals (SDGs)**

**Response Strategies and Action Plans**



- We adhere to the principle of giving back to society. We thus continue to invest in society by making donations to the Hsinchu Renai Children's Home and to the Minxiong Heritage Second-Hand Bookstore in Chiayi, caring in this way for the learning and growth of disadvantaged children and of children in remote areas.



- Taking the establishment of a learning organization as the starting point, we have proposed three major strategies for diversified learning channels (learning on the job, learning in the classroom, and learning from the teaching of others). Hours of training in 2021 totaled 36,079 hours, for an average of 24.59 hours per employee.



- Two major water-saving strategies have been proposed; namely, prioritizing source use reduction as well as back-end recovery. For source use, the cleaning flow rate and water exchange frequency adjustment that are most suitable for process water use are adopted. For back-end recycling, we set up system recovery water for secondary use. In 2021, in water consumption per unit of product decreased by 7.5% to 0.037 metric ton /wafer mask layer, and the percentage of recycled water increased by 1%.



- Consolidated revenues and profits reached record highs in 2021. Consolidated revenues attained TWD 41.5 billion, net profit after tax reached TWD 2.9 billion, and after-tax earnings per share were TWD 7.27.
- Employee appointments are subject to open selection and comply with the non-discrimination norms of the Employment Service Act.
- Regardless of any factor, all employees (regardless of gender, race, disability, etc.) enjoy fair and equitable salary and promotion opportunities.



- Nuvoton focuses on innovative research and development, and constantly refines its processes and technologies to become the hidden champion of green semiconductor technology. For example, each next-generation BCD process is better than the previous generation process, reducing the mask production losses by 26%, and increasing the component energy efficiency by 20%-30%.

**Sustainable  
Development  
Goals (SDGs)**

**Response Strategies and Action Plans**



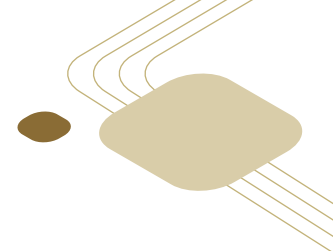
- Nuvoton is committed to designing green products with low toxicity, low carbon, and low energy consumption, ensuring that the products we design, manufacture and sell comply with or exceed international product environmental regulations. Furthermore, we require upstream raw material suppliers and downstream packaging and testing industry members to work together to reduce each type of impact that their products have on the environment.



- We have proposed two major climate change targets: the completion of solar equipment installations in three years to reach 8% of the Tai-power contracted capacity; and the installation of process gas treatment equipment that is expected to reduce process greenhouse gas emissions by 85% by 2030.
- Greenhouse gas emissions per product unit in 2021 came to 0.672 kg of CO<sub>2</sub>e/cm<sup>2</sup>-wafer, a 46.52% decrease compared to base year 2009.



- There is a code of ethics that requires every colleague of Nuvoton to follow the highest standards of integrity and comply with the provisions of the law for any violation of the regulations.
- We require all employees (including new employees) to complete courses on our corporate social responsibility code of conduct and ethical management, and the completion rate is 100%.
- We do not use “conflict minerals,” and we require suppliers to comply with the same policy.



# 1.3 Stakeholder Communication and Materially topics of 2021

## ■ Identification of and Communication with Stakeholders

In identifying stakeholders and materially topics, Nuvoton refers to the AA1000 Stakeholder Engagement Standard (AA1000 SES) to identify which ESG topics are of concern to stakeholders to respond to stakeholders' demands and expectations.

Nuvoton has identified stakeholders that are important and relevant to the Company, encompassing six major groups, namely employees, customers, suppliers, shareholders/investors, government agencies, and local communities. Simultaneously, we have established diversified and open communication channels to respond to stakeholders' suggestions in real time.

	Employees	Customers	Suppliers	Shareholders/ investors	Government agencies	Local communities
Importance	Employees are an important asset of Nuvoton and essential to the Company's competitiveness.	Customers are the main source of the Company's operating income, and Nuvoton is committed to providing them with the highest quality products and services.	Suppliers provide the raw materials needed for the Company's operations and production, and Nuvoton is committed to pursuing mutual growth alongside suppliers.	Corporate investors and individual investors who have invested in Nuvoton or who are willing to invest.	Nuvoton complies with local government regulatory requirements and actively cooperates with relevant policies while eliminating any form of illegal behavior.	Nuvoton pursues mutual benefit and common good in society, focusing on local community issues and building a better society.
Communication channels and frequency	<ul style="list-style-type: none"> <li>• Labor-Management Conference (Quarterly)</li> <li>• Quarterly Supervisors' Meeting (Quarterly)</li> <li>• Executive Management Wisdom Sharing Session (Quarterly)</li> <li>• Employee Welfare Committee (Quarterly)</li> <li>• Employee Suggestion Box (Intermittent)</li> <li>• Complaint Mailbox and Hotline (As Required)</li> <li>• Internal Website (Intermittent)</li> <li>• Organizational Meetings (Intermittent)</li> <li>• Training courses (Intermittent)</li> </ul>	<ul style="list-style-type: none"> <li>• Customer Satisfaction Survey (Quarterly)</li> <li>• Customer Questionnaires or On-Site Audits (Intermittent)</li> <li>• Company Website – Members' Area (Intermittent)</li> <li>• Technical Seminars (Intermittent)</li> <li>• Phone, Email (As required)</li> </ul>	<ul style="list-style-type: none"> <li>• Supplier Evaluations (Semi-annually)</li> <li>• Supplier CSR Questionnaires (Annually)</li> </ul>	<ul style="list-style-type: none"> <li>• Shareholders' Meeting (Annually)</li> <li>• Investor Conferences (Semi-annually)</li> <li>• Financial annual reports (Annually)</li> <li>• Company website (Intermittent)</li> </ul>	<ul style="list-style-type: none"> <li>• Official documents (Intermittent)</li> <li>• Regulatory briefing sessions (as required)</li> <li>• Communicate with the competent authorities through the industrial park trade association (as required)</li> </ul>	<ul style="list-style-type: none"> <li>• Company website (as required)</li> <li>• Email mailbox (as required)</li> </ul>
Topics of Attention	<ul style="list-style-type: none"> <li>• Talent attraction and retention</li> <li>• Occupational health and safety</li> <li>• Management of Hazardous Substances</li> </ul>	<ul style="list-style-type: none"> <li>• Customer Satisfaction</li> <li>• Management of Hazardous Substances</li> </ul>	<ul style="list-style-type: none"> <li>• Supplier Sustainability Management</li> <li>• Innovative research and development</li> <li>• Management of Hazardous Substances</li> </ul>	<ul style="list-style-type: none"> <li>• Economic performance</li> <li>• Corporate governance and ethical management</li> <li>• Innovative research and development</li> </ul>	<ul style="list-style-type: none"> <li>• Corporate governance and ethical management</li> <li>• Wastewater and waste management</li> <li>• Occupational health and safety</li> </ul>	<ul style="list-style-type: none"> <li>• Water resource management</li> <li>• Greenhouse gas emissions management</li> <li>• Energy Management</li> </ul>

## Confirmation of Materially topic Scope and Substantive Analysis

Based on the four principles of inclusiveness, sustainability, materiality, and integrity, Nuvoton identifies initial important issues including "degree of impact on the economy, the environment, and society" and "degree of stakeholder concern" in accordance with the substantive identification of the AA1000 Materiality Test standard. Furthermore, we have analyzed and proposed a matrix of materiality topics so as to understand the current performance of Nuvoton and to continuously optimize our sustainability management strategy, specifically responding to the concerns of stakeholders so as to gradually move towards the path of sustainable development.

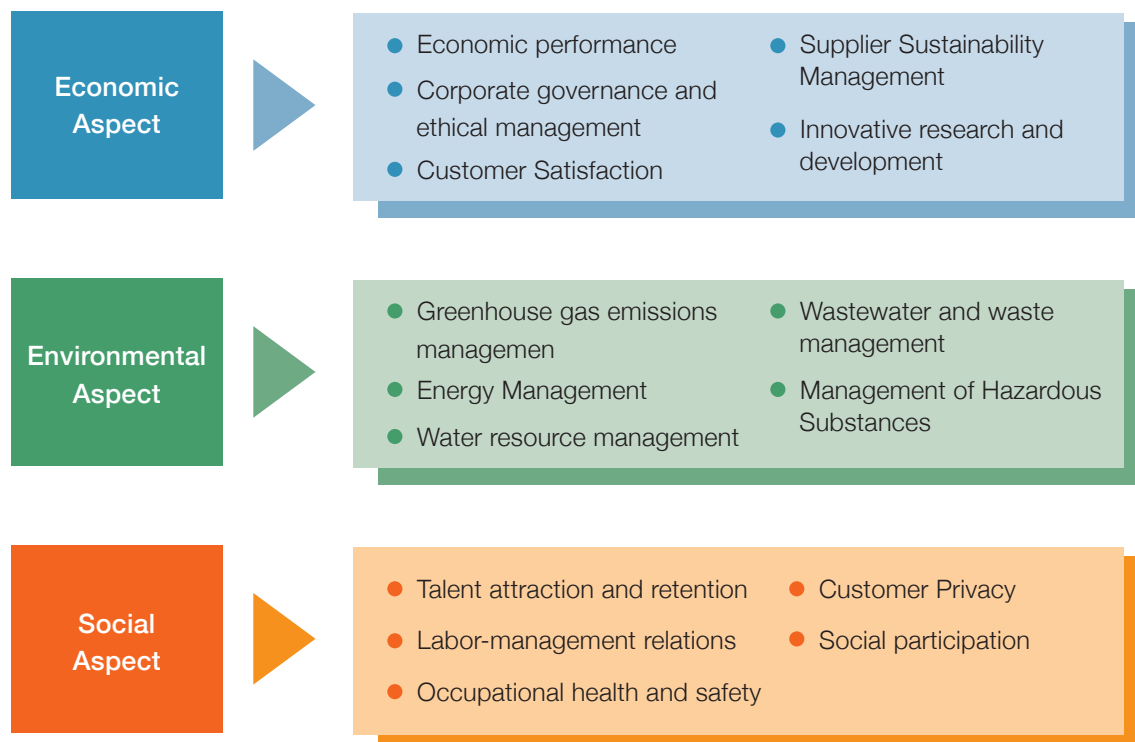
### ◆ Step 1: Identification

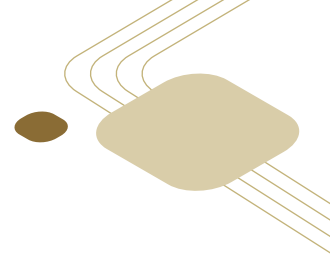
#### 1. Stakeholder Identification – 6 Major Groups

Stakeholders of Nuvoton are identified using the five major principles of the AA 1000 SES Stakeholder Engagement Standard 2015. These encompass six major groups, namely employees, customers, suppliers, shareholders/investors, government agencies, and local communities.

#### 2. Collection of Topics of Attention – 15 Topics of Attention

Nuvoton pays attention to sustainable management issues and communicates with stakeholders through multiple channels, understands the materiality topics that stakeholders are concerned about, and refers to domestic and foreign research reports, standards, peer and industry benchmarks, etc., and finally summarizes and aggregates the collected themes into 15 topics:





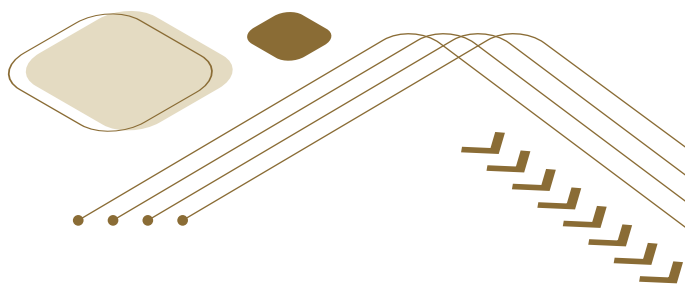
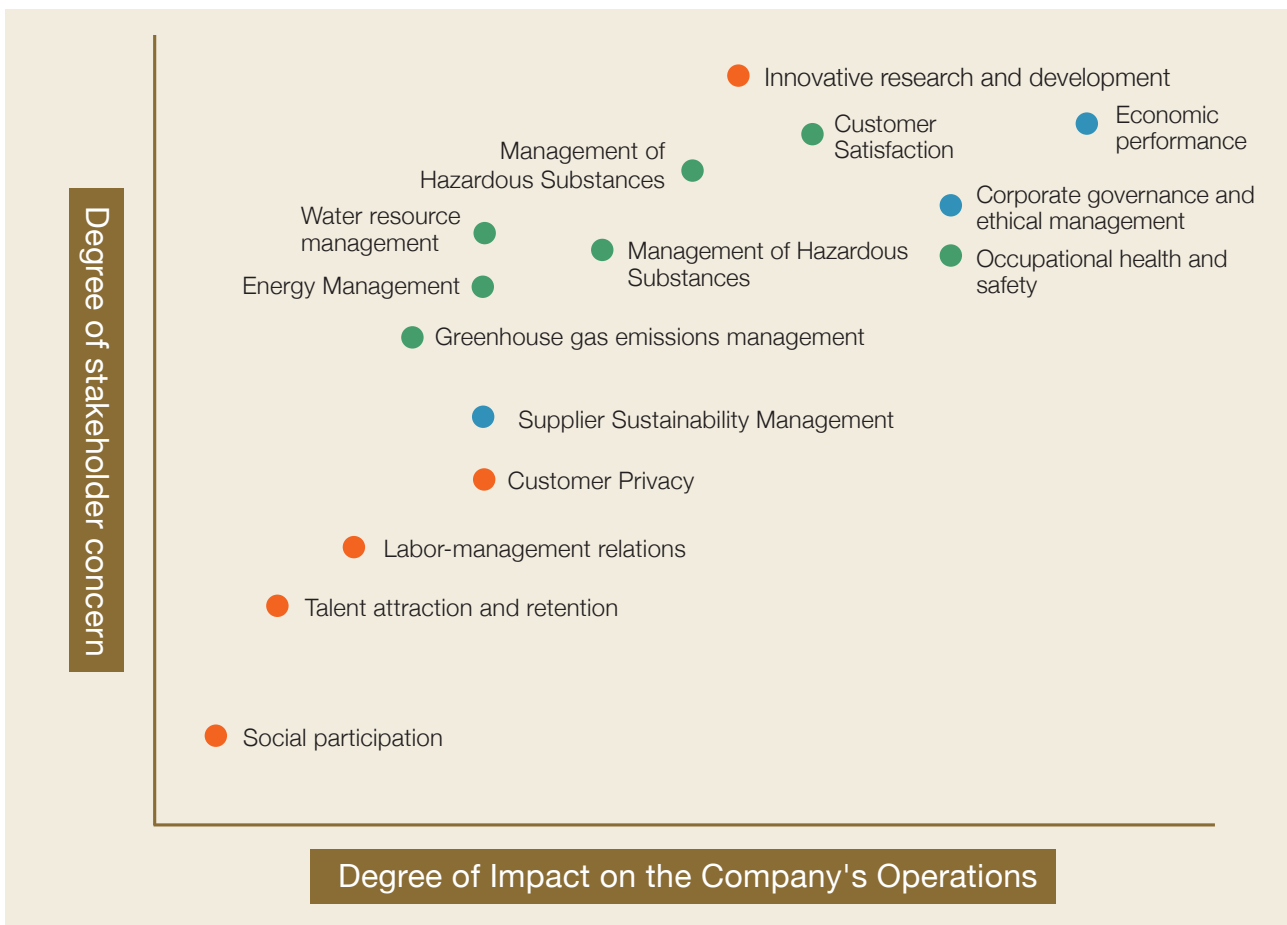
◆ Step 2: Sorting of Materially topics

**3. Analysis of internal and external stakeholder evaluations of the extent of impact on 15 topics – 115 questionnaires**

Through distribution of questionnaires, Nuvoton conducted a survey among six major stakeholders and internal senior executives, separately asking about “topic degree of concern” as well as “degree of impact on the company's operations” with degrees to be assigned on an ascending scale of 1 point to 5 points. 115 questionnaires were collected in 2021.

**4. Establish materially topics – 6 materially topics**

We analyzed "degree of stakeholder concern" and "degree of impact on the company's operations" for each topic, and drew a matrix for Nuvoton’s materially topics. After internal discussion and confirmation, the materially topics were economic performance corporate governance and ethical management, occupational health and safety, customer satisfaction, innovative research and development, and management of hazardous substances.





◆ Step 3: Define Materially topics for 2021

**5. Confirmation and review of materially topics for 2021**

After rigorous identification and analysis, the materially topics for 2021 were located near the upper right of the matrix diagram, i.e., where stakeholders have a high degree of concern. Moreover, there are also 6 materially topics that have a high degree of impact on the economy, the environment, and society, and their topic boundaries are as follows:

Materially topics	Specific topics of the GRI Standards	Response section	Boundaries					
			Nuvoton	Customers	Suppliers/Contractors	Shareholders/investors	Government agency	Local communities
Economic performance	GRI 201	<a href="#">2.2 Financial performance</a>	●	▲		○		
Corporate governance and ethical management	GRI 205 GRI 206 GRI 307	<a href="#">Chapter 2 Corporate governance</a>	●	▲	○	○	▲	○
Occupational health and safety	GRI 403	<a href="#">5.4 Occupational Safety, Health, and Wellness</a>	●		○			
Customer Satisfaction	Custom topic	<a href="#">3.1 Customer Service and Satisfaction</a>	●	▲				
Innovative research and development	Custom topic	<a href="#">2.7 Innovative research and development</a>	●	▲		○		
Management of Hazardous Substances	Custom topic	<a href="#">4.5 Development of Green Products</a>	●			○	▲	○

● : Direct impact ○: Contributing impact ▲: Directly linked to this impact through business relationship

**Note :** In 2021, Nuvoton adjusted the analysis method of materially topics, primarily consolidating similar ESG issues.



# Corporate Governance

- ▶ 2.1 Corporate Governance Structure
- ▶ 2.2 Financial Performance
- ▶ 2.3 Ethical Management
- ▶ 2.4 Risk Management
- ▶ 2.5 Information Security
- ▶ 2.6 Pandemic Prevention Policies
- ▶ 2.7 Innovative research and development



## Key Stakeholder Response:

Employees

Customers

Suppliers

Shareholders/  
investors

Government  
agencies

## Materially topic management policy: Economic performance, corporate governance and ethical management, innovative research and development

### Significance

Establish an effective and optimal corporate governance culture in order to ensure the rights and interests of all stakeholders, show the Company's business philosophy of decent management, and gain the trust of each stakeholder. At the same time, we can effectively consolidate the Company's position and market share through continuous and active research and development of technology while promoting continuous revenue growth.

### Policies and commitments

In line with the business philosophy of ethical operations, Nuvoton formulates policies based on integrity, and establishes a good corporate governance and risk control mechanism to create a sustainable development of the operating environment. At the same time, Nuvoton actively proposes innovative R&D and technology, applies for patents, and so on, in order to strengthen the Company's competitiveness, consolidate its position in the technology industry, and enhance our economic performance.

### Goals

- ▶ With a more complete product portfolio, we will promote innovative applications and services in the fields of 5G, smart life, cloud computing, vehicle and industrial automation, new energy applications, etc., and provide high-efficiency, high reliability and high-security products, so that Nuvoton can continue to play an important role in the technology industry and enhance market share and net revenue.
- ▶ The completion rate of employees' annual ethics and compliance education and training is 100%, and at the same time the Company has no major violations (those with fines of more than TWD 1 million).

### Grievance

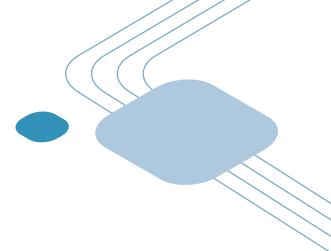
[See Chapter 1.3 Stakeholder Communication and Materially topics of 2021](#)

### Evaluation of the Management Approach

Conduct annual management review meetings to track and review performance and results and discuss the achievement of goals, to continuously improve and optimize management policies.

### Specific actions

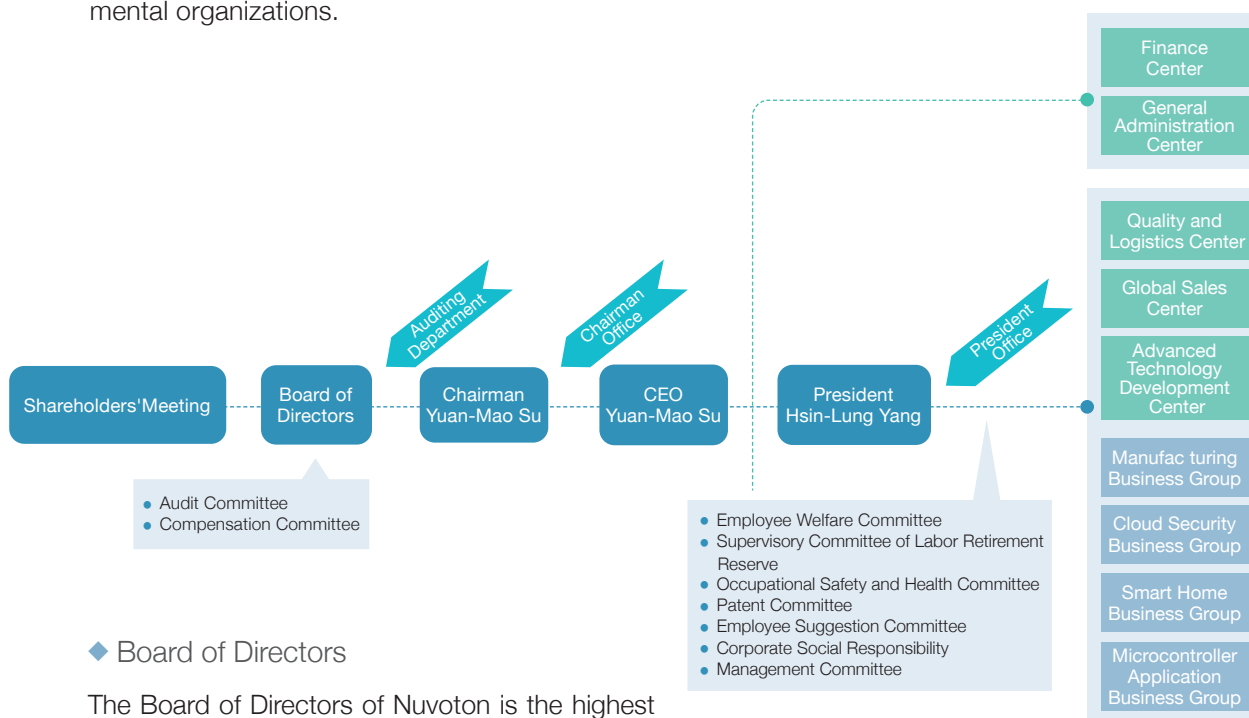
- ▶ Consolidated revenues and profits reached record highs in 2021. Consolidated revenues attained TWD 41.5 billion, net profit after tax reached TWD 2.9 billion, and after-tax earnings per share were TWD 7.27.
- ▶ All employees (including new employees) complete courses on our corporate social responsibility code of conduct and ethical management.
- ▶ Each next-generation BCD process is better than the previous generation process, reducing mask production losses by 26% and increasing component efficiency by 12%-26%. This has improved energy efficiency.
- ▶ Using TCAD software to conduct a large number of multi-line parallel simulation analyses with well-known machine process parameters has created a new structure that reduces the use of experimental chips by nearly 2/3 versus the original development process, achieving the effect of resource reduction.



# 2.1 Corporate Governance Structure

## Organization and Board of Directors

Nuvoton has a Board of Directors in accordance with the law. The directors and independent directors are jointly responsible for corporate governance and business strategy. While safeguarding the interests of shareholders, the Board of Directors will take the guiding principle of also safeguarding the interests of employees, customers, suppliers, governments, and non-governmental organizations.



### ◆ Board of Directors

The Board of Directors of Nuvoton is the highest governance unit of Nuvoton. The Board of Directors meets at least quarterly, and six Board meetings were held in 2021. A candidate nomination system is adopted for election of directors, and directors are elected by the shareholders' meeting from among the nominees listed in the roster of director candidates. The 6th Term of the Board of the Directors consists of 9 directors, including 4 independent directors and 1 female director. Nuvoton's Board members have professional backgrounds and technical experience, and the Company relies on the directors' extensive knowledge, personal insight, and business judgment to assume responsibility for the Company's operations and supervision. In order to improve the supervision function and strengthen the management function, apart from the Board of Directors, there is also an Audit Committee and a Compensation Committee to strengthen the corporate governance structure.



Please refer to the 2021 Annual Report for details of the minutes of board meetings, the specializations and experience of directors (including independent directors), and the remuneration of the President, vice presidents, and directors (including independent directors) encompassing salaries, bonuses, severance pay, education and training hours, and other details.

◆ Audit Committee

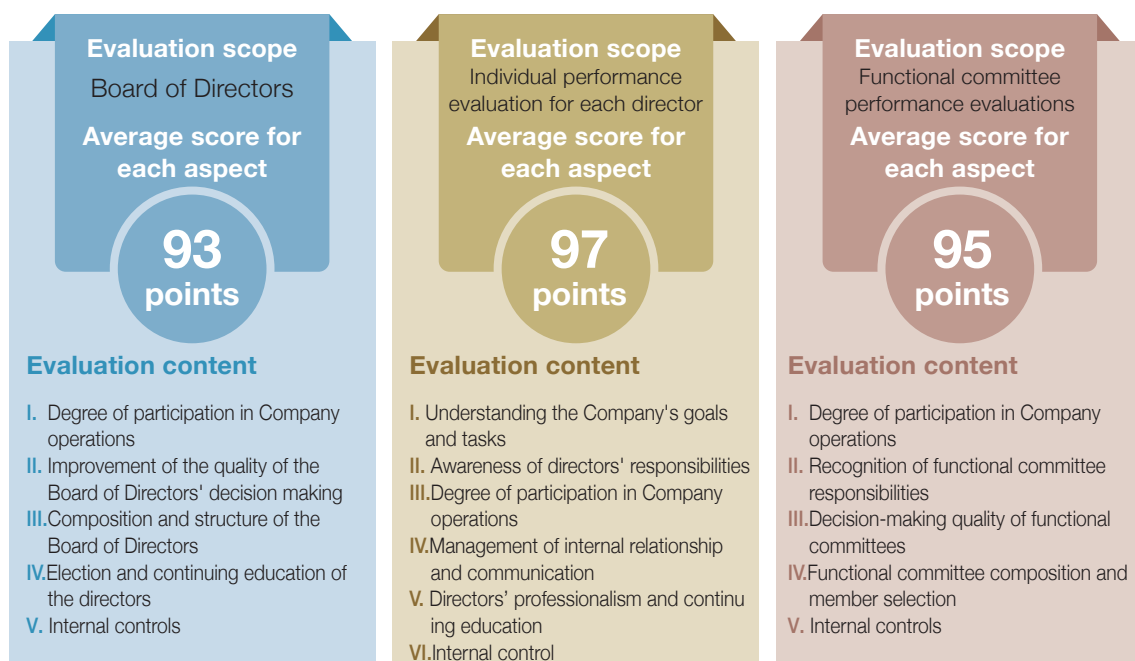
The Audit Committee is composed of four independent directors whose primary function is to assist the Board in its performance of its oversight of the Company's quality and integrity in the execution of accounting, auditing, financial reporting processes and financial controls. In respect to external investors, representing their companies has the function and independence of supervision, which can effectively protect the rights and interests of investors. Six meetings were convened in 2021.

◆ Compensation Committee

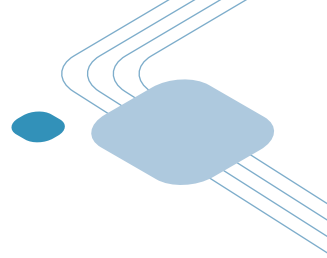
The Compensation Committee comprises four independent directors. It is responsible for formulating and regularly reviewing the policies, systems, standards, and structures of the annual and long-term performance targets and remuneration of directors and managers. At the same time, it regularly evaluates the achievement of the performance objectives of the Company's directors and managers, and determines the content and amount of their individual salaries and remuneration. A total of three meetings were convened in 2021.

◆ Director Salary and Performance Evaluation

In order to implement corporate governance and enhance the functions of the Board of Directors, Nuvoton has established the "Director Salary and Performance Evaluation Measures" to strengthen performance appraisal operations; and starting from December 2017, we have conducted annual self-performance evaluations of directors in respect to Board operations, individual participation and further education, and so on. The evaluation results are summarized by the Board of Directors' deliberative unit and submitted to the Compensation Committee and the Board of Directors to measure the Board's ability to lead the Company's strategic direction and oversee the conduct of the Company's operations management in enhancing long-term shareholder value. Nuvoton completed the 2021 annual appraisal and it was submitted to the Board of Directors on February 10, 2022. Furthermore, it is expected to commission a third-party organization to conduct an external performance evaluation in 2023.







## Safeguarding Shareholder Rights

In order to strengthen communication with investors, Nuvoton holds a self-organized institutional investor conference every quarter to actively transmit the Company's financial performance information to investors and to help investors understand the Company's financial figures and operating conditions. On the same day after an institutional investor conference, we also upload the audio and video files for the conference as well as the Chinese and English-language briefing materials to the official corporate website of Nuvoton and to the dedicated section of the Market Observation Post System (MOPS) of the Taiwan Stock Exchange for investor reference. The Company's principal activities and important events are also published on the Company's website. All relevant information can be found on the website of Nuvoton.

### Investor Conference



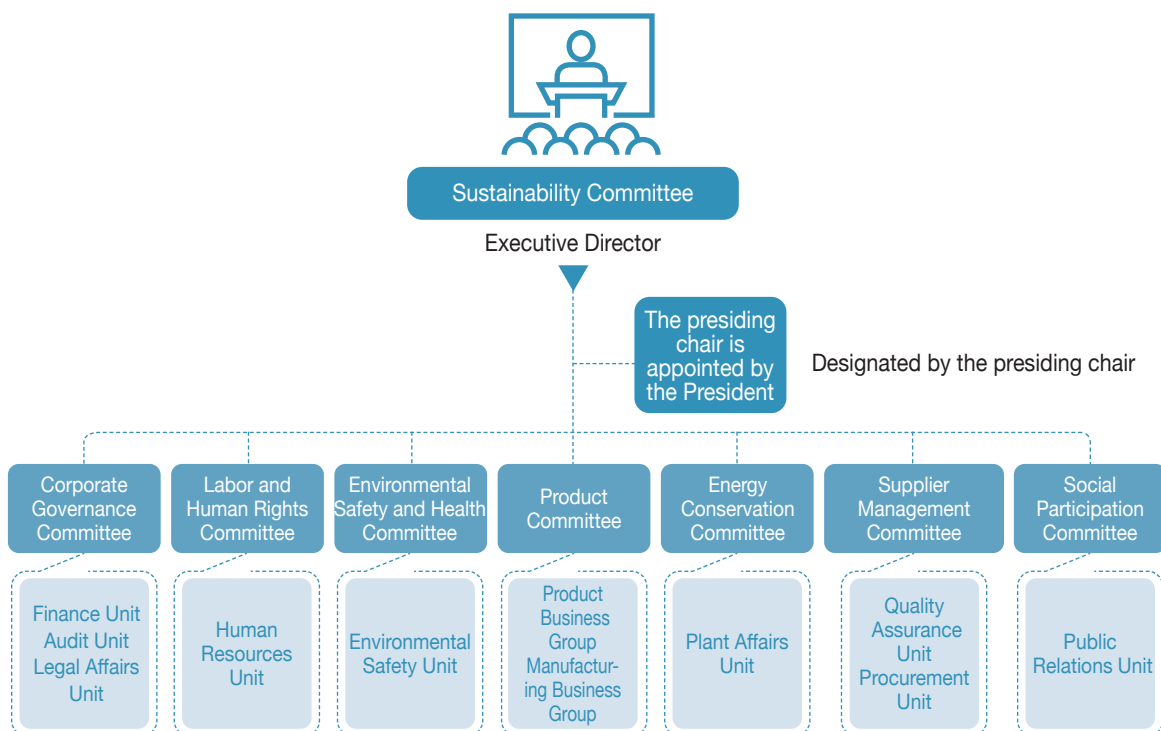
### Stockquotes



## Sustainability Committee

In line with the vision and mission of Nuvoton's sustainable operations, the Company established a Corporate Social Responsibility Management Committee in 2012 and renamed it the Sustainability Committee in 2021. This constitutes the highest-level sustainable development decision-making center within the Company. The President appoints a senior executive as the presiding chair of the Committee and this person is responsible for promoting the Company's sustainable development related business and bringing positive benefits to the environment, to society, and to the economy.

Nuvoton convenes the Sustainability Committee every six months to formulate project plans, performance goals, and promotion plans. In addition, sustainable development implementation results are regularly reported to the Board of Directors every year, and the relevant disclosure of the Sustainability Report is carried out on the Company's website before the end of September each year.



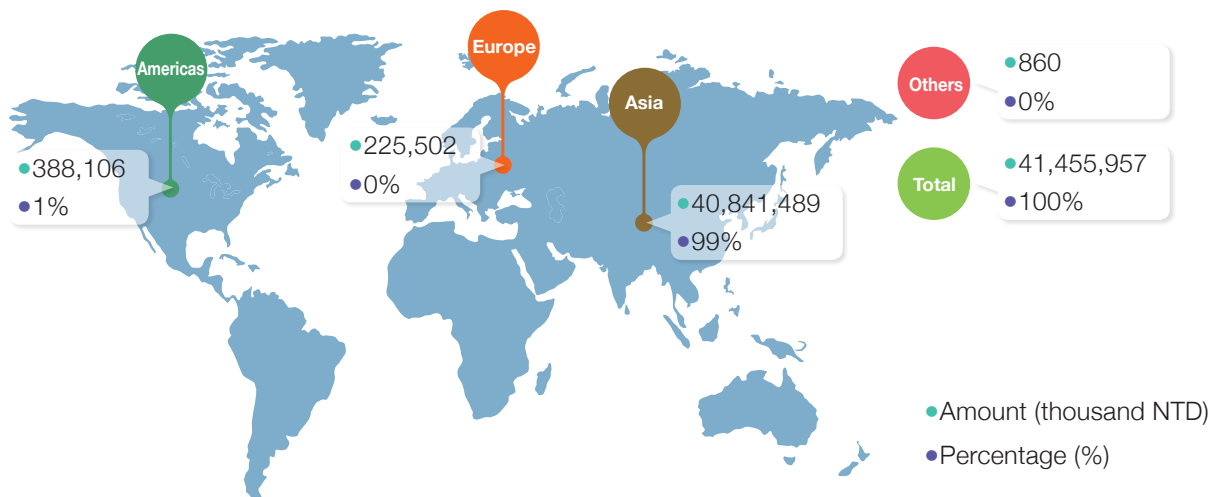
## 2.2 Financial Performance

The global semiconductor industry experienced a year of prosperity in 2021 as it benefited from booming demand for terminals and continuous business opportunities in each application field. According to World Semiconductor Trade Statistics (WSTS) data, the output value of the global semiconductor industry in 2021 increased by 25.6% compared with the prior year. In line with the market boom, Nuvoton demonstrated solid operating capabilities by meeting market demand with more diversified product applications. In 2021, consolidated revenues and profit thus attained record highs. Total consolidated revenues came to approximately TWD 41.5 billion, net profit after tax was approximately TWD 2.9 billion, and after-tax earnings per share was TWD 7.27.

	Unit	2019	2020	2021
<b>Operating revenue</b>	thousand NTD	10,367,269	20,668,056	41,455,957
<b>Operating costs</b>	thousand NTD	6,239,380	12,961,144	24,599,840
<b>Operating margin</b>	thousand NTD	4,127,889	7,706,912	16,856,117
<b>Profit before tax</b>	thousand NTD	667,569	743,425	3,545,496
<b>Income tax</b>	thousand NTD	109,110	210,640	604,744
<b>Net profit for the period</b>	thousand NTD	558,459	532,785	2,940,752
<b>Earnings per share (EPS)</b>	TWD	2.53	1.81	7.27
<b>Employee remuneration benefits</b>	thousand NTD	2,879,912	4,819,356	7,858,714
<b>Payouts to investors</b>	thousand NTD	531,126	395,503	376,696

### Market analysis

Nuvoton's principal products are sold all over the world, with Asia as the most important sales region in 2021.



Principal products	Production capacity	Output		Output value
		Wafer	Die	
General Purpose IC	<b>692</b>	2	6,852,788	27,993,250
Foundry		491	-	1,267,096
Others		-	-	12,465
<b>Total</b>		<b>493</b>	<b>6,852,788</b>	<b>29,272,811</b>

Units: Production Capacity thousand chpis / thousand wafers / thousand die; thousand NTD

Note: Production capacity is expressed through 6" wafers.

Nuvoton launched 32-bit Cortex®-M0/M4 MCU, Arm® 7/9 and 8-bit MCUs with extremely high cost performance and a positive market reception. Market share is increasing year by year, and the main customers include well-known domestic and foreign consumers, industrial controls, the power market, and computer equipment and communication product manufacturers. Audio products are used in toys, Internet of Vehicles, Internet of Things, and consumer appliances, accounting for a certain proportion of the market.

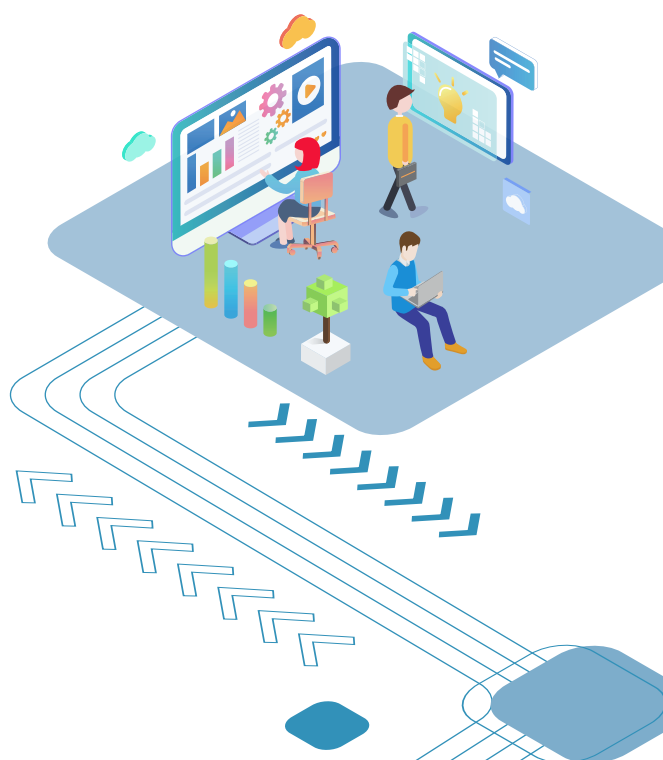
In terms of computer and cloud application products, the market share of motherboard Security Controller I/O, laptop EC and TPM in 2021 still rank among the top three in the world, and the main customers include well-known computer brand manufacturers and foundry manufacturers.

Our battery management ICs and image sensing technology products have entered the supply chains of many automotive manufacturers around the world and received high evaluations from clients. In addition, our MOSFETs for lithium battery protection, inverter MCUs for home appliances, and HDMI ICs for high-speed transmission interfaces have a very high market share in the consumer market.

## 2.3 Ethical Management

In line with the business philosophy of ethical operations, Nuvoton formulates policies based on integrity, and establishes a good corporate governance and risk control mechanism to create a sustainable development of the operating environment. In order to establish a corporate culture of ethical management and sound development and to establish a reference framework for good business operations, Nuvoton follows all ethics laws and regulations at home and abroad, and pays attention to the updates and changes of various laws and regulations at any time, so as to formulate or revise the relevant internal operating norms or methods of the Company in a timely manner.

Nuvoton's Corporate Social Responsibility Code of Conduct includes a Code of Ethics ("Code") that requires every colleague of Nuvoton to follow the highest standards of integrity and comply with the provisions of the law.



**The relevant corporate social responsibility policies and statements are as follows**

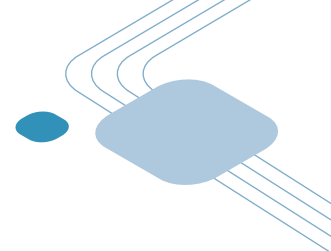
- Comply with relevant governmental laws and regulations.
- Honest management prohibits bribery, corruption, extortion and embezzlement of public funds.
- Do not offer or accept improper benefits and avoid conflicts of interest.
- Pay attention to corporate governance, and disclose corporate information in accordance with laws and regulations, and do not make false representations.
- Abide by the principle of good faith, fair trade, and do not carry out exaggerated and untrue advertising and marketing.
- Implement Customs-Trade Partnership Against Terrorism (C-TPAT) in daily operations.
- Comply with internationally recognized labor human rights and do not employ persons under the age of 15 or involuntary employees (encompassing coercion, mortgaging, indebtedness, indenture, slavery, and human trafficking).
- Ensure that employees enjoy equal rights.
- Harassment, unlawful discrimination, coercion and inhuman treatment of employees (including potential employees) are prohibited.
- Do not use internationally banned substances in the production process.
- Ensure compliance with relevant environmental protection policies and laws.
- Respect intellectual property rights and protect the personal data of those with whom we do business.
- Provide a safe, hygienic, and healthy working environment.
- Suppliers are required to comply with relevant laws and regulations and to emphasize corporate social responsibility.
- We do not use "conflict minerals" (which are sourced in "exploitative labor" countries) and require suppliers to comply with the same.

In order to improve the ethical management culture of Nuvoton, we regularly conduct corporate integrity education and training courses on "Corporate Social Responsibility Policy" and "Ethical Management" every year, and the course content is explained in an easy-to-understand manner. Furthermore, staff are invited to take tests after class to deepen their understanding of the relevant laws and regulations. Furthermore, we provide each employee with a "Corporate Social Responsibility Policy and Statement Advocacy Card" to strengthen the concept of corporate social responsibility and the ethical values of all employees.

	New employees		General employees	
	Corporate Social Responsibility Code of Conduct	Ethical management	Corporate Social Responsibility Code of Conduct	Ethical management
<b>Number of trainees</b>	159	159	1,439	1,439
<b>Completion rate</b>	100%	100%	100%	100%

**Note:** Regular employees constitute the main training targets; contract employees are not included as training targets.

The image shows a screenshot of a corporate training portal on the left and a presentation slide on the right. The portal displays course details for 'CSR Business Ethics and Social Responsibility Code of Conduct', including completion status (2/2), course name, and a 'Learning Center' with options for 'Go to Course', 'Test', 'Review', 'Download Documents', and 'Submit Report'. The slide on the right is titled 'How to Implement Integrity Management' (如何落實誠信經營) and is presented by the Corporate Social Responsibility Management Committee. It features the Nuvoton logo and a background image of a modern building.



## Regulatory Compliance

Nuvoton has customers all over the world, and in order to ensure the implementation of ethical management and compliance with laws and regulations, we continue to pay attention to domestic and foreign policies and laws that may affect the Company's business and finances and regularly promote the core values of ethical management.

In order to monitor and identify the applicability and compliance of labor, ethics, environmental protection, health, corporate governance related laws and regulations and other requirements, Nuvoton regularly conducts the identification and compliance inspection of the applicability of new or revised relevant laws and regulations every six months. Furthermore, we report the identification results at the meeting of the Sustainability Committee, and the relevant information will also be updated on the Company's internal CSR webpage for staff' reference. In accordance with the new requirements of the Responsible Business Alliance (RBA) Code of Conduct, Nuvoton regularly conducts regulatory inspection operations on a quarterly basis. Moreover, the 2021 results of the identification and verification of the conformity of applicable laws and regulations and changes were all compliant. In 2021, Nuvoton did not have any violations of laws and regulations, corruption, or competitive behavior.

### Identification and verification of the conformity of applicable laws and regulations and changes

Statutory period	Inspection results
2021 first half	In conformance
2021 second half	In conformance

In addition, Nuvoton arranged legal compliance training programs and courses for its employees, to enhance stafftheir awareness of intellectual property rights while emphasizing the importance of protecting trade secrets and helping employees to familiarize themselves with the latest legal norms. Nuvoton's employees can check the relevant training course information and promotional materials on the internal website to further ensure our commitment to complying with the law.

## Grievance

Nuvoton has formulated its Complaints Measures for Violations of Ethical Business Practices, which clearly stipulate the relevant operating procedures for the Company to handle complaints regarding violations of ethical business practices. We have further established a number of complaint channels, such as a physical suggestion box and an internal public mailbox for reporting illegal activities. In the event of any improper or unfair illegal act, Nuvoton has also established reporting areas on its internal and external websites, where internal or external personnel may file complaints anonymously or non-anonymously through various complaint channels. Furthermore, there are complaints confidentiality and protection measures in place.

If a colleague discovers that we have violated the Labor Standards Act or related regulations, or violated the ethical management and ethical norms, they may file a complaint or report. In the case of a complaint or whistleblowing, the handler and the relevant supervisors must maintain

absolute confidentiality with respect to any complainant/whistleblower and the content of the complaint, and cannot disclose his or her identity without the consent of the complainant/whistleblower. If it is necessary to reveal the identity of the complainant/whistleblower, the handler should first discuss with the complainant/whistleblower on how to proceed before taking action. Supervisors and staff at all levels cannot discriminate, coerce or otherwise engage in unfavorable behavior toward the complaining employee. Such operating procedures are handled in accordance with the provisions of the Company Internal Complaint Measures. When a complaint is received, a case team will initiate an investigation. No complaints were received in 2021.



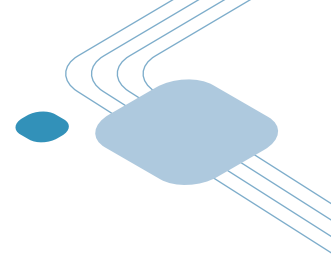
## Internal Audit

Nuvoton has set up an internal audit unit under the Board of Directors, and in accordance with the Company's scale, business conditions, management needs, and other relevant laws and regulations, two full-time internal audit personnel with suitable and appropriate numbers are allocated. Nuvoton has established an internal control system in accordance with the laws and regulations, and has established internal audit implementation rules according to the internal control system, doing so to implement and measure the efficacy of the existing control system including all of the Company's operations and its subsidiaries.

The internal audit unit prepares an annual audit plan based on the results of the risk evaluation, and this is approved by the Audit Committee and the Board of Directors. The internal audit unit performs its work in accordance with the annual audit plan. Suggestions for improvement of identified deficiencies in the internal control system and audit reports are regularly submitted to the Audit Committee and the Board of Directors.

Through the above audit operations, the internal audit unit reviews the Company's internal control system and all operations to assist the Board of Directors and management in reasonably confirming the achievement of relevant objectives such as operations, reporting, and compliance. This encompasses the efficacy and efficiency of operations, including the achievement of operational and financial performance objectives and the maintenance of asset security, and the compliance of internal and external financial reports and non-financial reports the Company in accordance with reliability, timeliness, transparency, or compliance with relevant laws and regulations. The internal audit unit supervises the internal audit units and subsidiaries to regularly check the efficacy of the internal control system every year. The internal audit unit then subsequently reviews the self-inspection reports of each unit and subsidiary and the efficacy of the internal





control system and synthesizes the results of the self-inspection as the basis for the Board of Directors and the President to issue an Internal Control System Statement.

Nuvoton requires internal auditors to undergo advanced training, including sending staff to participate in courses organized by the Internal Audit Association of the Republic of China. Such courses include those exploring the impact on internal control of enterprises from the perspective of ESG risks and countermeasures in the face of climate change and sustainable development, ESG information disclosure and introduction of recent promotion measures, and so on. In 2021, 174 hours of advanced study was completed.

## 2.4 Risk Management

In order to reduce the impact of various risks on the Company's operations, Nuvoton is also committed to turning risks into opportunities. Therefore, Nuvoton's risk identification and improvement of resilience are the focus of operations and management, so as to identify future development opportunities and practice the vision of sustainable development.

### Financial risk

#### 1. Impact of interest rate changes:

The Company maintains good relations with a number of financial institutions and can obtain preferential interest rates when there is a short-term capital requirement.

Long-term loans are obtained by applying for project financing to obtain the best interest rate that is superior to that of the market. Therefore, the interest rate factor will not have a significant impact on the Company's operating costs.

#### 2. Impact of exchange rate changes:

The risk of exchange rate fluctuations of the Company mainly comes from foreign currency positions derived from business activities. Therefore, in addition to offsetting each other in foreign currency assets and liabilities, we carry out hedging in the form of forward foreign exchange operations in a timely and appropriate manner to achieve a balanced position. Furthermore, we maintain close relations with financial institutions, and continue to observe exchange rate changes to reduce the risk of exchange rate fluctuations.

#### The Company will continue to implement the following countermeasures in response to the risk of exchange rate fluctuations:

- A.** Within the scope permitted by the Company's procedures for dealing in derivative financial products, the primary purpose of engaging in derivative transactions should be to avoid risks. When selecting trading counterparties, the first credit risk consideration should be given to avoid losses arising from the inability of counterparties to perform. Moreover, transaction counterparties should in principle be selected from among financial institutions with low credit risk who have a good relationship with the Company and can provide professional information.
- B.** The Company keeps abreast of financial market information, assesses trends, and is familiar with financial products, regulations and operational skills, and provides sufficient and timely information for the reference of management and of relevant departments.



### Information security risk

Nuvoton has a "Nuvoton Security Policy" and "Information Security Management Measures," and accordingly set up control measures to protect Nuvoton's information and information systems from theft, computer crime, industrial espionage, or other forms of injury and loss. In view of the emergence of new network attack methods and the continuous threats to security, Nuvoton regularly holds information security management meetings and analyzes and evaluates information security risks, and formulates management plans and regularly tracks projects that may cause risks. In order to strengthen the information security awareness of the Company's staff, and in addition to arranging for staff to participate in information security online learning courses, social engineering drills are also conducted from time to time to continuously improve staff' ability to protect against information security risks.



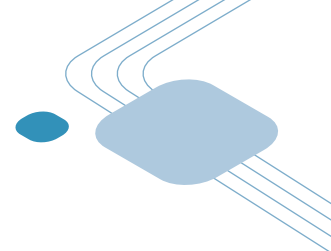
### Safety and health risks

Nuvoton has a Company-wide Environmental Safety and Health and Risk Management Committee. It holds quarterly meetings to discuss the daily management of safety and health and promote compliance in respect to all occupational safety and health, health management, environmental protection and damage prevention results, compliance with laws and regulations, continuous improvement programs and other topics, and implementation of safety and health communication.



### Supplier risk

A stable retinue of suppliers constitutes an important aspect of competitiveness. Under the trend of globalization, a major natural disaster or accident occurring anywhere will affect the stable supply of the supply chain. Therefore, we adhere to the principle of sourcing materials from multiple suppliers in multiple locations. We sign long-term supply contracts with manufacturers of important raw materials for them to establishing their own inventory and beyond this to make supply risk-free in the form of consignment. If items of a second supplier cannot be established, manufacturers are required to prepare safety stocks at the place of origin and their agents, reducing supply risk from just-in-time (JIT) production.



### Environmental protection

In response to the increasing attention being paid to global climate change issues, and the fact that the impact of climate change is becoming more and more significant and frequent, the Company is committed to environmental protection and responding to green and cleaner production in order to reduce the impact of climate change. An environmental management system (ISO 14001) has been established to promote environmental management policies, and various energy conservation policies have been implemented at the same time to improve the efficiency of energy and resource use while also implementing each environmental target for the sake of achieving the sustainable development goal of energy conservation and carbon reduction.



### Socioeconomic and legal compliance

The Company complies with all domestic and foreign laws and regulations, avoids the Company's operations from being exposed to risks, avoids illegal and unfair competition, establishes a good corporate image, and ensures the legal operation of the Company. In order to monitor and identify the applicability of laws, regulations and other requirements related to labor, ethics, environmental protection, health, corporate governance and the Company's compliance with them, regulatory identification and inspection are conducted on a quarterly basis. The Board of Directors of the Company has adopted the Ethical Corporate Management Best Practice Principles. Furthermore, Article 2 of the Code prohibits dishonest conduct by stipulating that the directors, managers, employees, appointees, or persons with substantial control of the Company cannot, while in the course of engaging in business activities, directly or indirectly offer, promise, demand, or accept any improper benefit, or commit other dishonest acts such as breach of trust, lawlessness, or breach of fiduciary duties, in order to obtain or maintain benefits. The Code also contains clauses prohibiting bribery and acceptance of bribes, unreasonable gifts, hospitality, prevention of damage to stakeholders of products or services, etc., through organization and responsibility, as well as education, training and evaluation to achieve the purpose of prevention.

## 2.5 Information Security

Nuvoton has a "Nuvoton Security Policy" and "Information Security Management Measures," and accordingly set up control measures while continuing to maintain a secure information environment so as to protect the information and information systems of Nuvoton and its customers from theft, computer crime, industrial espionage, or other forms of injury and loss. We have signed contracts with manufacturers and customers for mutual protection of confidential information and avoidance of improper disclosure of sensitive information. In addition, the Company conducts annual internal audits in accordance with the internal control system of the information security business.

Nuvoton regularly holds information security management meetings, reviews information security operations, and regularly track improvements while simultaneously conducting regular risk evaluations on issues related to internal and external stakeholders. For example, customers, manufacturers, internal employees, competent authorities, etc.

In order to establish an information security culture, enhance staff awareness of information security issues, and understand the latest information security issues, Nuvoton's information unit regularly advocates information security operational requirements and enhances information security awareness. Staff are required to complete social engineering information security training courses every quarter, and those who do not complete them will not be allowed to establish network Internet connections. In addition, Nuvoton has also arranged for all staff to undergo education and training once a quarter for four times a year.

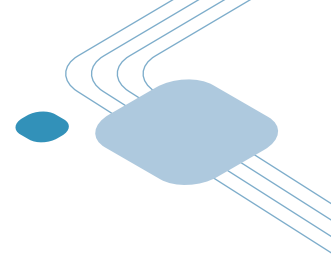
### Customer Privacy Protection

Nuvoton has taken appropriate measures to ensure compliance with the European Union's General Data Protection Regulation (GDPR), the California Consumer Privacy Act (CCPA) in the US, and other provisions of privacy protection laws.

While improving customer service, Nuvoton attaches greater importance to maintaining customer privacy and intellectual property rights. We sign non-disclosure agreements with customers to protect customer confidential information, and have confidential data protection procedures to ensure that there is no risk of leakage of confidential information and that we properly protect customer privacy. Nuvoton has not received any complaints about invasion of customer privacy or leakage of confidential information in 2021.

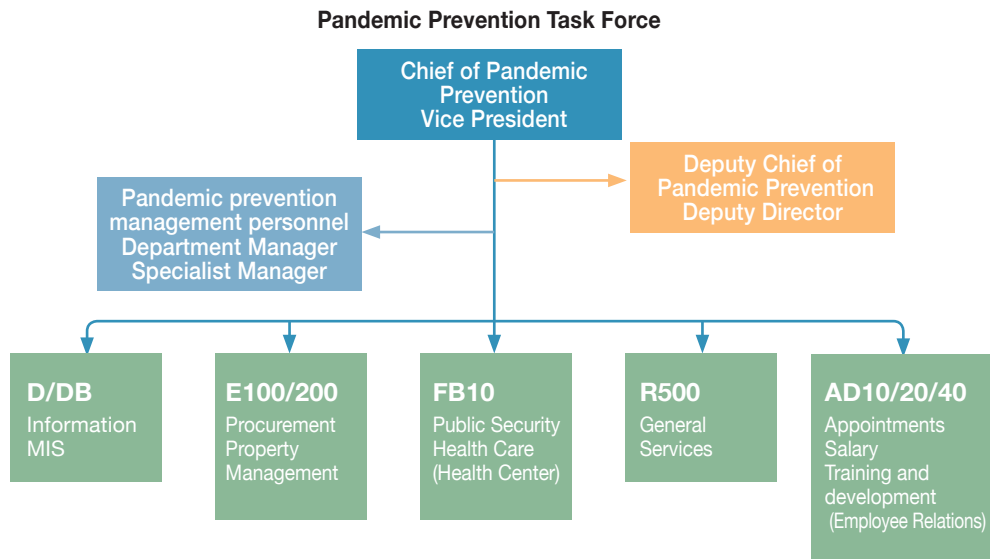
#### 2021 Protection of Customer Privacy and Compliance with Product-Side Regulations

0 cases	Total number of incidents of violations of regulations and voluntary guidelines on health and safety impacts of products and services (for products and services within their life cycles)
0 cases	Total number of substantiated complaints of breach of customer privacy and loss of customer data
0 cases	Violations of laws and regulations relating to the provision and use of products and services and the total amount of relevant material fines




## 2.6 Pandemic Prevention Policies

Nuvoton originally set up a pandemic prevention team during the SARS period, and when the novel coronavirus pandemic broke out, it quickly convened relevant departments to form a complete decision-making team. With the personal participation of senior executives, it established a sound decision-making and governance mechanism and regularly held weekly pandemic prevention team meetings. Members included the Vice Presidents of the Manufacturing Business Group as well as departments including Human Resources, Appointments, General Services, Engineering Safety, Health Care (Health Center), Procurement, Property Management, and Information Technology.



In order to ensure that staff have a safe and hygienic working environment, Nuvoton adopts appropriate control measures for the harm caused by the pandemic, and adjusts the pandemic prevention management measures at any time in response to the latest pandemic information released by the Central Epidemic Command Center so as to effectively prevent the spread of the pandemic within the Company. Pandemic prevention measures are as follows:

Category	Policies and measures
<p><b>Material preparation</b></p> 	<p>▶ We make every effort to purchase relevant pandemic prevention materials, such as: masks, quick screening agents, ear thermometers/covers, forehead thermometers, alcohol, dry hand cleaners, and other pandemic prevention materials. They are deployed in advance and prepared sufficient quantities, and we set safety stocks and weekly inventories. The materials are prepared for use by staff in numbers several times that of the number of employees.</p>

**Personnel  
health  
management**



- ▶ For staff who have been diagnosed, family members who have been diagnosed, who have been in contact with a confirmed patient, who share contact tracing footprints, and so on, the Company has standard operating procedures to manage high-risk staff while also protecting the personal information of staff and providing timely care and assistance.

**Personnel  
segmentation  
and control**



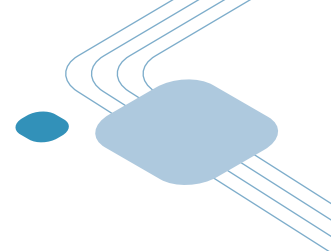
- ▶ In order to prevent cluster infections within the Company that affect the health of staff, we planned to work in A and B groups through the alternation of separation and time-sharing, including long-term plant personnel and manufacturers.
- ▶ Different vehicles and different rooms were to be used for direct employee transportation vehicles and restrooms.
- ▶ When entering the Company, individuals must wear a mask and have their body temperature checked, while also filling out an online health questionnaire. If they have cold symptoms (excluding allergies), staff are advised to recuperate at home.
- ▶ If family members living in the same household are listed as the subjects of home isolation or home quarantine, and if they have symptoms of fever or respiratory infection, it is recommended that staff recuperate at home.
- ▶ Staff were advised to temporarily avoid traveling abroad.

**Visitor and  
vendor  
management**



- ▶ Visitors and manufacturers need to fill in a visitor survey form when entering the factory and must have their temperatures taken and must wear a mask. Those who have fever or cold symptoms and have a history of international travel within 14 days, they are temporarily forbidden from entering the Company.
- ▶ Cooperative manufacturers must ensure that they carry out health management of their employees.





### Environmental pandemic prevention and control



- ▶ The Company has added UV sterilization equipment; pantries and restrooms were fitted with automatic sensor faucets.
- ▶ Partitions were installed in the office area to avoid infection; there were adjustments of office seating arrangements to reduce the number of rows
- ▶ Rest space was increased for direct employees; there was implementation of group smoking areas and real-name systems as well as increased social distancing; and waterless hand washing devices were installed.
- ▶ A “real name card-swiping system” was adopted for touring cars.
- ▶ Transportation vehicles and shuttles were regularly disinfected, and drivers wore masks at all times.
- ▶ Crowd controls were implemented for shops inside the Company, with an upper limit of 12 individuals. Furthermore, cashless transactions were adopted to avoid infection exposure.
- ▶ Anti-pandemic disinfection three times a week.

### Conferences and training



- ▶ Education and training: Based on the principle of prioritizing pandemic prevention and avoiding gatherings of many people, we postponed training courses for >10 people or change them to Teams and e-learning.
- ▶ Meetings: Large-scale meetings were suspended; meetings of > 10 persons implemented staggered seating; numbers of individuals in conference rooms were reduced by 50%; or meetings were held online to avoid the risks of gatherings.
- ▶ Non-essential extra training was postponed. If it was time-limited or pertained to licensing continuity, an application must be submitted before participation, and it was requested to confirm whether the organizer had provided sufficient pandemic prevention measures. Participants should be prepared for pandemic prevention.

### Staff were encouraged to get vaccinated



- ▶ Paid one-day leave was provided for vaccination so as to grant staff adequate rest, and three days were provided in total for three doses.
- ▶ We encouraged staff to get vaccinated to increase protection, and by the end of December 2021, completed 1st dose vaccinations across the entire Company came to 1,390 individuals, accounting for 95.3%; those with a 2nd dose came to 1251 individuals, accounting for 85.7%.

**Meals**



- ▶ Dining tables are equipped with partitions. During meals, exterior windows are opened in the dining area to maintain ventilation.
- ▶ The canteen has adopted time-sharing and partitioning to reduce seating density by 50%.
- ▶ Postings and warning signs are affixed in cooking areas as a reminder to comply with pandemic prevention measures.
- ▶ It is recommended to avoid conversation while eating, to leave the table after meals, and to avoid lingering in the canteen.
- ▶ Buffet dishes are served by the kitchen staff to reduce the risk of cross-infection.



**Work-from-home planning**

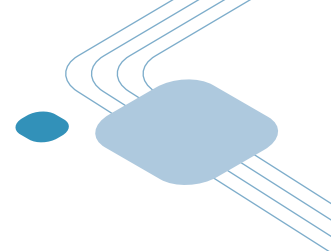


- ▶ In preparation for the pandemic's peak, R&D and business personnel in Zhubei, Taipei, Tainan, and other offices conducted home office drills.


**Foreign employee management**




- ▶ In view of incidents at other companies where foreign migrant workers contracted the virus, we implemented rapid screening of foreign employees in order to protect staff of the company; all these tests were negative.
- ▶ Audits of foreign worker dormitories of foreign employees were carried out in accordance with the Ministry of Labor's "Guidelines for Employing Migrant Workers in Response to Severe Special Infectious Pneumonia," covering such items as: division of compartments, assisting foreign staff in purchasing food or daily necessities, reducing the needs of foreign staff to go out, and planning living spaces of 1 person/1 room in advance.
- ▶ We reduced the number of foreign employees per dormitory.



- ▶ Paid one-day leave was provided for vaccination so as to grant staff adequate rest, and three days were provided in total for three doses.
- ▶ Strengthening personal hygiene education: Wash your hands frequently; take your temperature; avoid touching your eyes, nose, and nose; and enter and exit hospitals (including for physical examinations and medical treatment) wearing masks throughout the process; and comply with the Company's pandemic prevention measures.
- ▶ Dormitories provide masks, ear thermometers, and hand sanitizersto their residents.
- ▶ Common areas of dormitories are disinfected four times a day, such as: halls, meeting rooms, restaurants, guest halls, wooden floor areas, etc.




**Pandemic prevention advocacy**



- ▶ We publicize pandemic prevention twice a week to strengthen staff's knowledge of pandemic prevention.
- ▶ Promote the Company's pandemic prevention policies and measures.

**Overseas management**



- ▶ We provided masks, forehead thermometers, quick screening agents, and other pandemic prevention materials to overseas offices in Shanghai and Shenzhen.
- ▶ We assisted staff in outside postings in their return to Taiwan or in business travel for the sake of pandemic prevention.

## 2.7 Innovative research and development

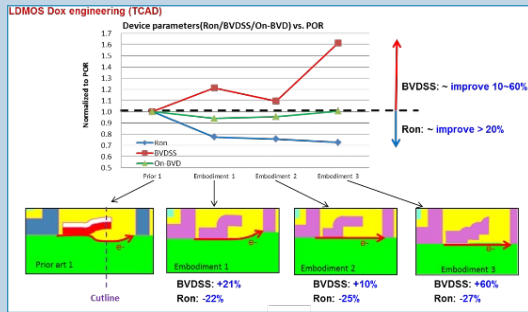
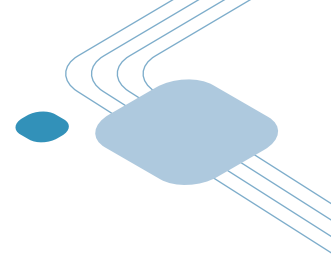
With a growing world population and a high dependence on electronics, demand for energy is rising in line with the market's largest mobile and consumer electronics, and even with fast-growing automotive and industrial electronics makers. Therefore, in an era of energy shortages and accelerated climate change, the global power semiconductor power management market is highly valued. The innovation of Nuvoton is based on the research and development of semiconductor power components and topological circuit architectures. This significantly improves energy conversion efficiency, achieving the goals of energy saving and carbon reduction.

According to the analysis of Yole Development, a French research institute, the global market value of power management chips in 2020 was USD 21.4 billion, and it is estimated that it will be USD 25.5 billion in 2026, for a 2020-2026 CAGR of +3.0%. The largest end market for power management chips is mobile communications and consumer electronics, with a market share of 54%. In addition, the growth of the industrial control and automotive markets is gradually becoming significant, with respective CAGRs of +9.0% and +5.6% for 2020-2026. The above situation demonstrates positive incentives for the Company to focus on research and development of power IC processes for many years, and its technology is facing the development trend of the power management chip market.

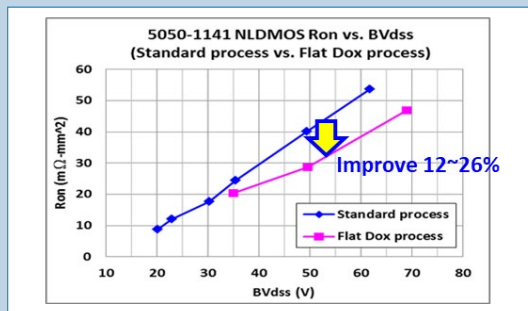
In 2021, Nuvoton achieved results in the BCD field of power management chip process in its development of key components with the three key priorities of "high performance, high integration, and low power consumption," completing the research and development of next-generation BCD power IC process technology. Nuvoton has focused on improving the performance of power components LDMOS, by adopting the new structure of Flat Diox to improve the on-current and lower R<sub>dson</sub> of the device. It thus reached up to a 12%-26% improvement, helping customers reduce costs and optimize chip performance and size. This technology provides fewer photomask layers (three fewer than the competing manufacturer (HHGrace 0.18um BCD)), helping customers reduce cost and process time to speed up product lead times.

In addition, Nuvoton provides a variety of featured components (isolated, low power consumption) to provide differentiation for power management products and enhance the competitiveness of customer products in the market. At present, more than a dozen customers and dozens of products have been introduced into this process design.

In the patent layout of power management chip technology, 32 patent applications have been filed for BCD/HVIC, SGT-MOSFET, GaN, ESD and other related fields (such as gas sensors, CMOS MEMS, UHV and semiconductor processes), and 30 patents in process and components will be officially approved in 2021.

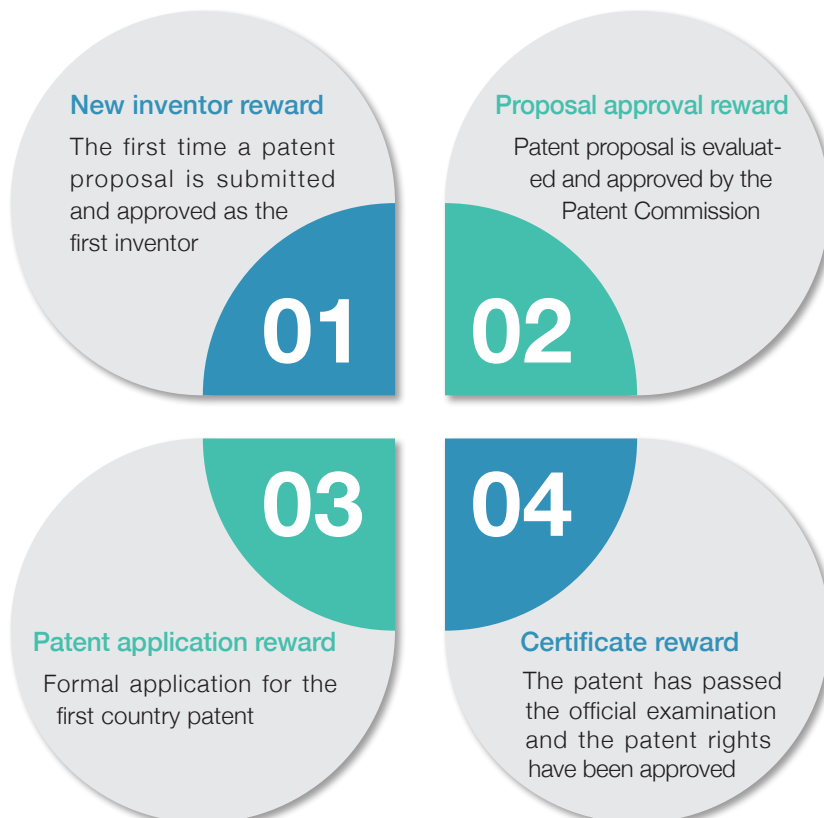


In the development of technology, using TCAD software resources to conduct a large number of multi-line parallel simulation analyses with well-known machine process parameters creates a new structure that reduces the use of experimental chips by nearly 2/3 versus the original development process, achieving the effect of resource reduction.



Compared with the previous-generation BCD process, each next-generation BCD process reduces mask production losses by 26%. The efficiency of the component characteristics is increased by 12 to 26%, which helps customers to have higher drive currents in the same size and promote energy efficiency.

Nuvoton also focuses on innovative technologies and intellectual property rights. Nuvoton has also accumulated 1,206 such cases, mainly from Taiwan, the United States, and mainland China. At the same time, in order to encourage staff to create inventions and submit applications while also protecting the intellectual property rights of Nuvoton, there are 4 types of incentive methods.







# Customer Service and Supplier Management

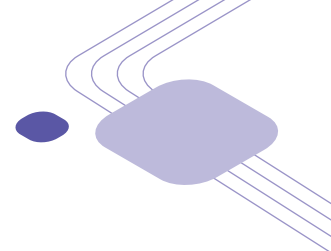
- ▶ 3.1 Customer Service and Satisfaction
- ▶ 3.2 Sustainable Supply Chain Management



Key Stakeholder Response:







## Management approach for materiality topics: Customer Satisfaction

### Significance

Nuvoton adheres to the concept of meeting customer needs, providing excellent and competitive product quality and service to gain the trust of customers. Furthermore, we are committed to protecting customers' confidential information to ensure the rights and interests of the Company and its customers.

### Policies and commitments

Creates competitive products that ensure the quality and reliability of products, fully meets the needs of customers, and is committed to delivering "zero defects".

### Goals

- ▶ Provide quality business and excellent quality to become the best partner that customers cannot replace.
- ▶ 2021 Protection of Customer Privacy and Compliance with Product-Side Regulations: No complaints
- ▶ Customer satisfaction ratings were greater than 8 (out of 10)

### Grievance

[See Chapter 1.3 Stakeholder Communication and Materiality topics of 2021](#)

### Evaluation of the Management Approach

Conduct annual management review meetings to track and review performance and results and discuss the achievement of goals, to continuously improve and optimize management policies.

### Specific actions

- ▶ In 2021, the average customer satisfaction was above 8 points.
- ▶ Committed to delivering competitive products with "zero defects." Usage methods include: quality control, reliability assurance, and failure analysis.
- ▶ Quality control: implement a range of quality control mechanisms covering every step of the production process, enabling rapid and efficient detection of problems, evaluation analysis, and correction measurements by continuously monitoring the manufacturing process.
- ▶ Reliability assurance: each manufacturing phase undergoes continuous review, analysis and evaluation, with revisions providing future quality and reliability improvements.
- ▶ Failure analysis: Customers can return defective products. Nuvoton will conduct a complete failure analysis and take corrective actions, undertake improvement measures, and engage in close monitoring to ensure that it can be effectively implemented, and submit a detailed failure analysis written report to the customer.

## 3.1 Customer Service and Satisfaction

### ■ Customer relations

Nuvoton adheres to the concept of meeting customer needs, providing excellent and competitive product quality and service to gain the trust of customers. Furthermore, we are committed to protecting customers' confidential information to ensure the rights and interests of the Company and its customers

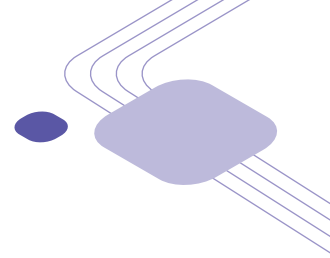
In establishing a competitive product that ensures the quality and reliability of products, Nuvoton fully meets the needs of customers, and is committed to delivering "zero defects". Usage methods include: quality control, reliability assurance, and failure analysis.



Nuvoton implements a series of quality control mechanisms covering every step of the production process, and the main steps of the control operation include: incoming material inspection, wafer manufacturing process, electrical characteristic testing, and die packaging. By continuously monitoring every step of the manufacturing process and collecting feedback information at every level, it enables rapid and efficient detection of problems, evaluation analysis, and correction measurements. Emphasize an attitude of "first time right" at every step of the manufacturing process, while creating a "zero defect" output. This results in a high-quality and reliable product line.



At Nuvoton, the goal of reliability assurance testing is to ensure high-end product performance and fully cover the predictable life cycle of the product. Each manufacturing phase undergoes continuous review, analysis and evaluation, with revisions providing future quality and reliability improvements.



Customers may return defective products. Nuvoton will conduct a complete failure analysis to inspect electrical and physical characteristics of the defective IC, determine the root cause of product failure, and take corrective actions and improvement measures. Furthermore, we will engage in close monitoring to ensure that it can be effectively implemented, and submit a detailed failure analysis written report to the customer.

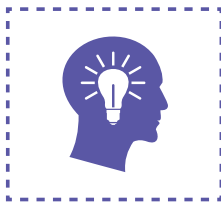
## ■ Customer Satisfaction Surveys

Nuvoton regularly collects customers' satisfaction levels and valuable suggestions on new product marketing/sales, delivery, quality improvement, technical support, and customer service through the quality assurance unit. Targets include: customer procurement, quality assurance, research and development and other units. In addition to summarizing customer evaluations, complaints, satisfaction matters and suggestions for improvement, the Quality Assurance Section convenes relevant units such as the Business Section, the Sales Section, the R&D Section, and the Production Management Section to formulate an improvement plan for the customer's response matters item by item and draw up improvement plans. Responses are made to surveyed customers within one month so that customers can feel direct and immediate feedback. The final summary results of the quality assurance unit are delivered to management as an adjustment resource to continuously improve satisfaction.

Nuvoton has led the customer satisfaction survey (CSS) throughout the years, and in 2021 a consultant was commissioned to assist as a consultant in order to improve the depth and breadth of the questionnaire and adopt new methods by using online survey.

After revision by Nuvoton, the questionnaire survey is divided into four material topics namely R&D and design, manufacturing, customer service, and value chain. In addition to the original content covering marketing/sales, delivery, quality improvement, technical support, customer service, and other aspects, there are also new questions about satisfaction for corporate image that were not considered in the past. At the same time, respondents were also asked to rate the importance of each factor to facilitate ranking of the results of the analysis.

The new analysis method is called an Importance and Performance Matrix (IPM). It is conducive to identifying projects in the recycled data that customers think are important but where there is still room for improvement in Nuvoton's performance. This allows the Company's senior management to decide on the investment of its limited resources. Moreover, the results are presented in quadrant visual representations, which can bring an intuitive understanding of the results to the reader.



**R&D and design**

- Product line depth and breadth
- Development cycle
- Verification samples
- Technical support
- R&D/designer professionalism



**Manufacturing**

- Product quality and yield
- Quality system management
- Hazardous substance management
- Delivery cycle
- On-time delivery
- Order receiving
- Logistics system



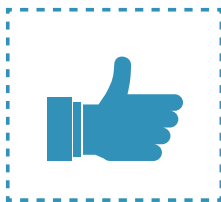
**Customer service**

- Professionalism of business personnel
- Professionalism of technical personnel
- Adaptability
- Order management
- New product promotions



**Value chain**

- Selling price
- Business model
- Competitive advantage
- Protection of intellectual property rights
- Corporate social responsibility
- Partnerships



**Overall satisfaction**

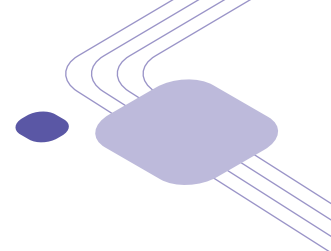
- Enterprise level

**Lowest score: 1; highest: 10**



**Importance of each factor**

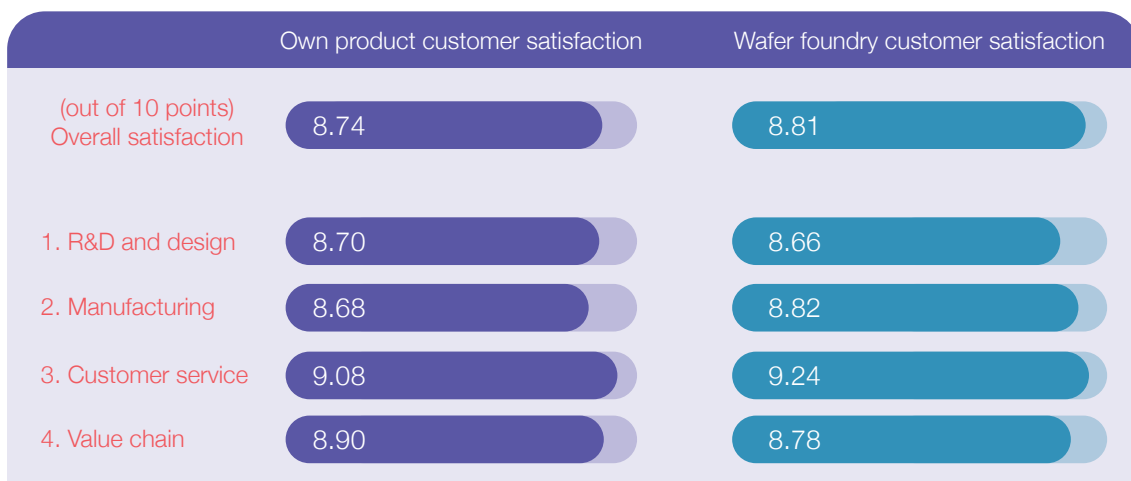
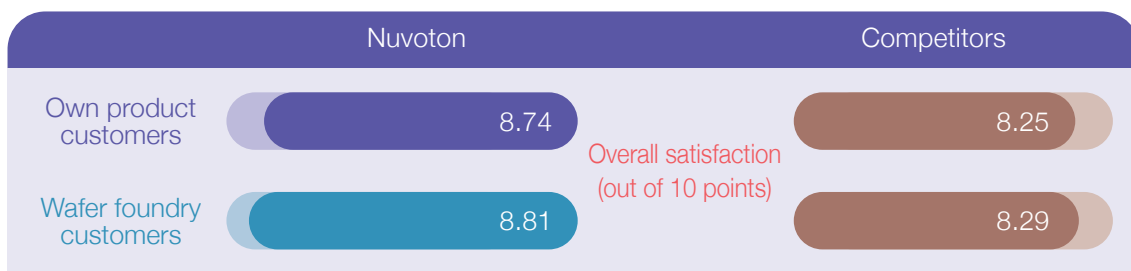
Grades classified from moderately important (6 points) to very important (10 points)  
(Since there is no factor that is not important to Nuvoton, there is no option of 1 to 5 points)



## Customer Satisfaction Survey Result



The customer satisfaction survey of Nuvoton in 2021 encompasses the list of customers who account for the top 70% of total sales, and the results show that the overall satisfaction rate is 8.76 points, which is better than the 8.26 points seen in the industry.



If the satisfaction survey is carried out into detail, it can be found that the average satisfaction of each item is above 8 points (satisfaction); customers are quite satisfied with the service, especially in terms of the attitude and professional abilities of personnel. Nuvoton further carried out cross-analysis, and customer concerns and improvement priorities include on-time delivery and transparency so as to offer value for the selling price. Therefore, based on customer feedback and opinions, Nuvoton will strengthen production management, shorten delivery times, stabilize supply quantity, and develop more competitive products to meet customer needs.

## Product Quality

Nuvoton is committed to improving product quality to protect the rights and interests of customers and to further strengthen the Company's reputation. Nuvoton's quality control functions cover every step of the production process; and by constantly monitoring the manufacturing process, we detect problems quickly and efficiently and ensure product quality. For defective prod-

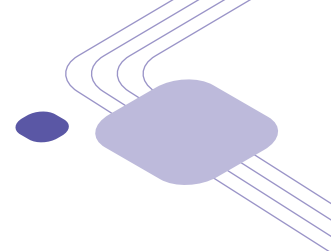
ucts returned by customers, we conduct a complete defect analysis, identify the root causes of defective products and improve them, and provide high-quality business and excellent quality in the spirit of continuous innovation and continuous improvement of products, processes and services. In this way, we can provide quality business and excellent quality to become the best partner that customers cannot replace.

Nuvoton requires that the materials used in the full range of products comply with the EU RoHS (Restriction of Hazardous Substances Directive), EU REACH (Registration, Evaluation, and Authorization of Chemicals), and halogen-free requirements, to reduce the use of chemical substances in the process to avoid environmental pollution. Throughout 2021, the full range of products did not have any violations of laws or regulations, in line with international regulations and customer requirements.

## 3.2 Sustainable Supply Chain Management







Nuvoton regards suppliers as partners, confirming that the suppliers' labor, ethics, environment, management systems, health and safety, and other specifications are in compliance with the latest regulations. We do so to establish a stable supply chain and ensure the quality of raw material supply, and then provide customers with high-quality services for the sake of jointly achieving a vision of "peace, reassurance, and empathy." In addition, Nuvoton has been committed to the local production of raw materials in recent years. Our purpose is to reduce transportation costs, diversifying risks, and lower carbon emissions. We further hope to increase employment opportunities by supporting local production.

### Sustainable Supply Chain Development Vision

In addition to meeting industrial safety and environmental protection requirements, we have also expanded this approach to require suppliers to pay attention to and promote corporate social responsibility.

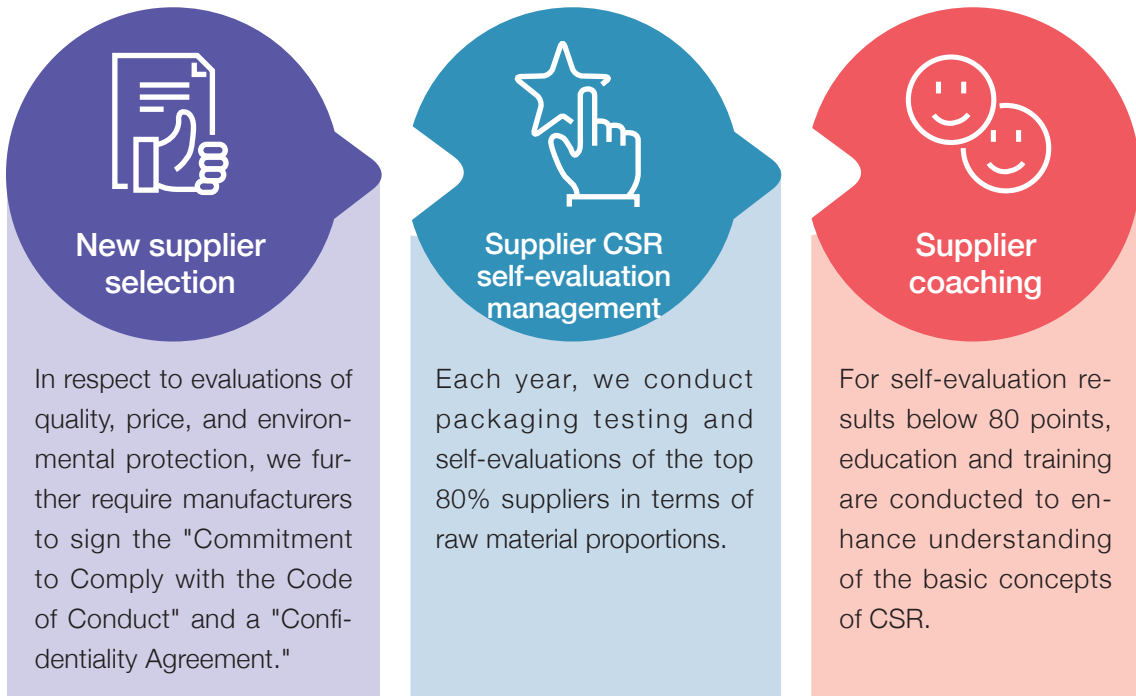


Based on the principle of protecting human rights, Nuvoton attaches great importance to the issue of conflict metals. In the raw materials and production processes of our products, we strive to avoid the use of illegally mined metals that violate human rights and require relevant suppliers to sign a "Declaration of Non-Use of Conflict Minerals."

Nuvoton pays attention to the labor rights and interests of the supply chain, requiring suppliers to comply with the relevant laws and regulations of the countries in which they operate and the requirements of relevant international industry codes of conduct, including the Responsible Business Alliance (RBA) Code of Conduct and any changes and amendments to the Code. We require all supply chain manufacturers to sign a "Commitment to Comply with the Code of Conduct" and a "Confidentiality Agreement."

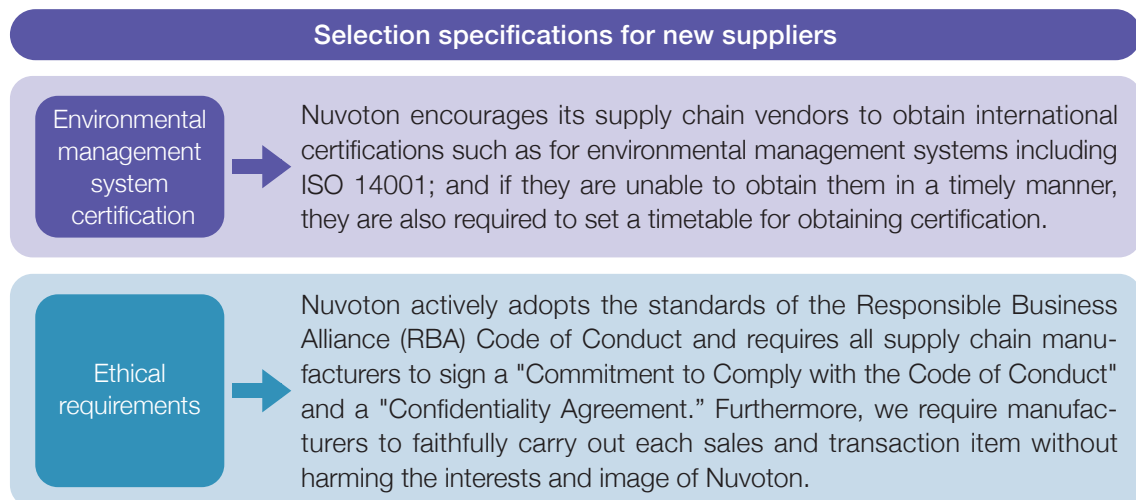
## Supply Chain Management Approach

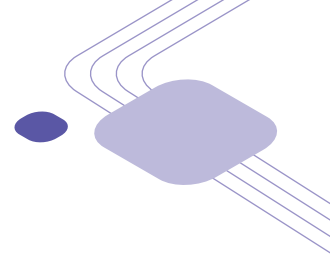
Nuvoton's qualified supplier management method is controlled and counseled in the following three aspects, and simultaneously requires third-party quality system certification such as ISO 9001 or IATF 16949 or QC 080000. It further requires signing of the Company's "Commitment to Comply with the Code of Conduct" and the supplier's written information audit. If it is an out-sourced processing manufacturer, it is required to pass the on-site audit.



## New Supplier Selection

For quality, price, environmental protection and other evaluations, those who meet the requirements of Nuvoton can become qualified suppliers to the Company; nine such selections were completed in 2021.





Conflict minerals management

→ Relevant suppliers are required to sign a Declaration of No Use of Conflict Minerals, including wafer outsourcing foundries, packaging plants, and raw material suppliers.

## Supplier Evaluations

At present, 92.7% of Nuvoton 's supply chain manufacturers have obtained environmental management system certification. Supplier CSR self-evaluations: In 2021, the supplier CSR self-evaluations of 11 suppliers in the top 80% of the packaging and testing plants and raw materials suppliers were completed, and the self-evaluation results of each company reviewed by Nuvoton exceeded 80 points and met the Company's requirements. The proportion of self-evaluation indicators in 2021 was as follows. The figure shows that manufacturers attached the greatest importance to health and safety-related system issues, and the proportion of labor-related systems was the lowest.



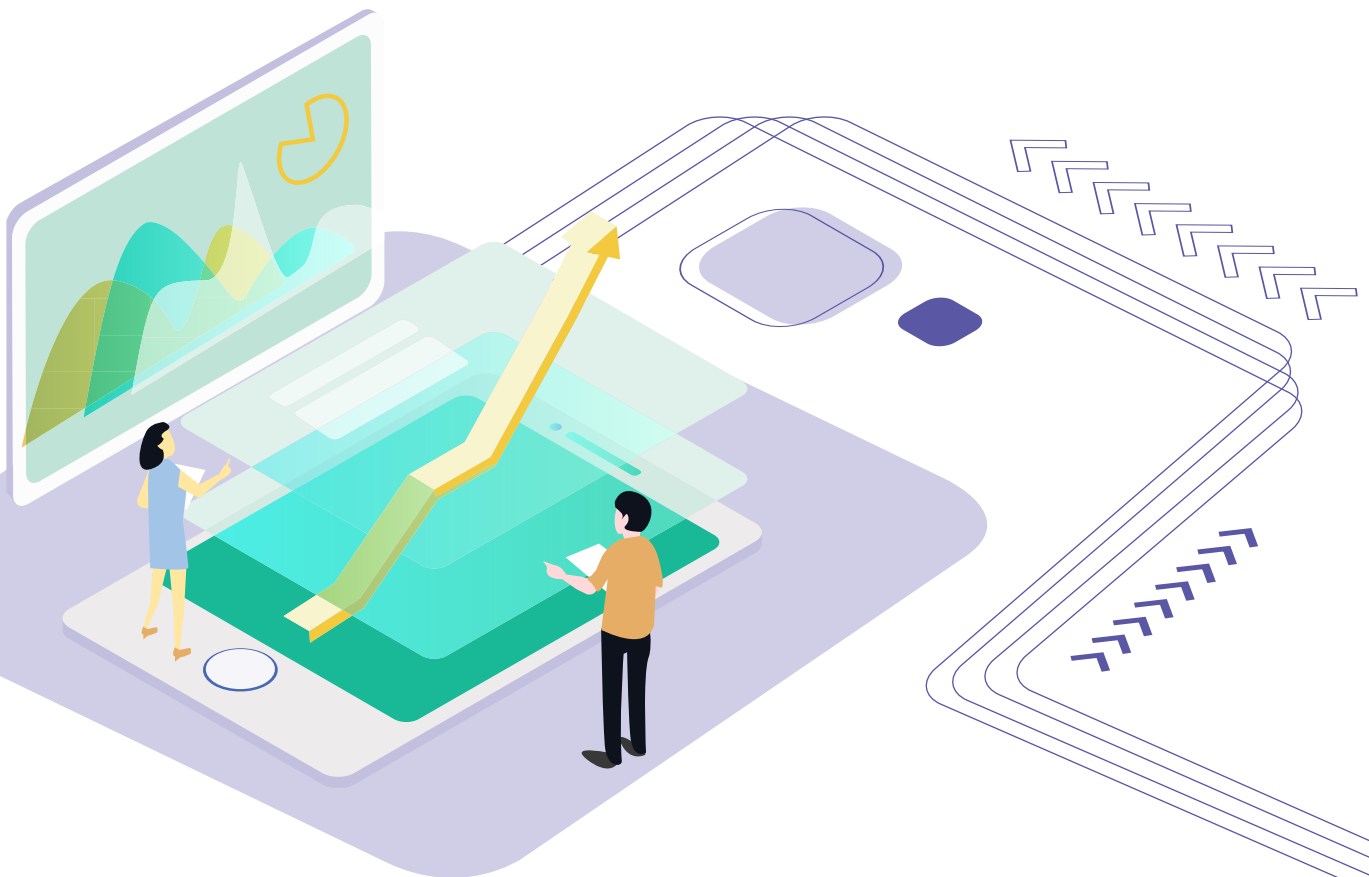
Conflict mineral survey report: before they can be listed as qualified suppliers, relevant suppliers are required to sign a Declaration of No Use of Conflict Minerals, including wafer outsourcing foundries, packaging plants, and raw material suppliers. Subsequently, Nuvoton required suppliers to conduct detailed investigations and disclosures of conflict mineral due diligence reports, and the frequency of investigations are carried out in accordance renewals of the Responsible Business Alliance (RBA) Code of Conduct. The Company conducts conflict mineral investigations against the above suppliers (including outsourcers), and the suppliers comply with the relevant regulations.

## ■ Supplier coaching

If the CSR social responsibility self-evaluation result is less than 80 points, education and training will be carried out to strengthen the supplier's understanding of basic concepts of CSR and to assist the supplier in the subsequent CSR implementation. There were no non-compliant suppliers in the 2021 self-evaluations.

## ■ Local Procurement

Since its establishment, Nuvoton has always regarded suppliers as long-term partners with the common goal of establishing a long-term and stable semiconductor supply chain. We have been committed to the local production of raw materials for years. Our purpose is to reduce transportation costs, diversifying risks, and lower carbon emissions. We further hope to increase employment opportunities by supporting local production. In 2021, the proportion of localized procurement of raw materials in Taiwan was 31.7%, an increase of 3.9% over the same figure in 2020. Due to limitations arising from industry characteristics, we will still maintain close relationships with local suppliers in the future. Under the premise of a win-win situation, we will continue to work together to reduce costs and risks. Localization of procurement is still an important strategy for Nuvoton in selecting suppliers.







# Environmental Friendliness

- ▶ 4.1 Environmental Management
- ▶ 4.2 Climate Change Response
- ▶ 4.3 Cherishing Resources Used
- ▶ 4.4 Reducing Pollution Emissions
- ▶ 4.5 Development of Green Products



## Key Stakeholder Response:



## Management approach for materially topics: Management of Hazardous Substances

### Significance

In response to international environmental trends and customer needs, Nuvoton is committed to designing green products with low toxicity, low carbon and low energy consumption, so as to enhance green competitiveness and grasp global business opportunities.

### Policies and commitments

The Company strives to design, purchase, manufacture, and sell products free of harmful substances to comply with international regulations and meet customer needs. Furthermore, we strive to protect the environment in order to fulfill our social civic responsibilities.

### Goals

- ▶ Products provided by Nuvoton comply with 100% of the relevant regulations and customer requirements for Hazardous Substances Free.

### Grievance

[See Chapter 1.3 Stakeholder Communication and Materially topics of 2021](#)

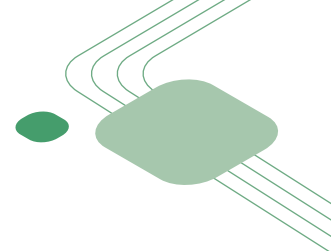
### Evaluation of the Management Approach

Conduct annual management review meetings to track and review performance and results and discuss the achievement of goals, to continuously improve and optimize management policies.

### Specific actions

- ▶ Since 2008, we have a product QC 080000 Management of Hazardous Substances system to systematically manage all green product related matters inside and outside the Company, and we effectively monitor the management process of environmental product development.
- ▶ To ensure the efficacy of the implementation of Nuvoton's green policies, we undertake evaluation and introduction of compliance with international regulations and customer environmental protection requirements; establishment and implementation of customer green environmental protection directives and requirements; promotion of continuous improvement projects for green products; and control of hazardous substances and audit of green products.
- ▶ Throughout 2020, the full range of products did not have any violations of laws or regulations, in line with international regulations and customer requirements.





# 4.1 Environmental Management

## Environmental management system

In order to implement the goal of "continuous improvement while becoming a green enterprise with sustainable development," Nuvoton has introduced ISO 14001 P-D-C-A continuous improvement principles to establish our environmental management system. We also have an environmental safety and risk management committee to regularly review regulatory compliance, stakeholder concerns, and continuous improvement programs for the environment. Examples include energy conservation and greenhouse gas reduction and the implementation of various related reduction programs. Nuvoton complies with environmental protection laws; and, through process optimization and the participation of all staff members, we continuously reduce the use of key raw materials and reduce pollutant emissions.

In line with our attitude of friendly treatment of the environment  
Nuvoton has set three major environmental protection strategies



In this way, we seek to promote cleaner production and strive to reduce the impact of products and production activities on the environment through our continuous improvement of environmental safety and health management systems.

## Environmental Compliance and Complaint Channels

We practice our commitment to comply with environmental regulations in a rigorous manner, and conduct regular reviews of relevant laws and regulations every six months to confirm that the Company complies with existing laws and regulations. We respond to frequent changes in domestic environmental laws and regulations, and regularly collect new or revised environmental regulations every month for evaluation to ensure that there will be no non-compliance with the relevant laws and regulations due to changes therein. In 2021, Nuvoton had no oil/fuel/waste/chemical leakage incidents. In January 2021, a fine of TWD 150,000 was imposed by the local Environmental Protection Bureau for air pollution prevention and control equipment of volatile organic compounds in the new plant area; this was due to a violation of the Air Pollution Control Act arising from the aging of a joint gasket that was caused in turn by long-term operation at

high temperatures, thereby resulting in slight leakage. We immediately arranged for the replacement of the gasket and subsequently passed a review by the environmental protection bureau. Subsequently, we changed to direct reading testing instruments to conduct inspections during regular monthly maintenance, and we installed air extraction equipment at leak-prone locations to ensure that similar incidents do not occur.

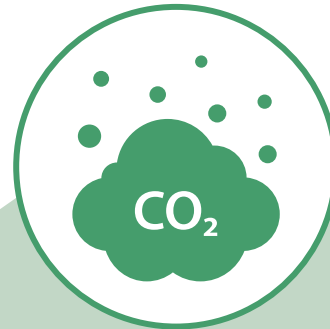
## 4.2 Climate Change Response

Due to the rise in surface temperatures, climate change has directly affected the production and operation of the manufacturing industry in recent years, as it confronts facing threats such as flooding, water supply interruptions, power supply shortages, and rising raw material costs. In 2015, the United Nations Climate Conference (COP21) negotiated to reduce greenhouse gas emissions, to mitigate climate change, and to improve climate change adaptability. Therefore, reducing greenhouse gas emissions is an important issue for companies' sustainable development. Nuvoton's greenhouse gas management strategy aims to conduct a greenhouse gas inventory and registration in accordance with the regulations of the Environmental Protection Administration, comply with the requirements of the regulations, and actively take relevant mitigation and adjustment actions through the inventory to understand the main sources of emissions.

### Climate Change Targets

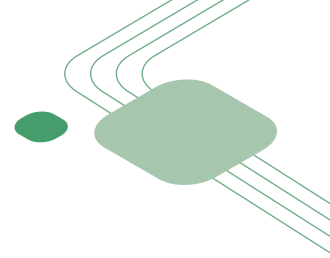


The completion of solar equipment installations in three years to reach 8% of the contracted capacity



By installing process gas treatment equipment, it is expected that process greenhouse gas emissions will be reduced by 85% by 2030.

In order to grasp the current status of the Company's greenhouse gas-related activities and formulate reduction targets and priorities, since 2009 Nuvoton has adhered to ISO 14064-1 and guidelines for the inspection and registration of greenhouse gas emissions of the Environmental Protection Administration of the Executive Yuan in establishing a greenhouse gas inventory mechanism that conducts regular annual checks of greenhouse gas emissions in the plant. Setting 2009 as the base year for greenhouse gas emissions, the inventory covers Scope 1 (direct

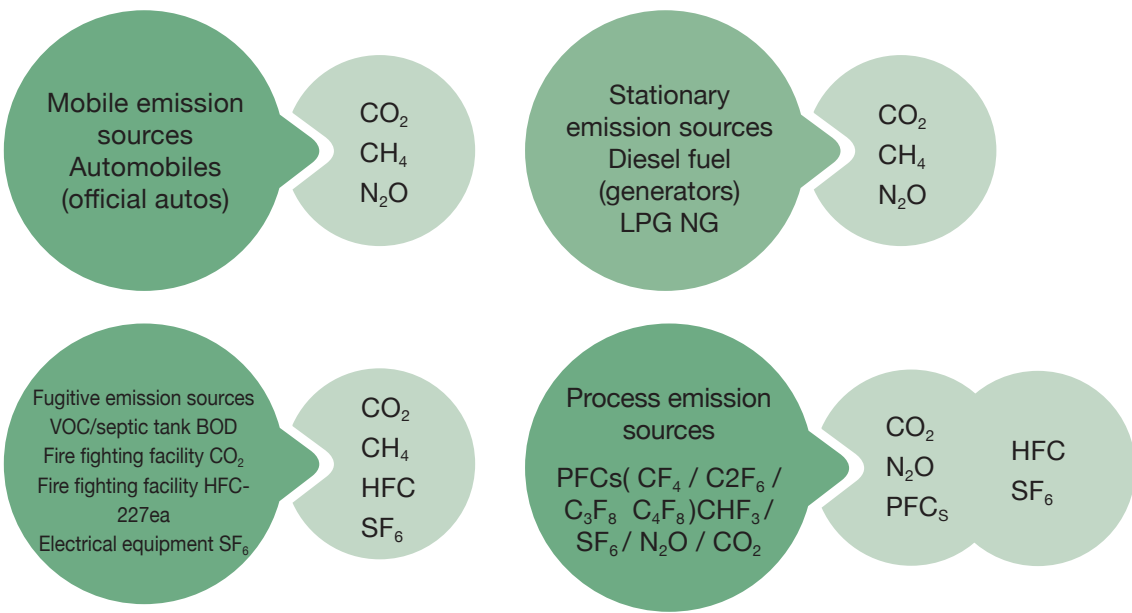


greenhouse gas emissions) and Scope 2 (indirect greenhouse gas emissions from energy), but it does not include other indirect greenhouse gas emissions in Scope 3. Since 2009, the greenhouse gas inventory data have been checked by a third-party verification agency in accordance with the ISO 14064-1 standard, and we have obtained verification statements.

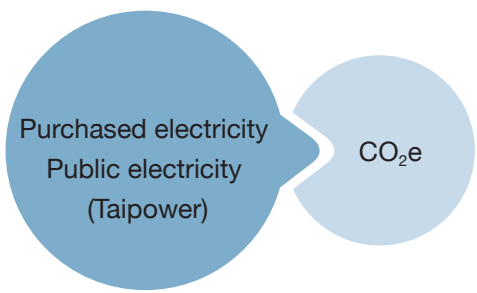
Nuvoton's total greenhouse gas emissions in 2021 amounted to 75,016 tons, an decrease of 3.0% compared to base year 2009. However, greenhouse gas emissions per product unit in 2021 came to 0.672 kg of CO<sub>2</sub>e/cm<sup>2</sup>-wafer, a 46.54% decrease compared to base year 2009.

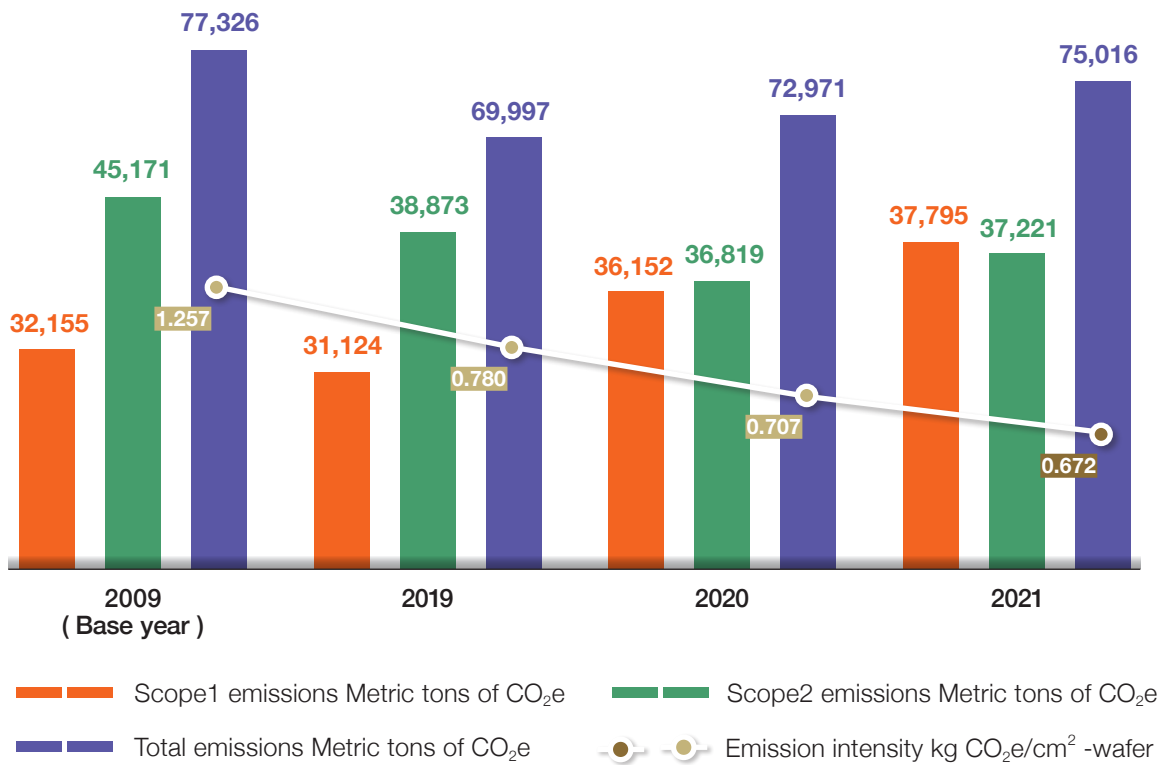
### Greenhouse Gas Emissions Categories

#### Scope 1



#### Scope 2





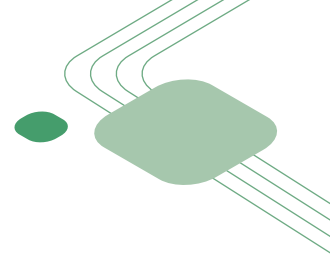
**Note:** Starting from 2021, Nuvoton will expand the inventory of its carbon emissions footprint to other offices across the Company. Through 2020, data is only for the Hsinchu plant.

The results of the inventory show that the main emissions are from electricity use, followed by fluorocarbons (FC<sub>s</sub>) used in the production and manufacturing process, such as tetrafluorocarbons (CF<sub>4</sub>), hexafluoroethane (C<sub>2</sub>F<sub>6</sub>), sulfur hexafluoride (SF<sub>6</sub>), trifluoromethane (CHF<sub>3</sub>), perfluoropropane (C<sub>3</sub>F<sub>8</sub>), octafluorocyclobutane (C<sub>4</sub>F<sub>8</sub>), etc. These two types of emissions account for more than 90% of total emissions. Therefore, the annual energy-saving target is set to improve the efficiency of electricity to reduce carbon, and for cleanup and improvement of specified production.

[For Scope 2 reduction methods, please refer to the section on Energy Management](#)

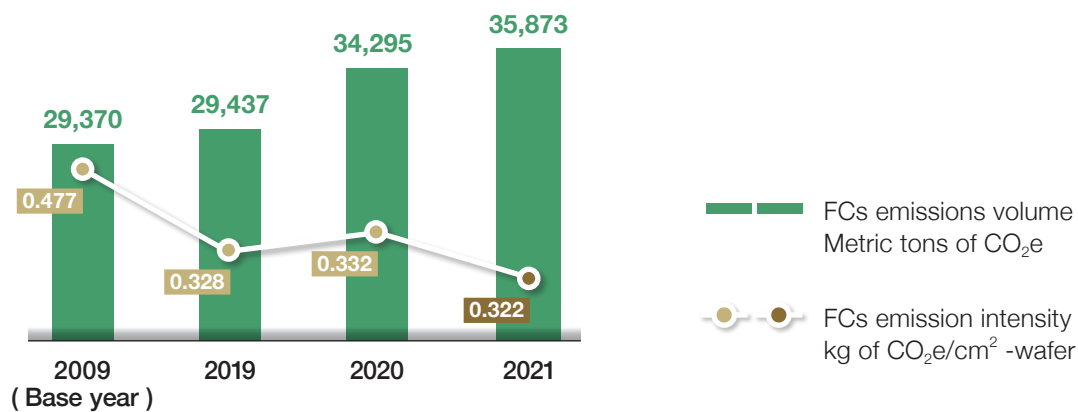
## CO<sub>2</sub> Emission Equivalents and Emission Intensity for Process FCs

According to the inventory survey results, the greenhouse gas emission intensity of process-use FCs has increased since 2015. This is mainly due to changes in product mix and the development of new processes. Nuvoton is striving to adjust and improve processes in accordance with the inventory results.



In 2021, greenhouse gas emissions of process-use FCs amounted to 35,873 tons of CO<sub>2</sub>e, with emission intensity of 0.322 kg CO<sub>2</sub>e / cm<sup>2</sup> – wafer. These figures represented a respective increase of 22.14% and a decrease of 32.49% compared to base year 2009.

In Nuvoton’s initial reduction strategy regarding reduction measures for process-use FCs, which was based on gas substitution, we used C<sub>3</sub>F<sub>8</sub> with a low global warming potential (GWP) instead of CF<sub>4</sub> and C<sub>2</sub>F<sub>6</sub> used in the thin film process so as to reduce the CO<sub>2</sub>e of FCs. In 2019, the reduction was made by replacing the C<sub>3</sub>F<sub>8</sub> used in thin-film processes with C<sub>4</sub>F<sub>8</sub>, which has a lower GWP.




## 4.3 Cherishing Resources Used

Today's technology is becoming more and more advanced and energy consumption is increasing. Now, with the emergence of global warming and climate change warning signs, warnings, we must cherish existing resources to prevent a crisis of energy exhaustion and for the sake of sustainability and environmental friendliness. All along, Nuvoton has used optimal adjustments to reduce amounts at the source. We have lowered consumption of water, electricity, energy, and key chemical raw materials so as to reduce environmental impact and save costs at the same time. This achieves the purpose of environmental protection and mutual economic benefit.


### ■ Energy Management

In terms of energy, Nuvoton currently mainly uses purchased electricity as it accounts for about 97.3% of total energy consumption. This followed by gas (natural gas and liquefied petroleum gas) accounting for about 2.7% and fuel oil (diesel and automobile gasoline) at less than 0.1%. Taiwan's energy supply sources are mainly oil, coal, natural gas, nuclear energy, hydropower, and so on. As for other energy sources such as solar energy, wind energy, geothermal energy, biomass energy, etc., these are still in the minority. Therefore, the overall energy use and power

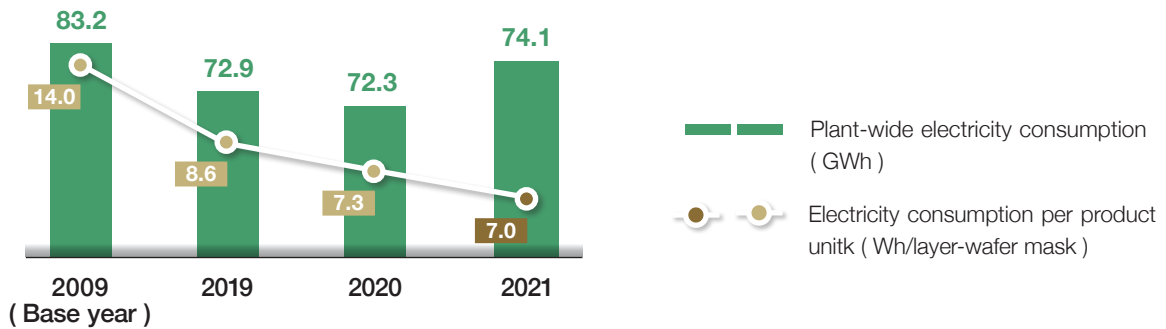
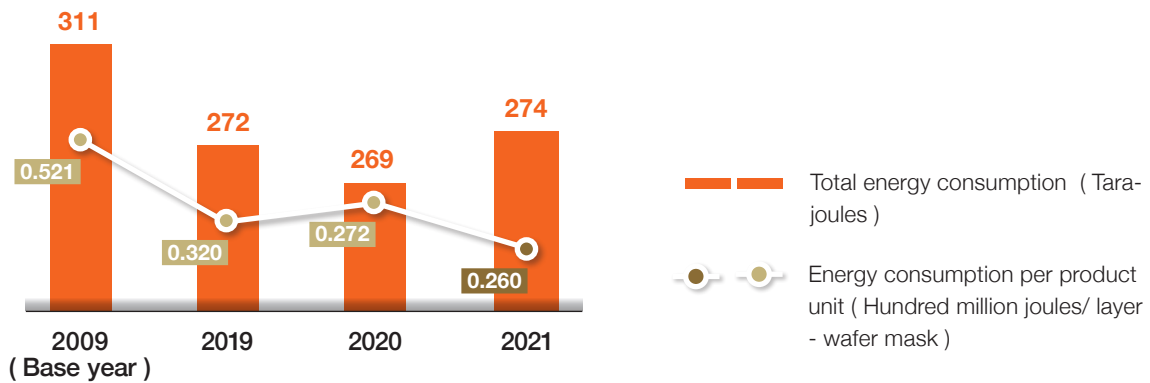
generation structures are still of a high carbon type, and the fossil fuels on which they rely will not be replenished after they are exhausted. In addition, the pollution problems caused by burning fossil fuels will not only affect the environment, but also destroy the complex ecological mechanisms of nature and cause anomalies in the Earth's climate. Therefore, saving energy is a goal that every business should uphold.



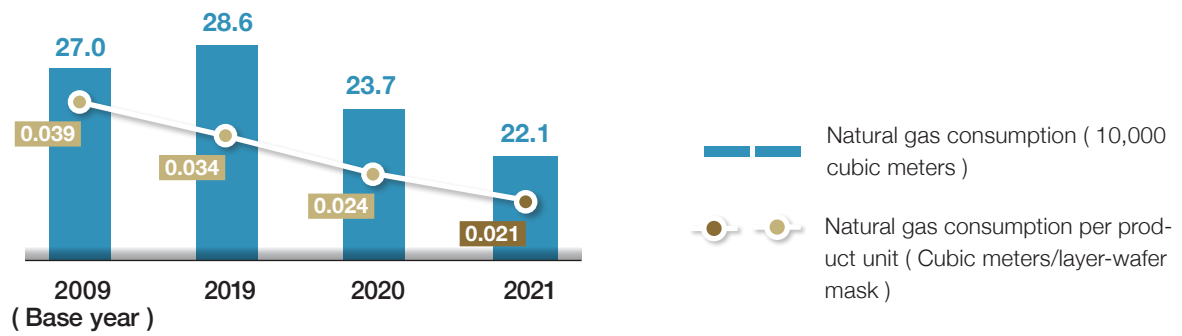
In 2021, Nuvoton's total energy consumption was 274 megajoules, and consumption per product unit was 0.26 billion joules/layer-wafer mask.



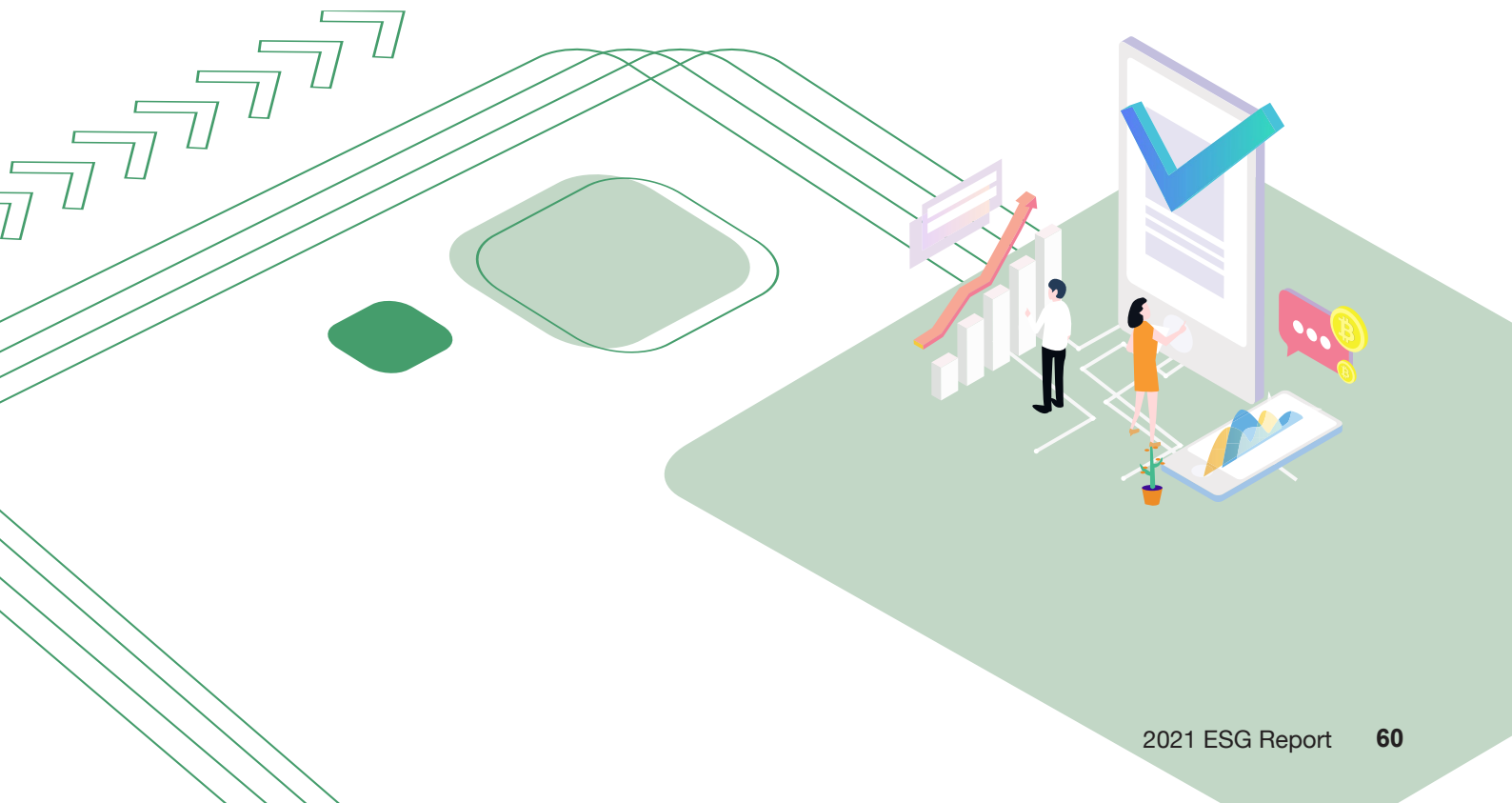
Total electricity consumption in 2021 was reduced by 10.9% compared to the base year 2009.



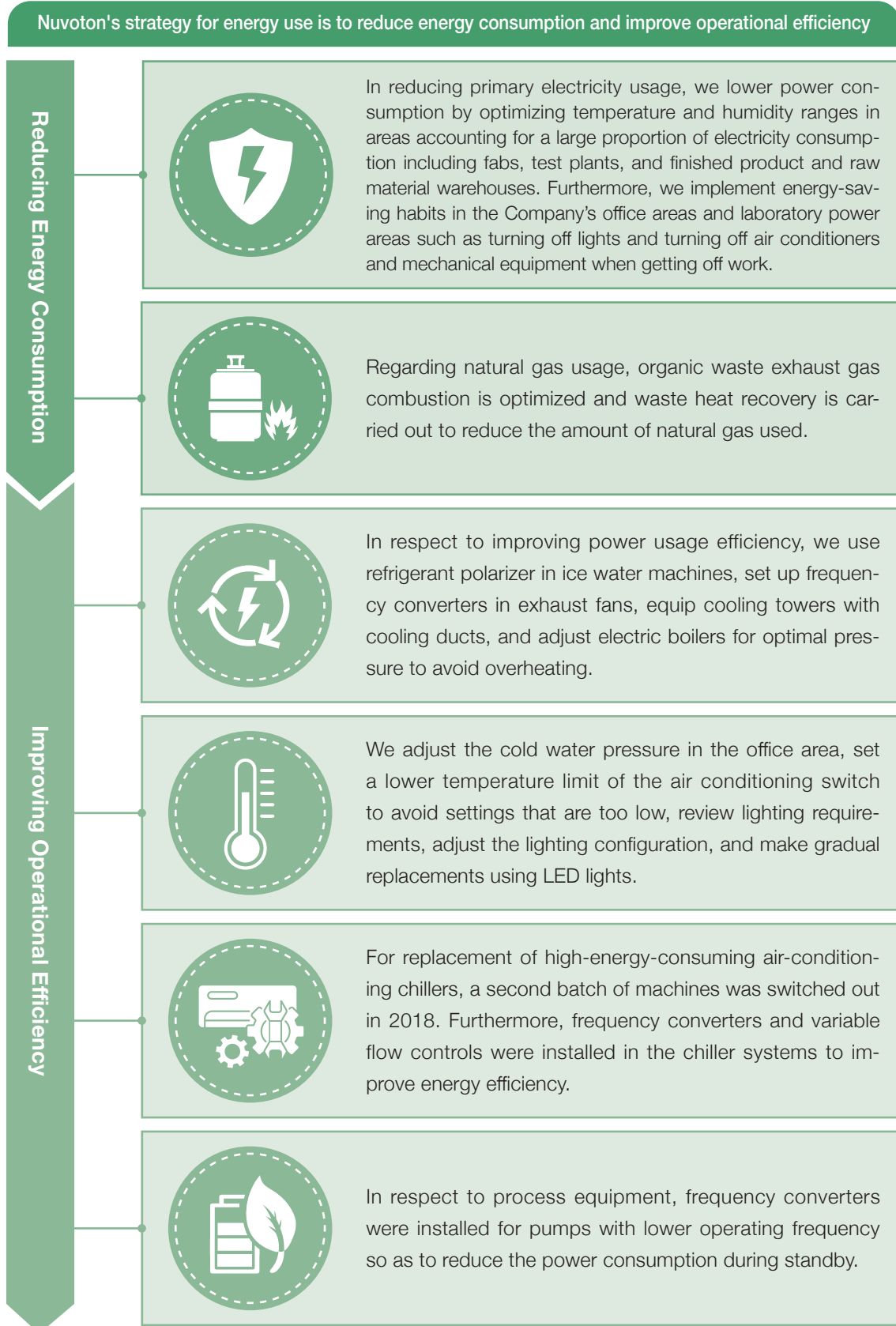


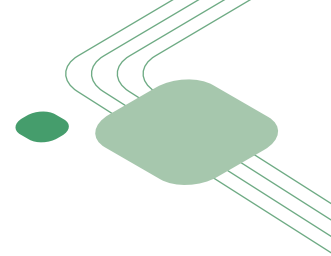


**Note:** Starting from 2021, Nuvoton will expand the inventory of its electricity usage to other offices across the Company. Through 2020, data is only for the Hsinchu plant.



## Energy Conservation Measures





In addition to the established energy-saving plan, energy-saving measures implemented by Nuvoton in 2021 also saw the replacement of the rotor of the CDA-6 air compressor, and it is estimated that the electricity consumption savings will be about 79,200 kWh.

## Water resource management

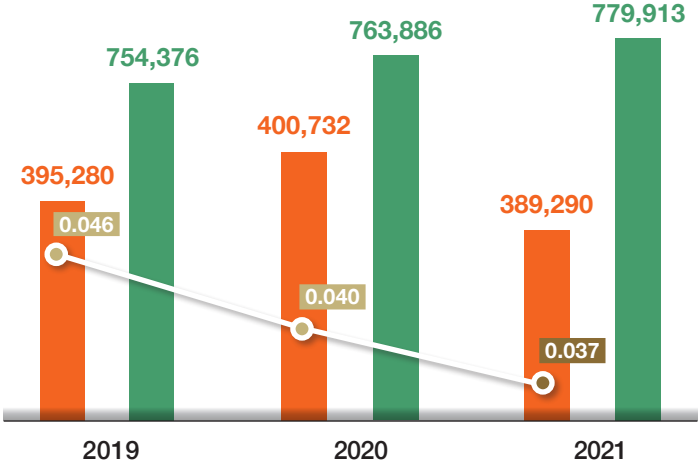
Due to climate change, worldwide rainfall patterns have seen substantial variability in recent years and water scarcity issues are receiving strong attention from around the globe. Moreover, semiconductor industry processes require large volumes of water. Nuvoton's water source is the tap water provided by the water company, supplemented by a small amount of recovered rainwater and air conditioning condensate as secondary source. The two main strategies for water conservation are to prioritize the reduction of source use and to utilize back-end recovery so as to reduce the consumption of water resources.

We adjust the cleaning flow rate and water change frequency to optimize process water use, extend the backwash frequency of pure water systems, install water-saving facilities for domestic water and the optimal frequency of horticultural irrigation to reduce water volume. The discharge water of each facility and process is collected separately according to its water quality; this offers the best avenue for treating and recovering with the best water quality into the process. Separately, we also set up condensate water and rainwater collection systems in air-conditioning facilities for recovery as secondary water. Nuvoton's plant numbers among those older factories built before 1994. Our plant-wide water recovery rate is much higher than the level required by the "Hsinchu Science Park Manufacturers' Plant Construction Time Corresponding to Recovery Rate Standards." Although we have encountered difficulties in pipeline modifications of the old plant building and there is a bottleneck in terms of a lack of space for setting up recovery and processing facilities, we nonetheless continue to propose water-saving solutions.

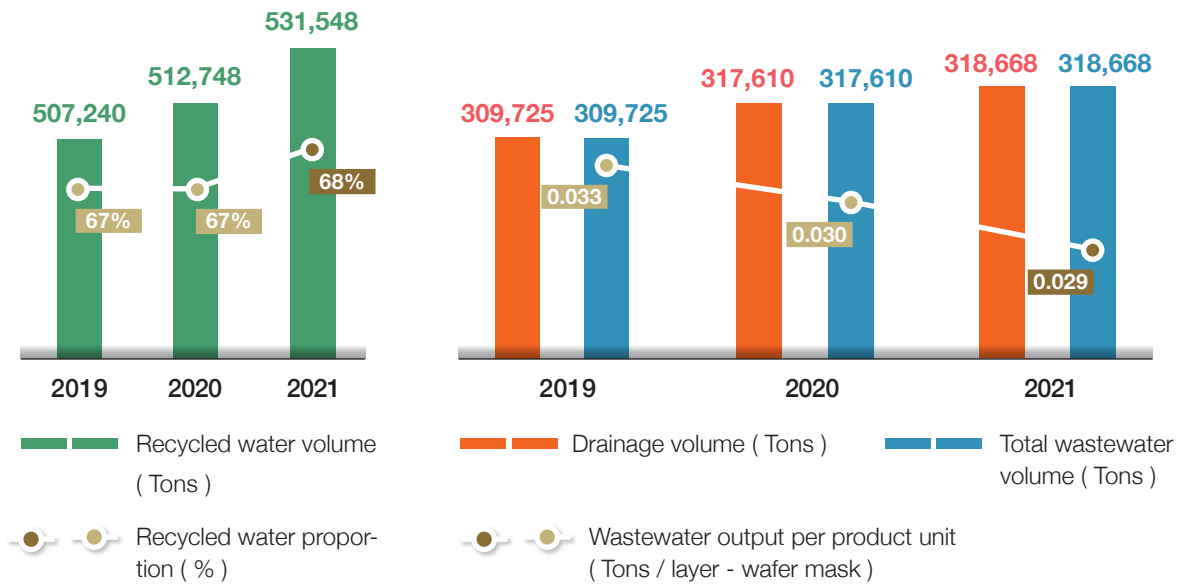
In 2021, for example, the cooling method provided for the two etching machines was changed from CW to PCW; the resultant recovery can reduce daily water consumption by about 15 tons, which in turn accounts for about 1.2%; over time, the cumulative annual water savings can be as high as 5,000 tons.

Volume of tap water used

In 2021, Nuvoton's total water consumption was about 389,290 metric tons, and water consumption per product unit was about 0.037 metric tons/layer-wafer mask. Water recovery of the overall plant was 531,548 metric tons, for a recovery rate of 68%.

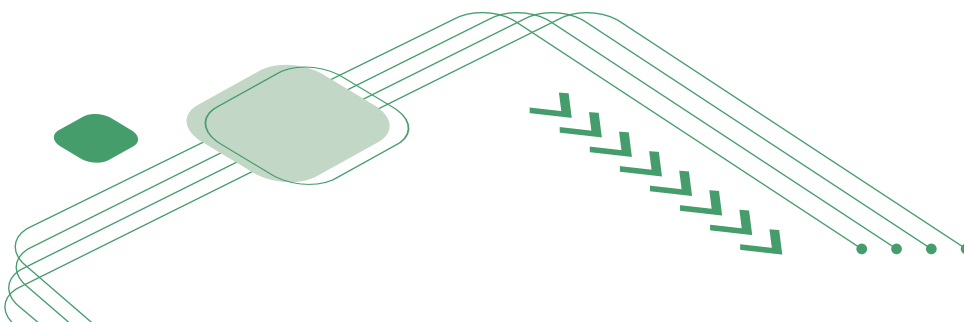


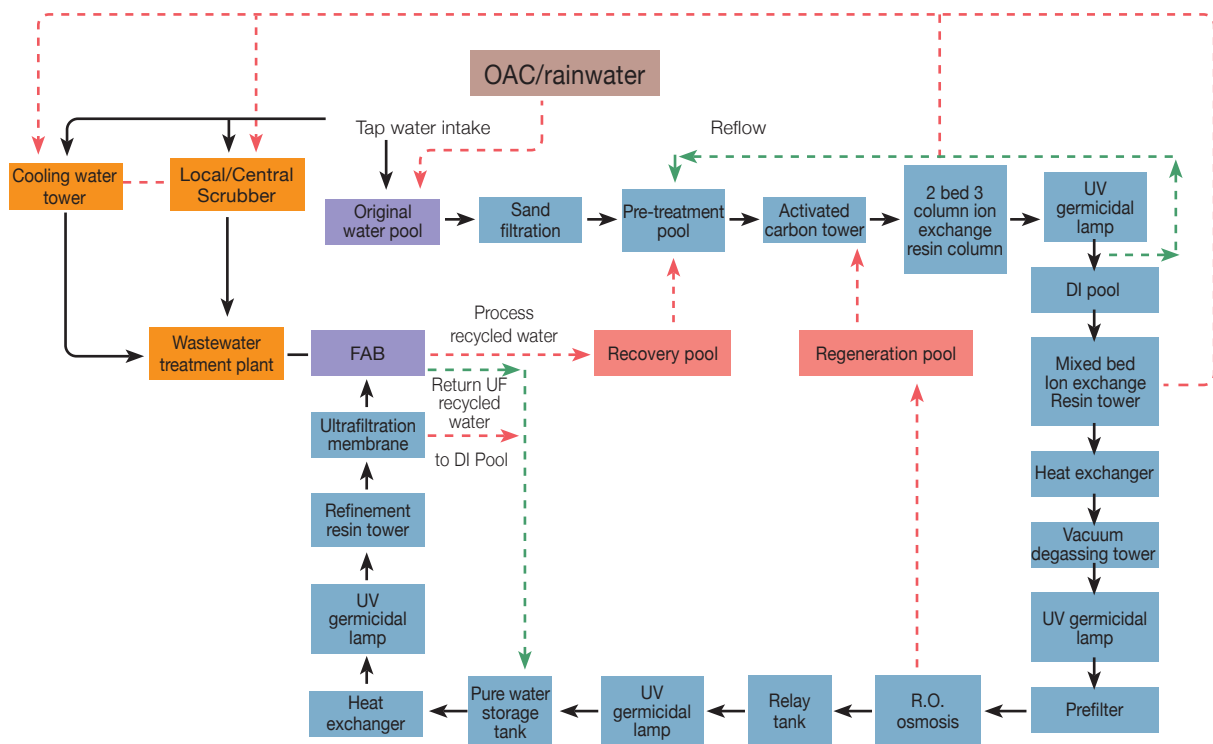
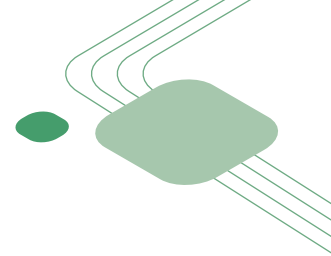
- Volume of tap water used ( Tons )
- Total water consumption of entire plant ( including recovery ) ( Tons )
- ○ Water consumption per product unit ( Tons/layer - wafer mask )



**Note:** The above data only includes the Hsinchu plant area.

Water conservation method		Estimated water savings (CMD)
2021 Implementation Plan	Pure water sand filtration tower - the relevant recycled water was used for backwashing of the sand filtration tower	50
	Change in machine cooling method	7.5
	Total	57.5
Future plans	Roof scrubber reduction - 15% reduction in water replenishment in the washed section	20
	The water replenishment interval of the washing period is to be extended from 3 minutes to 6 minutes	15
	Expanded implementation for change in machine cooling method	7.5
	Increase the amount of water discharged for recovery	10
	Adjust production status according to capacity conditions to conserve water	15
	Total	67.5





## 4.4 Reducing Pollution Emissions

### Waste Management

Nuvoton's waste management strategy minimizes waste disposal and maximizes waste resource recycling. We implement source management classification and reduction, reduce the amount of waste generated per unit of product and increase waste recycling. We also continue to reduce waste through methods such as extending the usage time of materials, optimizing production operations, and recycling packaging materials at the source of production, and we strive to reduce the amount of waste processed per product unit.

Nuvoton conducts in-plant audits based on its own management mechanism to ensure waste management in the plant. We seek to truly grasp the source of production and the output of each process and on-site operation in the factory. Furthermore, we seek to improve the process, strengthen the promotion of cleaner production, process waste reduction, and ensure compliance with laws and regulations. We carefully select legal waste disposal and recycling companies licensed by the government to properly dispose of waste; and we supervise the manufacturers' clean-up status. Each year, in accordance with the harmfulness of the waste, the amount generated, and the results of previous audits score, we evaluate the severity of the risk of environmental impact and the level of likelihood of treatment risk. From there, we use the severity and likelihood risk matrix and the regulations to review waste project requirements at least

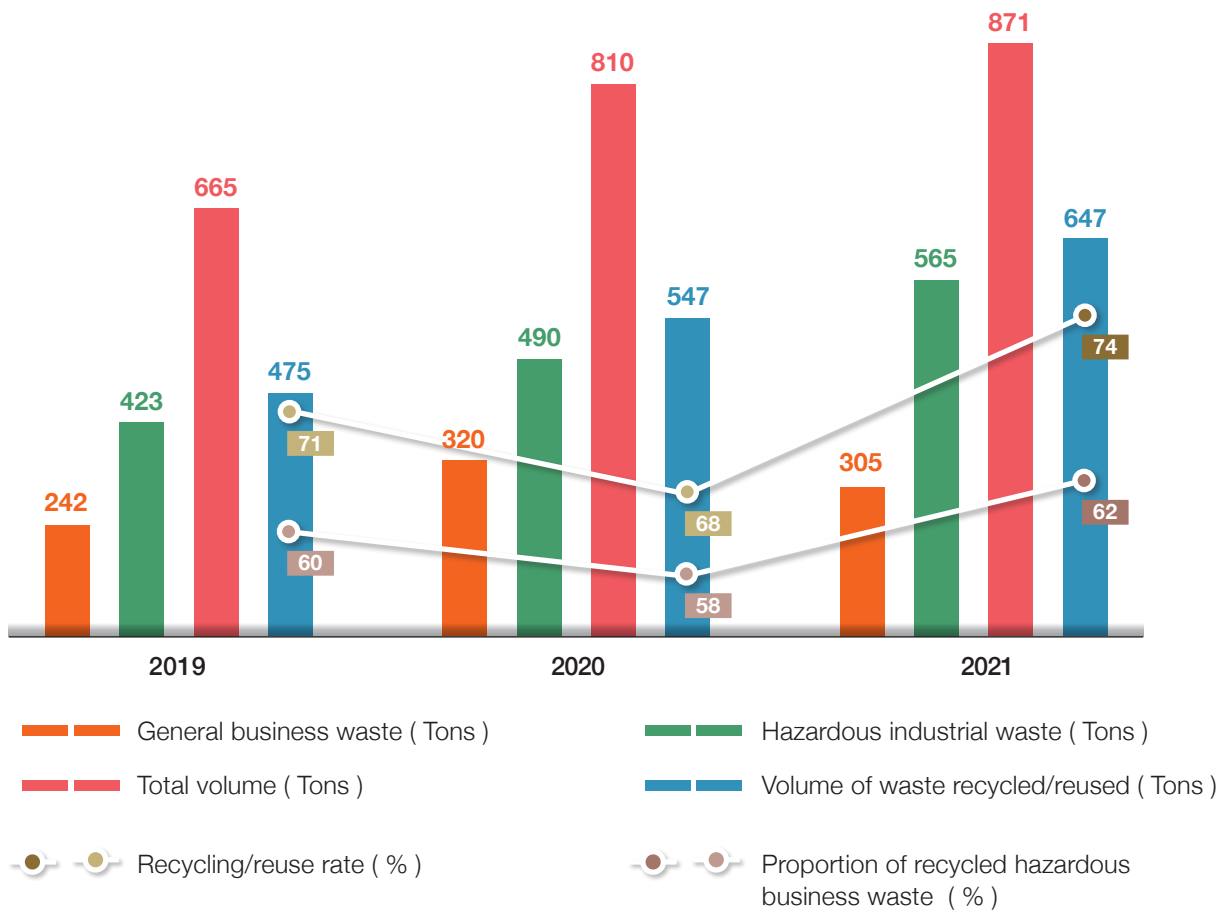
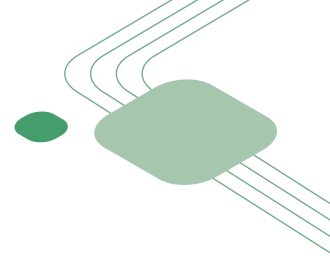
annually while setting the frequency of waste manufacturer audits; e.g., scheduling a different audit frequency every one to three years. Furthermore, depending on the assessment needs of new manufacturers, we formulate an annual waste manufacturer audit plan, auditing and clearing inspection items such as factory operations, treatment/reuse of plant treatment and storage, regular statements, documents, and other audit items. We further undertake real-time GPS operational trajectory tracking checks after manufacturer removal to ensure that the waste is properly handled, to effectively manage the risk of waste disposal, and to fulfill our responsibility for waste sources. In 2021, 22 clean-up and treatment plant processing audits were conducted to confirm their legality, and no manufacturers suspended their cooperation due to violations of laws and regulations or relevant rules.

		Likelihood			
		1	2	3	4
Severity	1	3 years	2 years	1 year	1 year
	2	2 years	1 year	1 year	1 year
	3	1 year	1 year	1 year	Half year
	4	1 year	1 year	Half year	Quarterly

The waste generated by Nuvoton can be divided into general business waste (including resource recycling waste, office output domestic waste) and hazardous business waste. According to 2021 statistics, the total waste treatment volume was about 871 metric tons, of which the general waste volume was about 305 metric tons (35%) and the hazardous waste was about 565 metric tons (65%). Compared with 2020, waste increased in 2021 and the use of raw materials rose due to the demand for production capacity, resulting in a boost in waste output. Waste per product unit of 0.082 kg/layer – wafer mask was comparable to 2020.

Nuvoton does not carry out waste input and output. The waste disposal method is to give priority to recycling, and waste that cannot be reused is disposed of by incineration and by burial in landfills. In 2021, the proportion of waste collection and reuse (including resource recovery) in the overall Company was 74%; the proportion of incineration was 21%, and the proportion of burial was 5%. The waste recycling rate in 2021 increased compared with 2020, due to the recovery effect resulting from the addition of three Clean machines for sulfuric acid.





**Note:** The above data only includes the Hsinchu plant area where the main business waste is generated, and does not include the offices that only generate domestic waste.

## Explanation of Nuvoton's Waste Reuse/Recycling Process Flow

Sulfuric acid waste



Manufacturers recycle and dilute it into industrial grade dilute sulfuric acid for industrial use (not for use in drinking water treatment, pharmaceuticals, or fertilizer additives)

Hydrofluoric acid waste



Manufacturers recycle the raw materials for industrial use of sodium fluorosilicate, for application in fluxes

Isopropanol waste



Manufacturers recycle and distill it into industrial-grade isopropanol

NMP waste



Manufacturers recycle and distill it into industrial grade NMP

Scrap chemical barrels



Manufacturers recycle and reuse after cleaning, or after crushing, as plastic raw materials or glass raw materials

Scrap photomasks



After the manufacturer cleans and removes the pattern, it is produced into recycled photomasks or optical materials

Scrap metals



Manufacturers recover precious metals and other metals after treatment

Fluorescent lamps



Manufacturers recover metals, non-metals, and glass after processing

Scrap mercury lamps

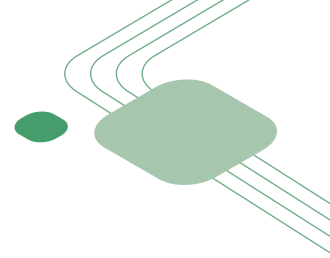


Manufacturers use mercury distillation equipment for processing, distilling the mercury for reuse

Recycled waste



Waste paper, glass, iron and aluminum, styrofoam, aluminum foil bags, plastic bottles and waste plastics are all handed over to recycling manufacturers for reuse



## ■ Removal of Photoresist Raw Materials and Reduction of Waste Liquids

Nuvoton's photoresist removal waste liquids rank second in the amount of waste generated. Since 2014, we have faced the problem of de-industrialization of the reuse product market and we cannot find a cooperative manufacturer for reuse. Consequently, we have changed our approach from physical treatment to incineration treatment. Since 2018, the equipment has been improved, and the operating conditions are optimal, we have vigorously promoted the removal of photoresist source and reduction of waste liquids, and reduced the amount of photoresist removal and photoresist waste liquid produced.

Nuvoton's measures to promote the reduction of photoresist raw materials and waste liquids include



Formulating an optimal acid replenishment level



Increasing the tightness of the upper cover to reduce the amount of evaporation



Installing a guide angle to collect condensation on the upper cover to reduce the amount of waste liquid droplets



Adjusting the flow rate of washing water spray while installing a partition

Specific benefits are based on the base year of 2017

### Raw materials

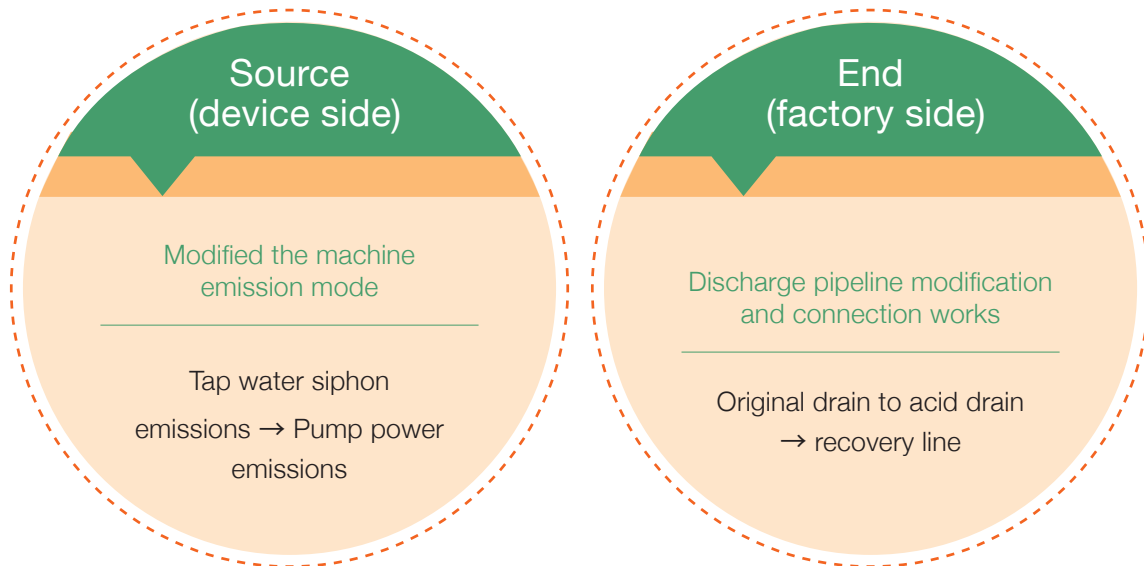
The amount of photoresist removal per product unit was substantially reduced from 12.6 to 8.24 g/layer-wafer mask; and the unit consumption was reduced by 35%. 156 metric tons of raw materials have been reduced.

### Waste liquids

The volume of photoresist waste liquids produced per product unit was substantially reduced from 17.1 to 8.65 g/layer-wafer mask; and the unit production was reduced by 50%. 304 metric tons of waste liquids have been reduced.

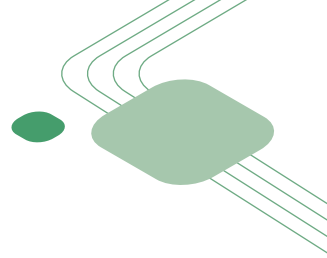
### Clean machine H<sub>2</sub>SO<sub>4</sub> recycling

Nuvoton added three Clean machines for H<sub>2</sub>SO<sub>4</sub> in 2021, and outsourced reuse to maximize resource recycling. We pushed back the amount of sulfuric acid recovered per product unit (layer-wafer mask), excluded production capacity factors in 2021, and increased the waste sulfuric acid recovery by 31 metric tons compared with 2020.



## Air Pollution Control

Nuvoton adheres to government laws and international regulations for air pollution prevention and emissions, and is committed to continuously reducing pollutant emissions. The pollutants produced by Nuvoton's manufacturing process include volatile organic compounds (VOCs), nitrogen oxides, sulfur oxides, ammonia, chlorine, hydrochloric acid, nitric acid, phosphoric acid, and so on. For our air pollutant treatment strategy, we first carry out source control, optimize the amount of process consumption, reduce the production of air pollutants, and the resulting process exhaust gases. We do so partly by means of on-site air handling equipment (Local Scrubber) to carry out the first stage of high-concentration and effective treatment. We then then separate according to the characteristics of the exhaust gas and seal and collect it to the central air pollution control equipment (Central Scrubber) for the terminal treatment of the second stage processing. In addition to close monitoring within the plant, a certified laboratory is also commissioned every year to conduct testing and report the test results to the competent authorities. Test items include non-methane hydrocarbons (NMHC), acid-base gases including sulfuric acid (H<sub>2</sub>SO<sub>4</sub>), hydrochloric acid (HCl), nitric acid (HNO<sub>3</sub>), hydrofluoric acid (HF), phosphoric acid (H<sub>3</sub>PO<sub>4</sub>), chlorine (Cl<sub>2</sub>), and ammonia (NH<sub>3</sub>). The actual test results of Nuvoton over the years show that the concentration of air pollutant emissions is lower than the exhaust gas emission standard.



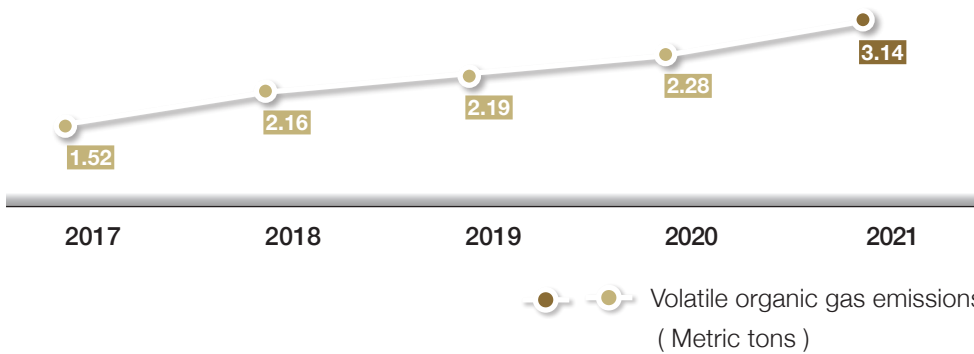
The air pollutant treatment system of Nuvoton operates 24 hours a day, 365 days a year, and is monitored and treated continuously to maintain normal operations and provide treatment according to the characteristics of exhaust gases:

# 01

Exhaust gas featuring flammability, toxicity, and FCs is specially treated by adsorption, electric heating or washing facilities in the on-site air treatment equipment at the end of the process equipment to reduce the hazard. in the exhaust. According to the acid and alkali nature, it is discharged to the central waste gas scrubber for neutralization treatment.

# 02

Exhaust gas containing volatile organic substances is first adsorbed by a zeolite rotor and then discharged to the direct-fired oxidation furnace for incineration; and the organic waste gas with high boiling point is collected by condensation at the temperature difference. Every year, emissions are tested regularly and the emissions are lower than the regulatory limit of 0.6 kg/hr. The total emissions from continuous monitoring of volatile organic compounds in 2021 were 3.14 metric tons.



## Wastewater management

Nuvoton’s wastewater primarily encompasses process wastewater and domestic wastewater. Process operational wastewater sources can be mainly divided into washing, film generation, etching, development, diffusion, and other processes. These in turn can be divided into acid and alkali wastewater, fluorine-containing wastewater, and grinding wastewater. According to the characteristics of acid-alkali neutralization or fluorine-containing wastewater, we first add calcium chloride, coagulation precipitation and other related treatment technologies to match each other, so that it meets the Park’s pipe standards. This is conveyed to the Hsinchu Science Park’s sewage treatment plant for treatment, and then discharged to Keya Creek using special pipes. Domestic wastewater is discharged directly through the sewer to the sewage treatment plant in the Park.

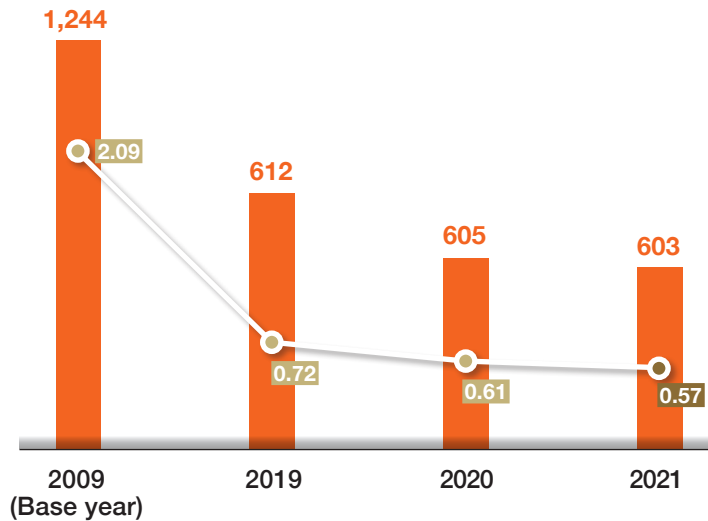
In 2021, the sulfuric acid recovery for etching machines was evaluated and the result was that three machines recovered waste sulfuric acid, which can increase the amount of waste sulfuric acid recovered by 4000L per month. This is equivalent to a reduction of the amount of wastewater by 4,000L/month, and it can also reduce the amount of liquid caustic soda by about 4.5 tons/month.

## Critical Chemical Raw Materials

Based on Nuvoton 's 2009 carbon footprint inspection results, it was found that the impact of nitrogen and sulfuric acid use provided by suppliers on the overall product life cycle carbon emissions was relatively significant. We have listed these two chemical raw materials as the main targets of long-term monitoring and reduction, and set 2009 as the base year to actively reduce their use. Thanks to focused efforts, we have achieved remarkable results relative to the base year.

### Nitrogen usage

Nitrogen usage per product unit in 2021 was 0.57 m<sup>3</sup>/layer-wafer mask, which was reduced by 72.6% compared to the base year 2009.

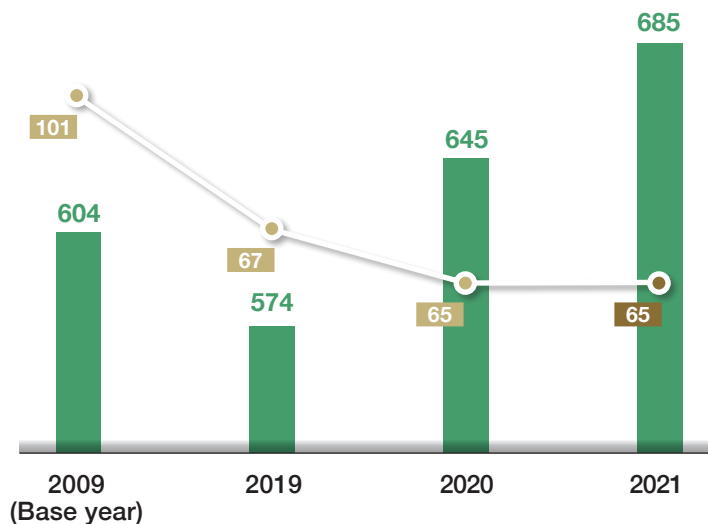


■ Nitrogen usage ( 10,000 cubic meters )

● Nitrogen usage per product unit ( m<sup>3</sup> /layer-wafer mask )

### Sulfuric acid usage

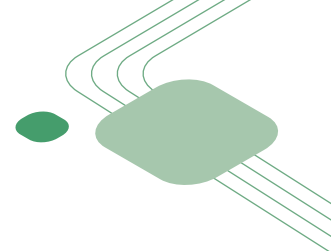
In 2021, the usage of sulfuric acid per product unit was 65 g/layer-wafer mask, reduced by up to 35.9% relative to the base year 2009. (The amount of sulfuric acid used per product unit was 101g/layer - wafer mask.)



■ Sulfuric acid usage ( Metric tons )

● Sulfuric acid usage per product unit ( g/layer-wafer mask )





## 4.5 Development of Green Products

### Green Product Policy

In response to international environmental trends and customer needs, Nuvoton is committed to designing green products with low toxicity, low carbon and low energy consumption, so as to enhance green competitiveness and grasp global business opportunities. This policy applies to all product-related activities of Nuvoton, which extends from the design stage within the Company to the procurement, manufacturing and transportation stage of external suppliers, and promotes and implements green concepts into the overall value chain. Project planning, implementation, verification and action are carried out in the PDCA management cycle at each stage to ensure that each phase is in line with policy norms and objectives. In addition, making employees understand the importance of environmental protection is also one of the elements of our policy, and green concepts are integrated into daily work through the arrangement of education and training and continuous promotions and communication.

Since 2008, Nuvoton has systematically established the QC 080000 product hazardous substance management system. We will coordinate the management of all green product-related matters inside and outside the Company, and will coordinate business, procurement, research and development, manufacturing and other units in the product design, production, and shipment stages; and we will and effectively monitor the management process of environmental product development. This must include ensuring the efficacy of the implementation of Nuvoton's green policies by undertaking evaluation and introduction of compliance with international regulations and customer environmental protection requirements; establishment and implementation of customer green environmental protection directives and requirements; promotion of continuous improvement projects for green products; and control of hazardous substances and audit of green products. Therefore, we ensure that the products we design, manufacture, and sell comply with or exceed international product environmental regulations. Furthermore, we require upstream raw material suppliers and downstream packaging and testing industry members to work together to reduce each type of impact that their products have on the environment.



**EU Restriction of Hazardous Substances Directive (RoHS 2011/65/EU)**

Restricted products include lead (<1,000 ppm), cadmium (< 100 ppm), mercury (< 1,000 ppm), hexavalent chromium (< 1,000 ppm), polybrominated biphenyls (< 1,000 ppm), PBDEs (<1,000 ppm), DEHP (< 1,000 ppm), BBP (< 1,000 ppm), DBP (<1,000ppm) & DIBP (<1,000ppm).



**Halogen-free requirements for electronic products**

In general, customer halogen-free requirements are <900 ppm of bromine and chlorine in the product and total content of <1,500 ppm. The products of Nuvoton can meet the above requirements.



**EU Directive on the Registration and Regulation of Chemical Substances (EU REACH)**

For hazardous substances published by THE EU REACH and any Substance of Very High Concern (SVHC) that has been successively announced, Nuvoton's products can meet the requirements of these regulations.



**Perfluorooctane sulfonic acid (PFOS) limiting criteria**

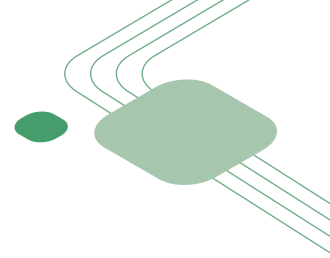
Nuvoton prohibits the use of raw materials containing PFOS in the process.

In addition to today's international laws and customer requirements, Nuvoton also continues to pay attention to the possible future regulatory requirements and prepare for them. Throughout 2021, the full range of products did not have any violations of laws or regulations, in line with international regulations and customer requirements.

In addition to today's international laws and customer requirements, Nuvoton also continues to pay attention to the possible future regulatory requirements and prepare for them. Throughout 2021, the full range of products did not have any violations of laws or regulations, in line with international regulations and customer requirements.

## ■ Hazardous Substances

Nuvoton strives to design, purchase, manufacture, and sell products free of harmful substances to comply with international regulations and meet customer needs. Furthermore, we strive to protect the environment in order to fulfill our social civic responsibilities. Nuvoton has established a list of controlled substances in accordance with international environmental protection regulations and the needs of major customers, including prohibited substances, restricted substances, and declarable substances, and we have revised them year by year according to the current situation.



Nuvoton's new materials assessment process must confirm that the newly developed products and materials meet Nuvoton's hazardous substance management procedures and environmental safety and health requirements. At the same time, in terms of procurement and supplier management, Nuvoton will also require raw material suppliers and outsourcers to sign a "Certificate of No Use of Hazardous Substances" and provide third-party test reports annually according to demand to ensure that their products meet international environmental protection requirements. In addition to managing the materials and process raw materials in the factory through the supplier's source, Nuvoton conducts annual sampling of the hazardous substance content of wafers and ICs. This is carried out by an independent third-party unit to measure and monitor the prohibited substances that have environmental impact and harmful effects on raw materials and products.

Under strict self-regulation, Nuvoton's standard requirements are all recognized by customers. Among these, Nuvoton has become a Green Partner recognized by SONY since 2009. We have obtained SONY Green Partner Verification, and Nuvoton continues to pass regular verifications to this day.

#### ◆ IECQ QC 080000 Hazardous Substances Management System Verification

In 2008, Nuvoton obtained IECQ QC 080000, the hazardous substance process management standard developed by the International Electrotechnical Commission (IEC) in accordance with its electronic parts quality assessment system. It is based on ISO 9001 and IATF 16949 management systems to reduce or eliminate harmful substances contained in the organization's products in a process-oriented manner. Furthermore, we have undertaken systematic management of hazardous substances to reduce or avoid the generation of hazardous substances, while meeting the special needs of RoHS, REACH, WEEE and other customers, and completed IECQ QC 080000 in 2019: 2017 transition audit to ensure the effective operation of the hazardous substances management system.



# Best Workplace Creating a Society of Common Prosperity

- ▶ 5.1 Human Resources
- ▶ 5.2 Employee Rights Protection
- ▶ 5.3 Salary and Benefits
- ▶ 5.4 Talent Cultivation
- ▶ 5.5 Occupational Safety, Health, and Wellness
- ▶ 5.6 Public Welfare and Charity Events



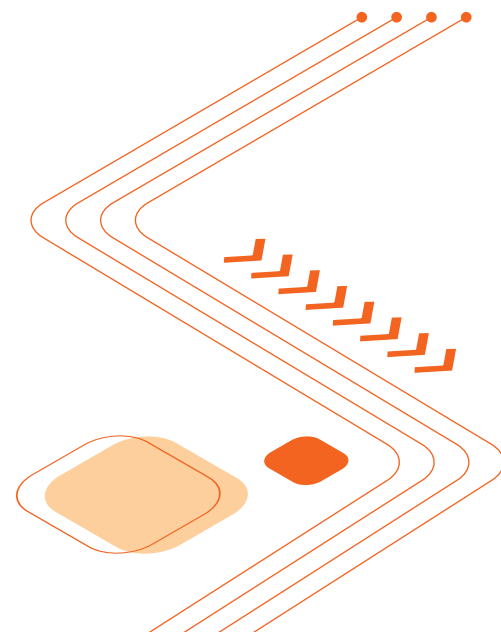
## Key Stakeholder Response:

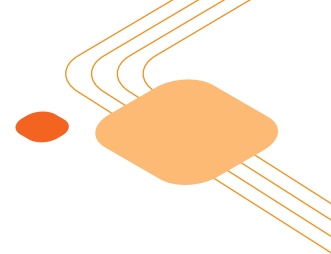
Employees

Suppliers

Government  
agencies

Local  
communities





## Management approach for materially topics: Occupational health and safety

### Significance

The physical and mental health and safety of employees is the most important management priority of the Company and the highest priority in all our operational activities. We are committed to complying with international advanced safety, health standards, and health promotion concepts.

### Policies and commitments

We have a commitment to provide and maintain a working environment that is in line with the provisions of the Law and industrial practices and to continuously improve it. We endeavor to eliminate any injuries that may cause illness to individuals, and implement the concept and attitude of LOHAS in our care of employees while striving to create a happy enterprise.

### Goals

- ▶ Building a healthy and safe working environment is the cornerstone of sustainable development, with "zero occupational accidents" as the management goal of occupational safety, hygiene, and health promotions.

### Grievance

[See Chapter 1.3 Stakeholder Communication and Materially topics of 2021](#)

### Evaluation of the Management Approach

Conduct annual management review meetings to track and review performance and results and discuss the achievement of goals, to continuously improve and optimize management policies.

### Specific actions

- ▶ In 2021, 84 safety and health education and training sessions were conducted, with 1,610 people participating.
- ▶ In 2021, 66 emergency response drills were conducted including fire rescue, chemical leakage, gas leakage, and emergency evacuation.
- ▶ Contractor management and operation safety control: strengthen operational safety precautions and emergency response procedures, and combine routine inspection mechanisms to implement safety policies using mobile management. The disabling injury frequency rate among contractors in the past five years has been zero.
- ▶ The recordable occupational injury rate (disabling injury frequency rate) of employees was 1.74, an increase of 1.03 compared with the previous year.
- ▶ The recordable occupational injury rate (disabling injury frequency rate) of employees was 0.69, a decrease of 0.02 compared with the previous year.

## 5.1 Human Resources

Talent is not only an asset of the Company but also the foundation of the sustainable development of our business. In terms of employee management policies, Nuvoton provides competitive salaries and benefits, training and development, and a comfortable working environment. In addition, we provide a variety of diverse internal communication mechanisms to take full advantage of the opinions of staff. There is also a dedicated unit to respond quickly to employee opinions, and we have established favorable and unimpeded communication channels so that employees can work in an open environment and atmosphere.

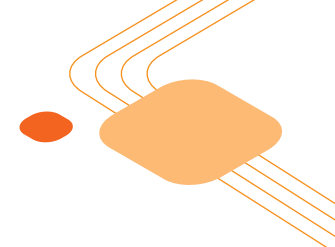


### Workforce Structure

In 2021, Nuvoton had 1,467 employees. In addition to the designation of contract personnel as non-regular employees, staff and workers are all regular employees accounting for more than 99% of the total personnel; there are no part-time personnel. The Company has 160 supervisors, 925 specialists, and 382 technical staff. Among them, we also employ 14 employees with physical or mental disabilities; meanwhile, female staff account for about 44 % of the total number of employees. The ratio of men to women is about 3:1 among supervisors and specialists; this is mainly because the majority of students enrolled in engineering departments in related majors in Taiwan are still male. In terms of age distribution, Nuvoton adheres to the provisions of Taiwan's Labor Standards Act and does not employ persons under the age of 15. In terms of academic qualifications, about 38% of have a master's degree or above.

		Male	Female	Total
<b>Full-time employees</b>		814	643	1,457
<b>Contract employees</b>		9	1	10
<b>Nationality</b>	Taiwan nationality	806	571	1,377
	Non-Taiwan nationality	17	73	90
<b>Non-Taiwan area employees</b>		1,875	265	2,140
<b>Employee category</b>	Supervisory personnel	139	21	160
	Specialist personnel	652	273	925
	Technical personnel	32	350	382
<b>Total</b>		<b>791</b>	<b>294</b>	<b>1,467</b>





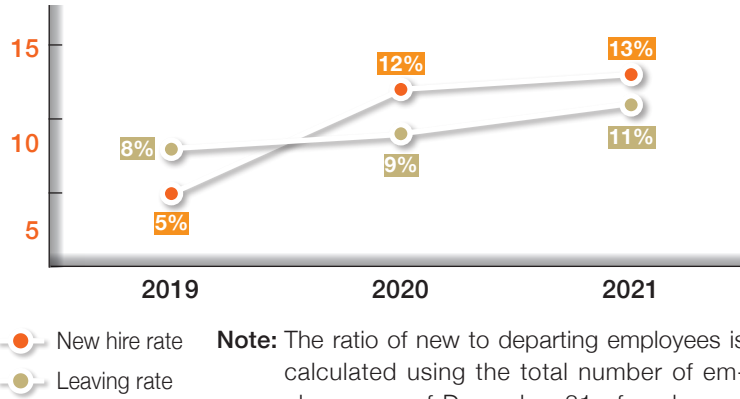
		Male		Female		Subtotal	
		Number of individuals	Percentage	Number of individuals	Percentage	Number of individuals	Percentage
Age	Below 20 years	0	0%	0	0%	0	0%
	21-30 years old	125	15%	126	20%	251	17%
	31-40 years old	279	34%	174	27%	453	31%
	41-50 years old	266	32%	201	31%	467	32%
	51 years and over	153	19%	143	22%	296	20%
Education	Doctoral Degree	20	2%	1	0%	21	1%
	Master's degree	456	55%	93	14%	549	39%
	College and university	334	41%	291	45%	625	43%
	High school and vocational	8	1%	237	37%	245	17%
	Below high school	5	1%	22	3%	27	2%

## ■ Talent Recruitment

Nuvoton has always regarded employees as its most important asset, attracting candidates to join Nuvoton with competitive salaries and benefits, comprehensive education and training, and a comfortable and safe working environment. Nuvoton complies with the provisions of the Labor Standards Act and follows the labor human rights provisions of the Responsible Business Alliance (RBA) Code of Conduct when hiring new employees (including those involving coercion, indenture, debt servicing, contractual bondage, slavery, and human trafficking), and we do not hire persons under the age of 15 or involuntary workers. All employees of Nuvoton are selected publicly and we comply with the non-discrimination norms of the Employment Service Act. We do not discriminate on the grounds of race, class, language, ideology, religion, party affiliation, nationality, place of birth, gender, sexual orientation, age, marriage, appearance, facial features, physical or mental disabilities, zodiac sign, blood type, or past union membership. Where there are express provisions in other laws, such provisions prevail.

In addition, Nuvoton cooperates with colleges and universities in campus talent recruitment activities every year, and business units also cooperate with laboratories on research topics. Also, for production line personnel, we are in active contact with neighboring counties and cities and service units to take the initiative to recruit outstanding talent.

For departing employees, we conduct exit interviews and undertake departure analysis for each center and division-level unit every quarter, and propose improvement measures and tracking for high-risk units and reasons for leaving.



● New hire rate  
● Leaving rate

**Note:** The ratio of new to departing employees is calculated using the total number of employees as of December 31 of each year. (Number of people at the end of the year/ number of new entrants & departures)

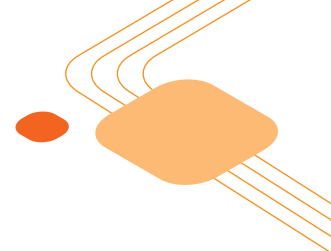
## 5.2 Employee Rights Protection

Nuvoton has formulated a code of conduct for corporate social responsibility to ensure that employees enjoy equal rights and interests, and the Company does not discriminate against employees in recruitment and actual work on the basis of race or nationality, color, age, gender, sexual orientation, gender identity, disability, pregnancy, beliefs, political affiliation, group background, veteran status, protected genetic information, or marital status. During 2021, Nuvoton did not use child labor, and did not receive any complaints of discrimination or forced labor.



In order to establish immediate communication channels with staff, Nuvoton holds regular labor-management meetings every quarter. We held four labor-management meetings in 2021, mainly discussing topics including the annual calendar (including: unified schedule holidays) as well as the taking of two weeks of flexible working time within a four-two shift schedule.

Each factory office of Nuvoton has an (anonymous) comment box to provide direct and indirect employee feedback opinions. We have also set up multifunctional online complaint channels, encompassing: general affairs response, CSR ethical management reporting, sexual harassment cases, and other complaint mailboxes. These can engage in direct response with the head of the Human Resources Office and the representative of the CSR Committee. In addition, the members of the Employee Welfare Committee of Nuvoton also regularly solicit opinions on employee welfare-related activities.



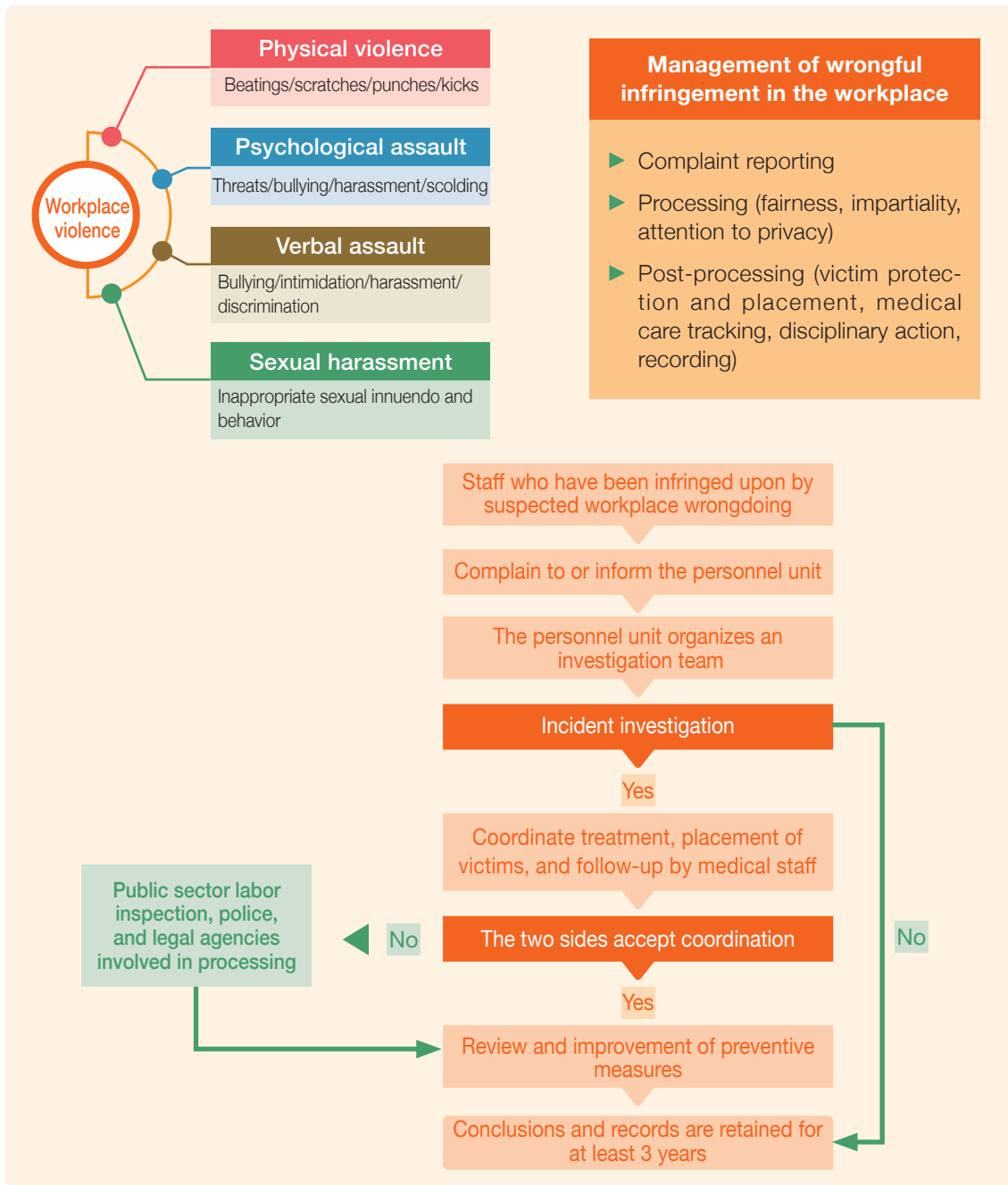
## Parental Leave Reinstatement and Retention

We follow the rights of workers under the Gender Equality in Employment Act, and female and male employees can apply for maternity and paternity leave. 15 female employees applied for maternity leave in 2021, and the proportion of returning to work after the expiration of the leave was nearly 87%; 33 male employees applied for paternity leave, and the proportion of returns after the expiration of the leave reached 100%. Female employees who have not returned directly to their posts after the expiration of the above-mentioned maternity leave are applying for parental leave without pay in accordance with the Gender Equality in Employment Act. In 2021, the proportion of employees returning to work after the parental leave attained 67%, and the retention rate of employees who returned to work after the end of their parental leave in the previous year also reached 100%.

		2019			2020			2021		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Reinstatement rate	Number of individuals to be reinstated	0	9	9	0	7	7	1	8	9
	Actual number of individuals reinstated	0	7	7	0	5	5	0	6	6
	Reinstatement rate	0%	78%	78%	0	71%	71%	0%	75%	67%
Retention rate	Actual number of individuals reinstated	1	12	13	0	7	7	0	7	5
	Number of individuals still employed after 1 year of reinstatement	1	12	13	0	6	6	0	5	5
	Retention rate	100%	100%	100%	0	86%	86%	0	71%	100%

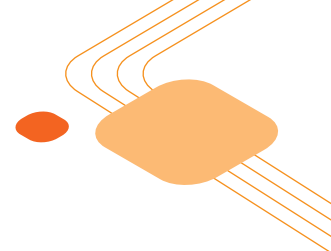
## Prevention of Wrongful Infringement in the Workplace

For the prevention of wrongful infringement in the workplace, education and training of supervisors and staff are carried out from the cloud to teach them to recognize worker bearing and behavioral changes and those who may have a potential risk of violence, and the ability to deal with the occurrence of illegal infringements in the workplace. We keep communication channels open, prioritize protecting the establishment of handling procedures to protect employees from harm, and engage in followup and evaluation with external professional psychological counseling or medical assistance and by relevant professionals. We seek to establish a working environment and culture of safety, dignity, non-discrimination, mutual respect and tolerance, and equal opportunities in the Company, to prevent all employees of the Company from encountering workplace violence due to the performance of their duties; there was a 100% completion rate in 2021.



## Employee Assistance Program (EAP)

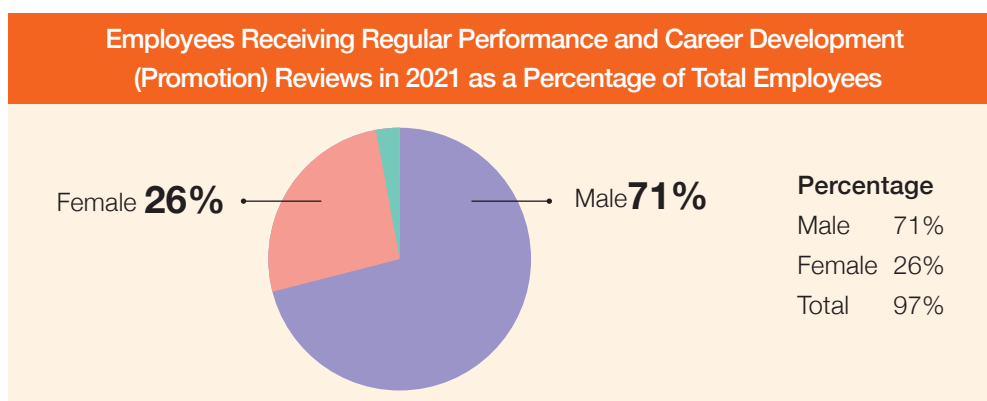
In order to establish a positive mentality among employees and effectively solve confusion regarding their work and life, we engage in particular cooperation with external professional mental health agencies to build a psychological assistance system for employees, pay attention to their mental health, and improve their happiness indicators. At the same time, our annual health examination questionnaire compiles fatigue and stress indexes, identifies high-risk staff based on statistical results, arranges individual interviews by a nurse practitioner, and makes referrals to the Employee Assistance Program (EAP) if necessary. We offer staff further assistance from professional psychological counselors. Each colleague has access to at least three hours of free consultation service every year. In this way, we encourage them to seek immediate help when encountering difficulties to avoid regrets. Consultation content is completely confidential, thereby encouraging staff to make more use of it.



## 5.3 Salary and Benefits

### Salary and Career Development

Nuvoton stipulates a reasonable fixed salary according to market salary levels, and stipulates in the Company's Articles of Incorporation that if the Company has a profit, it should allocate no less than one percent of the profit as employee remuneration to ensure that the Company's overall salaries are competitive. In addition to linking the Company's business performance with employee compensation, Nuvoton provides a comprehensive career ability training program, regularly evaluates the performance and ability development of staff, gives corresponding salaries according to performance, and has this serve as the basis for promotion. We further provide a dual-track system for supervisory and specialist positions so as to improve the promotion channels of staff and motivate them to grow in tandem with the Company.



Nuvoton employees are paid in accordance with the labor law minimum wage, and in 2021 our female-to-male basic salary ratio was 0.75:1. This was primarily because among specialists, the ratio of men to women is about 3:1, and students enrolled in engineering departments of related majors are still mostly men. The salaries of specialists are higher than those of technicians, so the basic salary ratio of women and men is slightly different.

Number and Salaries of Full-Time Non-Supervisory Employees			
Item	2020	2021	Comparison of between 2020 and 2021
Number of full-time non-supervisory employees	1,379	1,405	1.85%
"Average salary" of full-time non-supervisory employees	TWD 1,273,000	TWD 1,691,000	24.72%
"Median salary" of full-time non-supervisory employees	TWD 1,098,000	TWD 1,341,000	18.12%

## ■ Diversified Welfare System

In terms of Nuvoton's welfare programs, in addition to providing various insurance benefits and pension allocations in accordance with local laws and regulations, Nuvoton also provides group insurance that is superior to the law to ensure the safety of staff at work and in life. In terms of encouraging employees to marry and have children, we provide pregnant women with car seats, nursing rooms, diaper bags, maternity leave, paternity leave, family care leave, marriage leave, and Welfare Committee maternity gifts.



At the same time, in order to provide a working environment for the balanced development of employees' physical and mental development, and to implement leave management measures, we have implemented a pre-scheduled leave management mechanism to assist employees in properly planning their leave. We also actively remind staff to take leave, as they're entitled to, and promote the concept of a healthy workplace.



### ◆ Welfare Committee

Nuvoton has established a Welfare Committee, and staff select regional welfare committee members to handle employee welfare related operations through an election system. Annual plans and budgets are formulated each year to provide subsidies for marriage, childbirth, and funerals as well as accidents and incidents. Included separately are: New Year's vouchers, birthday gift certificates, organization of group activities, tours, club activities, and so on.

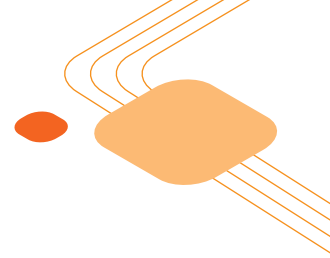
In addition, Nuvoton also continues to cooperate with manufacturers to inquire about mobile applications of discount merchants, providing functions such as electronic identification cards, locating special stores at any time (about 2,807 special offers), group purchases, and so on. This makes it more convenient for Nuvoton staff to enjoy such discounts, and ensures that employees can focus on their work while also enjoying discounts on food, clothing, housing, travel, education, entertainment, and so on.

### ◆ Employee Club Activities

Nuvoton staff have spontaneously formed different types of associations in the form of 18 different clubs. These include Charity Club, Cycling Club, Road Running Club, Basketball Club, Badminton Club, Volleyball Club, Billiard Club, Yoga Club, Bridge Art Club, Board Game Club, Aerobics Club, Landscaping Club, Mixed Sports Club, and the Internazionale Walking Club, and so on.







Through the subsidy fee and evaluation system, Nuvoton encourages these clubs to actively organize a range of activities, so that staff can enjoy a relaxed and unburdened off-the-job life through common interests or professional development within the Company. This aims to relieve the stress of work, promote health and vitality, and create a new possibility for communication channels between staff.

In response to pandemic conditions in 2021, 2nd generation Apple AirPods (wireless Bluetooth headset) were given out to staff.

### ◆ Programs to Encourage Parenting

If the problem of low birthrates in Taiwanese society is not paid attention to, this will extend into more serious social problems. Therefore, Nuvoton attaches great importance to this matter. In order to solve and alleviate the problem of Taiwan's low birth-rate, we encourage staff to marry and have children. In addition to providing maternity leave, paternity leave, family care leave, marriage leave, etc., that are superior to the regulations, we also provide monthly childcare subsidies for children aged 1-4, **with one colleague receiving a subsidy of TWD 240,000 for one child for four years.** This policy can ease the pressure of staff' lives. Some staff have given birth to a second child and also applied for subsidies, and in this way, we hope to reduce the burden on our staff.

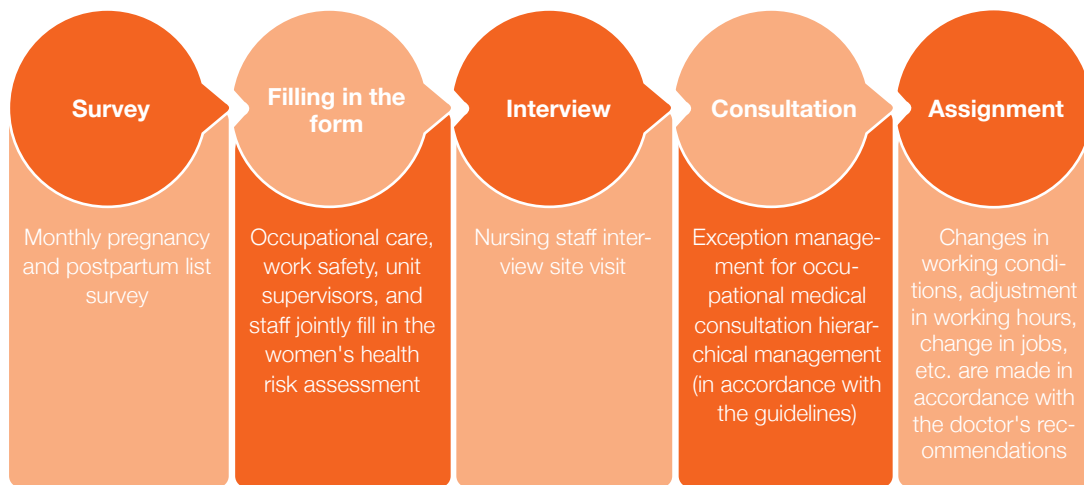


Altogether 122 staff applied in 2021, bringing the cumulative number of applicants to 140. The total disbursement amount was TWD 3.5 million.

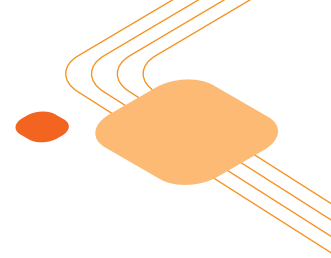
### Encouraging Family, Making the Workplace Mother-Friendly

01	02	03	04	05
The Company's breastfeeding room is comfortable and well-equipped. It has been certified as a masterpiece in terms of workplace breastfeeding rooms in Hsinchu City	To encourage families, pregnant staff receive attractive gifts with their "Mummy Manual."	Parking spaces for pregnant women	Pink cleanroom attire for identification	Maternity chairs

In addition, we also pay close attention to the work situation of each pregnant mother to ensure their health and safety. Every month, Nuvoton proactively investigates the conditions of pregnant staff and of female employees within one year of childbirth. We identify and evaluate hazardous substances and environments, such as specific areas that require yellow light or areas that are exposed to ionizing radiation or etching, and pregnant staff are immediately scheduled for transfers if they currently work in such areas. Meanwhile, pregnant staff that work night shifts are immediately rescheduled for day shifts. Appropriate mechanisms for such transfers have already been established. Follow-up arrangements for individual physician consultations are given regarding the assessment of pregnancy status, working environment, occupational hazards, and so on; and relevant health education and work suitability advice are provided as well as risk classification management. In response to the trend of declining birthrates and an aging population in Taiwan, the Company actively encourages employees to have children. To support staff who are pregnant or breastfeeding in the workplace, we provide special parking spaces for pregnant women, give practical gifts related to childcare, and arrange welfare measures such as nursing rooms with complete postpartum equipment, as well as maternity subsidies and so on. We additionally offer more comprehensive health protection and benefits.



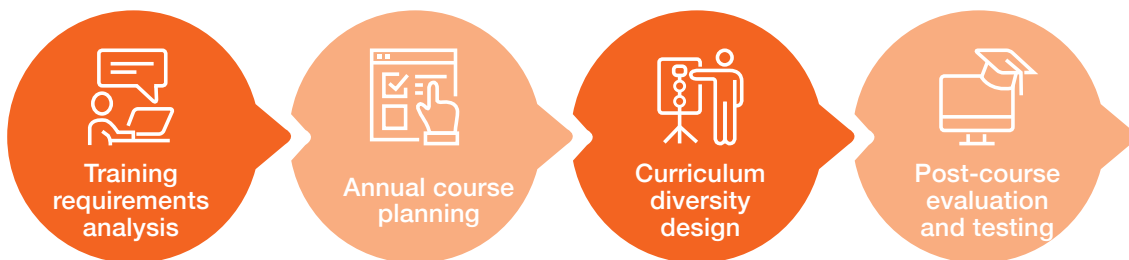
Physician occupational specialists visit onsite and identify hazards and set risk levels from environmental aspects and operations: advise immediate notifications and transfers for pregnant women working in areas with potential exposure to hazardous substances or in specific zones that require yellow light, areas that are exposed to ionizing radiation, or areas where wet etching is performed.



## 5.4 Talent Cultivation

Nuvoton's talent development policy takes the establishment of a learning organization as its starting point, and each employee is a dynamic learner of the organization. Nuvoton attaches great importance to the learning and development of employees. Through an annual survey and analysis of training needs, we design for different learning styles, provide a variety of learning channels, and offer diverse learning methods as we focus on enrichment and practical learning content that integrates internal and external learning and development resources, encourages active learning and heritage sharing. In this way, we provide employees with complete and continuous learning while encouraging the pursuit of knowledge and independent study. We are committed to providing a broad and diverse learning environment and development platform as we foster a working environment that is willing to share knowledge and mutual learning.

We provide a suitable training program according to the different functions and tasks of each employee, and provide a complete training course from the first time the new person arrives to help employees quickly integrate into the Company's culture and working environment. In addition, in order to enhance the learning of professional knowledge or skills of employees in different positions, the HR department assists the business and project plans of each functional unit, and arranges on-the-job training within the department according to their professional areas. In addition, the Company also encourages talent mobility through cross-unit job learning, stacking the diverse professional capabilities of employees. At the management level, management will arrange supervisor training and special lectures on the latest trends and dynamic developments of various domestic and foreign industries.



### ■ Diversified Learning Channels

Nuvoton provides a variety of learning channels and diversified development methods to meet each category of learning and growth needs of employees at all levels. Through the annual training demand survey, we can understand the learning needs of each unit. Arrangements include: learning on the job (on-the-job training, assignment of tasks or projects, job rotation), learning in the classroom (internal and external training courses/topic-based practical experience sharing lectures/digital learning), learning from others (job mentoring, peer learning) and other various learning and development methods. These are implemented in order to improve the personal performance of employees and stimulate their potential.

◆ On the job learning

Nuvoton has built a diversified and comprehensive education and training system according to the needs of different levels/positions and ability development from new recruits to senior executives, providing appropriate learning content for employees. There are various types of training, solid content, and an emphasis on interactive learning and joint discussions, with attention paid attention to post-course applications. This enables employees to continuously improve their knowledge and skills, in order to more effectively complete the tasks assigned by the Company.

Nuvoton's hours of training in 2021 totaled 36,079 hours, for 19,903 trainees and an average of 24.59 hours per employee.

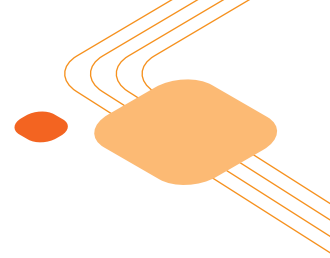
	Total hours (in-person + online)	Total number of trainees
Male	18,748	12,623
Female	17,322	7,280
Technical personnel	11,572	3,460
Supervisory personnel	3,393	2,634
Specialist personnel	21,105	13,809
<b>Total</b>	<b>36,079</b>	<b>19,903</b>



**New hire  
training**

In addition to 13 online courses for newcomers, an in-person newcomer training course is arranged to enable new talent to understand the corporate vision and culture, organizational overview, rules and regulations, and each business groups and its products. They further learn the basic knowledge and skills required for work, so that newcomers can become familiar with each Company business line and related operations as quickly as possible. At the same time, through a buddy system and newcomer support mechanisms, we will care for newcomers and provide them with necessary information and support to build fast and effective network connections and support systems for the newcomers in the early stages.





### Management training

In 2021, we held two ground-level supervisor training sessions. These were based on team communication and coaching, and provided practical tools for management of ground-level supervisors. For senior executives, in order to enable supervisors to grasp the latest trends and dynamic developments in domestic and foreign industries, we hold a "Thematic Practical Experience Sharing" advanced lecture series every quarter. Here, we invite and communicate with internal and external experts, so as to align the Company's development direction with the outside world.



### Technical training

In order to enhance the learning of professional knowledge or skills of employees in different positions, we assist the business and project plans of each functional unit in promotions, and arrange on-the-job training within the department according to their professional areas in each unit. In addition, we provide a variety of professional and technical training such as a range of courses, special talks, seminars, and experience sharing. This includes direct personnel training (workstation skills training), engineering, research and development, marketing/business, finance, import/export and procurement, information technology, legal affairs, and so on.







**General training**

We arrange general foundational training to comply with regulatory and corporate policy requirements. This includes Company vision/business mission, corporate culture/values, corporate social responsibility, customer satisfaction, quality management, environmental safety and health (environmental protection and fire drills) and other compulsory courses for all employees. There are no distinctions made in respect to employee level, position, or department function. Among them, we have arranged CSR related courses such as "CSR Practice Publicity" and "How to Implement Ethical Management." This is done in order to promote the business philosophy of "Fulfilling Social Responsibility," which we expect employees to implement in their daily work. In 2021, all staff of Nuvoton (including new employees) completed CSR-related courses and completed 100% of the training.



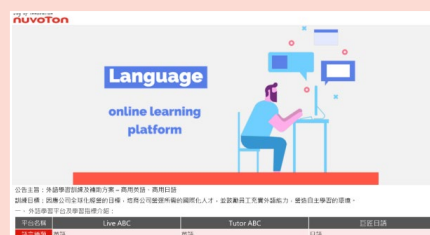
**Digital transformation seminars**

In line with the Company's strategic direction, we hold courses on tools related to digital transformation. We invite internal and external professional lecturers to teach these courses while importing software tool applications. In addition, we have held a special lecture on "Digital Transformation" where we invited the participation of the supervisor of each unit. This was aimed at accelerating the practical digital transformation operations of departments through learning and transformation.

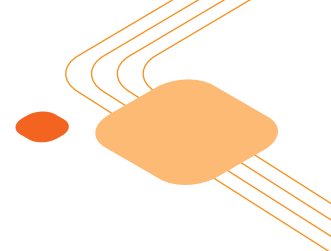


**Foreign language learning platform**

In order to improve the language abilities of our employees, we have introduced external English and Japanese online learning platforms and provided corresponding subsidy programs to increase employees' motivation for self-study and to cultivate multilingual talent in the organization.







## ◆ Classroom Learning

### Classroom Courses

To address the job skills required by employees, we have arranged lecturers to provide knowledge and practical experience sharing for specialized courses in the workplace. We systematically plan the learning and development map of each employee, carry out diversified cultivation programs, provide internal/external training resources, and encourage employees to continue to develop professional knowledge and cross-field learning.



In response to training requirement survey results, we offered in-person courses in 2021 including: specialized courses, new personnel training, management training, quality classes, general classes, and so on. We integrated employee growth with corporate development goals. In addition, we also organized thematic seminars to share practical experiences or lectures on industry and economic trends. This was done to enable staff to understand the latest developments in the industry, learn from external/benchmark companies and outstanding talent with the aim of absorbing new knowledge, expanding horizons and building networks in professional fields.

### Digital Courses

Since 2013, Nuvoton has introduced a cloud learning platform that encompasses: Innovation Academy, Cloud Academy, LoHAS College, Green Technology College, and various types of learning content. Through the establishment of this platform, staff have greater access to digital learning channels and resources and learning is no longer limited by time and space. The Company can integrate all training information on the platform to help training management and record tracking. Staff can also take courses according to business needs or their own interests, and each partner of Nuvoton can embrace challenges and consistently maintain enthusiasm for learning, while gaining insights into the pulse of society, learning faster than competitors, and creating a working environment that is willing to share knowledge and teach one another.



For the sake of pandemic prevention and uninterrupted learning, 70% of the in-person courses that were originally planned for 2021 were transferred to online formats after evaluation. At the same time, in order to increase the richness of online courses and after obtaining the consent of the lecturers, the original in-person course videos were also edited into online courses. This provided staff with multiple options.

## 5.5 Occupational Safety, Health, and Wellness

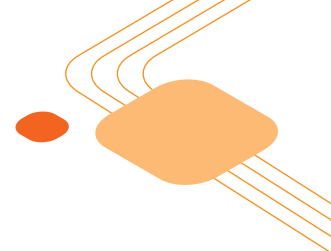
### ■ Occupational Safety and Health

Nuvoton has established an environmental safety management system in accordance with the requirements of the ISO 14001:2015 and ISO 45001:2018 standards. We take ISO 45001 as the basis for the Company's promotion of our occupational safety and health management system as we formulate management strategies and implement them. We obtained ISO 45001:2018 certification in 2019. In accordance with laws and regulations, we identify hazardous positions or work sites and carry out each management measures according to the hazard characteristics. This includes pre-employment and on-the-job education and training, work observation, work environment monitoring/measurement, health checks, and so on. Relevant personal health information is collected, processed or used in accordance with the Personal Data Protection Act and within the scope of the consent form signed by employees.

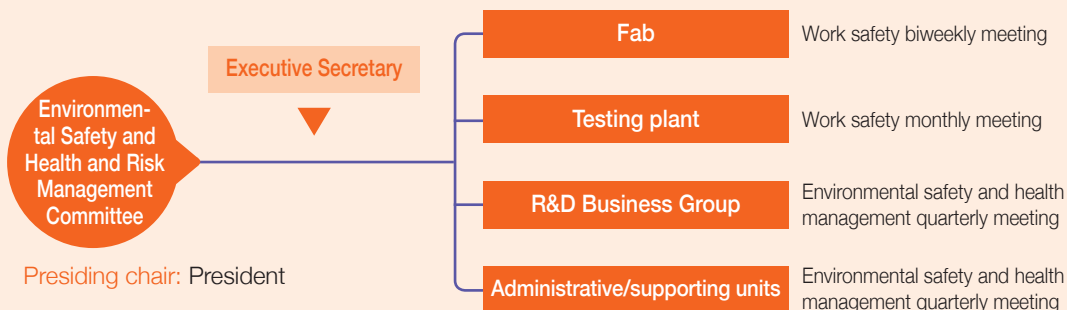
The occupational safety and health management system fully covers all workers in Nuvoton's operating locations (including nine non-Nuvoton employees and contractors residing in Nuvoton Technologies). This encompasses the required processes and their interactions and implementation, and it continuously follows the P-D-C-A approach and upholds a spirit of continuous improvement every year to maintain our occupational safety and health management system. We do so with the goal of building a good workplace, and putting an end to personnel hazards, environmental pollution, and property damage.

Nuvoton has established an Environmental Safety and Health and Risk Management Committee that regularly convenes each quarter. The president serves as the presiding chair of the Committee, and it also comprises occupational safety and health personnel, medical staff, and each responsible unit and labor representatives serving as members. Among these, the eight labor representatives selected from each unit account for 57% of the 14 members of the Committee. The Environmental Safety and Health and Risk Management Committee is in charge of Nuvoton's environmental, occupational safety and health issues. These in turn include the R&D progress of the of the target plan, compliance with laws and regulations, each occupational safety and health promotion item, prevention and health promotion in respect to occupational illnesses, pandemic prevention management, environmental safety and health management performance, and damage mitigation results; as well as continuous improvement programs and other issues, and the implementation of safety and health communication and improvement. In 2021, four committee meetings were held, the deliberations of the meetings were recorded, and the improvements were continuously tracked.

In addition, Nuvoton has set up an area industrial safety committee that is composed of four area industrial safety committees, doing so to promote a full range of industrial safety activities to enhance safety culture. Each area has different safety, health and environmental protection issues. Through the mechanisms of the different cycles of environmental safety and health meetings, we promote the continuous improvement of labor representation in each area and create a healthy and safe environment. Through comprehensive management and participation of all staff, we can achieve the effect of pre-prevention of incidents and losses in advance.



## Organization Chart of Environmental Safety and Health and Risk Management Committee



## In 2021, each area promoted scoring items for "Environmental Safety and Health Management Driving Performance"

Item evaluation	Wafer manufacturing unit	Testing unit	R&D unit	Administrative/ supporting units
Supervisor inspection and operation observation	V	V	V	V
Emergency response project skills test	V	V		
Participation rate in education and training	V	V	V	V
Environmental security system audit	V	V	V	V
Environmental security QA	V		V	
Unexpected event loss	V	V		V

## ■ Monitoring of the Operating Environment

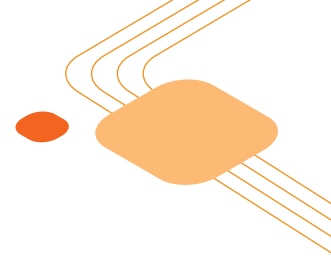
In order to establish quality standards for the working environment and provide a comfortable and healthy working environment for workers, the Company regularly implements operating environment monitoring in all Taiwan operating locations. This is done every six months in accordance with the "Labor Operation Environment Monitoring Implementation Measures," and we have drawn up a work environment measurement monitoring plan through exposure analysis before testing. Chemical sampling tests are carried out for workers located in areas with chemical exposure, to ensure that chemicals with high risk exposures are included in the monitoring. Testing operations are entrusted to the qualified testing agency announced by the government to seek the validity of the data. If monitoring data is abnormal, the industrial safety department will formulate relevant improvement plans or administrative management. In addition, Nuvoton has formulated various protection management plans for different working groups in accordance with laws and regulations. This encompasses hazard identification assessment, work suitability arrangements, and efficacy evaluations and improvement as we continuously promote rolling management, in the expectation that employees should work in a safe working environment. The results of labor operation environment monitoring are archived and retained by the industrial safety department as the basis for subsequent special health examinations of workers and the reference of the supervisors of each unit to prevent the occurrence of occupational illnesses in the factory.

In the first and second half of 2021, the number of chemical exposure risk monitoring points was 79 points in each half, and the monitoring results were all qualified.



## ■ Hazard Identification and Risk Assessment

In order to effectively prevent the occurrence of occupational incidents, Nuvoton has established "Environmental Safety and Health Risk Assessment Procedures" to conduct comprehensive hazard identification for routine or non-routine activities that may cause injury or accidents; to classify and manage the identified safety and health risks; and to distinguish the risk level according to the severity and frequency of hazard events while formulating risk control measures accord-



ingly. Each unit conducts risk level assessments according to its work responsibilities, processes, and systems. In evaluation of improvement measures for those with a “high risk” level or above, units with other risk levels can be used as reference indicators for continuous improvement or management plans. Improvement reduces risk in the following order of risk control measures: elimination, substitution, engineering controls, signs/warnings/administrative controls, and personal protective equipment.



To ensure effective implementation, we conduct regular internal audits and review them with the Environmental Safety and Health and Risk Management Committee. At the same time, before the temporary or permanent changes to the activities, products or services that may affect the environment, the safety and health of personnel, or in the event of an accident, the risk assessment operations will be re-assessed and the pre-implementation risk assessment of countermeasures to prevent recurrence will be carried out to ensure that no new hazard risks will be generated.

In the risk evaluation, the important thing is to control the change information in advance as it arises from a change in its environment or from a deviation in operating conditions from the original safety scope and control. Nuvoton requires each unit to take the initiative to give notification regarding change information. Combined with the digital provision of change risk assessment case applications, the change information can quickly be grasped through the material sample identification procedures, the raw material supplier PCN (Process/Product Change Notice), the Process Change Review Board, and procurement and other management systems. In addition, if employees fear risks in the working environment, they may halt operations and retreat to a safe area without endangering other staff. At the same time they must take the initiative to report the matter to Nuvoton, and Nuvoton will not sanction said staff. Nuvoton also encourages employees to take the initiative to report potentially harmful environments, and will not issue any sanctions in connection with this.

Considering the needs of safety and health, we will conduct preliminary risk determination and impact evaluations with the relevant departments. If the evaluation results reflect new or additional changes to important risks or influences, relevant protective measures are then taken to confirm whether the necessary control measures are completed. If there is a derivative need for operational controls, the relevant documents should be formulated or amended and the training of relevant personnel should be completed. In 2021, there were 15 PCNs for raw material suppliers and 12 applications for change risk assessment.

#### ◆ Chemical Risk Control Assessment

Nuvoton requires all chemicals to undergo safety audits and evaluations before entering the plant. Furthermore, we require manufacturers to provide a complete disclosure of safety information sheets while conducting a more complete and comprehensive evaluation through change management, exposure assessment, and other methods; and we improve or provide relevant protective equipment according to the evaluation results to achieve the purpose of reducing the occurrence of occupational incidents.




There were two areas for improvement in the 2021 evaluation: namely, the improvement of a SOG IPA leakage problem, and the improvement of a TRK photoresist pipeline wear and leakage problem. In addition, six new chemicals were evaluated. In view of the two situations that needed improvement, Nuvoton launched reform measures and these have been completed.


1

For the SOG IPA leakage problem, the improvement measures are to replace the original IPA filter, changing it from a locking type to a quick release type; and to set up a fixed quick-release frame to avoid the risk of the filter rupturing due to the frame falling.

Prior to IPA leak improvement



After IPA leak improvement



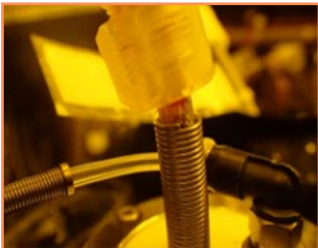
2

The problem of TRK photoresist pipeline wear and leakage has been addressed. The improvement measures were to change the original anti-folding pipe material metal spring tubing to PFA material (double casing); and separately, in order to avoid pipe entanglement and pulling, the pipeline is set up as an independent route.


Improvement 1

Changed the original anti-folding pipe material metal spring to PFA material (double casing).

Before improvement



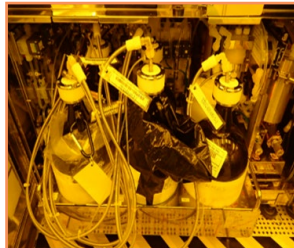
After improvement




Improvement 2

The photoresist pipeline was optimized and reformed to avoid pipe entanglement and pulling, and the P1/P2/P3 pipeline is routed independently.

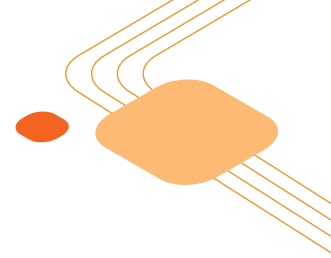
Before improvement



After improvement







## ■ Contractor Management Risk Evaluations and Work Safety Controls

In order to ensure the health and safety of contractors when entering the plant, the Company clearly stipulates safety, health, and environmental protection management matters for plant entry, and risk identification and evaluation methods for contractor's operators. In addition to discussing the risks and control methods of operations during construction meetings or toolbox meetings, we can also monitor the status and risks of the project through the control of construction safety permit applications. Furthermore, all contractors are required to receive relevant education and training; or be informed of the relevant regulations of the hazard risk and safety and health of the working environment in the form of hazard notifications, strengthen operational safety precautions and emergency response procedures, and combine with the routine inspection mechanism to use walk-through management to implement security policies in order to achieve the goal of zero incidents.

In addition, in order to protect the safety of employees and contractors working in the factory, Nuvoton requires contractors to submit special operation construction permit applications for control in view of the high degree of hazard risk and harm of operations. Special operations include open fire, lifting and lowering, confined spaces, overhead operations, special drainage, special gas/chemical pipe removal and other operations. There are strict requirements for safety protection measures, and approval must be obtained before operation. In order to protect the safety of operators and avoid impact on the environment.

## ■ Occupational Hazard Indicators

Nuvoton has established "Standards for Investigation and Handling of Environmental Safety and Health Incident Notifications", which is applicable to employees (all staff) and non-employees (contractors). After an accident, we explore the root cause and then take correct corrective and preventive measures to avoid recurrence of the incident.

We have established an optimal system for the notification, handling, investigation, tracking, and advocacy of improvement measures in environmental safety and health incidents. Furthermore, incident improvement results are tracked and confirmed on a quarterly basis by the Environmental Safety and Health and Risk Management Committee. This is done in order to protect the safety of employees, visitors and contractors, and to prevent accidents from recurring. Nuvoton's statistical analysis of occupational incidents includes all factories in Taiwan. Recordable occupational injuries are calculated based on disabling injury statistics reported by the Ministry of Labor for occupational accidents. They and do not include the number of traffic accidents involved in employees commuting to and from work. In 2021, there were no fatal occupational accidents, serious occupational injuries, or occupational illnesses among employees and non-employee workers.

In 2021, there were five employee disabling injuries (two non-work-related falls with tripping/impact, and three work-related falls with tripping/entrapment/improper posture). There were two cases of recordable incidents with property damage but no occupational injury (one non-work-related impact and one work-related chemical exposure). There was one incident of occupational injury and property damage that can be recorded but not occurred by an employee (not directly

under the command and supervision of Nuvoton, falling/tripping). Among non-employee workers, there was one incident with no occupational injury and with property damage (fall/trip by an individual not directly under the command and supervision of Nuvoton). Accident investigation and cause analysis have been carried out for each incident, and the responsible unit is requested to formulate improvement measures, improve the unsafe environment, and strive to establish all workers' hazard awareness and immediate response to unsafe ability for continuous improvement. This ensures that all workers can work in a safe and secure environment and grow with the Company.

		Fatal accidents caused by occupational injuries		Serious Occupational injuries (excluding fatalities)		Recordable occupational injuries		Recordable, but with no occupational injuries or property damage		Work hours
		Quantity	Ratio	Quantity	Ratio	Quantity	Ratio	Quantity	Ratio	
<b>Employees</b>	2021	0	0	0	0	5	1.74	2	0.69	2,881,840
	2020	0	0	0	0	2	0.71	2	0.71	2,835,160
	2019	0	0	0	0	0	0	5	1.80	2,775,944
<b>Contractor employees</b>	2021	0	0	0	0	0	0	0	0	18,280
	2020	0	0	0	0	0	0	0	0	17,856
	2019	0	0	0	0	0	0	0	0	17,640

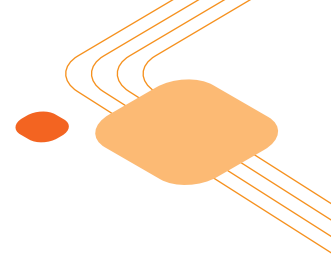
**Note:** Contractor employee statistics for 2019-2021 only include those directly under the command and supervision of Nuvoton.

## ■ Safety Culture Promotion

It is our due responsibility to eliminate occupational accidents and promote the health of our staff, and Nuvoton actively builds and promotes our workplace safety culture: **[ In any activity, service or production, environmental safety and health issues will be considered in advance. ]**

Nuvoton's security management unit continues to follow the P-D-C-A method and the spirit of continuous improvement to maintain our environmental security management system. We are committed to promoting a workplace safety culture and implementing it from top to bottom, promoting regular inspections by supervisors at all levels to identify potential risks and improve them, so as to enhance operational and environmental safety. Safety training and knowledge of personnel is a basic part of safety and health management and the main basis for improving the safety culture in the workplace. Staff regularly participate in safety and health, emergency response, and other related training, which can enhance their safety awareness and resilience.

The safety and health management unit has established a scoring system for " Environmental Safety and Health Management Driving Performance," in accordance with the characteristics of the wafer fab, testing plant, RD laboratory, and administrative support unit. The "Environmental Safety and Health Management Driving Performance" evaluation is carried out every quarter, and awards are given out in the safety and health meeting of each area.



## Education and Training, and Emergency Response

In order to establish employees' understanding of the Company's safety and health management system, and to standardize and improve their operational capabilities, for the sake of reducing the impact on the environment and improving the operational safety of personnel, the planning of environmental safety and health education training content (such as that for new workers or on-the-job workers) should therefore receive the number of general safety and health education training schedules necessary for the job (at least three hours) before changing their jobs. Those who dispose of or use hazardous chemicals should be added for an additional three hours. This is done to promote a correct understanding of safety and health by teaching concepts such as work safety and protection and promoting emergency response skills in the event of an emergency.

In accordance with the annual training plan, regular or intermittent in person courses or digital teaching materials and course videos are used to break through the limits of time and space and strengthen the knowledge and skills of on the job employees. These encompass topics such as risk awareness, hazard prevention and emergency response capabilities to develop employees' emergency response ability and safety concepts.

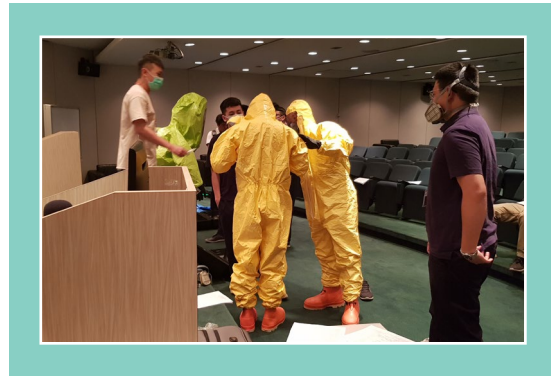
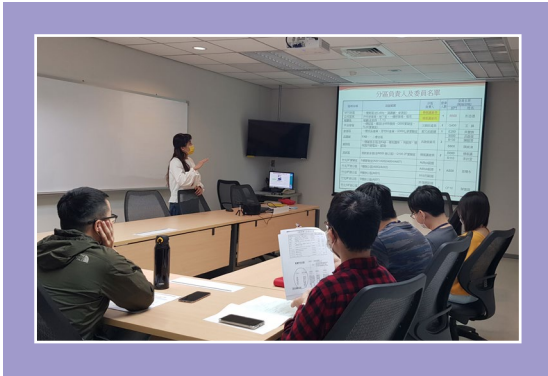
Nuvoton also requires staff to take firefighting retraining every three years, and strengthens their concept of incident prevention and escape through fire extinguishers, fire hydrants and escape practice. In addition, we plan emergency response drills every year for various accidents that may occur in the Company, and we conduct emergency response team retraining every two years. This is so that staff are familiar with notification procedures, on-site control, casualty care, disaster relief equipment operation, and support. In 2021, 84 safety and health education and training sessions were conducted, with 1,610 people participating.

	2017	2018	2019	2020	2021
Number of participants	3,735	2,196	3,260	4,290	1,610

**Note:** Due to the resurgence of the COVID-19 pandemic in 2021, Taiwan implemented a three-level alert. Therefore, the number of people participating in in-person education and training declined in 2021.

Beyond this, Nuvoton established a range of accident notifications, emergency response procedures, and handling specifications. We have set up sufficient emergency response equipment and medical kits in the whole plant area, and have installed three AEDs (automatic external cardiac defibrillators) and two sets of emergency rescue equipment such as forced oxygen supply in public areas. We regularly check the functions and supplements of first-aid equipment, and standardize managers and first-aid personnel to regularly complete on-the-job education and training to increase the efficiency of emergency first aid. We have more actively promoted the principle that every employee in the Company must undergo cardiopulmonary resuscitation (CPR) and automatic external shock device (AED) courses to strengthen employees' concepts and skills in emergency care. In response to possible emergencies such as abnormal incidents in each internal area as well as external natural disasters, Nuvoton has formulated emergency response procedures to provide a basis for internal units to formulate response procedures for individual

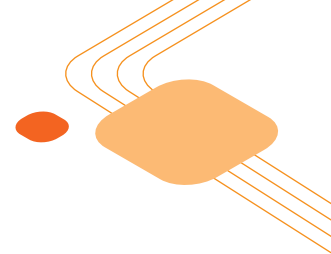
situations, for formation of response personnel, and to conduct drills and training. This is to minimize the impact of personal injury, property damage and production interruption caused by each type of emergency that has occurred. In 2021, 66 emergency response drills were conducted including fire rescue, chemical leakage, gas leakage, and emergency evacuation. In the event of a real emergency, a quick and correct emergency response can be achieved.



## ■ Health Management and Promotion Plan

Healthy and happy employees constitute the Company's most important assets. Therefore, Nuvoton devotes attention to the physical and mental health of all our staff. To this end, we have formulated a diversified health promotion policy as well as setting up a comprehensive health center and 24-hour nursing staff. We have done so in order to create a healthy and happy culture, to provide comprehensive health resources for all staff, to establish interactive health management, and to strive to take care of employees' physical and mental health. This even extends to the extension of assistance to staff' relatives and in treating family health problems. We can thus work together to create a healthy and happy workplace, allowing employees to take family and life into account with no worries and working with peace of mind to create high-quality, sustainable management of the business.

Nuvoton has formulated health management plans encompassing for example annual health checks for all employees, on-site physician services, and references to each guideline item for occupational safety and health, all of which surpass regulatory requirements. Combining work safety, human resources, and employment units, we conduct workplace health risk evaluations and health management, undertake health promotion measures, and evaluate implementation



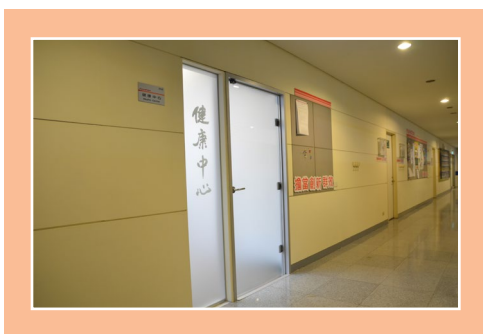
efficacy and improvements. We use diversified measures to take a comprehensive approach to improving employees' health quality. In this way, we seek to achieve our purpose of occupational injury prevention and labor physical and mental health protection while creating a policy of "a Healthy Workplace and a Friendly Company."

Healthy employees are the assets of an enterprise, and healthy employees help to improve the quality of life and work efficiency. Therefore, Nuvoton adheres to its annual plan in continuing to promote and deepen health promotion activities. We combine sports with walking clubs and app groups for staff to motivate and cheer one another on, thereby encouraging employees to achieve regular exercise habits. We also provide health and nutrition lectures and advocacy from time to time to cultivate correct diet concepts among all staff for application in their living habits. When buying products, staff thus will oftentimes pay attention to the labeling instructions and calorie references. In addition, we hold activities such as influenza vaccinations and bone density examination tests every year. In this way, we promote, advocate, and encourage the spontaneous participation of staff and gradually strengthen their attention to their own health.

### Comfortable and Cozy Health Center

Our Health Center includes two multi-purpose consultation rooms offering a comfortable, warm, and private space so that staff who are not feeling well have a space to rest and relax. We aim to serve all staff with a warm and cordial attitude, actively tracking and caring for injured and sick employees. We seek to provide timely care needs, arrange physician evaluations and health education after returning to work, accelerate physical recovery, and restore productivity; and we regularly visit work sites in conjunction with personnel from relevant industrial safety departments.

The Health Center offers an equipment environment with a comfortable and bright care station and emergency rescue area, providing quality services so that employees can get help with physical or psychological problems. It enjoys strong trust and feedback among staff.



### Employee Assistance Program (EAP)

Some staff seek assistance from the Health Center due to family, work or emotional pressures, and the nurse will provide listening care and support in a timely manner so that staff can release emotions and stress. If necessary, they will refer to external EAP partners to provide a full range of consulting services.



### Convenient Health Management System

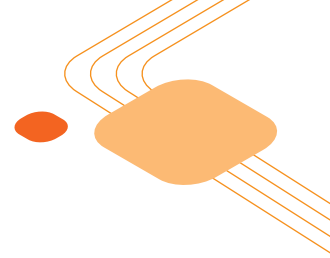
The "My Health Management" platform built by the Health Center serves as a personal health database for all staff. Nuvoton has established the platform on the home page of the Company's website. In order to protect personal information and privacy, staff must use a personal account and password login in order to query system personal health examination information over the years, as well as to facilitate the appointment registration of each health promotion activities. In respect to lectures and outpatient consultations, the number of employee visits has reached 24,789.

### Diversified Health Promotion Programs and Activities

#### Resumption of work and assignments

Through the analysis of the work content of a case and evaluation of current working ability, we attach importance to human resources and seek to maximize production capacity. Nuvoton upholds care for the physical and mental health of all employees. If an employee is involved in a traffic accident during commuting to and from work, has an injury caused by an accident at work, or even a personal health issue, the health center goes beyond reaching out by telephone to extend care for the colleague's health at the outset by also providing treatment direction advice and assistance. During the convalescence period, we will also regularly track the recovery status of employees as well as visits with supervisors and provision of care. When employees are in stable condition after recuperation and their injuries stabilized, they may be assigned to appropriate work allocations with the coordination of the nurse and supervisor. After a colleague agrees to return to the workplace, the nurse will continue to monitor their reintegration and arrange for an on-site physician to assess suitability, workload, and psychological care. In 2021, there were 3 employees with extended recovery periods, and the health center accompanied them and assisted in communication; and public injury leave was granted in accordance with their legal status. These employees readjusted to their jobs step by step and finally returned to full-time duty in a process that was in line with the expectations of staff. For traffic accidents and occupational injuries, the cause of the occurrence is also investigated by the Health Center and industrial safety personnel; and we seek to undertake preventive advocacy, addressing the causes of accidents and implementing countermeasures to prevent recurrence, thereby ensuring the safety and health of employees.





**Cancer Prevention Program**

Nuvoton has found that cancer has been ranked first in the top ten causes of death in Taiwan for nearly 40 consecutive years, so "cancer prevention" is also one of the key plans continuously promoted by our Company. According to the top ten cancers among Taiwanese people announced by the National Health Agency, the Health Center screens out high-risk groups based on personal family history, age, personal history and other information, free of charge or by providing subsidies. We thus encourage staff to get checked out to achieve the purpose of early diagnosis and early treatment. In 2021, two staff were identified as having early-stage cancer. They have received treatment and recovered smoothly, and are regularly followed up with to effectively engage in early detection.

**Cancer Prevention Program 2021**

Promote and educate healthy behaviors and healthy eating.  
Early detection is the best treatment



<p><b>Colorectal cancer</b></p> <p>Fecal occult blood test Subsidized gastroscopy for 20 individuals</p>	<p><b>Lung cancer</b></p> <p>Free low-dose CT for 50 individuals</p>	<p><b>Oral cancer</b></p> <p>Smoking and chewing betel nut with a healthy oral screening</p>
<p><b>Breast cancer Subsidize</b></p> <p>breast examination ultrasound and imaging</p>	<p><b>Gynecological cancer</b></p> <p>HPV virus (at own expense) Gynecological ultrasound</p>	<p><b>Liver cancer</b></p> <p>Insured or self-funded abdominal ultrasound semi-annual follow-up (for hepatitis B or C)</p>
<p><b>Nasopharyngeal carcinoma</b></p> <p>Examination of nasopharyngeal carcinoma indicators at own expense Subsidized nasopharyngoscopy for high-risk groups</p>	<p><b>Prostate cancer</b></p> <p>Health check screening at own expense</p>	<p><b>Thyroid cancer</b></p> <p>Ultrasound examination at own expense</p>

**Health Screening Plan**

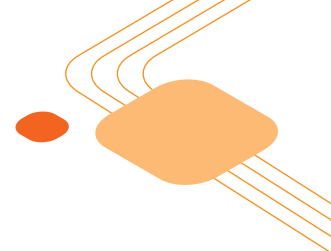
Nuvoton employees are entitled to a health examination once a year. Meanwhile, employees engaged in special operations, including those involving ionizing radiation, arsenic, and dust, will be arranged to undergo special health examinations every year. With reference to environmental test results, in 2021, 47 staff were arranged to conduct relevant inspections, and the results did not have third- and fourth-level management lists so as to provide favorable monitoring and regulation of employees in a safe working environment and operating procedures.



**On-Site Health Services**

We arrange monthly medical center occupational disease physicians or home medical physicians to provide medical consultation and health education. 279 people were served through the whole year, including health consultation for new recruits, on-the-job staff, and special work abnormalities. This also included discussion and suggestions from staff with other special health issues, as well as return to work, maternal protection, prevention of human-induced hazards, work overload, health management plans for middle-aged and elderly workers, and so on. In addition, occupational doctors regularly accompany medical staff and workers to conduct on-site visits to the working environment one or two times a year. We conducted laboratory inspections in four departments in 2021, with no abnormal findings. On-site visits aim to help identify potential health risks for employees, to give immediate advice and improvements, to ensure a safe working environment, and to enhance the health of staff.





### Human-Caused Hazard Prevention Program

Nuvoton has been conducting a human cause hazard prevention program for many years to avoid skeletal muscle injuries caused by repetitive work or incorrect posture of staff. During annual health examinations every year, an online questionnaire is conducted on the Nordic Musculoskeletal Questionnaire (NMQ), and those with higher and more serious scores are arranged for outpatient consultation, or visited by an occupational doctor on-site to conduct hazard identification assessments and provide health education guidance and assistance according to individual circumstances. On top of this, we offer activities such as office stretching exercises, physiotherapist consultation, visually impaired massage, and stretching classes 3 times a day to relieve pain symptoms, and employees have responded well.

### Health Screening Fatigue & Mental Health Questionnaire Results

We identify high-risk employees by classification, as according to an internal survey, 80% of stress comes from work. The Health Center can take advantage of its location on-site to quickly reach out high-risk employees, and provide immediate assistance and interviews for high-risk groups. If further professional psychological consultation is required, it is also possible to maintain confidentiality and protect personal information, eliciting strong trust among staff.

	2019	2020	2021
Medium and high urgency	16	12	10
Groups at high risk of fatigue	23	16	14
Groups at medium risk of fatigue	10	5	31
<b>Number of individuals</b>	<b>49</b>	<b>33</b>	<b>55</b>

## Management of Work Overload

In order to prevent illnesses arising from work overload, the Health Center analyzes related personal information such as health examinations and online questionnaires to calculate the risk of cerebrovascular disease. This is combined with reference to fatigue, psychological questionnaires, and work patterns including shifts, work style, working hours, and so on to identify risk levels. We then arrange interviews with occupational physicians and carry out high risk factor health management and improvement so as to protect the health of staff.

### Nuvoton Abnormal Workload Management



- Fatigue and psychological questionnaires
- Working hours record
- Health check data
- Work type



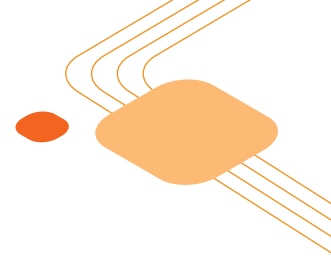
Risk of overwork	10-year cardiovascular risk assessment	Workload			
		Personal overwork	Overwork	One month of overtime	Work type
Low risk (0)	<10%	<50 points	<45 points	<45 hours	0-1 items
Medium risk (1)	10-19%	50-70	45-60	45-80 hours	2-3 items
High load (2)	≥20%	>70 points	>60 points	>80 hours	≥4 items



- **Low risk:** Employee self-management
- **Medium risk:** Health education "Personal Notes"
- **High risk:** Occupational physician interviews and health guidance

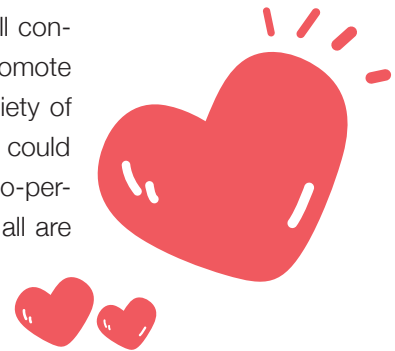


- Therapist tracks risk factors and records individually
- Participation rate in health promotion programs
- Monitor risk factors and adjust management levels
- Consultation and record keeping



## 5.6 Public Welfare and Charity Events

Nuvoton adheres to the principle of giving back to society. We thus continue to invest in society to have a positive impact that will continue to spread, and we cooperate with external partners to promote social welfare activities in the hope of creating a win-win society of common prosperity. Due to the pandemic, many charity events could not be held. In 2021 because of the need to reduce person-to-person contact. We hope that the pandemic will end soon, that all are well, that we can let our love light up the world again.



### Nuvoton Employees Took the Initiative in Fostering Kindness and Donations

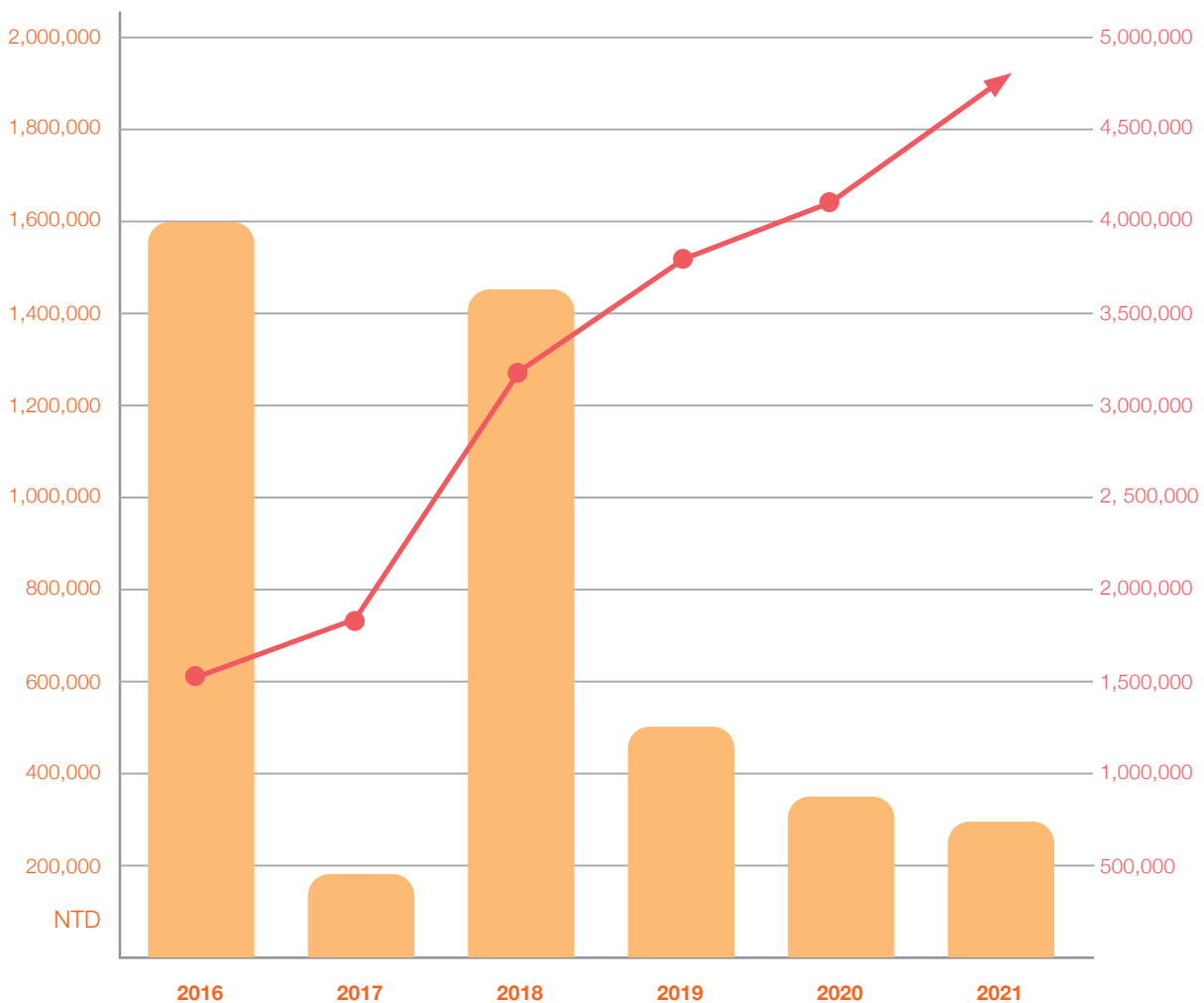


Figure: Donation amounts from 2016 to 2021

■ Donation amounts

■ Cumulative amount



### Donations to the Hsinchu Ren'ai Children's Home

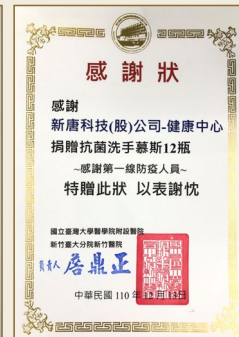
In 2021, Nuvoton continued to care for students and poor children in remote villages. Every year at the end of the year and in winter, the Charity Club will launch a public welfare care donation drive in the hope of helping poor children survive the difficult times of life and usher in a bright future. The Hsinchu Ren'ai Children's Home is a community near the Company that cares for children with situations at home.

Nuvoton hopes to do our best to care for those in need, especially in terms of children's education and care for growth that are active efforts of our Company. Nuvoton staff are very kind. After announcing the start of donations, the number of donations has risen steadily. In the past, they have helped underprivileged patients of Ren'ai Children's Home, Zhudong Yuandong High School, Hsinchu Family Support Center, Yawen Listening Foundation, Xinlu Foundation, Genesis Foundation, Shiguang Educational Institution, NTU Hsinchu Branch, Mackay Hospital, and so on. Nuvoton hopes to do our part to help schoolchildren turn their lives around. It is more blessed to give than to receive. In helping others, staff can feel contentment, cherish their blessings and sense of achievement, and also increase their self-confidence.

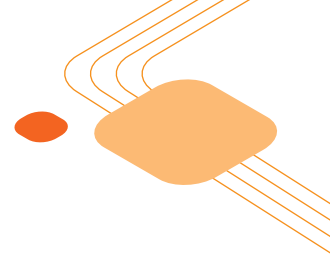


### Minxiang Heritage Second-Hand Bookstore in Chiayi

The second-hand bookstore was founded by Huang Chin-Shan, a former director of Taipei World Trade Center Hall 2. His business philosophy is to build a second-hand book environment for his hometown to promote a culture of knowledge and life, as well as reading habits by providing books to underprivileged students for free. This is consistent with Nuvoton's philosophy of helping schoolchildren in remote areas, and we have therefore offered our strong support to Mr. Huang. The Charity Club encouraged staff to jointly raise TWD 300,000 to help Mr. Huang in accessing more resources to serve underprivileged students, so that these students could also have the opportunity to learn.







### **Second Blood Donation Campaign**

In view of the problem of insufficient blood stocks in Taiwan from time to time, Nuvoton took the initiative to launch a second blood donation activity. We invited relevant units to Nuvoton's operating location every six months, and notify all employees and encourage participation in this activity in response to charity concerns and giving back to society.

Due to the recurrence of the COVID-19 pandemic in Taiwan starting from May 2021, blood donation activities in the second half of the year were postponed to avoid and reduce the risk of infection in the plant area. Therefore, Nuvoton only undertook one session in 2021, donating 62 bags of blood. Nuvoton will continue this project in the future, as we respond to social needs and give back to the community.



### **Environmental Education and Response to Environmental Protection Activities**

Since 2016, Nuvoton has joined the Hsinchu Science Park Authority's Environmental Education Partnership to actively assist in the participation and promotion of environmental education activities.



# Appendix I: GRI Comparison Table

## General Disclosures

GRI Guidelines	Disclosure Item	Corresponding Chapter/Explanation	Page number
GRI 101: Foundation 2016 (excluding any disclosures)			
GRI 102: General Disclosures 2016			

### Overview of the organization

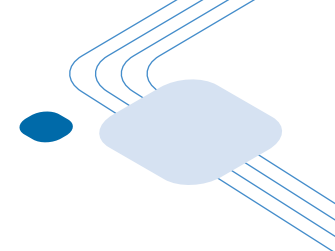
102-1	Name of organization	1.1 Company Introduction	10
102-2	Activities, brands, products and services	1.1 Company Introduction	10
102-3	Headquarters location	1.1 Company Introduction	10
102-4	Operating activity site	1.1 Company Introduction	10
102-5	Ownership and legal form	1.1 Company Introduction	10
102-6	Service market	1.1 Company Introduction	10
102-7	Organization size	1.1 Company Introduction 2.2 Financial Performance Financial Annual Report 2021	10 25
102-8	Information for employees and other workers	5.1 Human Resources	77
102-9	Supply chain	1.1 Company Introduction	11
102-10	Major changes to the organization and its supply chain	There were no significant changes during the reporting period	-
102-11	Early warning principle or policy	2.4 Risk Management	30
102-12	External initiative	Responsible Business Alliance	-
102-13	Membership of Public Associations	1. The Allied Association for Science Park Industries 2. Taiwan Electrical and Electronic Manufacturers' Association 3. Friends of the Second Special Police	-

### Strategy

102-14	Decision Maker's Statement	Letter from our Chairman	5
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### Ethics and Integrity

102-16	Values, principles, standards and codes of conduct	2.3 Ethical Management	26
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GRI Guidelines	Disclosure Item	Corresponding Chapter/Explanation	Page number
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#### Governance

102-18	Governance structure	2.1 Corporate Governance Structure	22
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#### Stakeholder communication

102-40	Stakeholder groups	1.3. Stakeholder Communication and Materiality topics of 2021	16
102-41	Group agreement	The Company has no group agreement	-
102-42	Identification and selection of stakeholders	1.3. Stakeholder Communication and Materiality topics of 2021	16
102-43	Policy for communicating with stakeholders	1.3. Stakeholder Communication and Materiality topics of 2021	16
102-44	Key themes and concerns raised	1.3. Stakeholder Communication and Materiality topics of 2021	16

#### Reporting practices

102-45	Entities included in the consolidated financial statements	2.2 Financial Performance Financial Annual Report 2021	25
102-46	Definition of the report content and subject boundary	About This Report 1.3. Stakeholder Communication and Materiality topics of 2021	3 19
102-47	List of materiality topics	1.3. Stakeholder Communication and Materiality topics of 2021	19
102-48	Information reorganization	No information restatement	-
102-49	Report changes	1.3. Stakeholder Communication and Materiality topics of 2021	19
102-50	Report period	About This Report	4
102-51	Date of the last report	About This Report	4
102-52	Reporting period	About This Report	4
102-53	Contact person who can answer questions related to the report	About This Report	4
102-54	Announcement of reporting in accordance with GRI standards	About This Report	4
102-55	GRI Content Index	Appendix I: GRI Guidelines Comparison Table	109
102-56	External assurance/confirmation	About This Report Appendix III: Third Party External Assurance	4 117

## Disclosure of Six GRI Material Issues

GRI Guidelines	Disclosure Item	Corresponding Chapter/Explanation	Page number
<b>Material issues</b>			

### Economic performance

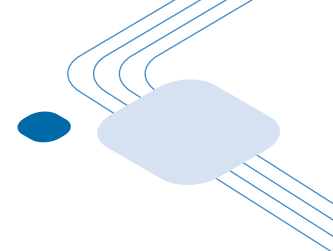
GRI 103: Management Policy 2016	103-1 Explanation of the materially topics and their boundaries	Chapter 2 Corporate governance 1.3. Stakeholder Communication and Materially topics of 2021: Materially topic Scope and Substantive Analysis Confirmation	21
	103-2 Management policy and its elements		19
	103-3 Evaluation of management policies		
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed by the organization	2.2 Financial Performance	25

### Corporate governance and ethical management

GRI 103: Man- agement Policy 2016	103-1 Explanation of the materially topics and their boundaries	Chapter 2 Corporate governance 1.3. Stakeholder Communication and Materially topics of 2021: Materially topic Scope and Substantive Analysis Confirmation	21
	103-2 Management policy and its elements		19
	103-3 Evaluation of management policies		
GRI 205: Anti-Corruption 2016	205-2 Communication and Training on Anti-Corruption Policies and Procedures	2.3 Ethical Management	27
	205-3 Confirmed Corruption Incidents and Actions Taken	2.3 Ethical Management	28
GRI 206: Anti-Competitive Behavior	206-1 Legal Action against Competitive, Antitrust, and Monopolistic Conduct	2.3 Ethical Management	27
GRI 307: Environmental Compliance 2016	307-1 Violations of Environmental Regulations	2.3 Ethical Management	27
GRI 419: Socioeconomic Compliance 2016	419-1 Violations of Laws and Regulations in the Social and Economic Fields	2.3 Ethical Management	27

### Occupational health and safety

GRI 103: Management Policy 2016	103-1 Explanation of the materially topics and their boundaries	Chapter 5 Best Workplace Creating a Society of Common Prosperity 1.3. Stakeholder Communication and Materially topics of 2021: Materially topic Scope and Substantive Analysis Confirmation	76
	103-2 Management policy and its elements		19
	103-3 Evaluation of management policies		



GRI Guidelines	Disclosure Item	Corresponding Chapter/Explanation	Page number
GRI 403: Occupational Health and Safety 2018	403-1 Occupational safety and health management system	5.4 Occupational Safety, Health, and Wellness: Occupational Safety and Health	91
	403-2 Hazard identification, risk evaluation, and accident investigation	5.4 Occupational Safety, Health, and Wellness: Monitoring of the Operating Environment	93
		5.4 Occupational Safety, Health, and Wellness: Hazard Identification and Risk Assessment	93
	403-3 Occupational health service	5.4 Occupational Safety, Health, and Wellness: Health Management and Promotion Program	99
	403-4 Participation, consultation, and communication with workers related to occupational safety and health	5.4 Occupational Safety, Health, and Wellness: Occupational Safety and Health	91
		5.4 Occupational Safety, Health, and Wellness: Health Management and Promotion Program	99
	403-5 Training of workers related to occupational safety and health	5.4 Occupational Safety, Health, and Wellness: Education and Training and Emergency Response	98
	403-6 Worker health promotion	5.4 Occupational Safety, Health, and Wellness: Health Management and Promotion Program	99
	403-7 Preventing and mitigating the impact of occupational safety and health directly related to the business relationship	5.4 Occupational Safety, Health, and Wellness: Monitoring of the Operating Environment	93
		5.4 Occupational Safety, Health, and Wellness: Hazard Identification and Risk Assessment	93
403-8 Workers covered by the occupational safety and health management system	5.4 Occupational Safety, Health, and Wellness: Occupational Safety and Health	91	

### Customer Satisfaction

GRI 103: Management Policy 2016	103-1 Explanation of the materially topics and their boundaries	Chapter 3 Customer Service and Supplier Management	40 19
	103-2 Management policy and its elements		
	103-3 Evaluation of management policies	1.3 Stakeholder Communication and Materially topics of 2021: Materially topic Scope and Substantive Analysis Confirmation	
Custom topic			

### Innovative research and development

GRI 103: Management Policy 2016	103-1 Explanation of the materially topics and their boundaries	Chapter 2 Corporate governance	21
	103-2 Management policy and its elements	1.3 Stakeholder Communication and Materially topics of 2021: Materially topic Scope and Substantive Analysis Confirmation	19
	103-3 Evaluation of management policies		
Custom topic			

### Management of Hazardous Substances

GRI 103: Management Policy 2016	103-1 Explanation of the materially topics and their boundaries	Chapter 4 Environmental Friendliness	53
	103-2 Management policy and its elements	1.3 Stakeholder Communication and Materially topics of 2021: Materially topic Scope and Substantive Analysis Confirmation	19
	103-3 Evaluation of management policies		
Custom topic			





# Appendix II: SASB Comparison Table

General Disclosures				
Disclosure Topic	Disclosure Indicator	Nature	Indicator number	Report content or description
Emission of greenhouse gases	<ul style="list-style-type: none"> <li>Total global emissions (Scope 1)</li> <li>Total emissions from per-fluorinated compounds</li> </ul>	Quantitative	TC-SC-110a.1	<ul style="list-style-type: none"> <li>Total global emissions (Scope 1) were 37,795 metric tons of CO<sub>2</sub>e</li> <li>Total emissions from per-fluorinated compounds were 35,873 metric tons of CO<sub>2</sub>e</li> </ul>
	<ul style="list-style-type: none"> <li>Discussion of long-term and short-term strategies or plans for managing Scope 1 emissions, emission reduction targets, and analysis of their performance</li> </ul>	Discussion and analysis	TC-SC-110a.2	Please see Section 4.2
Energy management in the manufacturing process	<ul style="list-style-type: none"> <li>Total energy consumption</li> <li>Use of electricity from the grid as a percentage of total energy consumption</li> <li>Use of renewable energy as a percentage of total energy consumption</li> </ul>	Quantitative	TC-SC-130a.1	<ul style="list-style-type: none"> <li>Total energy consumption was 271 MJ</li> <li>Use of electricity from the grid as a percentage of total energy consumption was 97%</li> <li>Use of renewable energy as a percentage of total energy consumption was 0%</li> </ul>
Water resource management	<ul style="list-style-type: none"> <li>Total water intake and proportion of areas with high water stress</li> <li>Total water consumption and proportion of areas with high water stress</li> </ul>	Quantitative	TC-SC-140a.1	<ul style="list-style-type: none"> <li>Total water intake was 779,913 tons, and proportion of areas with high water stress was 0%</li> <li>Total water consumption was 461,245 tons and proportion of areas with high water stress was 0%</li> </ul>
Waste Management	<ul style="list-style-type: none"> <li>Discussion of long-term and short-term strategies or plans for managing Scope 1 emissions, emission reduction targets, and analysis of their performance</li> </ul>	Quantitative	TC-SC-150a.1	Hazardous waste generated in the manufacturing process was 565 tons and the recycling percentage was 62%


Employee health and safety	<ul style="list-style-type: none"> <li>● Description of ways to assess, monitor, and reduce employee exposure to harmful environments</li> </ul>	Discussion and analysis	TC-SC-320a.1	Please see Section 5.4
	<ul style="list-style-type: none"> <li>● Total monetary damages due to legal incidents related to employee health and safety</li> </ul>	Qualitative	TC-SC-320a.2	There were no violations of any laws relating to employee health and safety in 2021
Recruitment and management of global professionals	<ul style="list-style-type: none"> <li>● Description of (1) proportion of foreign employees and (2) overseas employees</li> </ul>	Quantitative	TC-SC-330a.1	<ul style="list-style-type: none"> <li>● The number of foreign employees was 90 individuals</li> <li>● The proportion of overseas employees was 59%</li> </ul>
Product lifecycle management	<ul style="list-style-type: none"> <li>● Proportion of product revenue containing IEC 62474 substances</li> </ul>	Quantitative	TC-SC-410a.1	The proportion of products not conforming to IEC 62474 is 0%. Nuvoton products meet the requirements of relevant international regulations listed in the IEC 62474 material declaration list.
	<ul style="list-style-type: none"> <li>● Overall system-level energy efficiency of processors: (1) servers (2) desktop computers (3) notebooks</li> </ul>	Quantitative	TC-SC-410a.2	The Company's controller products are not main processing modules or processors. For applications sold on desktops, notebooks, and servers, although we participate in full-time energy-saving control, Nuvoton's products in fact account for a very low or negligible proportion of the energy consumption of the whole system. Moreover, there is currently no relevant standard to evaluate the energy efficiency of such controller products. Therefore, this item is not applicable to Nuvoton.



Disclosure Topic	Disclosure Indicator	Nature	Indicator number	Report content or description
Raw materials procurement	<ul style="list-style-type: none"> <li>Description of risk management methods for the use of critical materials</li> </ul>	Qualitative	TC-SC-440a.1	Please see Section 3.2
Intellectual property protection and competitive behavior	<ul style="list-style-type: none"> <li>Total monetary damages resulting from legal incidents related to anti-competitive behavior</li> </ul>	Quantitative	TC-SC-520a.1	There were no legal incidents related to anti-competitive behavior in 2021

Disclosure Indicator	Nature	Indicator number	Report content or description
Total capacity	Quantitative	TC-SC-000.A	Total production capacity of 6-inch wafers is 692,000 pieces
Percentage of production capacity from own plant	Quantitative	TC-SC-000.B	The percentage of production capacity from own plant is 100%

# Appendix III: Third Party External Assurance



## ASSURANCE STATEMENT

**SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE  
NUVOTON TECHNOLOGY CORPORATION'S ESG REPORT FOR 2021**

**NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION**  
SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by Nuvoton Technology Corporation (hereinafter referred to as Nuvoton) to conduct an independent assurance of the ESG Report for 2021 (hereinafter referred to as the Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the sampled text, and data in accompanying tables, contained in the report presented during verification (2022/07/01~2022/07/22). SGS reserves the right to update the assurance statement from time to time depending on the level of report content discrepancy of the published version from the agreed standards requirements.

**INTENDED USERS OF THIS ASSURANCE STATEMENT**  
This Assurance Statement is provided with the intention of informing all Nuvoton's Stakeholders.

**RESPONSIBILITIES**  
The information in the Report and its presentation are the responsibility of the directors or governing body (as applicable) and management of Nuvoton. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the report content within the scope of verification with the intention to inform all Nuvoton's stakeholders.

**ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE**

The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognized assurance guidance, including the Principles contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) 101: Foundation 2016 for report quality, and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options and Level of Assurance	
A.	SGS ESG & SRA Assurance Protocols (based on GRI Principles and guidance in AA1000)
B.	AA1000ASv3 Type 1 Moderate Level (AA1000AP Evaluation only)



#### SCOPE OF ASSURANCE AND REPORTING CRITERIA

The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

##### Reporting Criteria Options

- |    |   |
|----|---|
| 1. | GRI Standards (Core)                    |
| 2. | AA1000 Accountability Principles (2018) |

- AA1000 Assurance Standard v3 Type 1 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2018) at a moderate level of scrutiny; and
- evaluation of the report against the requirements of Global Reporting Initiative Sustainability Reporting Standards (100, 200, 300 and 400 series) claimed in the GRI content index as material and in accordance with.

#### ASSURANCE METHODOLOGY

The assurance comprised a combination of pre-assurance research, interviews with relevant employees and superintendents in Taiwan; documentation and record review and validation with external bodies and/or stakeholders where relevant. In response to COVID-19 pandemic situation the assurance process was conducted via Teams.

#### LIMITATIONS AND MITIGATION

Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

#### STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from Nuvoton, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 26000, ISO 20121, ISO 50001, SA8000, RBA, QMS, EMS, SMS, GPMS, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

#### FINDINGS AND CONCLUSIONS

##### VERIFICATION/ ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the specified performance information included in the scope of assurance is accurate, reliable, has been fairly stated and has been prepared, in all material respects, in accordance with the reporting criteria.

We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting.

## AA1000 ACCOUNTABILITY PRINCIPLES (2018) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

### **Inclusivity**

Nuvoton has demonstrated a commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, Nuvoton may proactively consider having more direct two-ways involvement of stakeholders during future engagement.

### **Materiality**

Nuvoton has established processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.

### **Responsiveness**

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.

### **Impact**

Nuvoton has demonstrated a process on identify and fairly represented impacts that encompass a range of environmental, social and governance topics from wide range of sources, such as activities, policies, programs, decisions and products and services, as well as any related performance. Measurement and evaluation of its impacts related to material topic were in place at target setting with combination of qualitative and quantitative measurements.

## GLOBAL REPORTING INITIATIVE REPORTING STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, Nuvoton's ESG Report of 2021, is adequately in line with the GRI Standards in accordance with Core Option. The material topics and their boundaries within and outside of the organization are properly defined in accordance with GRI's Reporting Principles for Defining Report Content. Disclosures of identified material topics and boundaries, and stakeholder engagement, GRI 102-40 to GRI 102-47, are correctly located in content index and report. For future reporting, it is recommended to have more discussion in each material topic, including management approach and related GRI topic standards. In addition, a more systematic process in data collection and performance disclosure is also encouraged.

Signed:

Signed:

For and on behalf of SGS Taiwan Ltd.

Stephen Pao



Knowledge Deputy General Manager

Taipei, Taiwan

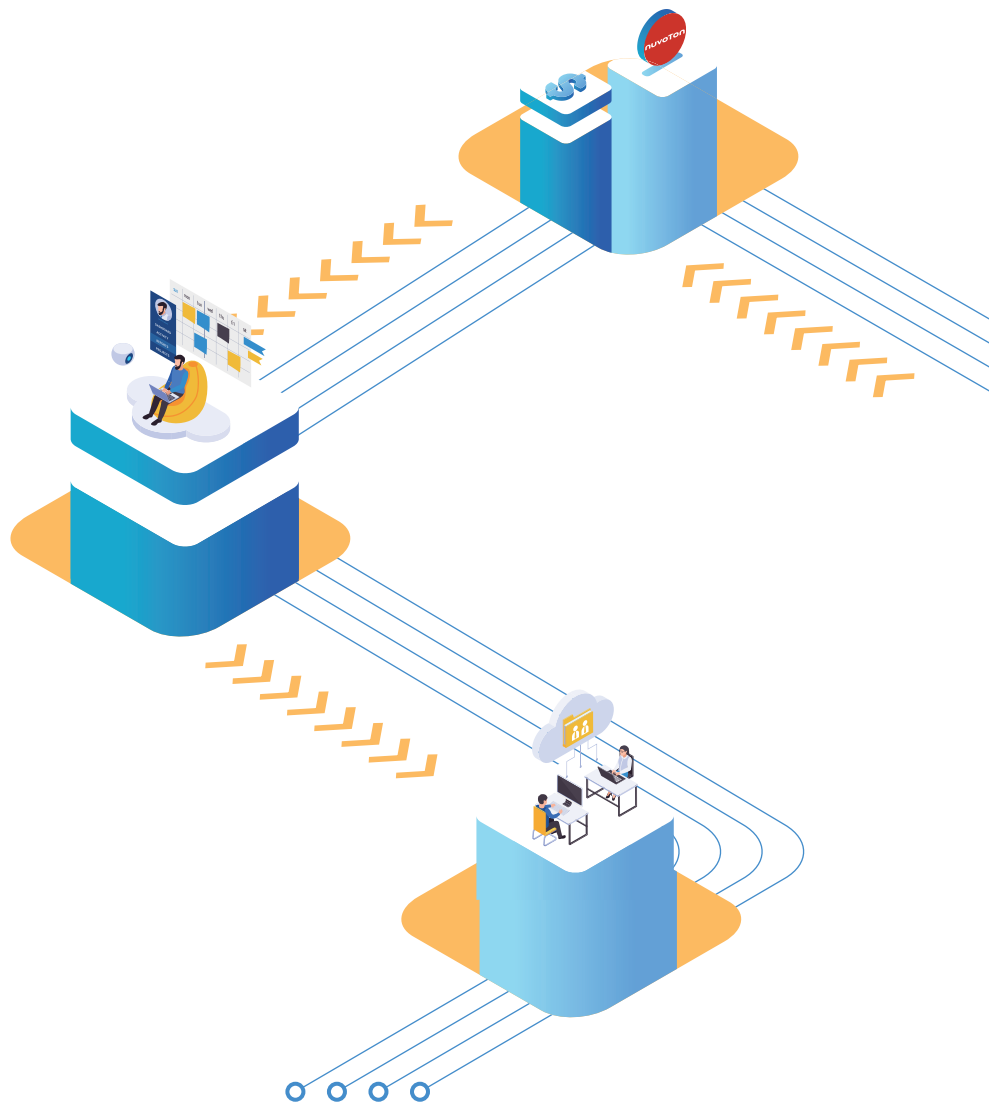
12 August, 2022

[WWW.SGS.COM](http://WWW.SGS.COM)



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