Sino-American Silicon Products Inc.

Renewable Energy Total Solution Provider

2023 Sustainability Report

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About This Report

Report Axis

The main business items of Sino-American Silicon Products Inc. (hereafter "SAS") and its subsidiaries include R&D, design, manufacturing, and sales of semiconductor silicon materials and components, photovoltaic and communication wafer materials, as well as technical services for photovoltaic power generation system integration and installation. Since 2017, SAS has taken the initiative to compile a Corporate Social Responsibility report (renamed as Sustainability Report in 2021). Based on its long-term and in-depth interactions with the local communities and engagement with stakeholders, SAS has disclosed the relevant information on material issues regarding the four aspects of corporate governance, economy, environment, and people (including their human rights), as well as implementation and improvement results in the report in addition to presenting the future vision and goals in terms of sustainable development.

Report Editing and Final Draft

SAS compiles and organizes relevant information and edits its Sustainability report by following organizations and procedures as below.

◆ Sustainability Report Task Force

The main members include the President's Office and the EHS Management Department. The task force is in charge of promoting energy environment-related matters, overall planning, information compilation & organization, communication & integration, and editing & revisions.

◆ Editing Procedures, Review, and Final Draft

The initial draft of the President's Office and the EHS Management Department shall be distributed to all unit members (ESG committee members) and the Audit Office for review, and then delivered to the Chairperson (chair of the ESG committee) for publication finalization after review.

Reporting Basis

The content structure of this report primarily refers to the "Sustainability Reporting Standards" issued by the Global Reporting Initiative (GRI) and the core indicators for the semiconductor industry in the "Sustainability Accounting Standards" issued by the Sustainability Accounting Standards Board (SASB), as well as the "Compiling the sustainability report according to the semiconductor industry category indicators and the "Taiwan Stock Exchange Corporation Rules Governing the Preparation and Filing of Sustainability Reports by TWSE Listed Companies" to prepare the sustainability report. This report also conforms to the Rules Governing the Preparation and Filing of Corporate Social Responsibility Reports by TWSE Listed Companies. Material topics of concern to stakeholders are disclosed and responded to in relevant chapters based on materiality analysis results.

Report Boundaries and Reporting Period

The reporting period and scope of this CSR report released by Sino-American Silicon (SAS) are defined as follows:

Publication time: June 2024

Coverage time: January 1, 2023 to December 31, 2023

Scope of coverage: The scope of this report includes the performance data, financial status, and sales performance of SAS (Headquarter, Chunan Branch, Yilan Branch, Hsu-Hsin Branch), subsidiaries Actron Technology Corporation (hereafter "Actron"), Taiwan Specialty Chemicals Co., Ltd. (hereafter "TSC"), Advanced Wireless Semiconductor Company(hereafter "AWSC"), and GlobalWafers Co., Ltd. (hereafter "GlobalWafers"); which are consistent with the consolidated financial scope of the Company's annual report. Other subsidiaries are also included in addition to the companies listed above. The entities included in this report account for over 80% of the consolidated revenue. The financial data is verified by KPMG according to International Financial Reporting Standards (IFRS), and the calculation unit is New Taiwan Dollar (NTD).

The primary scope of environmental performance disclosure includes SAS, its subsidiaries (Actron, TSC, AWSC—disclosing only carbon emissions, VOCs, water usage, and waste data), and other subsidiaries (Sustainable Energy Solution Co., Ltd.—disclosing only carbon emissions). Additionally, the performance of the solar power system at Hsu-Hsin Branch is disclosed in the main text. Content relating to personnel (including human rights) is primarily disclosed for SAS and GlobalWafers.

In addition, given that some subsidiaries have prepared separate sustainability reports, the content of these reports mainly focuses on SAS. The internal units provide the relevant performance data, compiled, and presented in an internationally accepted indicator calculation method.

In the future, SAS will release sustainability reports annually, providing electronic files available for download and viewing under Sustainability Reports and Related Policies.

Previous publication time: June 2023

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Report Assurance

A third-party independent verification agency has verified the ESG Committee of SAS in order to strengthen the GRI Standards compliance for this report while enhancing the transparency and credibility of the sustainable management information. DNV has verified this report to comply with the GRI Standards compliance options as well as the DNV VeriSustain medium assurance level verification standard requirements. The verification statement is detailed in the appendix. The financial performance data is publicly released after CPA certification, consistent with the data presented in the Company's Annual Report.

Contact

Should you have any comments or suggestions regarding this report, please feel free to contact us in one of the following ways:

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Message from the Chairperson

As the impact of climate change intensifies, there is a global consensus on the speed and pressure to mitigate or adapt to climate change through energy transformation. Renewable energy is one of the cores of energy transformation and plays a key role in achieving carbon neutrality. Carbon emissions are an international development trend. Taiwan lacks natural resources such as petrochemicals, but is uniquely suited for the development of renewable energy due to its wind and solar energy potential. Sino-American Silicon Products Inc. (SAS) positions itself as a provider of comprehensive green energy solutions, extending its business reach to green power generation, energy storage, energy sales, and energy allocation. We have taken practical actions to support and respond to the net-zero transformation objectives for Taiwan and worldwide by adhering to our pledge to achieve 100% renewable energy utilization by 2050 for the SAS Group and its subsidiaries.

While pursuing sustainable corporate management, SAS also upholds its social responsibilities by ensuring corporate governance, environmental protection, employee care, etc. The goal is to exert the positive influence of SAS in the industry and society to create the sustainable values of economic growth, environmental protection, and social progress.

Rising Revenues and Sustainable Governance

In 2023, the solar energy industry continued to face various challenges. However, the Russia-Ukraine war has accelerated the decarbonization efforts of many countries, prompting the US and Europe to legislate for renewable energy supply chain autonomy, which has stimulated solar installation momentum. SAS plans to enter and capitalize on market opportunities in 2024 with its M10 N Topcon products, boasting a maximum conversion efficiency of 25%. Besides high-efficiency monocrystalline cells, SAS also offers solar modules and downstream power plant operations and is expanding into energy storage and renewable energy sales to provide comprehensive services to customers. In addition, SAS is also actively investing in all key links of the semiconductor industry and building a complementary upstream and downstream strategic alliance to expand high-value businesses. In October 2023, Actron Technology Corporation, a major automotive rectifier diode manufacturer, became a subsidiary of SAS Group. Its revenue and profit are now consolidated into SAS's financial statements, showing stable growth. This integration is expected to accelerate the development of the electric vehicle market and contribute to the Group's profits. In 2023, affiliated companies such as GlobalWafers, Actron, and TSC achieved record revenues, while AWSC experienced a growth rebound, enabling SAS to set new revenue records for three consecutive years!

1. The consolidated operating income was NT$81.970 billion, which increased by 0.12% over the previous year.
2. The consolidated operating profit was NT$17.779 billion, which increased by 10.01% over the previous year.
3. The net profit for the current period attributable to the parent company was NT$9.843 billion, which increased by 12.94% over the previous year.
4. The after-tax earnings per share reached a record high of NT$16.99.
5. SAS was ranked in the top 5% of all TPEx-listed companies during 10 consecutive years of Corporate Governance Evaluation.

Global attention to climate change has intensified in recent years, and green energy is recognized as the future trend. According to Taiwan's 2050 net-zero emission path strategy, which focuses on building a zero-carbon energy system, enhancing energy system resilience, and promoting green growth, SAS's operational strategy aligns with Taiwan's net-zero emission goals. SAS is committed to developing high-efficiency products, building clean energy systems in power plants, investing in energy storage and microgrids to expand grid infrastructure, and establishing a green energy sales subsidiary to revitalize green energy trading, providing integrated green energy solutions. Sino-American Silicon is committed to providing sustainable momentum for a brighter future by conforming to this policy direction and systematically expanding our business territory. Regarding corporate governance, we constantly refine our performance to strengthen Sino-American Silicon's commitment to the pursuit of sustainable operations.

Forward-looking and Industry-leading Technologies

Under the global trend of environmental degradation and energy shortage, energy transformation has become critical. To achieve carbon reduction goals, SAS's R&D team is committed to producing high-quality solar cells, continuously improving P-type monocrystalline cells, and increasing the mass production conversion efficiency of M6 cells to 22.95%. In response to M10 becoming the global mainstream size, SAS has also developed M10 capacity and raised its mass production efficiency to 23.2%. The average conversion efficiency for mass production of P-type monocrystalline cells is expected to reach 23.40% in 2024. In addition, to align with international trends and meet the needs of domestic and international customers while promoting industry upgrades, Yilan Branch invested in the development of a solar cell production line using new N-type TOPCON technology in 2023. This technology provides customers with high bifacial rates, lower degradation, and better weak light performance, achieving a conversion efficiency of 24.50% and steadily moving towards 25%. The capacity is expected to expand to 550 MW by 2024. Moreover, to cater to various solar cell product demands from customers, SAS leverages its extensive R&D experience to develop solar cell products that meet specific customer requirements rapidly, in addition to the aforementioned solar cell products.

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Digital x Sustainability - Dual Transformation Driving the Zero-Carbon Era

Looking back on 2023, we hoped the global economy would recover from the pandemic while simultaneously facing the pressures of economic cycle fluctuations. The industry's development, impacted by the Russo-Ukrainian War and geopolitical turmoil, remained uncertain, and a sluggish consumer market further strained the overall economic environment. Over the past year, SAS has actively positioned itself within the low-carbon value chain. This includes efforts in the solar industry to develop high-quality and high-efficiency solar products, continuous green energy development and sales, and strategic moves in energy storage and electric vehicle electrification. At the same time, SAS has strengthened Taiwan's local energy industry chain, working with local suppliers to create high-quality and high-efficiency solar products. Through these strong partnerships, we aim to maximize the benefits of vertical integration and seize opportunities in the renewable energy transition. Ultimately, focusing on global net-zero and carbon neutrality trends and Taiwan's "2050 Net Zero Emission Roadmap," SAS uses SBT (Science-Based Targets) as the theoretical basis to formulate various carbon reduction plans, mapping out SAS's net-zero roadmap.

In the post-COVID-19 era, when economic recovery is needed, the world is embarking on a digital and sustainable transformation. With the interplay of digital and green transformations, industries can leverage digital empowerment to turn decarbonization into an innovative force, achieving multiple business objectives and accelerating sustainable competitiveness. SAS aims to ride this wave, continually enhancing energy-saving and carbon-reducing efforts in manufacturing and R&D while accelerating the advancement of digital systems and promoting paperless operations. Through this green economic power, SAS is driving into a zero-carbon era, using digitalization to promote a sustainable business model.

Employee Care and Public Cause

SAS is committed to creating a safe, healthy, and friendly workplace; upholding the pledge to respect and provide people-oriented care for employees; abiding by the government's labor laws; creating a comprehensive salary and welfare system; guaranteeing a friendly working environment; and ensuring the safety of employees at work. Emphasize employee career development and physical and mental health by planning diversified training courses to improve employee knowledge and skills and pay attention to the balance of work & life for employees. Through diverse health care programs and health promotion activities, we safeguard the health of each employee, creating a happy and healthy workplace. Despite the intense global competition, we continue to strive for excellence together with our employees.

SAS not only aims to create a hopeful and dynamic work environment but also hopes that employees can maintain a harmonious work-life balance. Therefore, the Company implements care projects, assistance systems, and company activities to ensure that employees can work happily and lead fulfilling lives. We organize employee trips, provide welfare activities, and offer a variety of lectures and courses to allow employees to experience different aspects of life beyond their work.

In terms of social welfare, SAS's social care activities are guided by "charitable social welfare" and "caring for the disadvantaged," using "love and responsibility" to protect Taiwan. To support and respond to public welfare, the Company has actively participated in public fundraising activities such as "Caring for the Rural Areas and the Vulnerable" by matching the donation proceeds 1:1. (i.e., the Company will donate the exact same amount of donation made by employees), thereby increasing the size of donation to help more places that are in need of assistance.

We have expressed our love in practical ways, practiced corporate responsibility by taking care of the society, fulfilled the various specific actions and results in terms of corporate social responsibility, and demonstrate our determination to achieve the sustainable operation target.

Chairperson of Sino-American Silicon Products Inc.

徐秀蘭

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2023 Key Indicators and Recognitions

Top 5% in Corporate Governance Evaluation among OTC-listed companies for a decade.

7 years of continuous EPS growth.

By the end of 2023, SAS and GlobalWafers had over 2,100 valid patents.

Top 7 companies listed on Taipei Exchange by market value at the end of 2023.

Economic Aspect

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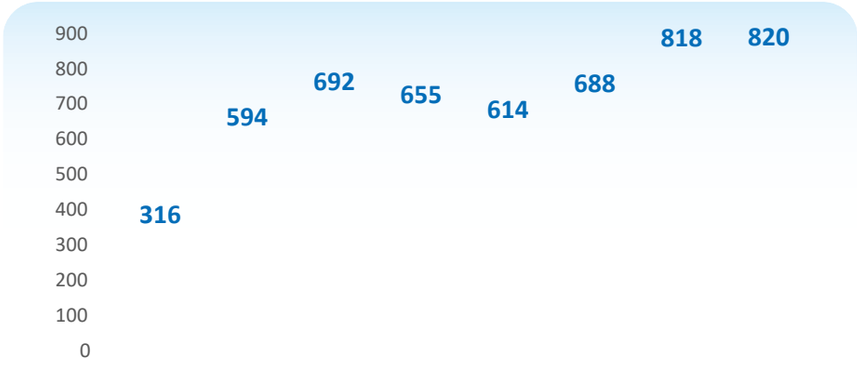
Corporate governance appraisal

- Ranked among the top 5% of all TPEx-listed companies in the 10th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 9th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 8th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 7th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 6th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 5th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 4th Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 3rd Corporate Governance Evaluation.
- Ranked among the top 5% of all TPEx-listed companies in the 2nd Corporate Governance Evaluation.
- Information disclosure appraisal A+
- Ranked among the top 5% of all TPEx-listed companies in the 1st Corporate Governance Evaluation.
- Information disclosure appraisal A

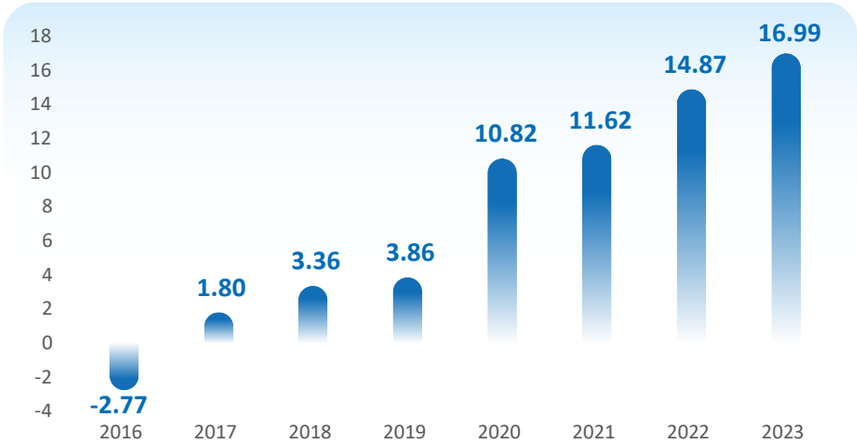
Operating Revenue (Consolidated Revenue)

Unit: NT$ 100 million



Earnings per share (EPS)

Unit: NTD



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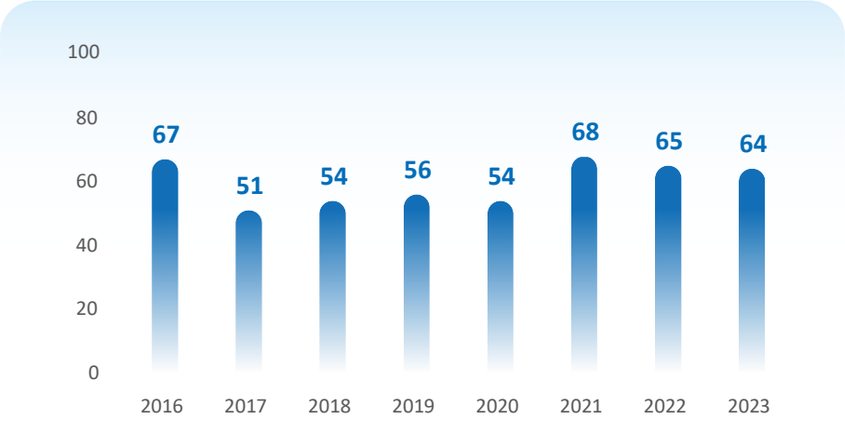
Debt to Asset Ratio

Unit: %



Return on assets

Unit: %

Return on Equity

Unit: %

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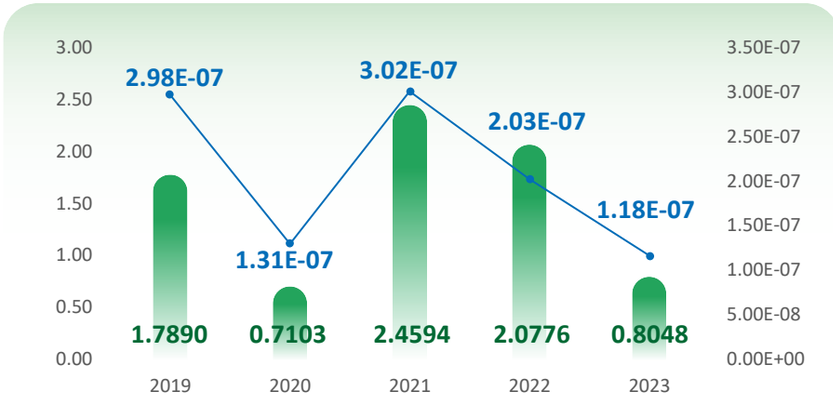
Environmental Aspect

VOC Emissions Amount

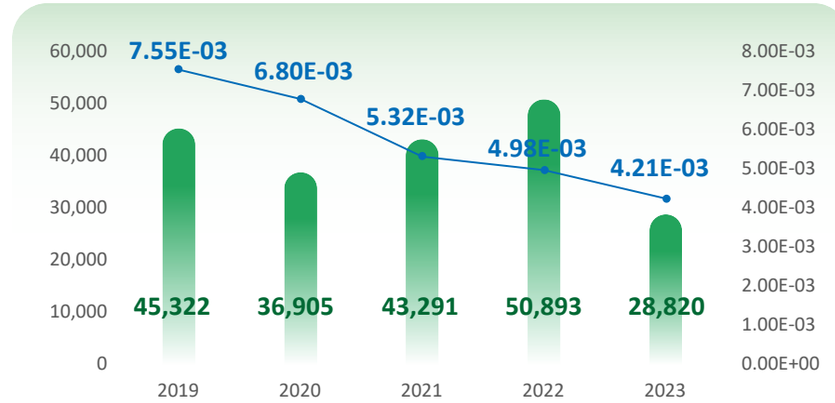
Unit: ton /yr



Note: Intensity: VOC emissions (ton) / Revenue (KNTD)

Carbon Emissions Amount

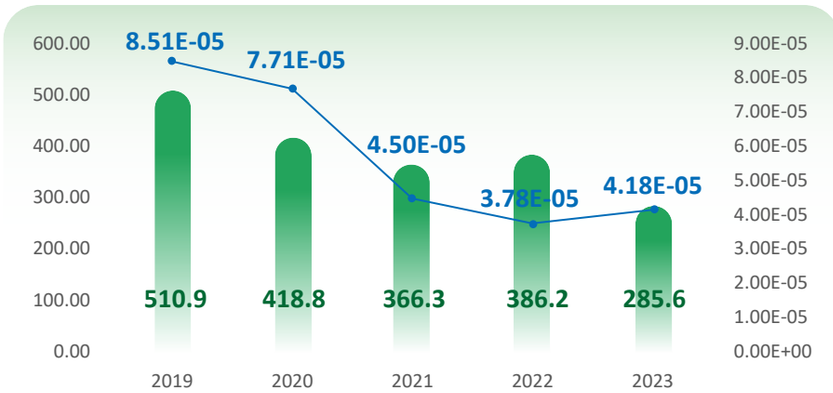
Unit: ton CO_2e/yr



Note: Intensity: Carbon emissions (tonCO_2e) / Revenue (KNTD)

Water withdrawal

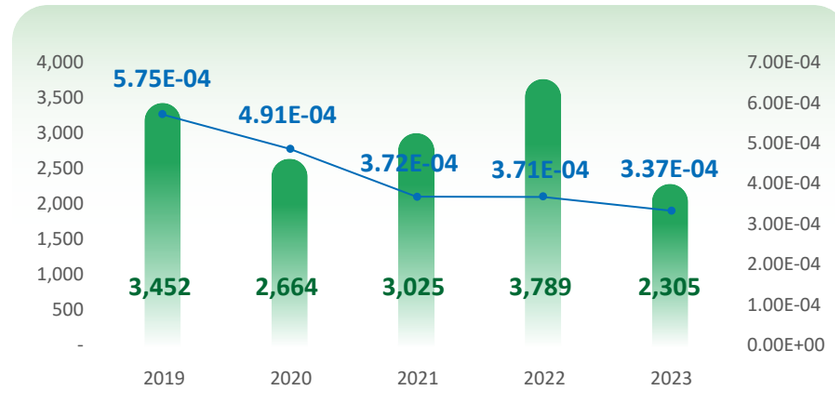
Unit: 10^6 L



Note: Intensity: Water withdrawal (10^6) / Revenue (KNTD)

Waste output quantity

Unit: ton



Note: Intensity: Output quantity (ton) / Revenue (KNTD)

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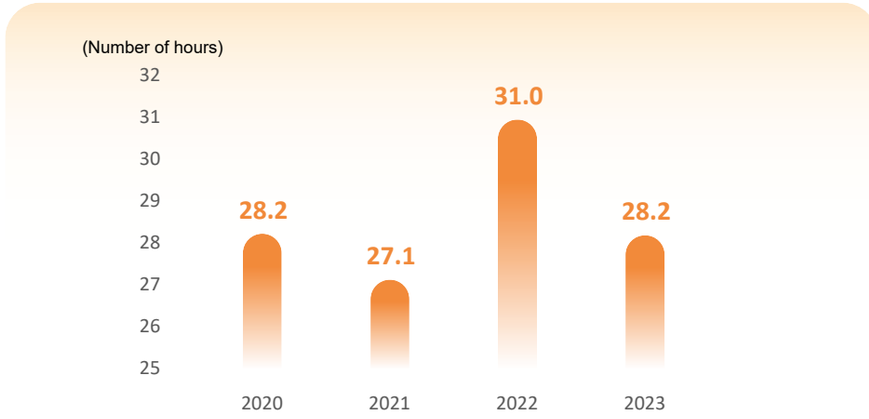
People aspect

Education and Training Hours

Unit: hour



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Sino-American Silicon Products Inc.

Company Profile

Sino-American Silicon Products Inc. (hereafter "SAS") was established as a professional wafer manufacturer on January 21, 1981. SAS operates two major business groups - the semiconductor business group and the solar energy business group. On October 1, 2011, SAS divided its semiconductor silicon wafer operations independently under GlobalWafers Co., Ltd. (hereafter "GlobalWafers). Subsequently, SAS started to focus on the solar energy field with production lines for solar silicon ingots, solar silicon wafers, solar cells, and modules. SAS also engages in downstream power generation system businesses to become one of the most comprehensive vertical-integrated companies nationwide.

We are committed to the intensive R&D of advanced technologies, and actively launching new-generation solar cell products with high conversion efficiency has always been our main key to success as it continues to attract niche customers. Through the strategic goal of vertical industry integration, SAS can achieve the multiplier benefits of comprehensive upstream, midstream, and downstream industry integration while expanding the global deployment for terminal solar systems. SAS aims to play a key role in the solar energy and green environmental protection fields while creating greater benefits for the Company's shareholders and employees.

On August 1, 2014, we acquired Sunrise Global Solar Energy Co., Ltd., a high-performance solar cell manufacturer. Meanwhile, we acquired the solar energy module manufacturer Aleo Solar GmbH based in Prenzlau, Germany, which Sunrise Global acquired on May 16, 2014.In 2015, we actively invested in global solar power plants. Via our subsidiary, SAS Sunrise Inc., we constructed the 50MW solar energy generator plant in Palo, Leyte, the Philippines, which commenced commercial operations in May 2016.

GlobalWafers is a key subsidiary of SAS. In 2016, GlobalWafers successfully acquired Denmark's Topsil Semiconductor Materials A/S (hereafter "Topsil") and SunEdison Semiconductor Limited (hereafter "SunEdison"). Since then, its product field has successfully advanced from CZ to large-size epiwafers, polished silicon wafers, silicon-on-insulator wafers, and FZ semiconductor wafers. We have combined GlobalWafers' top operating model, marketing advantages, and diversified product supply with SunEdison's global bases and product R&D capacities to establish more comprehensive product lines. Our operating headquarters is located in the Hsinchu City of Taiwan. Our global distribution bases include Taiwan, mainland China, Japan, South Korea, Malaysia, the United States, Italy, Denmark, and Singapore.

In 2022, the newly established subsidiary "Sustainable Energy Solution Co., Ltd." of Sino-American Silicon Products Inc. obtained a license to sell electricity, officially joining the liberalization of green power market transactions. Since its establishment, SAS has achieved vertical integration in the solar energy industry chain, extending its operations from solar cells and modules to photovoltaic power plants and their maintenance management, positioning itself as a global provider of professional green energy solutions. To expand the green power business, SAS has established a subsidiary called "Sustainable Energy Solution Co., Ltd." specializing in green energy development. By combining SAS's profound experience and leading position in the solar energy industry, Sustainable Energy Solution Co., Ltd. is committed to providing a comprehensive range of green services, including the planning and development of diverse renewable energy sources, integrating the needs of buyers and sellers, and establishing complete green electricity procurement solutions. Sustainable Energy Solution Co., Ltd. is the ideal strategic partner for fulfilling corporate social responsibility and embracing the international ESG trend. In light of the strong demand for international renewable energy by businesses, Sustainable Energy Solution Co., Ltd. aims to meet the group's renewable energy goals and contribute to the collective goal of achieving net-zero emissions.

SAS Basic Information

Date of Establishment	January 21, 1981
Capital	NTD 5.86 billion
Main Product and Technology	Solar ingots, solar wafers, solar cells, solar modules, solar power generation system operations, and silicon material application products
Employee No.	SAS (headquarter & Chunan, Yilan, Hsu-Hsin branches): 622 employees[Note 1]
Chairperson & CEO	Hsiu-lan Hsu
Vice Chairperson / Deputy CEO	Tang-liang Yao
President	Chen-Chien Chen[Note 2]
Headquarter	No. 8. Industrial East Road 2, Hsinchu Science Park, Taiwan, R.O.C.
Operating Bases	Headquarter: No. 8. Industrial East Road 2, Hsinchu Science Park, Taiwan, R.O.C. Chunan Branch: No. 6, Kejung Rd., Chunan Science Park, Chunan, Miaoli County, Taiwan, R.O.C Yilan Branch: No.1 Sec. 2 Ligong 1st Rd., Wujie Township, Yilan 268, Taiwan, R.O.C SAS Hsu-Hsin branch：No. 6, Kezhong Rd., Chunan Township, Miaoli County 350, Taiwan, R.O.C.
Affiliated Enterprises	SAS affiliates are engaged in the following industries: semiconductor and wafer manufacturing, solar cell and module manufacturing, solar power generation system services, and renewable-energy-based electricity retailing.

Note 1: The number of employees is calculated based on those still working at the headquarters and branch as of 2023.12.31 (excluding subsidiary employees).
Note 2: Joined in April 2023.

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Shareholder structure

Structure Quantity \ Shareholders	Government Agencies	Financial Institutes	Other Juridical Persons	Natural Persons	Foreign Institutes and Foreigners	Total
No. of People	7	66	432	94,422	403	95,330
Shareholding (shares)	6,375,590	172,139,732	88,282,976	222,605,847	96,817,506	586,221,651
Shareholding Percentage	1.09%	29.37%	15.06%	37.97%	16.51%	100.00%

Data base date: 2024.4.22

SAS is able to grow and produce high-efficiency solar wafers, cells, and modules products under the concept of integrity and boldly facing the challenges. SAS has actively entered the system end to achieve the vertical industrial integration benefits and expand its solar business deployment, allowing SAS to become one of the most successful domestic professional green energy solution suppliers in the nation. SAS is constantly looking for the next growth momentum, and hopes to pursue sustainable operation and growth with customers and suppliers. At present, our products are primarily sold in Asia, Europe, America, and other regions. SAS is committed to further strengthening environmental protection, and is expected to become the top technologically leading green energy solution provider worldwide.

Market and Services

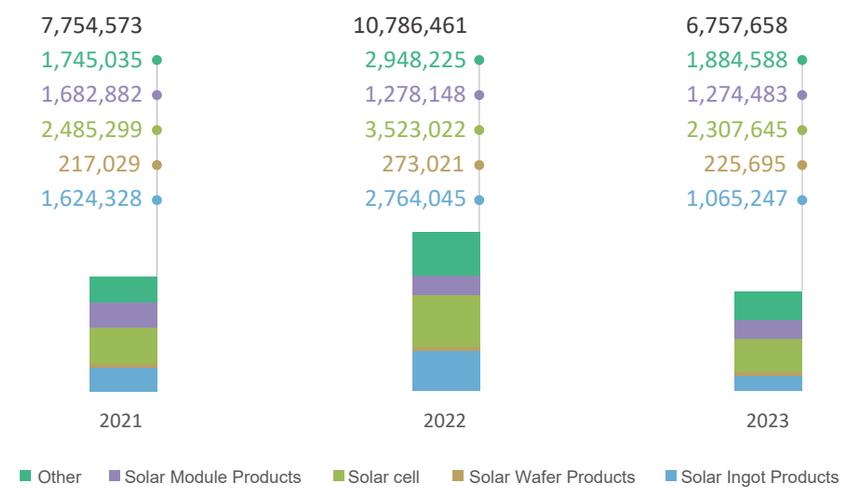
◆ Renewable Energy Industry

Product Sales

As various governments gradually improve and implement their energy policies, and due to the Russia-Ukraine war prompting countries to reconsider their energy cost allocations and further accelerate decarbonization, the renewable energy market continues to grow. The solar photovoltaic industry, with its relatively mature market technology, has become one of the primary choices for clean energy. In 2023, Taiwan amended the Renewable Energy Development Act, requiring new, additional, and renovated buildings to install renewable energy generation equipment possessing a certain installed capacity, which is expected to bring stable growth potential for photovoltaic installations. With the steady development of the solar energy supply chain, SAS Group cooperates with R&D to enter the market with M10 N Topcon products with high conversion efficiency, improving the price-performance ratio of solar energy products. In addition to providing high-efficiency monocrystalline cells, modules, and downstream power plant maintenance, the Group is also actively expanding into the storage and green power sales markets. It continues to leverage its integrated synergy, establishing a solid competitive position through technology and size differentiation strategies.

Revenue

Unit: NT$ thousands



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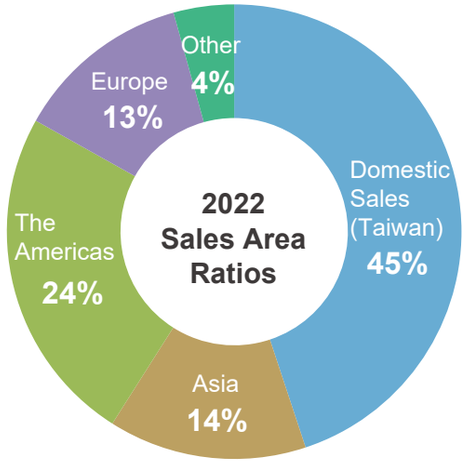
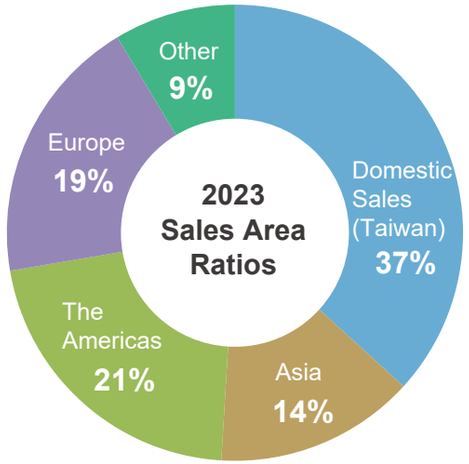
Sales Area Ratios

The SAS Group sells high-efficiency, diversified products and operates in various sales regions with a balanced distribution in Europe, America, and Asia. The Americas account for the highest sales proportion, at about 21%, while domestic sales account for about 37%. Domestic sales are primarily affected by delays in power plant installation progress, leading to a decrease in the domestic market share compared to last year.





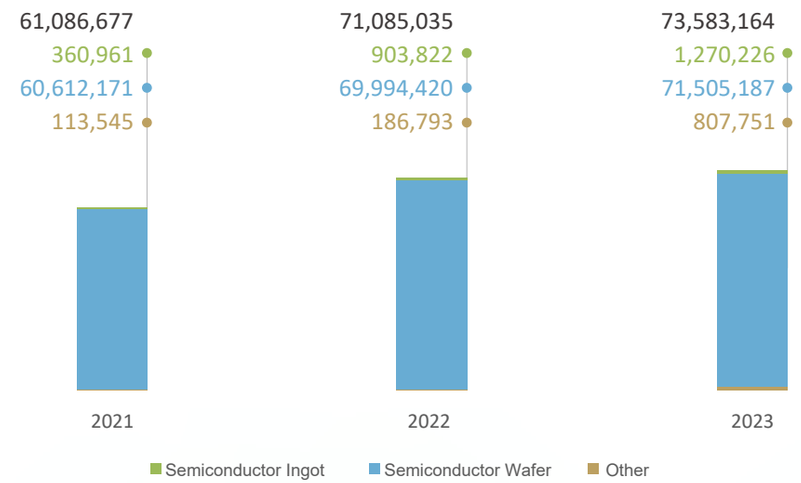
◆ Semiconductor Industry

Product Sales

The semiconductor industry's market recovery has been relatively slow due to unclear global end-consumer demand, weakening overall growth momentum. However, the subsidiary GlobalWafers Group has maintained secure and stable shipments by actively reallocating global capacity and flexibly managing various locations, signing long-term contracts with customers, and improving overall quality and customer satisfaction to meet market demand. Additionally, the subsidiaries Advanced Wireless Semiconductor Company and TSC have seen increased revenue contributions compared to last year. In 2023, the semiconductor business reported impressive results, with annual revenue reaching NT$73.6 billion, a record high.

Revenue

Unit: NT$ thousands



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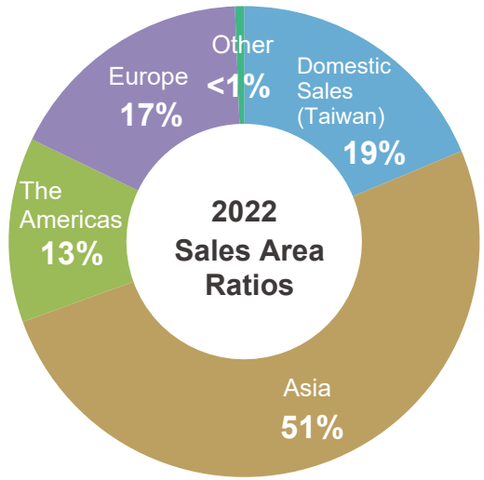
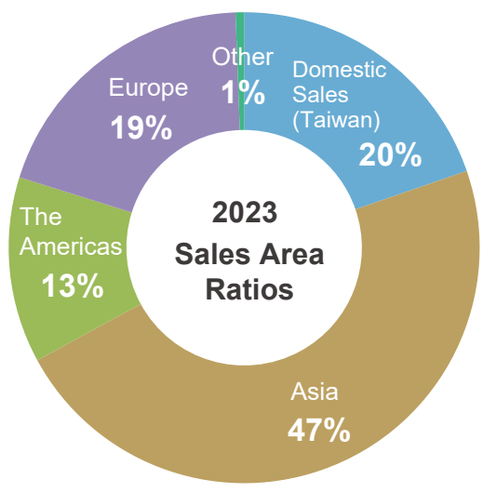
Sales Area Ratios

Through its M&A efforts over the years, GlobalWafers has successfully gained the existing customer orders from the acquired companies and a global sales network. The sales revenue ratio of sales regions has become balanced and stable.





Company Philosophy

SAS adheres to a philosophy of integrity, constant innovation, customer satisfaction, and giving back to society. It also strives to provide superior quality, technologies, and services, while striving for sustainable operations and growth in close cooperation with customers and suppliers. It aims to create outstanding value for shareholders and employees and fulfill its corporate social responsibility.

Honesty and Integrity

SAS upholds integrity and strictly observes corporate regulations and social and ethical norms to honor its commitment to the active implementation of its ethical management policy.

Constant Innovation

The development of new-generation ultra-high performance products is accelerated and corporate competitiveness is strengthened through innovative concepts and business models, a firm grasp of opportunities and pursuit of new knowledge, as well as a deep commitment in developing advanced technologies.

Customer Satisfaction

In the field of technology, strategy, and profitability, the company builds mutually beneficial cooperative relationships with its customers to create an environment of mutual growth and win-win cooperation.

Giving Back to the Society

SAS embraces a spirit of giving back to society, shows concern for underprivileged groups, and actively participates in social welfare and environmental protection to fulfill its corporate social responsibility.

Participation in External Associations

Associations/Organizations	Participant	Members	Roles
Taiwan Photovoltaic Industry Association	●	●	Chairperson
Solar PV Generation System Association	●	●	Vice Chairperson
Chinese Professional Management Association		●	
Taiwan Science Park Association of Science and Industry		●	Director
The Institute of Internal Auditors—Chinese Taiwan		●	
Computer Audit Association		●	
Taiwan Climate Partnership		●	
The 8th term of the Taiwan Mergers & Acquisitions and Private Equity Council (2024-2025)	●	●	Vice Chairperson

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Sustainable Management

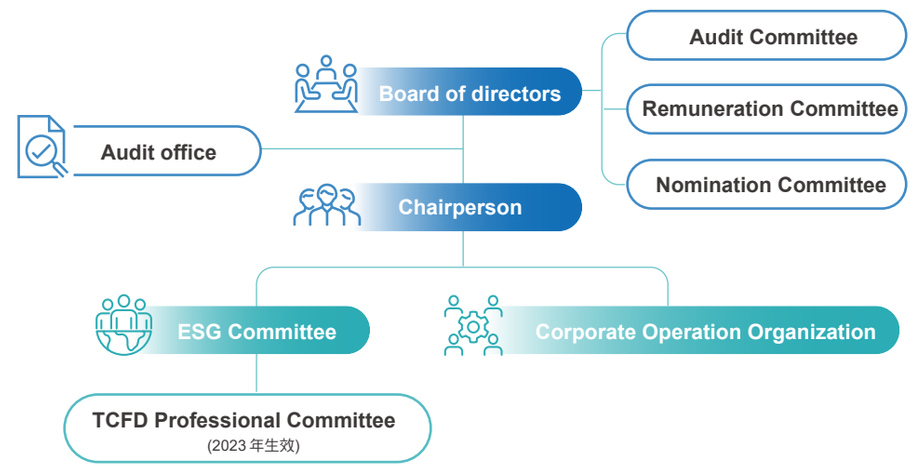
Sino-American Silicon Products Inc. (SAS) is guided by a business philosophy centered on integrity, professionalism, innovation, and outstanding services. Our goal is to achieve a triple-win outcome: mutual growth with customers, pursue excellence with employees, and maximization of shareholder value. SAS has also focused on its social responsibilities while strengthening sustainable corporate operations in hopes to create sustainable value for economic growth, environmental protection and social progress.

SAS has formulated the Company's Corporate Social Responsibility Best Practice Principles for compliance in order to fulfill corporate social responsibility; promote economic, environmental, and social progress; and achieve the goal of sustainable development. The goal is to enable the Company to actively practice corporate social responsibility while engaging in business operations in order to comply with international trends; take the corporate citizenship responsibility to enhance the national economic contribution; improve the quality of life for employees, communities, and society; and promote corporate responsibility based competitive advantages. The Company shall fulfill its corporate social responsibility by implementing corporate governance, developing sustainable environment, maintaining social welfare, strengthening corporate social responsibility information disclosure, etc.

Sustainable Organization

To achieve the goal of sustainable operation and fulfill corporate social responsibility, SAS established the "Corporate Sustainability Development Committee" in April 2016 as the highest-level corporate social responsibility organization of the Company. The organizational structure of the committee is shown in the figure below. The committee chair was originally the president but was switched to the board's chairperson in June 2020 due to organizational changes. The committee members comprised of department heads in order to coordinate the development direction of the Company's corporate social responsibility and sustainability goals. To reflect the international development trends and high attention to ESG governance, the sustainability organization was renamed the "ESG Committee" in 2022. The board's chairperson still holds the committee chair position to facilitate the promotion and strengthen the implementation of sustainable goals. (For Sustainable Development Best Practice Principles, please refer to the Sino-American Silicon website)

The ESG Committee serves as SAS's highest-level governing body, overseeing the management and supervision of sustainability initiatives. To promote environmental, social, and governance (ESG) activities, the ESG Committee has set up specialized committees (incorporated as needed). Implementation committees are formed to achieve short-term goals during the early stages of projects. The Company has established two implementation committees as needed, namely the Greenhouse Gas Inventory and Reduction Committee, and the TCFD Committee. Upon completion of their respective projects, these were transitioned into professional committees in 2022 and 2023. To streamline operations, these committees were consolidated into the "Climate Change Professional Committee" in Q2 2023. Committee members execute tasks, conduct regular reviews, and ensure ongoing improvement. Each year, the chair of the ESG Committee reviews the performance and the achievement of goals and continuously identifies areas for enhancement. With the concerted efforts of all departments, we strive to fulfill our corporate sustainability commitments. In addition, the ESG Committee reports to the Board of Directors on implementation priorities, annual goals, and implementation results at least once a year. In 2023, the ESG Committee reported to the Board on significant sustainability execution matters across all four quarters. These reports included the GHG inventory and verification progress at each branch and subsidiary, TCFD implementation results, customers' net zero emission requirements to SAS and target setting status, the introduction of SBT project establishment and implementation status, SAS net zero roadmap blueprint, the material topics of the 2022 sustainability report and the progress of the preparation and verification of the report, progress of CDP questionnaire responses (with SAS achieving an A- in both climate change and water security in the 2023 CDP evaluations), new government/regulatory issues: IFRS S1/S2 discussions. Any material events can be reported to the Board as ad hoc topics. The committee operates under the supervision of the Board, which oversees the setting and review of sustainability development goals (including preparing and verifying the sustainability report). Based on the committee's reports, the Board provides relevant suggestions and guidance. Our sustainability strategy encompasses implementing corporate governance, promoting environmental sustainability, building a friendly workplace, and maintaining social welfare. We consider the development trends of international sustainability issues and their relevance to our core business, incorporating environmental, social, and governance (ESG) factors into company policies, management guidelines, and operational plans to achieve responsible growth and create sustainable social value.



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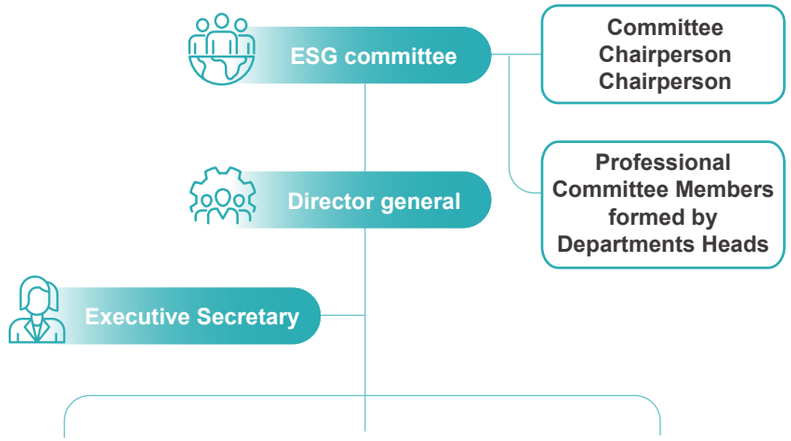

Environment

- Energy efficiency enhancement
- Greenhouse gas checks and disclosure
- Pollution preventions and management
- Energy conservation and water recovery technology development
- Resources recycling management
- Waste reuse advocacy
- Green manufacturing process / Clean production
- Green buildings / Green factories

Governance

- Strengthen the board of directors' competency
- ESG info transparency
- Rights protection of stakeholders
- Internal control and risks management
- Finance and operation performance management
- Occupational ethics and integrity principles
- Supply chain management

People

- Employee care and benefits policies
- Diversified work opportunities
- Friendly workplace and labor-management communication
- Community concern and charity participation
- Cooperative education / Industry-academic collaboration
- Customer service / Satisfaction level
- Customer privacy / asset protection
- Product safety

Analysis of Material Topics (GRI 3: Material Topics 2021)

Following a four-phase process in accordance with GRI 3 Material Topics 2021, SAS has redefined the methodology for identifying material topics. Based on the "level of concern" and "degree of impact" on sustainability topics as the materiality evaluation principles, SAS identifies and evaluates material issues in the areas of governance, economic, environmental, and social (including human rights) dimensions. Ultimately, sustainability issues are ranked based on the significance of their impact. The top 10 material topics will be reported in this report, and management policies and targets will be set for regular monitoring. Other material issues will also be reported in this report, but management policies and targets will not be set, and they will only be monitored continuously. SAS will implement this materiality identification process once every three years (or when the Material Topic Standards are revised and updated) to regularly review the impacts of these issues.

Identifying Issues

- According to its activities and business relationships, 7 major categories of stakeholders have been identified.
- Collected and integrated 22 sustainability issues.

Evaluate the degree of concern and impact

- Members of the ESG Committee evaluated the degree of concern and impact on 22 sustainability issues.

Assessment of Significance

- A matrix diagram was drawn based on "degree of concern" and "degree of impact," consolidating 16 issues of relatively high significance.

Ranking of Impacts

Impact ranking of the top 10 material topics:

- Reporting
- Establishing management approach
- Establishing goals
- Monitoring and management

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Stage 1: Identifying Issues

1. Stakeholders: SAS identified seven major categories of stakeholders based on their activities and business relationships, considering the operational characteristics of the company and through cross-departmental discussions. The stakeholders include employees, customers, shareholders (investors), suppliers (vendors s), government agencies (Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.), media, and the community (welfare organizations, neighborhoods, NGOs, etc.), SAS collaborates with them to help identify the impacts of sustainability issues.
2. Sustainability Issues: Issues of concern were collected from the interactions and communication records of the President's Office, Marketing Department, Procurement Department, Administration Department, and related external units with stakeholders, including employees, customers, shareholders (investors), suppliers (contractors), government agencies (Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.), and media. The results of the stakeholder survey on the official website, and international sustainability standards and regulations, United Nations Sustainable Development Goals (SDGs), Responsible Investment, industry trends, and other sustainability-related issues were referenced, and then consolidated into 22 sustainability issues to be further investigated.

Stage 2: Evaluation of Concern Level and Impact Degree

Representatives from the Company's ESG committee assessed the stakeholders' level of concern about the issues and their impact in areas of governance, economy, environment, and society (including human rights) (both actual and potential impacts). They evaluated the "stakeholder level of concern" and "impact on SAS."

Stage 3: Assessment of Significance

A matrix diagram was drawn based on the "stakeholder level of concern" and "impact on SAS," listing highly concerned and highly impactful issues as significantly impactful topics. Consolidating the previous results, Sino-American Silicon Products Inc. identified 16 major issues in 2023.

Stage 4: Prioritizing Reporting on Material Issues Based on Impact

Finally, the 16 major issues identified for SAS in 2023 were ranked based on their impact significance. The top 10 issues were designated as major topics for 2023, to be reported in this report, with management policies and goals set for regular tracking and management. Other issues are disclosed in summary or not included in this report.

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Identifying Issues

Based on the company's operational characteristics and through cross-departmental discussions, Sino-American Silicon Products Inc. has identified seven major categories of stakeholders, including employees, customers, shareholders (investors), suppliers (contractors), government agencies (Science Park Bureau, Department of Environmental Protection, Environmental Protection Administration, Bureau of Energy, Ministry of Labor, etc.). They engage and communicate through various channels, both regularly and irregularly, to understand stakeholders' expectations. This also serves as a source of information for assessing sustainability issues and impacts.

Stakeholders' Engagement

Employees

Significance to SAS

Employees are the Company's most important assets. Only by taking good care of the employees will both parties grow in sync with each other.

Issues of concern

- Salary
- Benefits
- Work Environment (including occupational safety and hygiene, and healthy workplace)

Communication Frequency / Method

- Various Organization Meetings/ Irregular
- Company Notice Board / Irregular
- Internal Website and Emails / Irregular
- Performance Appraisal Interviews / Once Per Year
- Labor-management Meetings / 4 Times Per Year
- Various Complaint Boxes or Hotlines/ Irregular
- Customer satisfaction survey

Our Responses

Employees are the Company's most important asset, and the Company attaches great importance to communication channels with employees. In 2020, we will construct a human resources area, increase the consultation options and paths for colleagues, and regularly hold labor-management meetings to listen to the voices of colleagues.

- To attract and retain outstanding talents, the Company has offered competitive salaries and set the salary adjustment standards each year according to the relevant data.
- The Company has established an exclusive restaurant to provide employees with free meals during their working hours. In addition to labor insurance, the Company also provides group insurance, childcare leave, and other benefits that are better than those required by the law; and established a welfare committee to help employees to obtain more benefits such as employee travel, year-end party, emergency relief, sickness subsidies, and special contract stores.
- The Company adheres to the concept of "Ensuring the Safety and Health of the Employee Work Environment," and uses the organization system operation to create a healthy and safe working environment for employees.

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Shareholder/ Investor

Significance to SAS

All shareholders are the company's investors. The company will handle all disclosed information with fairness as the principle.

Issues of concern

- Economic Performance
- Corporate Governance
- ESG Performance
- Integrity and Ethics / Anti-corruption

Communication Frequency / Method

- Shareholders meetings, institutional investors conferences, domestic investment institute seminars, and face-to-face communication meetings / a total of 7 meetings were held in 2023
- Company Annual Report / Once Per Year
- News announcement on company websites and the Market Observation Post System / Irregular
- Collecting and replying to messages via telephone or emails / Irregular

Our Responses

- Continue to use our stable financial structure and rich management experience to practice performance management and operational improvement, and improve the overall operational performance.
- Establish and strengthen close interaction and communication channels with investors, domestic and foreign media, cooperation, and major shareholders.
- Continue to improve corporate governance performance and realize the commitment of sustainable operation.
- "Integrity management is maintained through the implementation of legal compliance." T Actively conducting training and promoting integrity management policies, communicating integrity policies and their importance to directors and employees.

Customers

Significance to SAS

Company's main source of revenue

Issues of concern

- Price
- Quality
- Delivery period
- Environment & sustainability responsibility
- RBA guidelines & occupational health and safety

Communication Frequency / Method

- Business Meetings / Irregular
- Customer Satisfaction Survey / Twice a Year
- Customer Audit / Irregular
- Customers Quality Meeting / Once a Month
- Telephone or E-mail Appeals or Complaints / Irregular

Our Responses

- Adhere to the spirit of "customer satisfaction," conduct regular customer satisfaction surveys and interviews, and propose corresponding improvement plans.
- Actively understand the voices of customers to achieve the goal of "meeting the requirements."
- Plan to apply for RBA (Responsible Business Alliance) certification to ensure that employees are safe and respected at work and in compliance with environmental protection, business ethics, and procurement behavioral standards.

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Suppliers / Contractors

Significance to SAS

Are the Company's partners and need to maintain the same ideals as ours in order to provide services in line with our needs.

Issues of concern

- Price
- Suppliers / Contractors Management Regulations

Communication Frequency / Method

- Business Meetings / Irregular
- On-site Audit / Irregular
- Collecting and replying to messages via telephone or emails / Irregular

Our Responses

- Reduce costs by implementing supplier localization
- Establish a supplier evaluation management process
- Formulate contractor management procedures and establish a contractor construction management system to systematically manage all contractors who have entered the plants

Government Agencies

(Science Park Bureau, Environmental Protection Bureau, Environmental Protection Administration, Energy Conversation Bureau, Ministry of Labor, etc.)

Significance to SAS

We need to main an open and pleasant communication relationship to express our determination of complying with regulations

Issues of concern

- Regulatory Compliance
- Add / Revise Regulation Announcements
- Environmental Permit Review / Verification
- Regulations (Draft) Interpretation and Communication

Communication Frequency / Method

- Correspondence of Official Documents, Meetings (Public Hearings or Conferences) / Irregular
- Communicating and Meeting with Associations or Unions / Irregular
- Unscheduled Plant Audit / Irregular

Our Responses

- Purchase Legal Cloud to grasp the regulatory updates
- Participate in competent authority regulatory meetings and understand the requirements
- Communicate with competent authorities through association or union channels
- Cooperate with the competent authority for plant visits or unscheduled plant audits

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Media

Significance to SAS

We establish a contact channel with the media and provide non-scheduled, correct, fair and objective industry and corporate news

Issues of concern

- Company Development Direction
- Economic Performance

Communication Frequency / Method

- Publish news / average of 2-3 press releases each quarter
- Sporadically receive interviews by the media and provide industry news / Irregular

Our Responses

- Contact the media irregularly to let media professionals understand the Company's industry and operating performances through interviews.
- Issue a press release on revenue and investor conference.
- Provide transparent information disclosure to comply with the completeness, real-time, and fairness principles.

Community

(social welfare organization, neighborhood, NGO)

Significance to SAS

- Work with local public welfare groups or rural schools to provide financial assistance to disadvantaged groups and units with limited resources.
- Organize environmental protection activities from time to time, contribute to the environment, and assist local environmental protection units and groups to jointly maintain the environment.

Issues of concern

- Public welfare groups projects
- Enhancing education in remote schools and engineering improvements
- Beach cleanup activities

Communication Frequency / Method

- Twice a year/with the Group's personnel actively participating.
- Once a year/with the Group's personnel actively participating.

Our Responses

- Regularly adopt areas needing environmental maintenance and publish event information to recruit more volunteers to clean the environment.
- Contact with public welfare groups from time to time. Through interviews, beneficiaries are informed of the assistance resources that the Group can provide.

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Collect Sustainability Issues

To identify potential material topics, SAS consolidated 22 topics from international sustainability standards and regulations, United Nations Sustainable Development Goals (SDGs), Responsible Investment, industry trends, and stakeholder interactions related to sustainability issues. Further investigation was conducted to assess the impacts of these issues.

Source of Issue

International Sustainable Standards and Regulations

Refer to the GRI Standards, Responsible Business Alliance (RBA), Climate-related Financial Disclosure (TCFD), Carbon Disclosure Project (CDP), and other international sustainability standards.

Sustainable Development Goals (SDGs)

Evaluate the 17 SDG goals and their 169 targets, and select actions where SAS can make a contribution.

Responsible Investment

Refer to rating indicators such as the Dow Jones Sustainability Index (DJSI), MSCI ESG Leaders Indexes, FTSE4Good Index, and the Sustainability Accounting Standards Board (SASB).

Industry Development Trend

Industry concerns such as international sustainability leaders, IT peers, and other different industries.

Issues of Concern to Stakeholders

Issues of concern to employees, customers, supply chain and business partners, investors, government and NGOs, and the media.

Sustainability Issues

Governance	Economy	Society	Environment
Corporate Governance	Sustainable Supply Chain Management	Occupational Health and Safety	Energy Management
Economic Performance	Innovation Management	Talent Attraction and Retention	Climate Strategy and Carbon Management
Risk Management	Green Product Design	Talent Development	Waste Management
Legal Compliance	Customer Relationship Management	Diversity in the Workplace	Water Management
Integrity & Ethics		Human rights	Air Pollution Control
Information Security and Personal Data Protection		Social Participation	Biodiversity

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Evaluation of Concern Level and Impact Degree

SAS created a questionnaire to survey company managers at the department supervisor level and above and external stakeholders (investors, customers, suppliers). The survey aimed to assess the level of concern and the impact of sustainability issues (only the level of concern was surveyed for external stakeholders).

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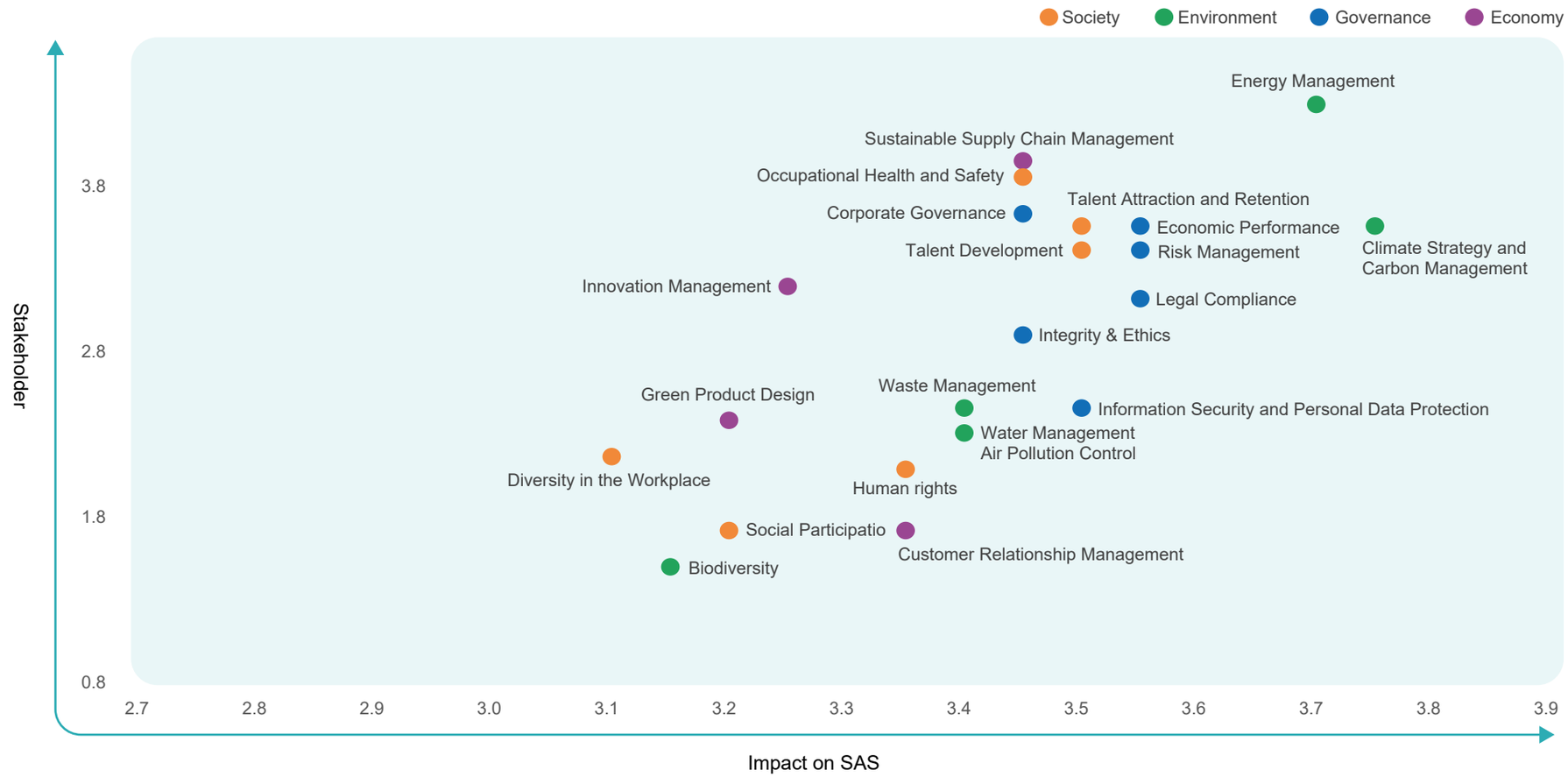
Assessment of Significance

The questionnaire data includes three parts: the level of concern, the likelihood of occurrence, and the severity of the impact assessment. The impact assessment and level of concern are analyzed statistically, and based on the analysis results, a materiality matrix is drawn (as shown in the figure). Issues with high concern and high impact are categorized as material issues. After consolidation, there are 16 issues with higher significance.

Materiality Matrix



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Prioritizing Reporting on Material Issues Based on Impact

Finally, the significant impact of SAS's material topics for 2023 is ranked. The top 10 issues are to be reported in this report, with management policies and goals set for regular tracking and management. Other issues are disclosed in the summary or not included in this report.

Energy Management
Sustainable Supply Chain Management
Climate Strategy and Carbon Management
Occupational Health and Safety
Economic Performance
Corporate Governance
Talent Attraction and Retention
Risk Management
Talent Development
Legal Compliance

Description of Changes in Material Topics

Aspects	2022 Material Issues	2023 Material Topics	Note to the Changes
Governance Aspect	Economic Performance	Economic Performance	Unchanged
	Risk Management	Risk Management	Unchanged
	Operation Continuation Management	-	Deleted those with low concentration with other suppliers
	-	Legal Compliance	New sustainability issues in 2023
	-	Corporate Governance	New sustainability issues in 2023
Environmental Aspect	Climate and Energy	Energy Management	Change of issue name (Separated from climate and energy)
	Waste Management	-	Outside the top 10
	-	Climate Strategy and Carbon Management	Change of issue name (Separated from climate and energy)
Social Aspect	Talent Development	Talent Development	Unchanged
	Talent Attraction and Retention	Talent Attraction and Retention	Unchanged
	Occupational Health and Safety	Occupational Health and Safety	Unchanged
Economic Aspect	Product Quality and Safety	-	Outside the top 10
	Sustainable Supply Chain Management	Sustainable Supply Chain Management	Unchanged

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Boundary and scope of material aspects

Material topics	GRI Standard Specific Topics	SASB Standards	Boundary - within the organization							Boundary - outside the organization	Corresponding Report Chapters
			Sino-American Silicon				Subsidiary		Other subsidiaries		
			Headquarter	Chunan Branch Company	Yilan Branch Company	Hsu-Hsin Branch	GlobalWafers	Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company			
Economic Performance	GRI 201 Economic Performance	-	○	○	○	○	○	○	○		1.2 Operation Performance
Risk Management	GRI 201 Economic Performance	TC-SC-440a.1	○	○	○	○	○				Climate Change Risks and Actions 1.3 Risk Management
Legal Compliance	GRI 2: General Disclosures		○	○	○	○	○				1.1.4 Legal Compliance
Corporate Governance	GRI 2: General Disclosures		○	○	○	○	○				1.1 Corporate Governance
Energy Management	GRI 302 Energy	TC-SC-130a.1		○	○	○	○				3.1 Energy Management and Development
				○	○	○	○			○	3.1.3 Renewable Energy Development
Climate Strategy and Carbon Management	GRI 305 Emissions	TC-SC-110a.1, TC-SC-110a.2,	○	○	○	○	○	○	○		Climate Change Risks and Actions
Talent Development	GRI 404 Training and Education	-	○	○	○	○	○				4.3 Education and Training
Talent Attraction and Retention	GRI 201 Economic Performance GRI 401 Employment GRI 405 Diversity and Equal Opportunity	TC-SC-330a.1	○	○	○	○	○				4.1 Recruitment and Human Resources 4.2 Salaries and Benefits
Occupational Health and Safety	GRI 403 Occupational Health and Safety	TC-SC-320a.1, TC-SC-320a.2	○	○	○	○	○				5.1 Safe Workplace 5.2 Health Promotion and Care
Sustainable Supply Chain Management	GRI 204 Procurement Practices	TC-SC-440a.1		○	○	○					2.5 Value Chain

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Material Topics Impact Management

＋ is positive impact － is negative impact ● is direct impact, and ○ is indirect impact.

Material topics	Significance to SAS (operational significance)	Significant Impact	Sino-American Silicon Products Inc.	Suppliers	Investors	Customers	Employees	Government Agencies	Communities	Media	Mitigation Actions	GRI Topic Categories
Governance and Economic Issues												
Corporate Governance	Composition of the Board of Directors, operations of the Board of Directors and committees, and regular reporting of ESG issues to the Board of Directors	+ Corporate governance quality - Mismanagement	●		○		●				Establish an effective internal control system and keep it under review in response to external environment changes to ensure the system's design and implementation effectiveness.	2 General disclosures
Legal Compliance	Comply with applicable laws and regulations on securities, environmental protection, labor, fair competition, export control, and others.	+ Legal compliance - Insufficient implementation of legal compliance	●		○			●	●		-	2 General disclosures
Economic Performance	Operational performance can enhance the investment willingness of shareholders and investment institutions.	+ Operating performance improves investment willingness - Poor operating performance	●		●		○				-	201 Economic Performance
Risk Management	For high risks, appropriate countermeasures cannot be taken due to unidentified risks and evaluation of quantitative results.	+ Reduction of high-risk items - Unable to take appropriate response measures	●				●				-	2 General disclosures
Sustainable Supply Chain Management	A sustainable supply chain can help reduce the risk of operational disruptions because it not only meets the requirements in terms of cost, price, and quality but also expects suppliers' products and services to meet ESG expectations.	+ Build a sustainable supply chain - Insufficient supplier management	●	●	○	○					Include suppliers' ESG performance in procurement decisions to drive their sustainable transformation.	204 Procurement Practices 308 Supplier Environmental Assessment 414 Supplier Social Assessment

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Material topics	Significance to SAS (operational significance)	Significant Impact	Sino-American Silicon Products Inc.	Suppliers	Investors	Customers	Employees	Government Agencies	Communities	Media	Mitigation Actions	GRI Topic Categories
Environmental Issues												
Climate Strategy and Carbon Management	The emission of greenhouse gases by the Company's production and operations will accelerate global climate change, and extreme weather will bring potentially major impacts on production and operations.	+ Reduce the impact of climate change - Failure of climate action	●	○	○				○		Continue to optimize energy-using equipment and energy efficiency for energy conservation and carbon reduction, introduce renewable energy, and declare RE100 by the Group. The Group has entered the fields of green energy development and sales, expanded the territory of its clean energy business, and became a provider of comprehensive green energy solutions.	305 Emissions
Energy Management	Reduction of energy consumption and operating costs can bring more significant profits and stronger competitiveness. Improving energy efficiency is a key approach to reducing energy consumption and greenhouse gas emissions.	+ Renewable energy deployment - Energy and resource consumption	●								Continue to improve energy performance and energy efficiency in accordance with the PDCA spirit of ISO50001 Energy Management System. At the same time, we promote district energy integration and develop green energy to reduce environmental impact.	302 Energy
Social Issues												
Talent Development	The ability of talents is the Company's competitive advantage and growth momentum. We assist in arranging for employees to receive education and training, cultivation and career development, and employee performance management and development.	+ Increase productivity - Insufficient education and training	●				●				Education and training for the potential development and professional improvement of the Company's employees are provided to improve the quality and work skills of the employees.	404 Training and Education
Talent Attraction and Retention	Provide employees with quality job opportunities, including competitive overall compensation and a welfare system better than the law to ensure the stability of the Company's productivity.	+ Stable operation - Employee turnover rate	●				●				A magnanimous remuneration package and fair rewards and punishment regulations, promotion procedure for recognition of the contribution and efforts of the employees are in place.	401 Employment
Occupational Health and Safety	Protect the safety and health of employees and maintain the stable and normal operation of the Company.	+ Increase productivity - Employees' health	●				●				Identify various risks, formulate countermeasures as early as possible, formulate the Company's operational continuity management plan, and conduct disaster response drills.	403 Occupational Health and Safety

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Material Topics and Sustainability Goals

Governance Aspect	Topic - Management Performance			
SDGs	Strategies	2023 Targets	Achieved/Not achieved	2024 and Long-term Goals
8 DECENT WORK AND ECONOMIC GROWTH 16 PEACE, JUSTICE AND STRONG INSTITUTIONS	◆ Uphold the corporate culture of ethical management ◆ Promote the long-term integrity management policy ◆ Strengthen information disclosure transparency	◆ Maintain ranking in the top 5% of all listed OTC companies during Corporate Governance Evaluation	✓	◆ Maintain ranking in the top 5% of all listed OTC companies during Corporate Governance Evaluation
	◆ Develop a rigorous internal regulation management mechanism to minimize the risk of dishonesty ◆ Actively organize education and training as well as promotion integrity management policies ◆ Establish reporting channels and whistleblower protection system	◆ Maintain 0 corruption incidence rate	✓	◆ Continues education and training for employees, with no incidents of corruption having occurred.
	◆ Continuous education, training, and advocacy ◆ Regular compliance self-assessment system ◆ Strengthen internal organization and rectification ◆ Implement cross audits within the group to discover potential risks and improve internal management	◆ Ensure that the operations of overseas subsidiaries comply with laws and regulations, and that the protection of personal data in domestic factories continues.	✓	◆ Continue to track the changes in domestic and foreign laws and regulations, and implement education and training for colleagues when there are major changes. ◆ The Taiwan Plants conducted a personal data inventory, and no violations of the Personal Data Act occurred.
	◆ Adjust strategy according to the market ◆ Innovative R&D, reduce costs, and accumulate strength	◆ Continuous operational profitability ◆ Maintain a sound financial structure	✓ ✓	◆ Continuous operational profitability

Governance Aspect	Topic - Risk Management			
SDGs	Strategies	2023 Targets	Achieved/Not achieved	2024 and Long-term Goals
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	◆ Formulate risk management policies and procedures ◆ Identify and assess risks in accordance with the procedures, classify and manage risks by different levels, and report to the Board of Directors on a regular basis ◆ Strengthen information security protection measures and establish a comprehensive backup system	◆ Not a material topic in 2022, no goals set	-	◆ Formulate carbon risk management systems and procedures

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Environmental Aspect	Topic - Energy Management, Climate Strategy, and Carbon Management			
SDGs	Strategies	2023 Targets	Achieved/Not achieved	2024 and Long-term Goals
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 11 SUSTAINABLE CITIES AND COMMUNITIES 13 CLIMATE ACTION	◆ In terms of climate change "mitigation" actions, start from greenhouse gas/carbon footprint inventory to greenhouse gas reduction implementation ◆ Actively achieve the greenhouse gas emission reduction goal through green design, green factory, energy management, efficient energy creation, energy conservation, as well as energy conversion products and solutions ◆ Collaborate with the renewable energy development and obtain international green power certifications as the main development direction to create a clean and green energy environment in response to the climate change related challenges ◆ Continue to introduce the concepts of product life cycle and circular economy 4R, develop product process design and development from the ecological consideration perspective, implement green design and clean production, improve process designs and technologies, increase unit production capacity, and reduce raw material consumptions	◆ Optimized the climate change risk and opportunity assessment mechanism ◆ Chunan Branch annual power saving rate > 1% ◆ Yilan Branch annual power saving rate ≧ 800,000 kWh ◆ Chunan Branch introduced factory smart energy management ◆ Yilan branch introduced the ISO 50001 power management system	✓ ✓ ✓ Not achieved[Note 1] ✓	◆ Chunan Branch annual power saving rate > 1% ◆ Yilan Branch annual power saving rate = 1.5% ◆ *100% renewable energy use by 2050: Renewable energy use target achievement phases: 20% by 2030, 35% by 2035, 50% by 2040, 100% by 2050 ◆ Chunan Branch introduced factory smart energy management
3 GOOD HEALTH AND WELL-BEING 6 CLEAN WATER AND SANITATION 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	◆ Set improvement goals every year and continue to implement water recycling and waste reduction measures to facilitate environmental management system promotions ◆ Install sufficient pollution prevention equipment with considerable processing capacity to reduce the harmful impacts on the environment ◆ Conduct regular maintenance and inspection for pollution prevention and control equipment to maintain equipment treatment efficiency ◆ Assign professional personnel to operate in accordance with relevant regulations	◆ Chunan Branch recycled over 50% of the wastewater from drilling process ◆ 100% of the prevention (production) equipment meets the emission standard requirements ◆ Reduced the dosage of single calcium carbonate and calcium chloride tablets by 10% in the wastewater treatment of the Yilan Branch.	✓ ✓ ✓	◆ Chunan Branch recycled over 50% of the wastewater from drilling process ◆ 100% of the prevention (production) equipment in the Chunan and Yilan Branches meets the emission standard requirements ◆ Wastewater diversion in Yilan Branch reduces the inflow of water into the biological wastewater system by more than 50%.
11 SUSTAINABLE CITIES AND COMMUNITIES	◆ Transfer traditional cleaning and disposal into the concept of effective resource management in order to reduce waste generation. ◆ Enhance audit management on waste clearance companies to ensure that waste is disposed in an appropriate manner.	◆ Chunan Branch's waste recycling rate for the whole plant has reached 85%	✓	◆ Chunan branch's waste recycling rate for the whole plant has reached 85%

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People Aspect	Topic-Talent Development, Talent Attraction, and Retention			
SDGs	Strategies	2023 Targets	Achieved/Not achieved	2024 and Long-term Goals
4 QUALITY EDUCATION	◆ Planning the next year's education and training based on the Company's operating goals, various department KPIs, functional requirements, etc. ◆ Review the class performance and the goal achievement status each quarter as a reference for future improvement.	◆ Education and training program implementation rate 100% ◆ Training hours per indirect employee ≧ 24H	✓ ✓	◆ Education and training program implementation rate 100%
8 DECENT WORK AND ECONOMIC GROWTH	◆ Comprehensive performance-based reward system ◆ Subsidies for employees pursuing further education ◆ Contract agreements with key executives ◆ Employee stock ownership through trusts ◆ Awarding long-service medals for recognition	◆ Annual average turnover rate < 4%	Not achieved[Note 2]	◆ Turnover rate between 5%-10%

People Aspect	Topic - Workplace Health and Safety			
SDGs	Strategies	2023 Targets	Achieved/Not achieved	2024 and Long-term Goals
3 GOOD HEALTH AND WELL-BEING 11 SUSTAINABLE CITIES AND COMMUNITIES	◆ Create a friendly working environment to ensure the safety of employees in the workplace and pay attention to their physical and mental health as well as work-life balance ◆ Introduce an occupational safety and health management system; focus on social expectations, management level, and employee participation; and look at occupational safety and health under the perspective of sound operation and sustainability	◆ Management and operation of regulated and concerning chemical substances (hydrofluoric acid) at Chunan and Yilan Branches comply with regulations ◆ Health promotion courses or activities ≧ 10 sessions	✓ ✓	◆ Approval for change of process for type A hazardous workplaces at the Yilan Branch ◆ Health promotion courses or activities ≧ 10 sessions

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Economic Aspect	Topic - Sustainable Supply Chain Management			
SDGs	Strategies	2023 Targets	Achieved/Not achieved	2024 and Long-term Goals
8 DECENT WORK AND ECONOMIC GROWTH 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	◆ Practice product safety and non-toxic requirements from upstream supply chain ◆ Produce customized polysilicon related application products through technical cooperation ◆ Establish product quality monitoring mechanism and early warning system ◆ Collect customer feedbacks on service, quality, cost, innovation, etc., as the direction of continuous improvement	◆ Chunan/Yilan Branches' customer satisfaction survey "quality aspect" score > 8.5 ◆ Chunan/Yilan Branches' customer satisfaction survey "service aspect" score > 8.5	✓ ✓	◆ Chunan/Yilan Branches' customer satisfaction survey "quality aspect" score > 8.5 ◆ Chunan/Yilan Branches' customer satisfaction survey "service aspect" score > 8.5
	◆ Formulate a supply chain code of conduct to require suppliers to follow ◆ Implement the localization of the supply chain to reduce material transportation costs, lowering inventory turnover, and optimal unit transportation volume.	◆ Suppliers are required to sign the "Supplier Code of Conduct Commitment"	✓	◆ Supplier Carbon emissions verification ≧ 1

Note 1: The planning of the factory smart interface has been completed, but the installation of hardware facilities has been temporarily postponed.
Note 2: The average turnover rate in 2023 was 17.46% (Chunan + Yilan) > 4%, due to adjustments in migrant labor influenced by production capacity.

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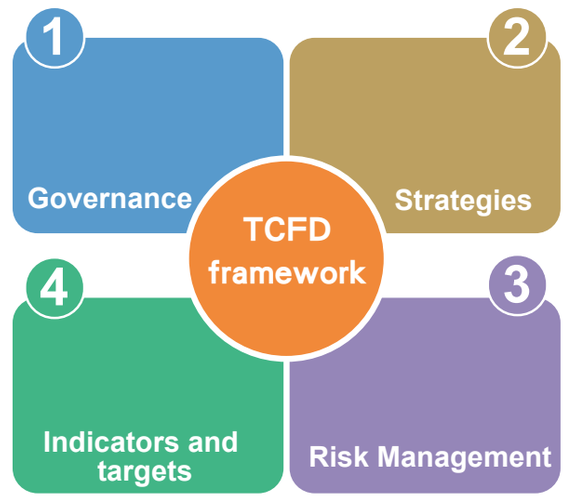
Climate Change Risks and Actions

Driven by the pressure of frequent extreme climate events globally and the transition to a low-carbon market, SAS is actively addressing the potential risks and opportunities brought by climate change. We refer to the Task Force on Climate-related Financial Disclosures (TCFD) to develop our own climate change risk and opportunity assessment process. Through relevant departments, we collect information on current and emerging policies and regulations, technological and market changes, reputational and physical risks, and execute climate risk and opportunity assessments. This approach aims to understand changes in the external environment and market dynamics, considering the Company's overall operational strategy planning.

Governance

The Board of Directors is the highest unit of risk management

- The "Climate Change Professional Committee" under the ESG Committee regularly tracks and inspects the implementation of the progress of climate change related risk and opportunity targets; Annually, the Chairperson of the ESG Committee, who is also the Chairperson of the Board, reviews the achievement of these goals and implement necessary improvements.
- The key implementation points and the progress for the year are reported to the Board of Directors at least once a year.
- The Board of Directors supervises the setting and execution of sustainable development goals, and gives relevant suggestions and guidance based on the contents of the committee's reports.



Strategies

Climate risks and opportunities are assessed for their potential operational and financial impacts on the company in the short term (≦ 3 years), medium term (4-6 years), and long term (≧ 7 years).

Risk analysis is conducted under different climate scenarios to understand the overall trends and develop corresponding actions.

- Physical risks: Refer to AR5 RCP8.5 of the Intergovernmental Panel on Climate Change (IPCC) (emission scenarios with few climate adaptation policies and a future global warming of 4° C) and the disaster potential map of the National Center for Science and Technology for Disaster Prevention and Reduction, with "potential plant site scenarios" set as future physical risk scenarios.
- Transition risks: Referencing the International Energy Agency's Announced Pledges Scenario (IEA APS), the baseline scenario is set to a future global temperature rise of 1.5 ° C, with the future timeline set for 2030 or 2050. Future climate scenarios are then set according to the attributes of transition risk events.

Indicators and targets

Continue to track climate-related management indicators

- setting up the key climate targets such as greenhouse gas, renewable energy, water and power reduction, and product optimization
- SAS carbon reduction targets and paths are set with reference to SBT standards

Risk Management

A climate risk identification process is established, with cross-departmental confirmation of the likelihood, impact (including financial), and impact duration of SAS's climate risks and opportunities every 2 years.

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Climate Change Risks and Opportunities

SAS regularly assesses climate risks and opportunities according to the TCFD framework every two years. Through representatives from various departments, SAS evaluates external changes and trends in policies/regulations, technology, market conditions, reputation, and climate-related disasters, as well as internal operational strategies. This process identifies physical risks, transition risks, and related opportunities.

Climate Change Risk and Opportunity Assessment Process

Identify climate risks and opportunities every 2 years in line with the Company's annual plan and schedule:

- Collect climate scenario data and refer to the TCFD to develop the Company's climate change risk and opportunity assessment mechanism.
- Relevant departments collaboratively participate in the assessment of climate risks and opportunities, identify physical/transition risks and opportunities, and clarify the distribution of short-, medium-, and long-term impacts from various climate-related issues, to screen out medium-high potential risks for quantitative measurement.

- Assess (measure) the severity, vulnerability, and exposure of medium and high-level potential risks.
- The scope of measurement includes the path of impact, the time and geographical scope of the impact, the position in the value chain subject to the impact, and the financial impact.

- Report various climate risk-related information and the effectiveness of target implementation in board meetings on a regular basis (quarterly).

- Develop an adaptation action plan for the risks
- Supervise the climate risk monitoring indicators to control the value loss caused by the climate risk.

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Climate Change Assessment Scenarios

Type	Subject of Evaluation	Evaluation Method	Climate Scenarios	Scenario Summary Description
Physical risk	SAS's production sites in Taiwan	Disaster risk model	The AR5 RCP8.5 of IPCC was adopted as the basis (the most severe climate disaster scenario that may occur in the future if almost no climate policy), to set three future climate scenarios including flooding, drought, and high temperature in 2035. Through collecting the disaster potential diagrams and relevant research data published by the National Science & Technology Center for Disaster Reduction, the probability of occurrence and the disaster potential scale of the three types of climate disasters under the RCP 8.5 scenario are estimated, and the possible scenarios of occurrences in the plants are proposed as the future scenario hypotheses of the physical risk based on the scale of the climate disaster potential	◆ Flooding: When the 4-hour duration of rainfall reaches 650mm, there is no flooding in the plant area. ◆ Drought: There is a 33.5% chance of no rainfall for 51 consecutive days in Miaoli by 2035, creating drought conditions ◆ High temperature: There is a 9.6% chance of a high temperature of 37.25° C occurring in the Hsinchu area in 2035
Transition risks	SAS's production/ operation sites in Taiwan	Qualitative and quantitative risk assessment of low-carbon transition	Referencing the International Energy Agency's (IEA) Announced Pledges Scenario (APS), the future scenario is set to a "global temperature rise of 1.5°C," and the future time scale is set as 2030 or 2050. Subsequently, the detailed future climate scenarios are set based on the attributes of each transition risk event.	1.Aspect of policies and regulations ◆ Carbon tax: the carbon price is US$120/t in 2030 under the IEA WEO 2021 APS scenario ◆ Carbon emission control: Nationally Determined Contributions (NDCs) ◆ Establishment of renewable energy: The Group's goal at the RE stage, i.e. reaching RE20 by 2030 2. Aspect of technology ◆ Low-carbon technology transition: Conduct linear regression with reference to the average carbon reduction cost of reduction-voluntary companies. The estimated carbon reduction cost for enterprises in 2030 is about NT$9,000/ton CO2 ◆ The Company's future operation strategy
Transition opportunities	SAS's production/ operation sites in Taiwan	Qualitative and quantitative risk assessment of low-carbon transition	With reference to the future domestic and international policy development trends and the Company's status and future operation strategies	◆ Nationally Determined Contributions (NDCs) ◆ National renewable energy development policies and goals

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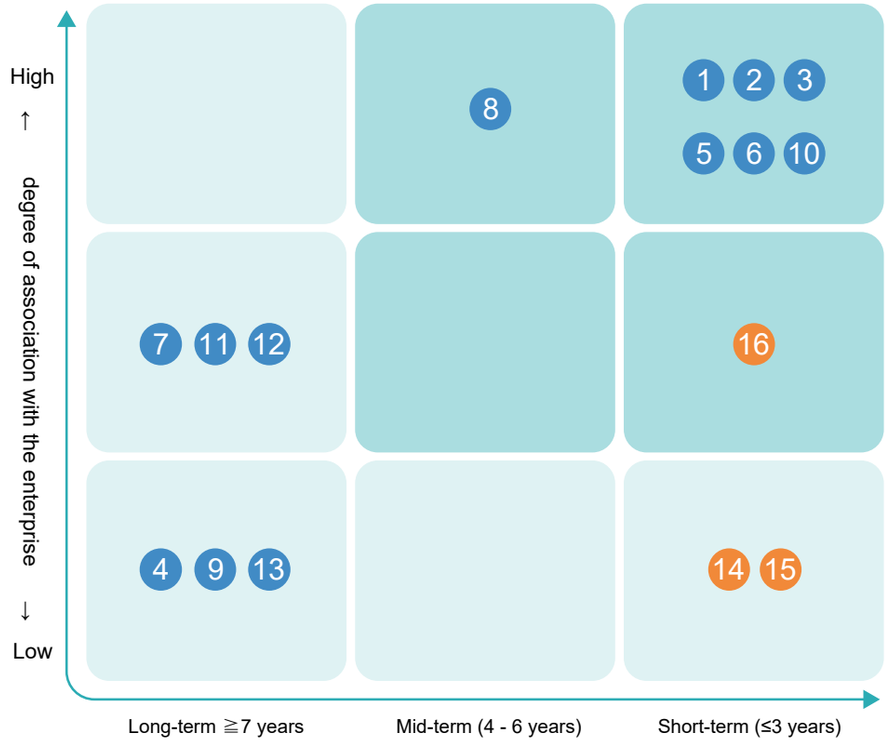
Climate Change Risks and Opportunities - Risks

We searched and analyzed the World Energy Outlook (WEO) 2021 and Energy Technology Perspectives (ETP) 2021 published by the International Energy Agency (IEA) and relevant research reports submitted by other organizations to identify the transition risks that are of greater concern to the manufacturing industry. Additionally, we assessed the operational impacts on the company in response to potential extreme weather events (physical risks) caused by climate change, as well as trends and requirements related to the low-carbon transition. This helped clarify the distribution of short-, medium-, and long-term impacts of various climate issues.

We referred to policy/regulations, technology, market, and reputation risk dimensions to collect 13 transition risk issues and 3 immediate physical risk events. The identification process revealed 8 major risk issues (events).

Climate Change Risk Matrix



Transition risks

1. Carbon tax
2. Carbon emission control
3. Requirements for the percentage of renewable energy
4. Increased involvement in climate-related litigations
5. Increased requirement for disclosure of corporate climate information
6. Customers demand more for third-party sustainability testing of products in the future
7. Increased credit risk
8. Increased penetration of electric vehicles
9. Carbon capture technology
10. Low-carbon technology transformation
11. Increased fossil fuel prices
12. Demand and price changes for recycled materials
13. Decreased amount of usable petroleum

Physical risk

14. Floods (production)
15. Droughts (production)
16. High temperature (production)

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Potential financial impacts of climate change risks and response strategies

Type		Risks	Potential financial impact	Time Scale	Degree of correlation (influence)	Countermeasure	Financial impact of such measure
Physical risk	Immediacy	High temperature (production)	High temperatures will reduce the cooling capacity of air-conditioning equipment, increase the load factor of the air-conditioning system, and thus increase the electricity load (electricity consumption cost).	Short	Mid	1. Setting up backup devices for major energy equipment; 2. Implement an energy management system, supervise and measure the energy efficiency of major energy-consuming equipment, while planning various energy-saving programs.	Invest in various energy-saving measures and equipment, resulting in increasing operating costs.
Transition risks	Policies and regulations	Carbon tax	Subject to domestic and foreign carbon emission regulations and controls, the carbon fees (tariff) may be paid, resulting in an increase in operating costs.	Short	High	1. Low-carbon technology transition 2. Replace corporate vehicles with EVs 3. Purchase of renewable energy	Invest in various low-carbon measures (technology transformation, replacement of energy-consuming equipment, purchase of renewable energy), resulting in increasing operating costs.
		Carbon emission control	Carbon fees will be levied if the carbon emission control quota is exceeded, resulting in an increase in operating costs.	Short	High		
		Requirements for the percentage of renewable energy	Add renewable energy facilities or purchase green electricity, resulting in the higher unit price of renewable energy consumption than the unit price of power purchase from Taipower, thereby increasing the cost of electricity consumption.	Short	High	Purchase green power and certificates for renewable energy power generation sites	Invest in renewable energy power generation projects, resulting in an increase in operating costs.
		Increased requirement for disclosure of corporate climate information	External stakeholders are concerned about the Company's climate actions. Failure to disclose relevant information will affect the corporate image and hinder the Company's related investments and loans.	Short	High	Expand and improve the information related to sustainable development on the Company's official website	Increase spending on optimization and maintenance of the Company's official website.
	Reputation	Customers demand more for third-party sustainability testing of products in the future	According to customer requirements, the relevant sustainability projects are implemented and verified (verified) by a third party. If the projects are not implemented, there is a fear of reduced orders (revenue reduction).	Short	High	In order to meet customer needs and expectations, relevant projects are implemented, and third-party inspection (verification) is carried out to increase external stakeholders' trust in the information disclosed by the Company.	Promotion of relevant projects and inspection (verification) by a third party, with expenditure on consulting and inspection (verification), resulting in an increase in operating costs.
	Technology	Increased penetration of electric vehicles	In order to mitigate the impact of carbon regulations, it is necessary to implement low-carbon measures, resulting in related investment expenditures and increased operating costs.	Mid	High	Replace corporate vehicles with electric vehicles or hybrid vehicles to reduce carbon emissions	Procurement of electric vehicles/ hybrid vehicles to increase management costs.
		Low-carbon technology transformation	The development of new technologies and the introduction of mass production take time to achieve the optimization of production capacity and quality. The Company may not be able to break even at the initial stage of product development and may cause financial burdens.	Short	High	Integrate internal and external resources to accelerate the development of new technologies to optimize cost control	Develop low-carbon products resulting in an increase in R&D expenditures and management costs for resource integration.

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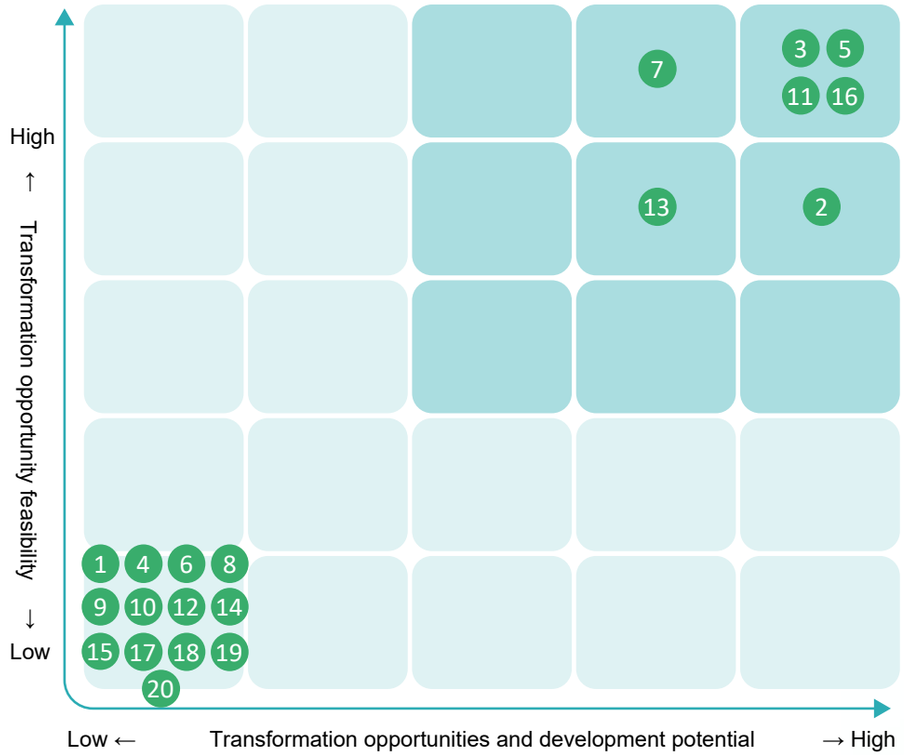
Climate Change Risks and Opportunities - Opportunities

In order to reduce the impact of transition risks on SAS's operations, and in response to the development and demand trends of renewable energy in Taiwan in recent years, the rise of international standards (such as RE100), and supply chain requirements, among other things, the demand for renewable energy has increased, and the Company can expect the growth of solar energy construction business and renewable energy electricity sales business. We collected a total of 20 issues based on aspects such as resource efficiency, energy source, products and services, market, resilience, etc., and identified 7 transition opportunities derived from climate change.

Climate Change Opportunity Matrix



Transition opportunities

1. Adopt more efficient transportation methods
2. Use of production and distribution processes more efficient
3. Recycle and reuse
4. Shift to more efficient buildings
5. Reduction of water usage and consumption
6. Use of low-carbon energy
7. Adoption of incentive policies
8. Use of novel technologies
9. Participation in the carbon trading market
10. Shift to decentralized energy
11. Develop and/or add low-carbon products and services
12. Development of climate adaptation and insurance risk solutions
13. Develop and innovate new products and services
14. Business activity diversification
15. Shifting consumer preferences
16. Entrance into new markets
17. Make good use of public sector incentives
18. Acquire new assets and territories that need to be insured
19. Participate in renewable energy projects and adopt energy-saving measures
20. Energy alternatives/diversification

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Potential Financial Impacts and Response Strategies for Climate Change Opportunities

Type	Opportunity	Potential financial impact	Countermeasure	Financial impact of such measure
Resource efficiency	Use of more efficient production and distribution processes	The Company develops low-carbon transition or energy-saving technologies to reduce electricity expenditure.	Continue to promote the energy management system, replace outdated energy-consuming equipment, and invest in R&D of low-carbon technologies.	Invest in various energy-saving improvement plans and low-carbon technologies, increasing capital expenditure.
	Recycle and reuse	Increase the percentage of silicon recycled materials used, reduce the consumption of virgin silicon materials, reduce direct costs, and reduce indirect greenhouse gas emissions.	Based on the quality acceptable to customers, continue to increase the proportion of auxiliary materials used to reduce the demand for pure materials.	Increase in the purchase expense of silicon auxiliary materials
	Reduction of water usage and consumption	Recycle and reuse water resources to reduce water costs.	1. The Company sets an improvement proposal system, where each department finds opportunities for improvement, and manages and tracks the reported benefits of improvement projects. 2. Regularly collect statistics, review and disclose water resource information in plants	Invest in water recycling equipment, resulting in an increase in capital expenditure.
Source of energy	Adoption of incentive policies	Plan an incentive mechanism for supplier's sustainability action, to enhance the Company's greenhouse gas reduction effect, to meet customer expectations, and thereby increase the company's revenue.	Increasing procurement volumes and providing other incentives can significantly reduce our supply chain's carbon footprint.	increased procurement ratio of low-carbon raw materials can indirectly result in an increase in raw material procurement costs (carbon reduction costs are passed on to suppliers)
Products and services	Develop and/or add low-carbon products and services	Increase the solar energy construction business to increase revenue.	Increase the number of construction sites year by year as a business goal.	Increase the construction expenditure and maintenance and operation expenses of the project sites.
	Develop and innovate new products and services	The technological innovation of solar cells and the additional demand for the sales thereof increase the revenue.	Deploy the production capacity according to the market conditions as the operating target.	Increase the R&D expenditure of solar cell technology.
Market	Entrance into new markets	Based on the renewable energy trend and policy forecast in recent years, it is estimated a market demand for green power, which will help the Company's renewable energy electricity sales business and thus increase revenue.	Increase the sale of renewable energy electricity based on the market trend and the installation of renewable energy year by year.	Implement policies and plans, resulting in increases in manpower and management costs.

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Climate Action Indicators and Targets

With the frequent occurrence of extreme climate events, governments around the world have successively promulgated increasingly stringent sustainable development policies. "Net zero" has become the ultimate carbon reduction goal for governments around the world, and the support of enterprises and the realization of net zero transformation are inevitable. SAS has changed its role from a regulated emitter to a proactive provider of climate solutions. We have followed the Science-Based Targets (SBT) and internal business strategies to map out the pathway blueprint for net zero transition.

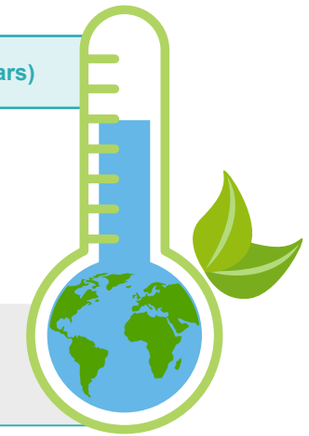
Scope 1 & Scope 2

Our goal is to reduce Scope 1 and Scope 2 carbon emissions by 42% by 2030 from the base year (2022). As the main source of our greenhouse gas emissions is electricity (scope 2), the reduction in electricity consumption and improvement of energy efficiency is our top priority for carbon reduction. We will reduce carbon through four main pillars of reduction actions: optimizing production processes to improve product efficiency, improving equipment energy efficiency, replacing old equipment and maintaining and optimizing existing equipment and facilities, and purchasing renewable energy to achieve the goal of carbon reduction.

Scope 3

The goal is to reduce Scope 3 carbon emissions by 25% from the base year (2022) by 2030. Our Scope 3 carbon emissions are mainly focused on the upstream purchase of products and services, of which, the key raw materials (poly and wafer) have the highest carbon emissions (over 95% of purchased product emissions and over 90% of Scope 3 emissions). Therefore, we will prioritize the management of carbon emissions from key raw materials, and gradually require suppliers to carry out carbon inspection and suppliers with notable carbon reduction will be selected first.

Target scope	Short-term (1 - 3 years)	Mid-term (3 - 10 years)	Long-term (over 10 years)
Scope 1, 2 Reduction Target	◆ More than 2% power saved year-on-year	◆ More than 2% power saved year-on-year ◆ 2030：RE20 ◆ 2030: Scope 1 + Scope 2 emissions reduced by 42% compared to the base year	◆ 2035：RE35 ◆ 2040：RE50 ◆ 2050：RE100
Scope 3 Reduction Target	◆ Ratio of pure silicon used in ingot < 50%	◆ 2030: Scope 3 emissions reduced by 25% compared to the base year	--



Additionally, to promote self-regulation and accelerate the reduction of our greenhouse gas emissions, we plan to pilot internal carbon pricing in 2024. By referencing the Carbon Border Adjustment Mechanism (CBAM) prices, we will incorporate the carbon emissions from our operational activities into financial cost estimates. This approach aims to change employee behavior towards low-carbon practices and mitigate potential future impacts from carbon regulations on the Company.

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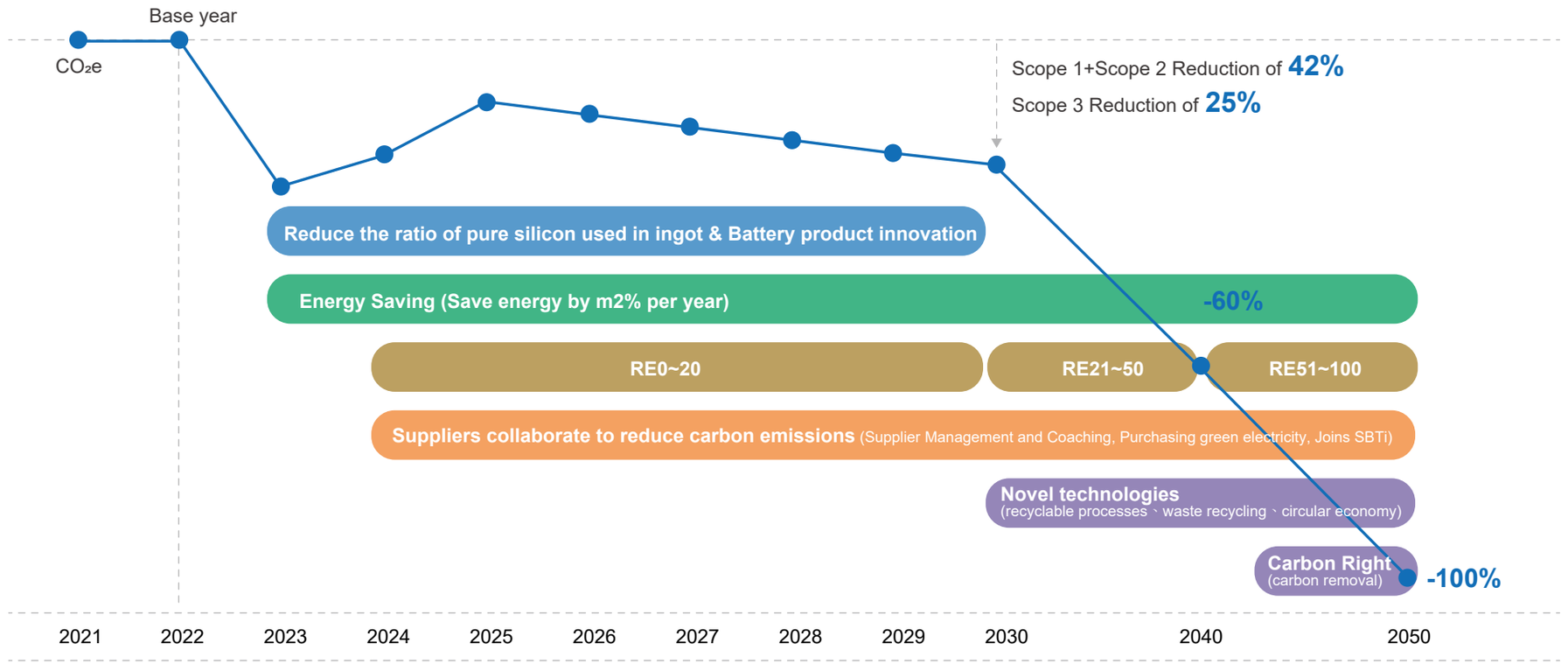

Process Improvement & Product Innovation
(Ratio of pure silicon used in ingot < 50%)

Energy Saving
(Save energy by more than 2% per year)

Renewable energy
(2030 RE20
(2050 RE100)

Supply chain management

New Technology & Carbon Right
(Designed recyclable processes, ammonia-hydrogen, CCUS, purchasing carbon removal)

Note ：參考未來運營策略及減碳措施推估碳排放量路徑

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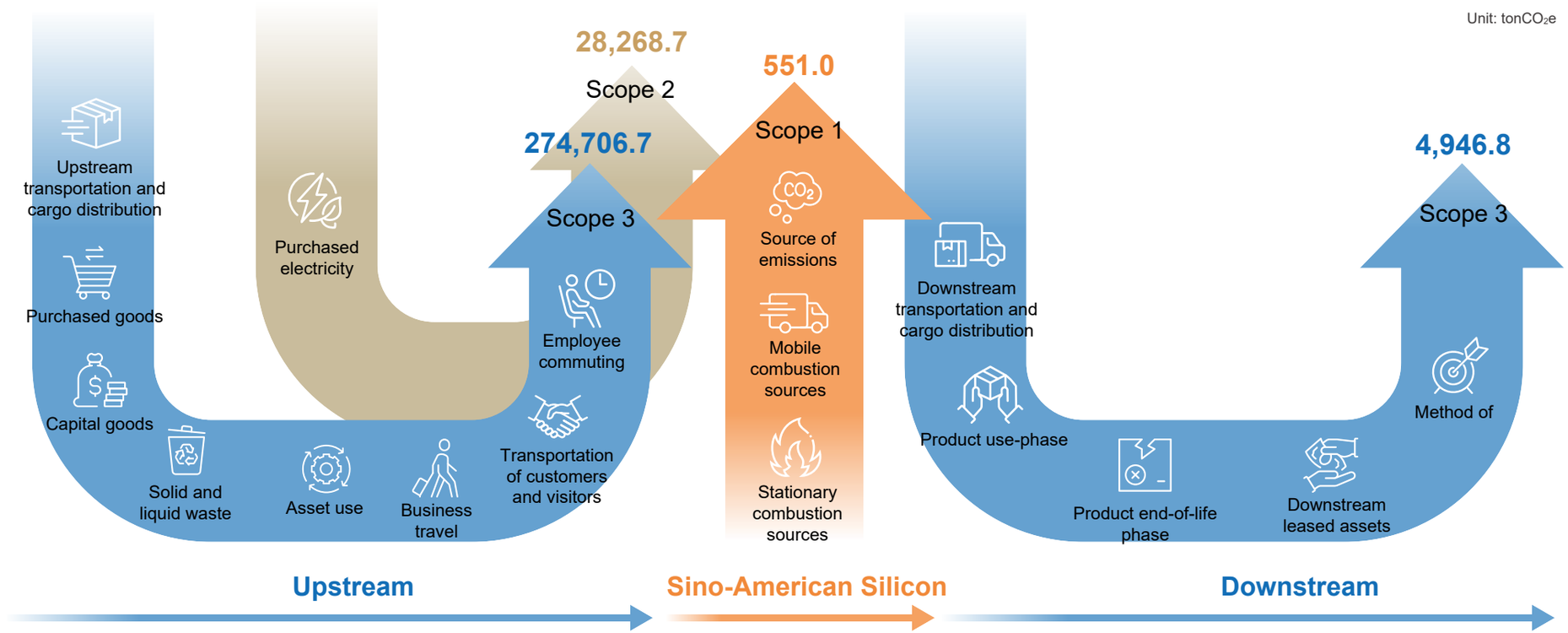
Carbon Emission Management

Since 2021, SAS has gradually promoted and completed the systematic GHG emissions inventory (ISO 14064-1: 2018) and inventory creation. The reporting boundaries include: the headquarters, Chunan Branch, Yilan Branch, and Hsu-Hsin Branch, with 2022 as the baseline year. Each year, the greenhouse gas emissions of each plant are regularly inventoried and verified by a third party to comprehensively understand the emission status and validate the effectiveness of reduction actions.

SAS' Chunan and Yilan branches have adopted the "operational control method" as their organization boundary setting. Greenhouse gas emissions related to organizational operations include direct (Scope 1, direct GHG emissions), energy indirect (Scope 2, indirect GHG emissions from imported energy), and other indirect GHG emission sources (Scope 3 to Scope 6). Our greenhouse gas emissions calculations were based on the 7 greenhouse gases defined by the ISO 14064-1 standard: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). We have primarily adopted the "emission coefficient method." The emission factors referenced are from the EPA's GHG Emission Factor Management Table version 6.0.4, the EPA Carbon Footprint Calculation Service Platform, the Industrial Technology Research Institute's DoITPro database, and relevant literature. The Global Warming Potential (GWP) values used in the calculation process by Sino-American Silicon Products Inc. (SAS) are referenced from the IPCC AR5 (2013) GWP values. The greenhouse gases produced include CO_2, CH_4, N_2O, and HFCs, with no greenhouse gas emissions from perfluorinated compounds.

2023 SAS GHG Emissions



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Scope 1 & Scope 2

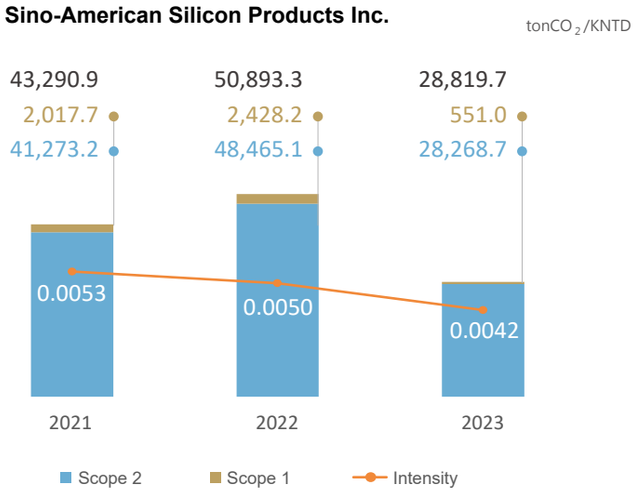
In 2023, SAS' Scope 1 direct greenhouse gas emissions were 551.0 ton/CO2e, and the Scope 2 indirect greenhouse gas emissions were 28,268.7 ton/CO2e, or 43.4% lower than the Scope 1 and Scope 2 emissions in the previous year. This was mainly due to the decrease in production capacity; however, the emission per unit of revenue from the energy intensity indicator, it shows that it was 0.0042 tonCO2e/KNTD in 2023, demonstrating a year-by-year decline over the past three years, indicating that our emission reduction was not only affected by production capacity but also resulted from carbon-reduction actions.

Scope 1 and Scope 2 Emission Sources

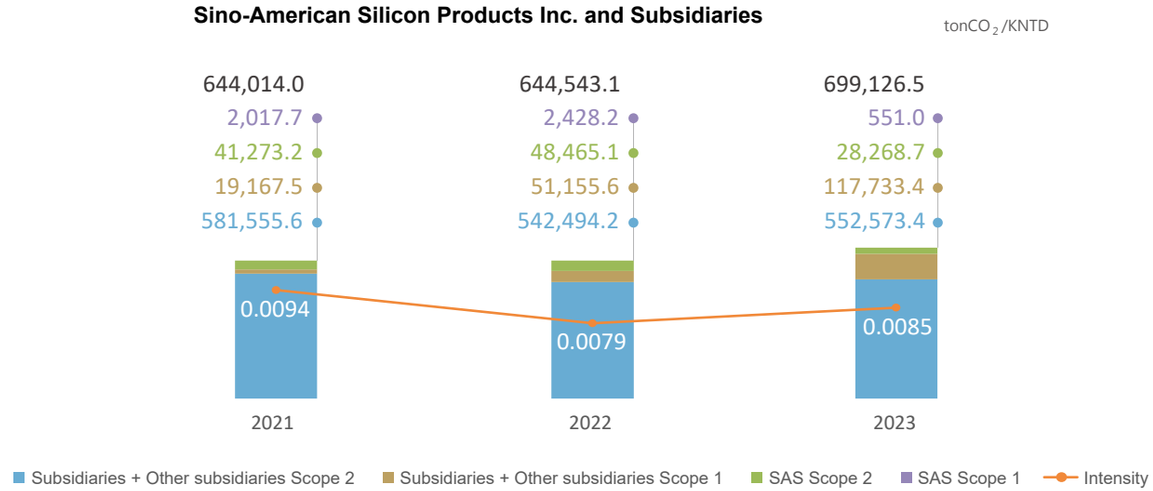
Type of emission				Emission source
Scope 1	Direct greenhouse gas emissions	1.1	Direct emissions from stationary combustion	Fuel for generators, boilers and weeding machines
		1.2	Direct emissions from mobile combustion	Fuel for mobile devices (office vehicles, fork-lifts)
		1.4	Direct fugitive emissions from GHG released from manual systems.	Greenhouse gas emitted from septic tanks, stationary pollution source discharge pipes (VOCs), wastewater with anaerobic treatment, fire-fighting equipment, refrigerants, etc.
Scope 2	Indirect GHG emissions from imported energy	2.1	Indirect emissions from imported electricity	Purchased electricity

Scope 1 and Scope 2 Emissions

Sino-American Silicon Products Inc.



Sino-American Silicon Products Inc. and Subsidiaries



Note：
1. Sino-American Silicon Products Inc. Scope:
   2021 - Chunan Branch (Plant 2), and Yilan Branch (Plants 1 & 3)
   2022 & 2023 - Headquarter, Chunan Branch (Chunan Plant, Plant 2), Yilan Branch (Plants 1 & 3), Hsu-Hsin Branch
2. Scope of Subsidiaries: (Based on the year of inclusion in the consolidated financial statement)
   2021 - GlobalWafers (TSC not yet inventoried)
   2022 - GlobalWafers, TSC, and Advanced Wireless Semiconductor Company (newly added subsidiaries in the year)
   2023 - GlobalWafers, TSC, Advanced Wireless Semiconductor Company, and Actron Technology Corp. (newly added subsidiaries in the year)
3. Scope of Other Subsidiaries:
   2022 and 2023 - Sustainable Energy Solution Co., Ltd. (other subsidiaries were not included in the statistics because the GHG inventory had not been completed)
4. The electricity emission coefficient in the Taiwan Plants is based on the announcement by the Bureau of Energy, MOEA, which is 0.495 (kg CO2e/kWh) for 2022.
5. Greenhouse Gas Emission Intensity: Total emissions from Scope 1 & 2 (tons CO2e) / Revenue (KNTD); the intensity for "SAS" is calculated using individual revenue, while the intensity for "SAS and subsidiaries (other subsidiaries)" is calculated using consolidated revenue.
6. The Global Warming Potential (GWP) values used by SAS are from the IPCC Assessment Report AR5; subsidiaries and other subsidiaries use GWP values from both the IPCC Assessment Reports AR5 and AR6.

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Scope 3

In 2023, SAS's Scope 3 indirect greenhouse gas emissions were 279,653.505 tonCO2e, a 64.7% reduction from the previous year's emissions. The main reason is the impact of reduced production capacity and the effect of our carbon reduction actions - reducing tonnage. The emission of purchased products is reduced by the proportion of pure silicon material.

Scope 3 Emissions

Unit: ton CO_2e

Type of emission	2022	2023
Type 3 Indirect GHG emissions from transport	1,132.760	624.145
3.1 Emissions from upstream transport and goods distribution	401.745	141.195
3.2 Emissions from downstream transport and goods distribution	300.461	170.199
3.3 Emissions from employee commuting	422.192	296.936
3.4 Emissions from the transportation of customers and visitors	Not quantified	Not quantified
3.5 Emissions from business travel	8.361	15.812
Type 4 Indirect GHG emissions from products used by the organization	785,531.825	274,252.774
4.1 Emissions from purchased goods	784,039.725	273,848.549
4.2 Emissions from capital goods	1,069.596	244.392
4.3 Emissions from solid and liquid waste handling	422.504	159.832
4.4 Emissions from asset use	Not quantified	Not quantified
4.5 Emissions from the use of services not described in the above sub-types	Not quantified	Not quantified
Type 5 Indirect GHG Emissions from Users Using the Organization's Products	5,180.453	4,776.586
5.1 Product use-phase emissions or removals	None	None
5.2 Emissions from downstream leased assets	5,180.453	4,776.586
5.3 Product end-of-life phase emissions	Not quantified	Not quantified
5.4 Emissions from investments	Not quantified	Not quantified
Type 6 Indirect GHG emissions from other sources	None	None
Total	791,845.038	279,653.505

Note: Scope: SAS Headquarter, Chunan Branch (Chunan Plant, Plant 2), Yilan Branch (Plants 1&3), Hsu-Hsin Branch.

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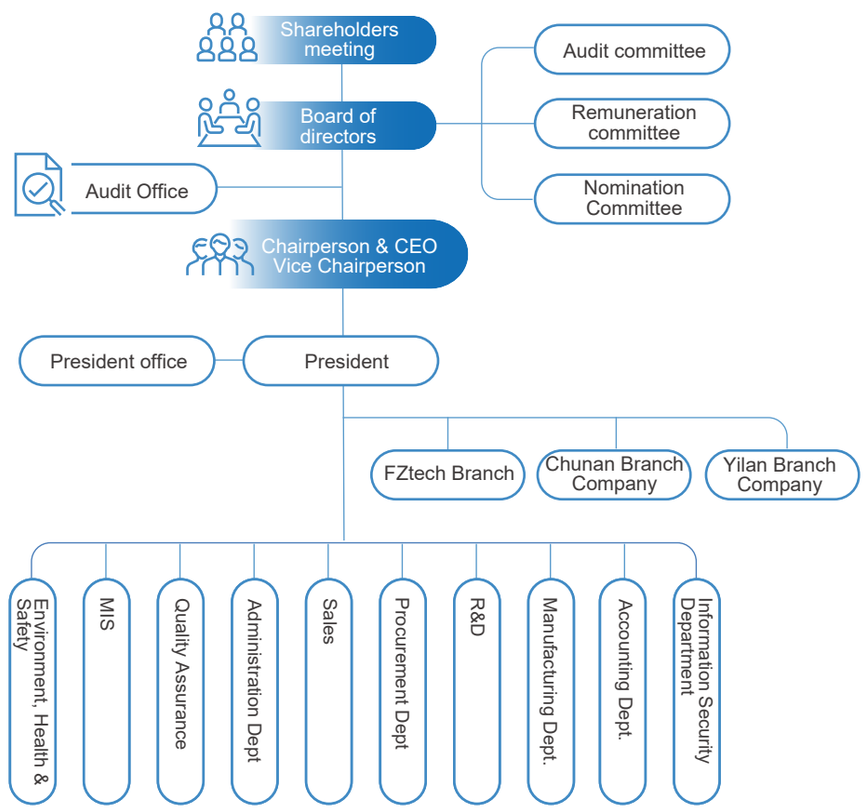
1.1 Corporate Governance

Sino-American Silicon Products Inc. (SAS) has long promoted ethical operation policy and strengthened information disclosure transparency in order to uphold the ethical corporate culture. Over the past decade, SAS has consistently ranked among the top 5% of all TPEx-listed companies in Corporate Governance Evaluation, underscoring SAS's unwavering commitment to sustainable corporate operations.

1.1.1 Corporate Governance Structure

SAS Organizational Chart



Summary of key points for the corporate governance organization

- Among the 11 directors, 4 are independent directors.
- Among the 11 directors, 1 is a female director.
- The Audit Committee and Remuneration Committee both consist of independent directors.
- The Nomination Committee has 6 members of whom 4 are independent directors.
- The organizational charter of all committees is publicly disclosed in the corporate website.
- The board of directors and the functional committees have conduct annual self-performance evaluations and disclose the evaluation results on the company website.
- A corporate governance supervisor has been established to implement corporate governance and strengthen the functions of the board of directors.

Board Operations

SAS's board of directors consists of 11 directors with rich knowledge and experience, of which 4 are independent directors. Each director's solid academic background and industry experience enable them to fulfill their supervision and management responsibilities while making prudent business decisions. Important decision-making proposals related to the board of directors are submitted to the audit committee for initial review and discussion before they are sent to the board of directors for resolution. Board resolutions are published on the Company's website to enhance Company information transparency and protect shareholders' rights.

To enhance director competency and legal acumen, the Company mandates at least six hours of relevant training annually for each board member.. The company has also established "Directions for the Implementation of Continuing Education for Directors," which include courses related to corporate governance themes such as finance, risk management, business, commerce, law, accounting, and corporate social responsibility. The 2023 director training curriculum encompassed corporate governance, securities regulations, insider trading prevention and response, ESG, global net zero initiatives, and sustainable development topics, such as climate change.

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Board of Directors Member Diversification

The Company's "Corporate Governance Best-Practice Principles" has expressly defined the formation of the Board members and ability to be held by the members. The Company has also established the diversified policy for the Board members. The composition of the board of directors has been determined by taking diversity into consideration, and appropriate policy on diversity based on the Company's business operations, operating dynamics, and development has been formulated, as the following two general standards:

I. Basic requirements and values: Gender, age, nationality, and culture;

II.Professional knowledge and skills: A professional background (e.g., law, accounting, industry, finance, marketing, technology), professional skills, and industry experience.

The Company values gender equality for the board of directors, with the target of at least one seat held by a female director. The board members have working experience and expertise in operation management, knowledge of the industry, finance, and strategy management to implement the diversified policy of board members. For details on the professional qualifications of the directors and the implementation of diversity, please refer to the Annual Report.

Recusal by Board Members

The Rules of Procedure for Board of Directors Meetings and the organizational charter of the Audit Committee contain the following provision: If a director or a juristic person that the director represents is an interested party in relation to an agenda item, the director shall state the important aspects of the interested party relationship at the respective meeting. When the relationship is likely to prejudice the interest of this Corporation, that director may state his/her opinions and respond to inquiries but shall not participate in discussion or voting on that agenda item and shall recuse himself or herself from the discussion or the voting on the item. The said director may also not exercise voting rights as proxy for another director.

The election of SAS directors (including independent directors) shall be conducted via the candidate nomination system pursuant to Article 192-1 of the Company Act, whereby the shareholders meeting shall elect the directors from a list of candidates. In 2023, the SAS board of directors convened a total of 11 meetings with an average attendance rate of 96%. The composition of the Board of Directors, along with the academic qualifications, professional experience and attendance records of its members, is illustrated in the table below:

Main academic (experience) background and attendance status of board members in 2023

Title	Name	Gender	Primary professional (educational) background	Actual no. of presence (in attendance)	No. of presence by proxy	Actual presence (attendance) rate (%)	Notes
Chairperson	Hsiu-Lan Hsu	Female	Master of Computer Science, University of Illinois/President of the Company	11	0	100%	Reelected on June 21, 2023
Vice Chairperson	Tang-Liang Yao	Male	Master of Management and Research Institute of Tamkang University/ Assistant Manager of Manufacturing Department of Xuxing Technology Corporation/ President of the Company	11	0	100%	Reelected on June 21, 2023
Director	Ming-Kuang Lu	Male	Honorary Doctor of Engineering of National Chiao Tung University/ Honorary Doctor of Engineering of Tatung University/ Academician of Industrial Technology Research Institute/ President of Lite-On Semiconductor Corporation/ President of Xuxing Science and Technology Corporation/ Vice President of Xuli Corporation	10	1	91%	Reelected on June 21, 2023
Director	Wen-Huei Tsai	Male	Department of Accounting, National Chengchi University/ Director of Hongdian Medical Science and Technology Corporation/ Director of ENE Technology Inc.	11	0	100%	Reelected on June 21, 2023

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Title	Name	Gender	Primary professional (educational) background	Actual no. of presence (in attendance)	No. of presence by proxy	Actual presence (attendance) rate (%)	Notes
Director	Feng-Ming Chang	Male	Master of Computer Science, University of Southern California/ Master of Economics, Texas A&M University/ Director of TECO Corporation/ Director of Syntec Scientific Corporation	11	0	100%	Reelected on June 21, 2023
Director	Kai Jiang Co., Ltd Representative: Hau Fang	Male	Master of International Business Administration, National ChengChi University/ Bachelor of Business Administration, University of Arizona, USA/ Vice President, Asia Carbons & Technology Inc.	11	0	100%	Reelected on June 21, 2023
Director	Kun Chang Investment Co., Ltd Representative: Edward Andrew	Male	Department of Energy Economics, University of California, Berkeley/ Chairperson of Edison's Co., Ltd./ Director of VIA Faith and Love Charity Foundation/ Director of Chinese Christian Faith and Love Foundation	9	2	82%	Reelected on June 21, 2023
Independent Director	Jin-Tang Liu	Male	Bachelor, Department of Accounting, Tamkang University/ CPA, KPMG/ Governor of 21th Term, Taiwan Provincial CPA Association/ Independent Director of Min Aik Precision Industrial Co., Ltd.	10	1	91%	Reelected on June 21, 2023
Independent Director	Hou-Chung Kuo	Male	PhD, Electrical Engineering and Computer Science, University of Illinois, Urbana-Champaign	10	1	91%	Reelected on June 21, 2023
Independent Director	Shao-Lun Li	Male	PhD of Material Science, University of California/ Executive VP, Lam Research Corporation/ Director of TVBS Media Inc./ Supervisor of HTC Corporation/ President of Chander Electronics Corporation	11	0	100%	Reelected on June 21, 2023
Independent Director	Chien-Yong Ma	Male	PhD., Institute of Metallurgy, University of Stuttgart/ Master of Material Engineering, National Taiwan University/ President of Solar Applied Materials Technology Corp./ Chairperson of Solar Applied Materials Technology Corp.	6	0	100%	Elected on June 21, 2023

Please refer to SAS 2023 Annual Report for information on directors concurrently holding positions in SAS and other companies, director remuneration, and board resolutions.

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Remuneration Committee

SAS has established a Remuneration Committee to implement a systematic salary scheme. The Remuneration Committee is in charge of formulating and reviewing performance assessment and remuneration policies, systems, standards, and structures for directors and managers.

In 2023, GlobalWafers' board of directors convened a total of 3 meetings, with an average attendance rate of 100%:

For the organizational charter of the Remuneration Committee, please refer to the SAS corporate website.

For details on Remuneration Committee resolutions, please refer to the SAS 2023 Annual Report.

Regular assessment of corporate governance and operational performance of directors and managers by the Remuneration Committee

Ensure that the performance of directors and managers are consistent to their personal remuneration.

Propose amendments and assist the board of directors in the implementation and evaluation of the Company's overall remuneration, welfare policies, and the remuneration of directors and managers.

Evaluation and review for the future shall include sustainable performance within the scope of remuneration evaluation.

Audit Committee

SAS has established an Audit Committee composed of all independent directors to strengthen the corporate governance internal supervision mechanism. The main responsibilities of the Audit Committee are to review and discuss the Company's financial reports, qualification review and selection (dismissal) of CPA, independence and performance, CPA public expense, implementation and amendment of the Company's internal control system, legal compliance, control the Company's existing or potential risks, etc.

In 2023, GlobalWafers' board of directors convened a total of 9 meetings, with an average attendance rate of 97%:

For the organizational charter of the Audit Committee, please refer to the SAS corporate website.

For details on Audit Committee resolutions, please refer to the SAS 2023 Annual Report.

Nomination Committee

SAS has established a Nomination Committee to improve the functions of the Company's board of directors and strengthen the management mechanism. The committee is composed of 6 directors, of which 4 are independent directors. The main responsibilities of the Nomination Committee are to construct and develop the organizational structure of the board of directors and various committees; seek, review, and nominate candidates for directors and senior managers based on the professional knowledge, technology, experience, gender, and other diverse backgrounds as well as the independence needs of board members and senior managers; and formulate and review the directors' training plans and succession plans for directors and senior managers.

A total of 1 meeting was held in 2023, with an average attendance rate of 100%.

For the organizational charter of the Nomination Committee, please refer to the SAS corporate website.

For details on Nomination Committee resolutions, please refer to the SAS 2023 Annual Report.

Performance Assessment

The Company has performed annual performance evaluation work in accordance with the "Board of Directors and Functional Committee Performance Evaluation Method" in order to implement corporate governance, enhance the functions of the company's board of directors and functional committees, and establish performance targets to enhance operational efficiency. An evaluation report shall be submitted to the board of directors before the end of the first quarter of the following year.

At the end of each year, the President's Office is responsible for executing and coordinating the evaluation process. Internal questionnaires are collected. The evaluation is completed through the internal self-evaluation, and the self-evaluation of board members and functional members. The evaluation scope includes the performance evaluation of the whole Board of Directors, individual members of the Board of Directors, and the functional committees. The performance evaluation criteria primarily include the level of participation in the Company's operations, improvement in the decision-making quality of the Board and functional committees, the composition and structure of the board and functional committees, election of directors and functional committee members, continuing education and internal control, etc. The 2023 performance evaluation result was excellent. The overall operation of the Board of Directors and all functional committees was sound, which met the needs of corporate governance. The evaluation results have been reported to the board of directors on February 29, 2024.

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Board of Directors

- Submission of motions to the board of directors for discussion in accordance with the laws
- Comply with Directors' Avoidance of Conflicts of Interest
- Review the Company's accounting system, financial status and financial reports, audit reports, and tracking status
- Board directors and certification accountants conduct communication. In events of new accounting bulletins or major adjustments in financial reports, there will be meetings for Q&A with accountants and for discussions
- Assessment and monitoring of existing or potential risks
- Whether board directors have all completed the training hours as required by governing authorities
- Attendance rate of each board meeting is 2/3 and above
- Over 1/2 directors attended the shareholders meeting
- Board directors and the company's management executive maintain an excellent communication channel.

Remuneration committee

- The Remuneration Committee chairman is able to direct meeting proceedings and thereby ensures effective and efficient discussions and resolutions.
- All Remuneration Committee members possess professional knowledge of the industry and compensation management competence.
- All remuneration committee members are all fully aware of the core targets of the organizational operation, and familiar with all remuneration plans within the company as well as all composition factors of the board directors' and managers' salaries.
- Formulate and regularly review the company's salary policies, systems, standards and structure.
- The assessment results of the board directors' and managers' performance indicators are applied as the key basis for remuneration planning and distribution so as to make objective and fair decisions.
- Formulate and regularly review the board performance assessment system to see if it connects with the payment guidelines for the board emoluments.
- Regularly report to the board of directors the remuneration committee's discussion and resolutions.

Audit committee

- Clear understanding of the roles and responsibilities of the entire Audit Committee and its individual members.
- Regularly report to the board of directors the audit committee's activities, problems uncovered and relevant suggestions.
- All Audit Committee members possess professional knowledge of the industry including diverse experience and professional backgrounds.
- Annually and regularly review the audited and non-audited public funds and services provided by certification accountants and affirm the scope of audit services provided.
- Review, along with certification accountants, any audit-related problems and challenges, as well as response of the governing authorities.
- Regularly meet with internal auditor to assess the effectiveness of internal audit results. Meet with individual auditors at least once a year or whenever necessary.
- During the review process, the audit committee effectively identify and assess major risks and evaluate the necessary steps to take for risk control.
- Has evaluated and monitored the company's existing or potential risks.
- Review with prior approval of proposed transactions with interested parties to ensure conformity to relevant policies and report approved transactions to the board.

Nomination Committee

- Provide due care as good managers, faithfully perform their duties, and submit their suggestions to the board of directors for discussion
- Seek, review, and nominate candidates for directors and senior managers based on the professional knowledge, technology, experience, gender, and other diverse backgrounds as well as independence needs of board members and senior managers.
- Construct and develop the organizational structure of the board of directors and the various committees; and conduct performance evaluations of the board of directors, committees, and directors in order to evaluate the independence of independent directors.
- Formulate and review director training and succession plans for directors and senior managers.

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1.1.2 Integrity & Ethics

Core Values

"Honesty and integrity" are the core values of SAS. Sino-American Silicon has formulated the relevant specifications and communication mechanisms for all directors, managers, and colleagues to follow in order to establish an honest business environment. Through a rigorous management mechanism, we minimize the risks associated with integrity, while consistently striving to create value for customers and achieve the goal of generating profits for shareholders and other stakeholders.

Internal Regulation System

To implement integrity management, SAS has established important internal regulations such as "Ethical Corporate Management Best Practice Principles," "Codes of Ethical Conduct," and "Procedures for Ethical Management and Guidelines for Conduct" to stipulate specific items that SAS directors, managers, and employees must pay attention to during business operations. These contents cover integrity management, ethical behavior, prohibition of unreasonable hospitality or improper interests, prohibition of intellectual property rights infringement, prohibition of anti-competition behaviors, and conflict of interests. These documents are published on the Company website and internal website for colleagues to review at any time to improve law compliance and professional ethics awareness for all colleagues.

For marketing and procurement colleagues, the Company has reiterated the importance of "ethics and integrity" via "Sales Management Measures" and "Procurement Management Measures" and established a comprehensive business law compliance mechanism covering topics such as fair competition, due diligence, trade control (trading counterparty, subject matter, purpose of use, cash flow, and relevant trade control and restrictions of major trading countries), anti-corruption, anti-bribery, and conflict of interests prevention and exemption mechanism. The Company also uses supply chain control to ensure compliance with conflict-free minerals provisions.

In addition to signing "Intellectual Property Rights and Confidentiality Agreements" with employees, the marketing and procurement units are also required to sign non-disclosure agreements (NDAs) before cooperating with suppliers and customers in order to prevent acts of information-related dishonesty such as disclosing company secrets to others. Employees are also prohibited from inquiring or collecting non-job-related company operation secrets to fully protect the sensitive or confidential information of business partners. Sino-American Silicon Products Inc. has established the "Personal Data Protection Management Measures," regularly implements personal data inventory, and practices personal privacy confidentiality obligations with the highest ethical standards.

Sino-American Silicon Products Inc. did not encounter any legal incidents or penalties related to anti-competitive behavior in 2023.

Anti-Corruption

Sino-American Silicon Products Inc. insists on "3 Nos": No bribe offering, no bribe receiving, and no bribe demanding. The "Ethical Corporate Management Best Practice Principles" clearly stipulates that colleagues shall not directly or indirectly provide, promise, request or receive any improper benefits during the process of engaging in business activities. The "Procedures for Ethical Management and Guidelines for Conduct" further provides clear codes of conduct for colleagues, and the key points include: (1) If payment is provided or promised due to threat or intimidation, record the process, report to the supervisor, and notify the compliance unit. (2) If others provide or promise illicit benefits, return or refuse the offer, and report to the supervisor and notify the compliance unit. If it cannot be returned, hand it over to the legal compliance unit for processing within 3 days from the date of receipt.

In 2023, SAS arranged "Integrity Management" education and training courses for all new employees upon joining, clearly conveying correct concepts, enhancing compliance awareness and ensuring proper control of corruption risks.

1. Be vigilant and cautious about all interests that may affect business decision-making.
2. Regardless of value, "no bribe offering, no bribe receiving, and no bribe demanding."
3. "No prior gifts and no subsequent gratuities."

Sino-American Silicon Products Inc. has adopted "self-legal-compliance evaluation," "e-mail tracking," "qualitative interviews," "donation review," and other ethics-related risk assessment mechanisms to identify units and personnel with a higher risk of corruption. The marketing and procurement units are the first-line external contact units due to their business attributes, so they are faced with more internal/external incentives and opportunities for dishonest behaviors (i.e., cash, gifts, services, entertainment, facilitating fees). They are identified as having a higher risk of corruption by the Company. As such, SAS has stipulated the "anti-bribery and anti-corruption" clauses in the "Sales Management Measures" and "Procurement Management Process" measures to prohibit any bribery and corruption such as direct or indirect requests, appointments, deliveries, requests, or acceptance of bribes, any unreasonable gifts, entertainment, or other improper benefits from any third party. In case of violation, the violator must face criminal and civil liabilities in addition to punishment according to the Company's employee Reward and Punishment Provisions. If SAS has suffered damages due to such actions, the violator must also compensate SAS for the losses thus incurred.

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In addition to the aforesaid internal risk control measures, SAS also urges all suppliers and customers to adopt the highest corruption prevention standards, and sign "Supplier Code of Conduct" or "Customer Code of Conduct" documents to declare the "anti-bribery and anti-corruption" concepts to all of the Company's transaction partners. SAS requires suppliers and customers to neither pay nor accept bribes in order to prevent improperly influencing transaction decisions under any circumstances. In addition, SAS shall also instruct its marketing and procurement personnel to fill-in the "Customer/Dealer/Agent Integrity Management Evaluation Form" and "Supplier Integrity Management Evaluation Form" before establishing business relationships, which shall serve as the basis of transaction risk evaluation.

The employees of SAS shall obtain a high level of knowledge about anti-corruption behaviors through continuous education and training. In 2023, there were no employee-related corruption incidents.

For Code of Integrity Management and other internal regulations, please refer to the SAS website.

Recusal for conflicts of interest

Sino-American Silicon attaches great importance to ethical integrity. The Company formulated the "Ethical Corporate Management Best Practice Principles," the "Procedures for Ethical Management and Guidelines for Conduct," and the "Codes of Ethical Conduct" to provide that when directors, managers, and other interested parties participating or attending a board of directors meeting have a conflict of interest relating to the proposals listed by the board of directors, the conflict of interest shall be explained to the board of directors. If such conflict of interest is harmful to the Company, said persons shall be recused and shall not act on behalf of other directors to exercise their voting rights.

To effectively prevent conflicts of interest, SAS has stipulated that its employees shall not use their positions in the Company to obtain improper benefits for the following persons or companies:

- employee himself/herself, spouse, parents, children, or relatives within the second degree of kinship.
- enterprises in which the aforementioned personnel directly or indirectly enjoy considerable financial benefits.
- an enterprise in which the employee serves concurrently as the chairman, director, independent director, or senior manager.

SAS has provided appropriate channels for directors, independent directors, or managers to proactively explain whether they have potential conflicts of interest with the Company.

Reporting Channel and Informant Protection

SAS has established the "Measures for the Report on Illegal, Immoral and Dishonest Acts" in order to ensure integrity management compliance and clearly stipulate the disciplinary and appeal system for integrity management violations. The Company has also established and provided employee suggestion boxes, e-mails, and appeal hotlines on the Company's internal website; and promised to protect whistleblowers from any mistreatment due to whistleblowing. The goal is to encourage the Company's colleagues and stakeholders to report unethical behaviors or misconducts. In 2023, the "Procedures for Handling Whistleblowing on Illegal, Unethical and Dishonest Conduct" were amended in accordance with the TPEx's "Ethical Corporate Management Best Practice Principles for TWSE/GTSM Listed Companies" and the "Guidelines for the Adoption of Codes of Ethical Conduct for TWSE/GTSM Listed Companies," to specify that anonymous whistleblowing is permitted.

Personnel involved in verifying and handling reported matters should inform the whistleblower in writing that their identity and the content of the report will be kept confidential. If the person involved is found to have violated integrity management regulations, they will be subject to disciplinary action based on the severity of the violation. The specific reporting process and the responsible unit are summarized as follows:

1. Acceptance Unit and Accepted Party

Acceptance Unit	Accepted Party
Spokesperson	1. Shareholders, 2. Investors, 3. Other interested parties
Personnel manager	1. Company insiders, 2. Customers, 3. Suppliers, 4. Contractors
Legal Affairs and Independent Director	Same as spokesperson and personnel supervisor accepted parties

2. Processing Unit and Procedure

The Accused	Processing Procedure		Processing Unit
General Employees	Money Case	Report to the President	Human Resources (legal affairs must assist)
	Non-money Case	Report to the Chairperson	Human Resources + Department Supervisor (legal affairs must assist)
Chairperson, Director, Senior Executive	Report Submission Independent Director or Audit Committee		Human Resources + Legal Affairs

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3. Handling Method

Steps	Responsible Unit	Content
1. Investigate the Facts	Human Resources, Legal Affairs	◆ Investigate the relevant facts immediately; if it is believed that there is indeed a risk of unethical behavior, submit the case to the Chairperson of the board of directors for case delegation. ◆ The relevant personnel handling the case shall issue a written disclosure to keep the identity of the informant and the content of the report confidential. ◆ Written records of report acceptance and investigation shall be kept for 5 years.
2. If verified to be true	Human Resources, Legal Affairs	◆ The perpetrator is required to stop the relevant behaviors and shall be properly disciplined via the Company's internal procedures or legal procedures. ◆ Information such as the job title, date of violation, facts of violation, provisions violated, and handling status shall be disclosed on the Market Observation Post System. (This also applies to cases exempted by the board of directors.) ◆ If necessary, report to the competent authority or transfer the case to the judicial authority for investigation. ◆ The relevant unit of the perpetrator shall review the internal control system and operating procedures and propose improvement measures. ◆ The investigation results shall be recorded in writing and be kept for 5 years.
3. Relief	Human Resources	◆ Give the perpetrator the opportunity to appeal and convene a Personnel Appraisal Committee hearing if necessary.
4. Report to the board of directors	Legal Affairs	◆ Submit the case reported, the handling method, and the subsequent review and improvement measures to the board of directors.

Personal Data Protection

SAS has established the "Personal Data Protection Management Guidelines" to protect personal data and manage any data that can directly or indirectly identify individuals from internal or external sources. These guidelines regulate the collection, processing, and use of personal data handled by employees in their business activities. The Company has adopted three personal data protection policies: (1) the right to be informed, (2) the principle of proportionality, and (3) security assurance.

- Right to know: When collecting personal data, the responsible unit shall clearly inform the subject in writing or orally of the scope and purpose of the collection, the period, method, and targets of use, and the legal rights that the subject may exercise.
- Principle of proportionality: The rights and interests of the data subject must be respected, following principles of honesty and good faith. This includes adhering to the principles of appropriateness, necessity, and minimization. The use of personal data should be legitimately and reasonably related to the purpose of collection and must not exceed the scope of that purpose.
- Security assurance: The responsible unit must maintain the security of personal data files. In the event of unlawful leakage or theft of personal data, the Company will instruct the relevant units to execute emergency response measures. Once confirmed, the data subject will be informed of the incident and the Company's response actions.

The Company's regulatory compliance unit conducts audits and organizes "Personal Data Protection Education and Training" every two years. The responsible units are tasked with inventorying the personal data involved in their business activities, ensuring that the collection, processing, and use of personal data comply with legal regulations.

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1.1.3 Professional Independent Internal Audit Operation

The Audit Office is subordinate to the board of directors. Its mission is to assist the board of directors and managers in designing appropriate internal control mechanisms to promote smooth company operations, reasonably ensure the operational objectives are met, and ensure the following goals are achieved:

- Operation effectiveness and efficiency (profitability, performance, asset security protection, etc.).
- Ensure reports are reliable, timely, transparent, and compliant with relevant regulations (the so-called "reports" include internal and external financial reporting and non-financial reports).
- Compliance with relevant laws and regulations.

The Company's internal auditors must uphold the spirit of detachment and independence, perform their duties from an objective and fair standpoint, and provide due care as professionals. In addition to regularly reporting the audit results to the Audit Committee (independent directors), the audit supervisor must also attend the board of directors' meetings to present the reports. Internal audit personnel must adhere to principles of honesty and integrity and must not engage in any behavior that contradicts the "Internal Audit Practice Standards" and the "Code of Ethics for Internal Auditors."

In response to the changes in the international capital market, the corporate governance unit should focus on the sustainable development of the enterprise in addition to the operational performance. The audit department assigns personnel to participate in related management or third-party assurance activities and assists the responsible units in establishing internal control systems. Participation in these activities allows for timely adjustments to audit operation execution directions.

Implementation items include:

- Internal control system setup and self-assessment: Assist managers in designing appropriate internal control mechanisms and conduct "Internal Control System Self-assessment." Each department shall evaluate the internal control status for its responsible area. The goal is to achieve the self-examination effect and strengthen the internal control concept for the evaluation department. To promote the applicability of self-assessment items and improve self-assessment operation efficiency, the internal auditors shall use electronic questionnaires to strengthen the connection between operations and processing efficiency in addition to referencing other internal company evaluation activity results to supplement the evaluation items.
- Annual audit plan formulation and execution: Formulate the annual audit plan via risk assessments, perform the audit for the various operating procedures based on the Company's business activities, identify process defects, and make recommendations during operations to ensure the effectiveness of the internal control system.
- Audit project review and recommendations: Perform project inspections in response to potential risks (including fraud and corruption) identified by senior executives, and make recommendations to improve internal control integrity.
- Discovery and discussion of audit matters: Discuss improvement measures with the inspected unit based on the audit findings. Continue to track the follow-up improvement status to realize internal control implementation.
- Audit operation execution report: Report the auditing results to the Audit Committee and board of directors, convey the weakness of the internal control and obtain instruction to improve the supervision effectiveness for enhanced corporate governance.
- Subsidiary-related audit operations: Assist each subsidiary in establishing an audit mechanism and perform self-assessment operations based on the scale of the subsidiary, and review the audit implementation status; Additionally, audits and follow-up on improvement measures are performed according to the annual plan.

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1.1.4 Legal Compliance

In addition to formulating the relevant policies and provisions according to the domestic and foreign laws and regulations; SAS has also strictly required all employees to comply with and understand the relevant laws and regulations via continuous education, training, promotion, and the regular inventory & self-evaluation system in order to effectively and continuously promote the concept of legal compliance and ethics for all colleagues. The education and training related to compliance issues organized by Sino-American Silicon in 2023 is briefly described as follows:

1 hour

◆ **Internal Personnel Education and Training (1 Hour):**

Insider trading law analysis, including the constituent elements, the method and timeliness of major information disclosure, and judicial practice insights. We also teach the internal personnel about the Securities and Exchange Act, including the declaration obligations before/after the fact and maintaining the number of shares held by directors and supervisors. The teaching subjects include directors, supervisors above the departmental level, the president's office colleagues, and all new employees.

2 hours

◆ **Integrity Management Education and Training (2 Hours):**

The content includes trade secret protection, fair trading, anti-bribery and anti-corruption, conflict of interest prevention, export control, and other major compliance issues closely related to the technology industries. The teaching subjects include directors, supervisors above the departmental level, and all new employees.

In addition, SAS has also continued to strengthen internal reorganization and rectification while requiring each plant within the Group to perform cross-auditing to identify potential risks from different perspectives and improve internal management. During 2023, there was one penalty incident within the organizational boundary of Sino-American Silicon. The details are as follows:

◆ The subsidiary GlobalWafers Co., Ltd.'s Chunan Plant was fined NTD 30,000 after being audited by the competent authority for violating Article 26, Paragraph 2 of the Toxic and Concerned Chemical Substances Control Act for failing to report the operation records of chemical substances of concern.

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To comply with the regulations for various sectors, SAS has stipulated respective policies or guidance.

Securities regulations	**Strict management mechanism** Sino-American Silicon's stocks are listed on the OTC market by the Taipei Exchange and shall abide by the Securities and Exchange Act and other relevant laws and regulations. ◆ The president's office has established a good communication channel with the relevant competent authorities. ◆ After verification, the legal department shall observe the legal trends, review the latest regulations and proclamations, track the law and regulation developments, and notify the relevant departments to formulate the necessary response measures. If a relevant department raises questions, the legal department shall study the related regulations and provide the correct responses after communicating and confirming with the competent authority.
Labor Laws and Regulations	**Strict Compliance with Relevant Labor Laws** ◆ Establish various work systems and management standards that can meet or exceed the various labor laws and regulations, develop high-quality labor conditions and communication mechanisms, and ensure good labor-management interactions with colleagues. ◆ Valuing employee salaries and benefits; proactively cultivate talents; implement labor laws; ensure employees' rights for major policy changes, remuneration & benefits, leave system changes that may impact the rights of our employees; employees will be notified, prior to implementation via labor-management meetings, electronic newsletters, or announcements on the HR notice board to ensure employees' rights.
Data management	◆ Main policy documents: Staff Employment, Business Secret Confidentiality, and Intellectual Property Rights Ownership Contract; Code of Ethical Conduct; and Intellectual Property Rights and Confidentiality Agreement. ◆ Management mechanism: Education on the importance of intellectual property and business secrets though posters and slogans, employee training and education, and signing of confidentiality agreements with employees in charge of relevant operations.
Personal data protection	◆ Key policy document: Personal Data Protection Management Regulations ◆ Management mechanism: Regular audits and education and training are conducted for personal data involved in business operations. This ensures that the responsible units handle the collection, processing, and use of personal data in compliance with legal regulations.
Corporate governance / Supervision over subsidiaries	◆ Main policy documents: Code of Integrity Management, the Code of Ethical Conduct, and the Integrity Management Operating Procedure and Action Guideline. ◆ Management mechanism: Incorporate the relevant regulations into employees' education and training content so that all colleagues can follow a clear code of conduct.
Environmental Protection / Occupational Safety and Health Regulations	◆ Main policy documents: Identification and management of environmental protection, occupational safety and health related laws and regulations as well as other requirements. ◆ Management mechanism: Review the compliance with changes in environmental protection, Occupational Health and Safety, energy management, and other related laws and regulations or other requirements each month; and regularly assess compliance with other applicable regulatory requirements.

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Health Care

- Get rid of workplace stress and find your vitality!
- Gender Equality Together: Friendly Workplace Let's Go
- How to Get Rid of Emotional Blackmail at the Workplace
- Have You EAP'd Yet? Online Seminar on Employee Stress Management and Assistance Strategies
- EYE - Eye Care Knowledge and Health Lectures"
- Friendly Workplace Course: The Place of Emotion (Emotion Management)
- Healthy Eating Seminar - A Day for Healthy Eaters
- Gender-Friendly (Prevention of Workplace Sexual Harassment) and EAP Promotion
- On-site First Aid Emergency Response and Chemical Splash Course"
- Meet Yourself in Aromatherapy: Diffuser Stone DIY Course
- Fitness Course: Fitness and Fat Burning Exercise
- Chemical Splash Emergency Response Education and Training Course
- Bone Density Testing
- Health Seminar: Stay away From Osteoporosis and Embrace Health.
- Conquer the Potential Killer Twins: Hypertension and Hyperlipidemia

Environmental Protection, Safety, and Hygiene

- Environmental Safety and Health Management System Education & Training
- Greenhouse Gas Inventory
- Chemical Identification and Protective Equipment Description
- Education and Training on Dangerous and Hazardous Material Operations
- Safety and Health Hazard Identification & Risk and Opportunity Assessment Form
- Automatic Inspection Education and Training
- Respiratory Protection Education Training and Fitness Test
- Safety Management of Contractors' In-factory Construction (including In-factory Control Operation Applications)
- Education and Training for Construction Entry Application Procedures
- Introduction to Fire Fighting System and Operational Practical Precautions
- Education and Training on Organize Personnel Changes and Related Hazardous Chemicals
- ESG Sustainable Management Course

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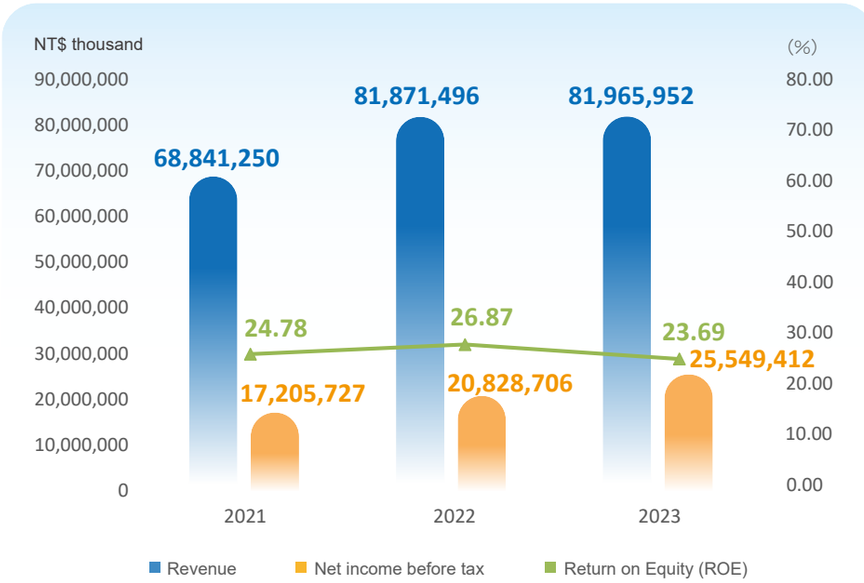
1.2 Operation performance

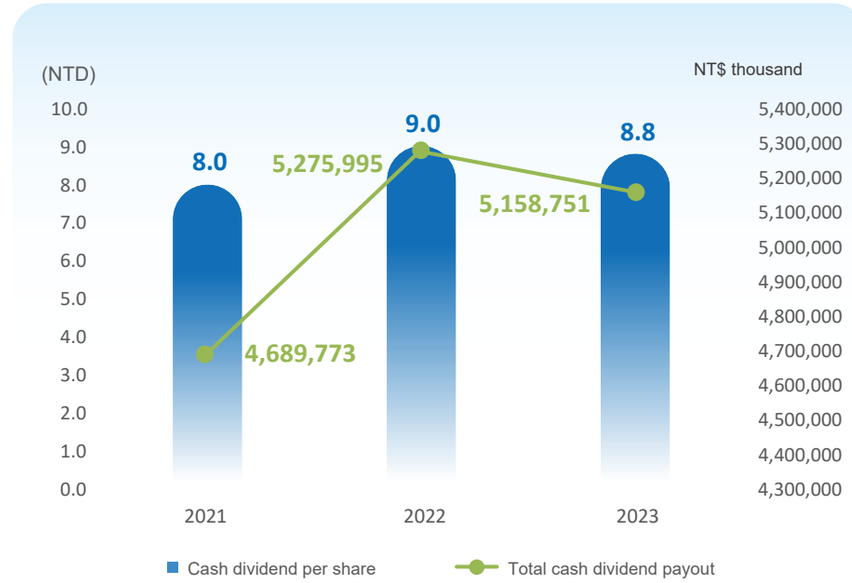
In 2023, the renewable energy industry benefited from governments worldwide focusing on energy transition. Energy policies were gradually improved and implemented, and the market size continued to grow. SAS's solar business, besides maintaining a stable position in the existing supply chain and deeply engaging in downstream system operations, has strengthened vertical integration to enhance profit margins. The company continues to develop high-efficiency conversion products to meet market demands. In addition, SAS is actively expanding into the energy storage and green electricity sales markets, diversifying operations to spread risks and enhance the cost-performance ratio of solar products. Although the end consumer demand for the Semiconductor Business is uncertain, the subsidiary GlobalWafers has signed long-term contracts with customers to actively mobilize global production capacity to maintain stable shipments. Furthermore, subsidiaries such as Advanced Wireless Semiconductor Company and TSC have also contributed increased revenue compared to last year. Overall, the semiconductor business delivered outstanding results in 2023. In 2023, 100% of SAS's production capacity came from its own plants. Please refer to the Company's Annual Report for relevant production data! Even in the face of unfavorable factors such as weak end market demand, customer inventory adjustments, and delays in power plant installation progress, with the concerted efforts of all employees, SAS Group still set a record high in consolidated revenue and EPS in 2023. Brilliant results! The consolidated revenue of the Group reached NT$81.966 billion in 2023, which increased by NT$81.871 billion compared to 2020. The after-tax net profit attributable to the parent company was NT$9.844 billion, and the after-tax earnings per share was NT$16.99.

For details on the Company's operating performance and financial information, please refer to page 6 of SAS Group's 2023 Consolidated Financial Statements.

Financial performance



Cash dividend



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2023 Economic value Analysis

Unit: NT$ thousand

Generated direct economic value	Annual report: income	81,965,952
Distributed economic value	Operational costs	55,279,360
	Employee salaries & benefits[Note 1]	16,032,103
	Payment to investors	8,742,111
	Payment to the government[Note 2]	6,144,104
	Community resources[Note 3]	9,299

Note 1: The human capital return on investment (HCROI) in 2023 was 5.61.
Note 2: Fees include various taxes (building tax, land value tax, license tax, fuel tax, etc.) and customs duties.
Note 3: Expenses include donations for participation in public welfare activities.

Overall economic environment and industry trends

For the renewable energy business, the frequent occurrence of extreme weather events around the world prompted leaders of various countries to reach a historic renewable energy commitment at the 28th UN Climate Change Conference (COP28). Nearly 120 countries signed the "Global Renewable Energy and Energy Efficiency Pledge," collectively pledging to triple global renewable energy generation and double global energy efficiency by 2030. This commitment has established a global green energy trend, accelerating the development of renewable energy both globally and in Taiwan, in response to the threats posed by climate change. SAS will seize related development opportunities, aiming to break free from the constraints of operating solely in Taiwan and expand internationally. The Company plans to increase its overseas solar business and develop other products such as green electricity sales, actively positioning itself as a provider of integrated renewable energy solutions. In the future, SAS will work with the Group's affiliates in different fields such as renewable energies, semiconductors, and automotive components, and keep on improving operating performance steadily and sustaining good operating results.

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1.3 Risk Management

To adapt to the rapidly changing business environment and ensure stable operations and sustainable development, Sino-American Silicon Products Inc. has also formulated risk management policies and procedures to assess and monitor its risk-taking ability, risk-bearing status, risk response strategies, and compliance with risk management procedures.

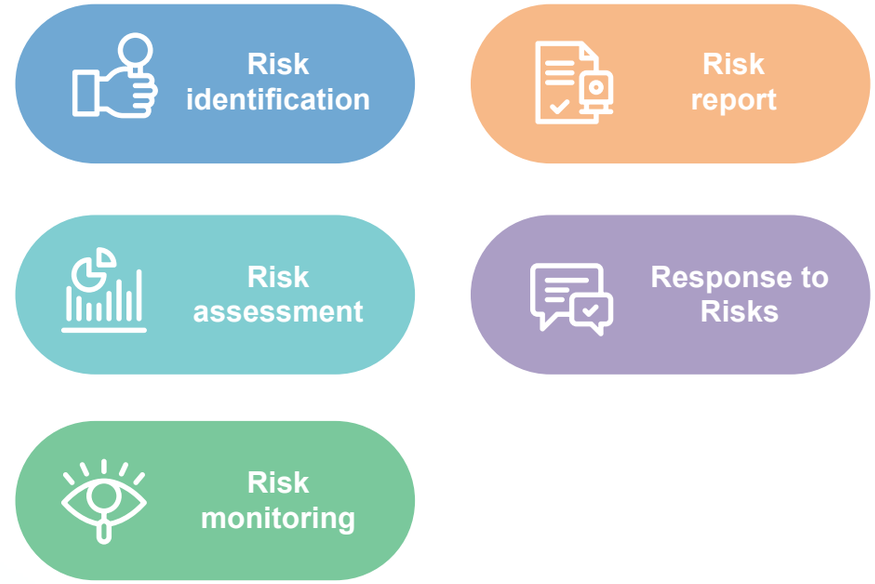
Risk Management Organization Framework

- Board of directors: As the Company's highest risk management unit, the board of directors aims to ensure legal compliance according to the overall business strategy and environment, promote and implement the Company's overall risk management, and clearly understand the risks faced by securities firms' operations, ensure risk management effectiveness, and take the ultimate responsibility for risk management.
- Senior management: Responsible for planning and executing the board of directors' risk management decisions and coordinating cross-departmental risk management interactions and communications to reduce strategic risks.
- Various functional units: Responsible for analyzing, managing, and monitoring related risks within the subordinate units and ensuring that risk control mechanisms and procedures are effectively implemented.
- Internal audit: This independent unit is subordinate to the board of directors. It assists the board of directors in supervising and executing the risk management mechanisms, inspects the risk implementation response and control of by functional unit, and provides suggestions for improvement in risk monitoring.

The implementation of risk management is reported to the Audit Committee and the Board of Directors annually, and the implementation is supervised by the Audit Committee to ensure the effective operation and implementation of risk management.

Risk Management Process

SAS' risk management procedure includes risk identification, risk assessment, risk supervision, risk reporting, and response to risks. With this risk management procedure, we aim to implement and facilitate the company's risk management strategies effectively.



SAS has stipulated an assessment method for risk management as the basis of risk management. Regarding quantifiable risks, we adopt rather stringent statistics analysis and technique for analysis management and manage such quantifiable risks with a progressive method. Risks that are more difficult to quantify are measured using the qualitative method. Text descriptions are used to express the possibility of risk incidences and the extent of their impacts. The relevant operational and operational risk management information is disclosed in the Company's Annual Report and Company website.

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Based on the 2024 Global Risks Report, there are two major emerging risks in the short term - misinformation and pollution. Additionally, information security remains a high-risk issue. To address potential impacts on various aspects of business operations, SAS has developed corresponding risk strategies and implementation mechanisms to ensure effective risk management. The Company also continues to monitor long-term risk issues, such as biodiversity, and plans to gradually focus more on this area in the future. (Note: Pollution is reported in the Energy and Pollution Emissions Management section)

Information Security

1. Information security organization: On March 1, 2023, SAS established an Information Security Committee (ISC), and each subsidiary set up its own Information Security Task Force in April of the same year. These entities are responsible for promoting information security policies, allocating relevant resources, and supervising the implementation of information security management. Regular information security committee meetings are held annually (every six months) to supervise the execution of the information security task forces at each site, ensuring that related operations are effectively carried out.
2. Information security governance and continuous improvement: SAS has established an information security policy and information security management procedures, utilizing the PDCA (Plan, Do, Check, Act) cycle to ensure the achievement of established goals and continuous improvement.
   (1) Security testing is regularly implemented, including host vulnerability scanning and system updates.
   (2) Data protection measures. Regular backups and proper storage, management of external information storage media, minimization of access privileges, account and password complexity restrictions, etc.
   (3) Personnel management. Regular training for employees, periodic information security awareness campaigns, supplier access management, and regular social engineering drills.
   (4) Network security protection. Firewall rule reviews, secure remote connections, real-time monitoring of traffic and anomalies, and regular operational continuity drills.
3. Information security knowledge and awareness training:
   (1) In 2023, the information security personnel completed 79.5 hours of professional training courses.
   (2) All employees have received regular information security awareness courses
   (3) Joins the Taiwan Cyber Risk Management and Coordination Center (TWCERT/CC) and the Taiwan Science Park Information Security Information Sharing and Analysis Center (SP-ISAC) to exchange information security emerging trends and current affairs, such as DDoS attacks, ransomware, social media Engineering software, website citations, and loopholes.
   (4) Through annual exchanges with renowned cybersecurity vendors and project-based collaborations, SAS focuses on cybersecurity issues and plans response strategies. The company conducts DDoS and APT attack-defense drills for different cybersecurity scenarios to enhance the response capabilities of its personnel, aiming for immediate detection and blocking of threats.

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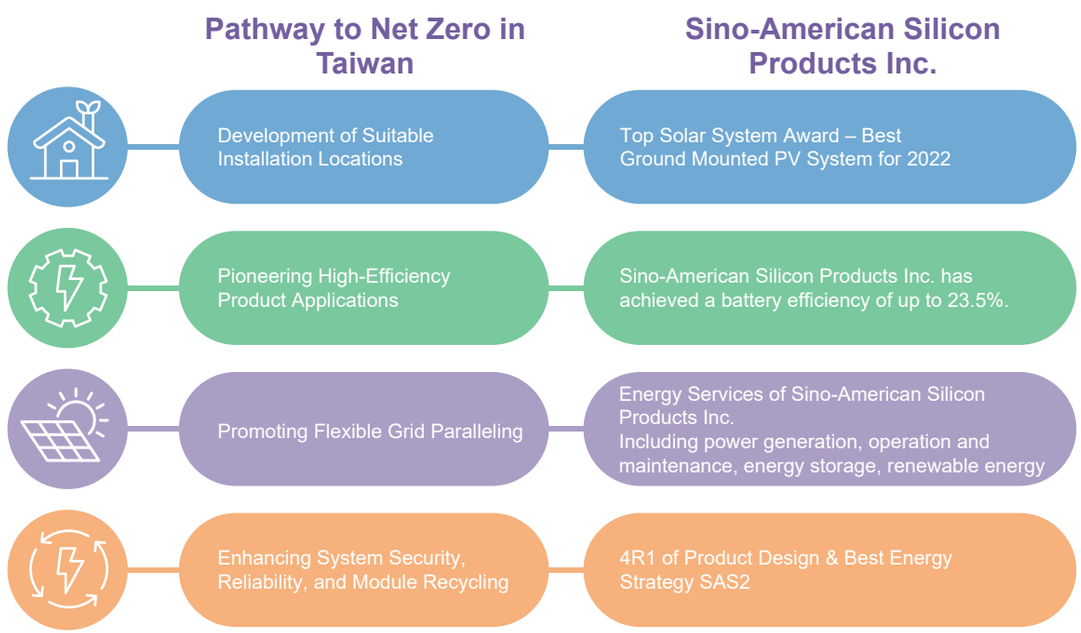
2.1 Innovation management

Sustaining the Role of Energy Supplier

In recent years, the frequency of global warming and extreme weather events has increased, prompting nearly 200 countries at COP28 to commit to "move towards energy systems free of unabated fossil fuels ." About 100 countries pledged to triple the use of renewable energy and double energy efficiency by 2030, contributingto limiting global warmingto1.5 degrees Celsius. This demonstrates the growing emphasis on renewable energy worldwide as countries face the challenges of energy transition. In this dynamic and challenging environment, SAS has implemented vertical integration within the solar industry, extending its operations from solar materials, cells, and modules to photovoltaic power plants , including maintenance and management, green energy sales, energy storage, and the energy IoT. The Company strives to provide customers with the best green energy solutions and respond to the energy transition trend. SAS also invests in developing second and third-generation semiconductor materials to explore new business opportunities and sales channels. Our main service scope currently focuses on supplying energy materials, including solar materials and wafers for related industries. These products can be made into solar cells and modules. SAS continues to invest in the renewable energy market and have established a renewable energy electricity sales business to provide green electricity for our needs and external demands.Our semiconductor business offers GaN power semiconductor solutions for consumer, communication, and automotive applications, emphasizing energy efficiency and environmental sustainability to support our carbon reduction goals.



In the highly competitive market, SAS-related products and services not only adhere to stringent legal and regulatory standards but also align with the most sustainable practices. By actively promoting green energy to its suppliers and customers, SAS is driving the industry towards a more sustainable future.Beyond continuous investment in the green energy and semiconductor industries, SAS has independently committed to being environmentally friendly and sustainable. The Company announced its goal to use 100% renewable energy by 2050, aiming to lead the related industry chain in valuing and transitioning to clean energy.

Continued Innovation and Development of Cutting-Edge Products and Technologies

To support national policies and achieve the 2025 goal of 20 GW solar photovoltaic installation capacity, SAS focuses on innovative research and development of new-generation technologies, aiming to produce high-efficiency solar cells and pursue energy conservation, carbon reduction, and sustainable operation goals. In 2022, SAS upgraded its production line for the first time, maintaining the existing M6 production line while actively developing and mass-producing large-size M10 solar cell processes. The introduction of CELCO P+ process technology allows for a mass production efficiency of 23.4%, translating to an annual power generation capacity of 370 MW and carbon reduction equivalent to 229,440 tons. In 2023, SAS won Taiwan Excellent PV Award in the battery category from the Bureau of Energy, Ministry of Economic Affairs.

SAS has achieved mastery in solar cell design, pioneering advancements in key technologies. As the Taiwanese market gradually shifted to large-size solar products starting in 2023, SAS has not only improved the efficiency of the M6 process but also independently designed and developed M10 large-size solar cells for mass production, offering a diverse range of options to the market. Looking ahead, SAS is committed to developing N-type TOPCon solar cells, a cutting-edge technology that boasts higher efficiency and stability due to its exceptional carrier lifetime and resistance to light-induced degradation. This will increase power generation per unit area and reduce installation costs. This strategic move strengthens our position in the international market and enables us to deliver superior green energy options to both domestic and international customers.

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Continued product innovation

Leveraging extensive R&D expertise, SAS continues to build on its research and development achievements. This includes the ongoing development of silicon material applications and the enhancement of ultra-high efficiency monocrystalline silicon solar cells. In response to customer demands for various solar cell products, SAS has developed solar cells that meet these needs. Commencing in 2024, the Company will upgrade its production lines to develop ultra-high efficiency large-size N-type TOPCon monocrystalline silicon solar cells (M10), with an expected conversion efficiency of 24.50%.

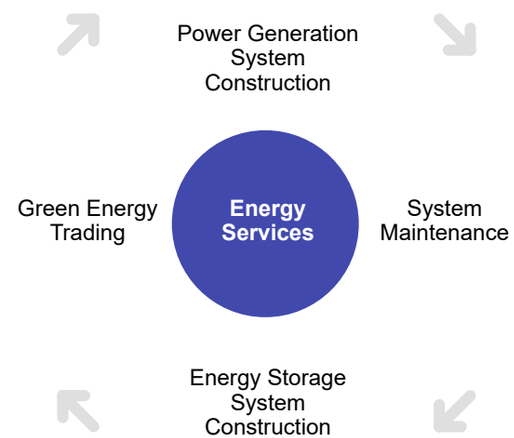
SAS has prioritized "Enhancing Innovation Capability" and "Strengthening Confidentiality Mechanism" as key management strategies. The company not only fosters innovation through independent research and development but also actively seeks collaboration or strategic alliances to stimulate technological advancement. To safeguard its intellectual property, SAS has implemented robust measures to control business secrets and establish specifications for the use of electronic mail and electronic storage devices to ensure that key technologies remain confidential , preserving the company's competitive edge. SAS passed the audit of the Taiwan Intellectual Property Management System (TIPS) in 2023 to further improve the Company's intellectual property management.

Strategic deployment into the renewable energy market

As the global renewable energy power generation industry continues to grow, SAS will certainly be a part of this feast as it has deeply cultivated the solar energy industry for many years. Since 2015, SAS has been involved in the solar power generation industry through its subsidiary, Hsu-Hsin Branch. In 2020, the Yilan branch established the Power Station Development Department. In alignment with government energy policies, the Group has expanded its renewable energy services to encompass four main areas: power generation, maintenance, energy storage, and green electricity. In 2023, a new maintenance service location was added in Taoyuan. Currently, maintenance service locations include Yilan, Taoyuan, Miaoli, and Kaohsiung, covering northern, central, southern, and eastern Taiwan. The 1.500MW energy storage system at the Yilan Branch was officially online and participating in Taiwan Power Company's auxiliary services as of September 2023, contributing to the stability of Taiwan's power grid. Leveraging this experience, SAS plans to develop future solar-storage integration solutions, establishing itself as a leading provider of professional green energy solutions in Taiwan. It will also become a domestic professional green energy solution supplier along with Sino-American Silicon. SAS is constantly looking for the next growth momentum and hopes to pursue sustainable operation and growth with customers and suppliers.

Beyond its investment in the green energy sector, the SAS Group demonstrated its commitment toenvironmental sustainability in August 2021 and declared its intention to achieve 100% renewable energy usage by 2050.To cultivate a long-term presence in the green energy industry, the Group established Sustainable Energy Solution Co., Ltd, indicating the concept of "Sustainable Green Energy, Enduring Legacy." Sustainable Energy Solution Co., Ltd. is dedicated to providing comprehensive green electricity solutions, not only catering to the needs of the SAS Group but also serving other companies seeking sustainable energy options. Providing professional green electricity solutions assists businesses in meeting regulatory requirements, facilitating international trade, aligning with international supply chain sustainability standards, and achieveing self-declaration requirements. In 2023, Sustainable Energy Solution Co., Ltd. began supplying green electricity to corporate users and quickly became Taiwan's seventh-largest green electricity provider., it is projected that the green energy supply of Sustainable Energy Solution Co., Ltd. will double in 2024. Benefiting from government energy transition policies and strong corporate sustainability demands in 2025, Sustainable Energy Solution Co., Ltd.'s future prospects remain promising.

Four Core Services of Renewable Energy



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Construction of an energy storage system in the Yilan Plant of SAS

Solar Power Plant at SAS's Yilan Plant

Improve the Renewable Energy Construction and Maintenance Management Quality

Due to the number of solar power plants invested, held, and commissioned for construction by SAS, the number of solar power plants under management continues to grow. To improve the overall management quality and efficiency, SAS completed the development and implementation of an online "Solar Engineering Management System" in 2022. This system establishes a comprehensive database and operational history for solar power plants from construction to grid integration over 20 years. Through data accumulation and analysis, as well as the introduction and refinement of a third-party evaluation system, SAS continues to optimize the quality and scope of its renewable energy services.

Future Trends of Electric Vehicles

As automobile manufacturers introduce more EV models, the likelihood of employees and customers using EVs increases. Providing charging facilities can reduce energy costs for employees and customers. In 2023, SAS installed EV charging stations at its facilities and studied EV technology and infrastructure development. EV Charging Station Market - In 2023, SAS, in collaboration with supermarkets and tourist factories, completed the operation of two fast-charging EV stations. The Company continues to monitor market trends and customer needs, aiming to help the company and its customers reduce carbon emissions and move towards sustainable operations.

Photos of fast charging stations

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2.2 Customer and Product Services

Customer Service

SAS is firmly committed to providing its customers with the best services and is deeply convinced that an excellent service quality is the key to improving customer satisfaction and consolidating customer loyalty. SAS adheres to a philosophy of sustainable operation. In addition to maintaining business performance, the company also places great emphasis on listening to customers' opinions and satisfying customer demands to earn their long-term support and achieve sustainable operation goals.

SAS is a premier manufacturer of solar wafer and battery. Since2019, the company has focused on developing innovative applications leveraging silicon material technology and providing advanced process technology and product services. Our goals are to fulfill customer product needs, prioritize customer satisfaction through professionalism, adopt a customer-centric perspective, provide comprehensive services tailored to the customer requirements to achieve customer satisfaction and foster long-term sustainability.

Product Quality and Customer Satisfaction

SAS has long been firmly committed to the goals of "customer satisfaction, requirements conformity, total quality control, and continued improvements" to increase customers' confidence in SAS products and services. Providing high-quality services and products to satisfy customers is the company's core mission. Professional teams are set up to take charge of product development, costs, manufacturing, quality, and customer services. Professional services are provided in response to customer problems and feedback in a rapid and active manner to assist customers handling and resolving problems to earn their trust and satisfaction.

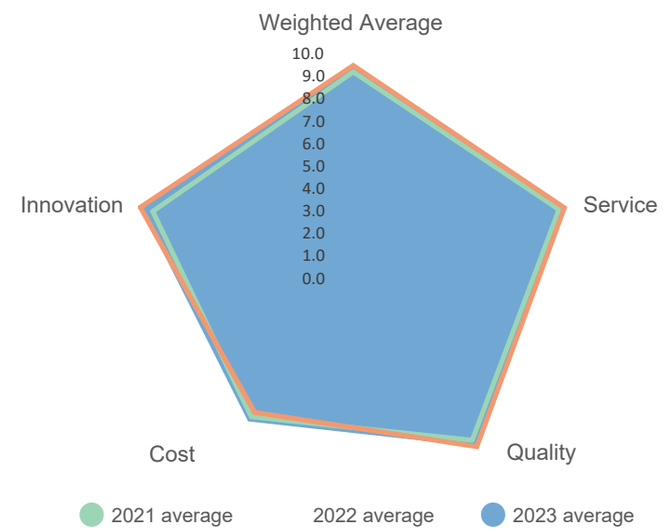
SAS schedules regular meetings with customers to maintain excellent communications with customers and conduct discussions on production and sales quality and engineering technologies. The company develops new-generation products in cooperation with customers and enhances product power conversion through technical discussions with the supply chain. It further optimizes the usage of social resources to reduce environmental pollution. The ultimate goal is to ensure in-depth cooperative relationships with customers and higher customer satisfaction with our products, technologies, and services.

SAS therefore conducts customer satisfaction surveys on a bi-annual basis. Upon collection and organization of customer opinions, dedicated teams convene exclusive meetings to formulate strategies and directions of improvement with customer opinions as the main indicator. Regarding items with relatively low to zero satisfaction, the company conducts follow-up interviews with customers to clarify issues. Shortcomings will be analyzed, and improvement strategies formulated to transform the concept of enhanced customer satisfaction into concrete action, hoping to earn the trust and praise of even more customers. The goal is to become our customers' best collaborative partner and to work with our customers in sustainable operations and development.

Polysilicon Products Customer Satisfaction

In addition to rapid declines in market demand, rising raw material prices, and increasing logistics costs, SAS faced rising electricity rates in 2023, which pushed up production costs and operating pressure. The Company continuously strives to strike a balance between cost and quality. The weighted average polysilicon products customer satisfaction score was 9.5 (most satisfied) in 2023, an increase of 0.1 points compared to 2022. According to the final customer evaluations, the "cost aspect (8 points)" slightly increased by 0.5 points compared to 2022, but it remained the weakest among the five major aspects. The global increase in raw material prices raised customer costs, prompting them to request improvements. Recognizing this issue as an unavoidable organizational risk, SAS has prioritized "cost reduction" as a key internal objective. Various strategies are being implemented, including process improvements, 2nd source verification, and regular cost change reviews, to maintain competitiveness. The scores for the three major aspects of "service," "quality," and "innovation" remained above 9 points (most satisfied), indicating that customers continue to hold SAS in high regard. SAS remains committed to exceeding customer expectations and delivering exceptional value.

Polysilicon Products Customer Satisfaction Survey Aspects



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Solar Cells Customer Satisfaction

Customer satisfaction is divided into 5 major aspects for evaluation to enhance customer satisfaction and product competitiveness by understanding the needs of market customers. These 5 major aspects include Service, Innovation, quality Cost, and Weighted Average (total score evaluation). Each aspect has the highest score of 10 points ("highest satisfaction"), 6 points mean "acceptable," and any score lower than that means urgent improvement is required. We then performed a weakness analysis to determine SAS's continual internal improvement directions based on the detailed satisfaction scores from these 5 aspects.

In 2023, the weighted average score of the overall solar cells' customer satisfaction was 9.0 points, indicating a consistent level of customer satisfaction. In terms of quality, the Company has increased the conversion of cells through the improvement of diffusion resistance, optimization of wafer-to-wafer uniformity, and introduction of fine lines printed on the aluminum back. SAS has increased cell conversion efficiency and power output. Currently, SAS leads the competition in solar cell performance and continues to provide higher-efficiency products to meet the needs of module customers. To further reduce production costs, SAS has implemented an enhanced design for front silver screen printing and optimized the power of PERC passivation layers to boost product yield. In terms of innovation, the battery manufacturing process of the Yilan Branch will be transferred from the current PERC to the new TOPCON technology, aiming to increase cell conversion efficiency to 25%. Mass production of M10/G12 large-size, high-efficiency solar cells is planned for the second half of 2024, this will significantly enhance the competitiveness of SAS cells in both the Taiwanese and international solar markets.

Customer satisfaction survey

Despite the positive feedback from customers, SAS does not rest on its laurels. The company continues to invest in necessary equipment, upgrade product qualities, and conduct on-going technology development striving to break through the challenges from the market and the external economic environments. The company still aims to constantly increase customer satisfaction and provide high-quality products and services in accordance with the quality policy and goals of the company. Improvement measures are proposed and tracking of progress is implemented for unsatisfied goals through quality system management tools to clearly demonstrate the commitment of SAS to constant improvements and thereby achieve continued enhancement in the field of service quality and competitiveness.

Product Services

SAS adheres to the cells production with high-efficiency conversion, as well as constant innovation and development of high-efficiency products. SAS can fast integrate up- and down-stream technology development capacity through supply chain integration and technology interchange. The time required for product launch is shortened; product reliability, enhanced; and quality confidence, increased, to more efficiently align products to the demands of end users. In terms of quality, SAS has stringent procedures, processes, and controls in handling customer information collection, product design and development, and manufacturing processes. Outstanding and stable product quality is ensured via systematic management at all phases. SAS also convenes production morning, operation weekly, quality monthly management review, and annual review meetings to ensure continuous product improvements. PDCA is constantly carried out to enhance products and services, reduce costs and expenditures, and give back to society.

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2.3 Customer Privacy and Information Protection

Customer privacy

SAS is dedicated to providing exceptional customer service while placing the utmost importance on protecting customer privacy and confidentiality. Relevant agreements are signed with customers to protect their classified information. Meanwhile, all staff members are required to strictly abide by SAS IPR policies and protect confidential information of customers during business dealings in a rigorous manner.

In providing services, SAS not only offers professional advice to clients but also places significant emphasis on protecting information confidentiality and customer privacy due to the complex nature of the industry. We routinely enter into confidentiality agreements with our clients to protect mutual interests. Internally, SAS strictly promotes and requires adherence to its intellectual property policies and regulations to protect customer confidential information, ensuring that business can be conducted without concerns and providing peace of mind for customers. Regular audits are conducted to prevent any potential data breaches. With the implementation of reporting mechanisms and audit management measures, SAS received no complaints or penalties from customers or regulatory authorities in 2023. This has enhanced the Company's reputation and accumulated intangible assets for SAS.

Customer Service Principles

Protection of intellectual property

In 2010, SAS adopted the Taiwan intellectual property management system (TIPS) and has since successively passed the basic certification (2010-2011) and advanced certification (2012-2015) and obtained the AA-level certification in 2016. The company will remain committed to the protection and management of intellectual property. In recent years, the company has continuously strengthened its confidentiality management system and gradually structured a data classification system, defined confidentiality levels for internal and external documents, established different labeling and circulation control methods, and established electronic equipment usage specifications. SAS has introduced a cloud virtual desktop, centralized data backup management, outgoing email inspection systems, and restrictions on electronic storage device use. Additionally, the company conducts regular reviews of folder permissions, requires key employees to sign non-disclosure agreements (NDAs), and has implemented robust procedures to address information security concerns during employee departures. We have completed the electronic TIPS internal audit form and regularly review stakeholders' expectations and internal and external issues in the TIPS system. In terms of the patent management system, we will continue to optimize the patent proposal system. Even more importantly, SAS organizes regular intellectual property training to reinforce the staff's understanding and awareness of confidentiality management's importance and shape a corporate culture concerned with confidentiality management. The goal is to apply excellent intellectual property management to safeguard the rights and interests of the company and its customers, improve customer trust, and increase product market share.

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2.4 Product Liability

Product safety and liability

Due to the wide range of silicon material application products and to ensure the products comply with the EU RoHS (restriction of the use of certain Hazardous Substances in electrical and electronic equipment) international regulations and customer requirements for hazardous substances, SAS requires all its products to be tested by a certified unbiased third-party laboratory. In 2023, all SAS products met EU RoHS requirements. To ensure product safety and non-toxicity, SAS requires that raw materials suppliers and packaging materials provide regular hazardous substance inspection reports issued by a certified third-party impartial unit laboratory to meet the product safety and non-toxicity requirements and strengthen its commitment to environmental friendliness and protection.

In addition, SAS is fully aware of the risks associated with solar cells and backend modules such as environmental impact of chemical substances used in manufacturing processes, risks of product use in different environments, and risks at different stages after the end of the product life cycle. Although there are no regulations or international standards for product labeling related to solar cells; after considering various factors, SAS still conducts comprehensive labeling of products regarding their composition, hazardous substances, and safety in use so that customers can. There were no product labeling non-conformities reported by stakeholders in 2023. In terms of marketing and sales, SAS explains in detail the potential risks of products through media, such as product specifications, and complies with regulatory, environmental, and customer requirements in each sales region.

2.5 Value Chain

Adhering to the principle of integrity, SAS has grown into a globally recognized company. From its establishment to the vertical integration of the solar industry chain, SAS's business scope extends from solar cells and modules to photovoltaic project maintenance, green electricity matching, and beyond, positioning it as a global provider of professional green energy solutions.

SAS identifies key materials with potential operational risks, including silicon raw materials, dopants, silicon wafers, and conductive paste. Due to geopolitical and economic scale factors, silicon raw materials and wafers cannot be fully sourced in Taiwan. Therefore, SAS adopts risk control strategies such as supplier diversification, material reserves, and increasing the reuse ratio of silicon raw materials. SAS has also established a supply chain code of conduct for suppliers to follow,suppliers must fully comply with the laws and regulations of their operating countries/regions and adhere to business practices in health, safety, labor, environment, business ethics, and management systems. They must follow the Responsible Business Alliance (RBA) Code of Conduct, avoid conflict minerals, commit to meeting domestic and international standards (RoHS, REACH, WEEE), and prioritize procuring environmentally certified products.

SAS also actively encourages suppliers to implement energy management and carbon reduction mechanisms, greenhouse gas inventory certification, and the use of green electricity or renewable energy, aiming to jointly achieve the 2050 net-zero emissions goal.

Localized supply chain

SAS has its main production base in Taiwan and has therefore been actively cooperating with Taiwanese suppliers to implement the goal of supply chain localization. In 2023, the Chunan Branch, Yilan Branch, and Hsu-Hsin Branch had a total of 554 suppliers. 513 local chemical manufacturers accounted for 92.6% of the procurement amount, and their procurement amount accounted for 64.3% of the total procurement amount.

However, as mentioned above, due to the influence of geographical location and economic scale, our key materials - silicon raw materials and silicon wafers, cannot be fully obtained from Taiwan. If silicon raw materials and silicon wafers are not included in the calculation of the procurement amount, our local procurement amount accounted for 75.2% of the total purchase amount (excluding silicon raw materials and silicon wafers); Moreover, in terms of suppliers related to the life cycle of SAS silicon products, there were 219 suppliers, of which 187 were local chemical manufacturers (85.4 %), with their procurement amounts representing 62.9% of the total product life cycle expenditure.

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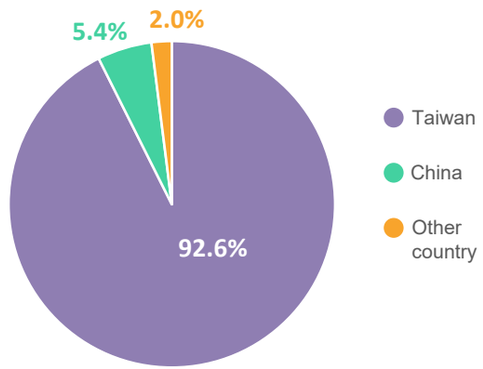
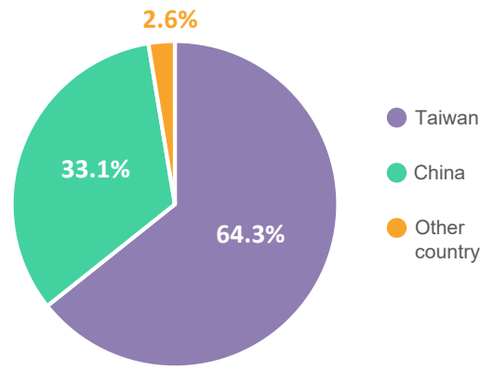
By implementing supply chain localization, SAS aims to gradually reduce production costs via lowering the material transportation cost, reducing turnover inventory, unit shipment optimization, and other measures to strengthen industry competitiveness in terms of cost. Localized procurement can enhance national competitiveness, increase local employment, stimulate local economic activities, and minimize environmental impact by reducing the long-distance transportation of raw materials. This can also reduce the importance of timeliness. Moreover, SAS adheres to the green procurement concept and prioritizes buying low-energy-consuming and EPA-certified products to reduce environmental impacts and energy consumption.

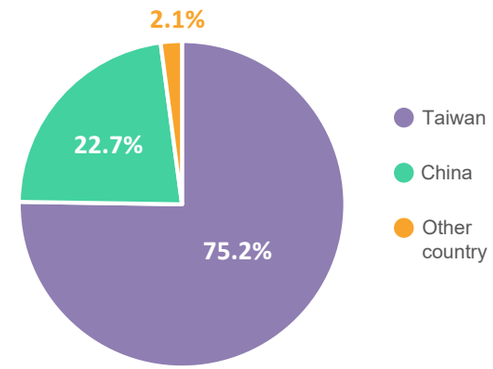
Supplier Location Distribution



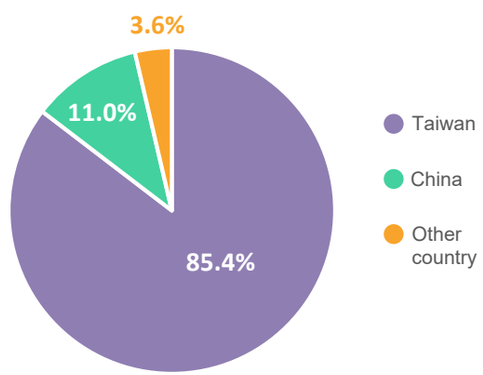
Distribution of Procurement Amount by Supplier Location



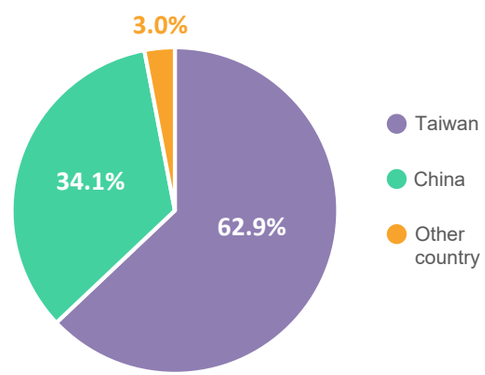
Distribution of Procurement Amount by Supplier Location (excluding silicon raw materials and silicon wafers)



Supplier Distribution Related to the Product Life Cycle



Distribution of Procurement Amount for Suppliers Related to Product Life Cycle



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3.1 Energy Management and Development

SAS' energy use includes electricity, natural gas, diesel, and gasoline, and the largest portion is electricity. Therefore, the improvement measures must give priority to energy conservation and the solution must meet the S (Safe), A (Affordable), and S (Sustainable) conditions before it can be regarded as the best energy strategy.

3.1.1 Energy Usage and Sales

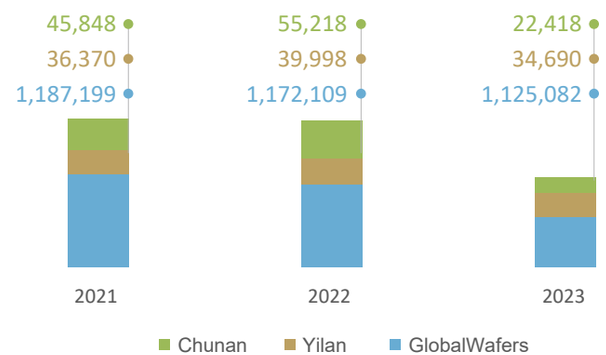
Energy Consumption

The energy usage at SAS's Chunan and Yilan branches in the past 3 years. There was a decrease in externally purchased electricity in 2023 due to reduced production capacity at the Yilan branch. Purchased electricity accounted for 99.77% of total energy use in 2023. Regarding renewable energy use, Chunan has established a 2.2 kW solar power generation system for self-generation and self-use, and the renewable energy utilization efficiency was approximately 0.003% Note. Yilan Branch resells all solar power generation systems for self-use.

Note: Renewable energy use efficiency = renewable energy (GJ)/total energy used (GJ)

Total electricity consumption

Unit: MWh



Energy consumption of Chunan and Yilan branches

Unit: Gigajoule (GJ)

	Item	2021	2022	2023
Energy category	Purchased electricity	295,982.525	342,778.747	205,590.276
	Renewable energy (solar power)	6.836	6.178	6.268
	Natural gas	2.528	0	0
	Diesel	189.081	410.925	294.247
	Gasoline	3.266	9.319	0
Total		Gasoline	343,205.169	205,890.791

Note:
1. Conversion unit: 1 degree of electricity = 0.0036 GJ; 1 cubic meter of natural gas = 0.0477 GJ; 1 liter of diesel = 0.0315 GJ; 1 liter of gasoline = 0.0327 GJ.
2. Headquarter and Hsu-Hsin Branch are located in the buildings of Globalwafers' Hsinchu Plant and SAS's Chunan Plant 2, respectively, and leased offices (no production process) therefrom. Since no separate meters are installed to record their energy usage, their energy usage statistics are not independently available. However, their actual energy consumption has already been included in the totals for GlobalWafers' Hsinchu plant and SAS's Chunan Plant 2.

Sale of Energy

Most of the power generated from the solar power systems owned by Sino-American Silicon Products Inc. is sold for use. The power sold in 2023 was 1,907,506 kWh (6,867 GJ).

Unit: kWh

Item			2021	2022	2023
Energy category	Sale of electricity (solar power)	Headquarter	85,524	126,455	128,508
		Yilan Branch Company	1,771,991	1,653,130	1,655,553
		Hsu-Hsin Branch	129,298	118,596	123,445
Total			1,986,814	1,898,181	1,907,506

Note: The solar power system of the Chunan Branch was generated for self-use, and no electricity was sold.

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3.1.2 Energy Management and Conservation

Energy Management

Most of the past energy-conservation improvements in the factories were one-time improvement efforts, which may not maximize the energy-saving effect due to the lack of an appropriate management mechanism. Thus, since 2021, SAS has gradually implemented an Energy Management System (ISO 50001:2018) in its production facilities. Both the Chunan and Yilan branches have established a systematic PDCA management cycle that inventories equipment energy usage in the factory to identify major energy-using equipment, prioritizes equipment improvement, monitors the measurements, and adopts appropriate improvement actions. Moreover, it helps set corresponding energy baselines and energy performance indicators according to the factory characteristics and energy use identification results as well as continues to update, monitor, and review their reasonableness each month to continuously improve energy efficiency.

In 2023, the Yilan plant added smart meters, integrating the existing independent plant monitoring systems and process monitoring systems into an energy performance monitoring and analysis system. This integrated, intelligent management approach enables real-time acquisition of key data for analysis and equipment energy usage efficiency.

Energy Conservation Measures and Achievements

Each year, SAS establishes energy-saving plans for its plants, with a short-term goal of achieving an annual energy-saving rate of over 1% per plant. Chunan and Yilan Branches have conserved 1,428,864 kWh (5,144 GJ) of electricity in 2023, which is equivalent to reducing approximately 707.288 metric tons of carbon dioxide emissions. If the energy-conservation performances of GlobalWafers - Taiwan (GlobalWafers Headquarter, Chunan Plant, and GlobalWafers Taisil Plant) are included, the total conservation rate is 6,908,522 kWh (24,871 GJ), which is equivalent to reducing approximately 3,419.718 metric tons of carbon dioxide emissions.

2023 power conservation results for Chunan & Yilan branches

Category	Measures	Total power savings (kWh)	Total power savings (GJ)	Reduce carbon dioxide emissions ($kgCO_2e$)
Manufacturing process	**1. G7 Product Unit Energy Consumption Reduction Plan** ◆ Crucible 2nd source ◆ Optimization of crystal growth process time control ◆ Optimization of thermal insulation in the thermal field of the crystal growth furnace *Estimated power saving: Difference in electricity consumption per wafer before and after the improvement x wafer output *Calculation period for electricity saving: May 2023 to December 2023 **2. Retrofit of the semi-automatic CDA depressurization system of the microtome** Reduce the microtome's blowing pressure in standby to reduce CDA air consumption and achieve energy-saving benefits. *Estimated power saving: monthly standby hours of the microtome x CDA solar terms x air compressor efficiency in the current month.	425,075	1,530	210,412

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Category	Measures	Total power savings (kWh)	Total power savings (GJ)	Reduce carbon dioxide emissions ($kgCO_2e$)
Lighting improvement	**1. Energy-saving improvement of floor indicator lights** Replace traditional lighting with dimmable full-brightness sensor-activated lighting to reduce energy usage during non-use periods while meeting the minimum illumination requirements set by regulations. *Energy saving estimate: Lamp power difference before and after improvement x operating time **2. Energy-saving improvement of parking lot lighting** ◆ Replace the lighting in driveways and motorcycle parking areas with dimmable full-brightness sensor-activated lights. ◆ Replace the lighting in car parking spaces with dimmable full-brightness, sensor-activated lights to reduce energy usage during non-use periods while meeting the minimum illumination requirements set by regulations. *Energy saving estimate: Lamp power difference before and after improvement x operating time	49,990	180	24,745
Air conditioning system	**1. Construction of a cold aisle in the MIS data center** Install a cold aisle in the information server room to improve heat dissipation efficiency and reduce the number of air conditioners to reduce electricity consumption. *Electricity saving estimate: Difference in actual electricity consumption before and after the improvement (based on the meter value) **2. Replacement of the 1200RT air conditioner cold water chiller with an 800RT cold water chiller** Replace the chiller unit of the air conditioner so that its load factor is within the optimal operating range to improve its energy efficiency. *Estimated electricity saving: Energy efficiency difference before and after the improvement of the chilled water machine × cooling water volume *Calculation period for electricity saving: October 2023 to December 2023 **3. Installation of electric valves at the exhaust air of the chemical stations/cleaning machines to reduce the exhaust air volume** Install an electric valve to close the air extraction valve when not in use to automatically reduce the frequency of the air extraction fan and reduce the electricity consumption of the air conditioning fan to achieve energy conservation. *Estimated power saving: Power saved by the wind turbine x number of operating days. *Calculation period for electricity saving: April 2023 to December 2023 **4. DIF waste heat recovery.** Connect a new DIF wafer to the air inlet of the furnace cabinet by adding a blower and pipeline to emit hot air, so that the hot exhaust air from the clean bench can be reused to cool down the high temperature of the furnace, thereby reducing the amount of heat exhausted. Power consumption of wind turbines. *Estimated power saving: Power saved by the wind turbine x number of operating days.	469,799	1,691	232,551

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Category	Measures	Total power savings (kWh)	Total power savings (GJ)	Reduce carbon dioxide emissions (kgCO_2e)
Air compressor system	**1. Energy saving improvement by increasing the air compressor inlet water temperature** Increase the air compressor cooling water temperature to reduce the demand for the plate hot ice water in the heat recovery system. *Estimated electricity saving: Difference in chilled water demand before and after improvement x operating hours x energy efficiency of air conditioners and ice machines. **2. Detected and repaired all CDA line leaks.** The vendor was requested to inspect all CDA leak points, and a total of 71 leak points were identified and repaired. *Estimated power saving: power difference before and after restoration x number of months of operation *Calculation period for electricity saving: July 2023 to December 2023 **3. Optimization and adjustment of CDA operations** Reduce CDA supply pressure and the number of startups based on production line demand *Estimated power saving: Difference in the number of units turned on before and after the improvement x operating hours	483,999	1,742	239,580
Total		1,428,864	5,144	707,288

Note：
1. The electricity emission coefficient is based on the announcement by the Bureau of Energy, MOEA, which is 0.495 (kg CO_2e/kWh) for 2022.
2. 1 kWh of electricity = 0.0036 GJ (gigajoule)
3. Annual electricity savings according to the announcement of the Bureau of Energy, MOEA: The annual electricity conservation via power-saving measure implementation shall be calculated from the month following the implementation date and is limited to 12 months. However, if the calculation period spans across multiple years, the electricity consumption conserved will be calculated on an annual basis.
4. The energy-saving performance statistics are mainly based on the energy-saving measures newly added in the current year.

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3.1.3 Renewable Energy Development

Renewable Energy Layout

SAS has continued to pay attention to the various climate action plans after the Paris Agreement, and TSMC has joined RE100. SAS knows that the construction and use of renewable energy is a necessary and important method for companies to achieve SBT reduction goals. In terms of strategic layout, SAS has deployed its Hsu-Hsin Branch and Yilan Branch (which established the Power Station Development Department in 2020) to fully enter Taiwan's renewable energy market by actively planning and investing in the construction of roof-, ground-, and water-surface-type solar power plants. The Company has also introduced a water surface buoyancy solar power generation system to lower the water surface temperature and significantly increase the solar panel as well as power generation efficiency. From the beginning (2014) to the end of 2023, the total solar power generation system installation capacity at home and abroad for grid-connected operation is approximately 158.4 MW, with a total annual power generation capacity of 183,937,696 kWh and an estimated carbon dioxide emission reduction of approximately 91,049 metric tons Note. Furthermore, in response to the government's active promotion of renewable energy, the goal is to complete 20 GW of solar energy installations by 2025. SAS has remained committed to both providing energy management-related services and investing in the construction of solar power plants since 2019.We have stepped up to become a provider of green energy. In 2023, we collaborated with Hitachi Air Conditioner to plan to install a solar power system with a total installed capacity of 9.6MW at the "Hitachi Air conditioner Taoyuan Factory", the largest air conditioner manufacturer in Taiwan, of which 7MW has been paralleled with Taiwan Power Company officially put into operation.

Solar power generation system construction (including commissions)

Investors	2023 Device capacity (kW)	2023 Power generation (kWh)
SAS	52.8	64,752,146
Affiliated Enterprises of SAS Group	24.9	22,675,379
External customers	80.7	96,510,171
Total	158.4	183,937,696

Note：
Carbon dioxide emissions: Because solar power is used to replace public electricity sales, carbon dioxide emission reduction is estimated based on the Electricity Carbon Emission Coefficient (Electricity Carbon Emission Coefficient for Public Electricity Sales Sector) of 0.495 kgCO2e/kWh as announced by the Bureau of Energy, MOEA, in 2022.

The energy storage system plays an important role in grid stability, backup capacity enhancement, and renewable energy installations. SAS's subsidiary has invested in the energy storage system for its Yilan plant area in 2022, which is expected to turn into a 1.5 MW energy storage system for the power market in 2023 to provide dispatch services and increase stability for the nation's power grid. SAS will continue to build energy storage systems and improve energy management services in the future.

The future outlook for the SAS Group includes continuing to respond to the global trend of low-carbon green energy, building more high-quality solar system power plants in Taiwan, strengthening energy security, and innovating the green economy.

Renewable Energy Declaration and Commitment

SAS is dedicated to becoming a comprehensive green energy supplier. Our current investment projects include various fields such as green electricity production, energy storage, and green energy resale. By taking concrete actions to support and respond to the global transition to net-zero, SAS committed in 2021 that the entire SAS Group, including all its subsidiaries, will achieve 100% renewable energy usage by 2050. This commitment is not just a slogan but is being translated into practical measures. In 2024, SAS subsidiaries are expected to achieve a green electricity usage ratio of 2-3%. Additionally, SAS is fully assisting its subsidiary GlobalWafers and strategic partners in gradually increasing their use of clean power each year. SAS aims to play a crucial role in the government's promotion of green economic development and energy transition, contributing to a sustainable environment and a zero-carbon, eco-friendly society. In the future, the Group will increase its green electricity usage in stages: 20% by 2030, 35% by 2035, and 50% by 2040, with the goal of achieving 100% renewable energy usage by 2050. Additionally, in 2023, the government announced Taiwan's "Net-Zero Pathway" and amended the Climate Change Response Act to include the national net-zero target. To align with the government's net-zero policies, SAS aims to enhance understanding of green electricity operations among different company departments. Therefore, SAS has decided to participate in Taiwan Power Company's small-scale green electricity bidding operations. By leading by example, SAS also seeks to gradually adjust employees' mindsets and familiarize them with the application processes and workflows for renewable energy certificates.

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3.2 Water Resources and Water Pollution Discharge

3.2.1 Water Resources Management

Water Use and Discharge

SAS' water use by its plants in Taiwan comes from tap water supplied by Taiwan Water Corporation and ground surface water. The company does not use underground water. Therefore, there are no problems of underground water over-utilization, land subsidence, or sabotage of the environmental ecology. In terms of water resources, Chunan Branch's water supply comes from Dongxing Purification Plant, and its raw water source is Yongheshan Reservoir. Yilin Branch's water supply comes from Longde Purification Plant, and its raw water source is the Sincheng River. None of the original water sources are classified as national or international nature reserves or from sensitive water origins (considered by experts as relative area, special function, rare, threatened, endangered system, or some endangered species living in the water source).

A reference to the Aqueduct water resource risk assessment tool indicated that Taiwan's overall water resource risk level is 1~2 (low to medium risk), and Taiwan is not a high-water resource stress area. Therefore, SAS has no water intake, drainage, and consumption from high water resource stress areas.

2021~2023 Water withdrawal, discharge, and consumption

Unit: million liters (10^6 L)

Item		2021						2022						2023					
		SAS	Subsidiary				Group	SAS	Subsidiary				Group	SAS	Subsidiary				Group
			GlobalWafers	Actron Technology Corp.	TSCS	Advanced Wireless Semiconductor Company			GlobalWafers	Actron Technology Corp.	TSCS	Advanced Wireless Semiconductor Company			GlobalWafers	Actron Technology Corp.	TSCS	Advanced Wireless Semiconductor Company	
Water Withdrawal	Surface water	0	1,269.4	0	0	0	1,269.4	0	1,261.0	0	0	0	1,261.2	0	2,024.0	0	0	0	2,024.4
	Underground water	0	9,492.5	0	0	0	9,492.5	0	8,274.0	0	0	0	8,274.2	0	7,135.0	0	0	0	7,135.1
	Seawater / Produced water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Water plant - Raw water	224.1	0	0	0	0	224.1	235.8	0	0	0	0	235.8	190.4	0	0	0	0	190.4
	Water plant	142.2	10,134.0	208.5	13.4	283.6	10,781.7	150.3	10,228.0	218.5	13.4	166.3	10,776.7	95.2	9,715.0	241.1	10.1	152.2	10,213.2
	Total	366.3	20,895.9	208.5	13.4	283.6	21,767.7	386.2	19,764.0	218.5	13.4	166.3	20,548.0	285.6	18,874.0	241.1	10.1	152.2	19,563.1
Water Withdrawal	Surface water	0	5,656.7	0	0	0	5,656.7	0	4,634.6	0	0	0	4,634.6	0	3,912.8	0	0	0	3,912.8
	Underground water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Seawater	0	4,738.0	0	0	0	4,738.0	0	4,435.1	0	0	0	4,435.1	0	3,619.5	0	0	0	3,619.5
	Wastewater Treatment Facility	276.6	6,953.0	187.1	9.0	152.8	7,578.5	277.2	7,755.6	165.9	9.0	145.7	8,353.4	196.3	8,858.1	219.7	7.2	96.9	9,378.3
	Total	276.6	17,347.6	187.1	9.0	152.8	17,973.1	277.2	16,825.2	165.9	9.0	145.7	17,423.0	196.3	16,390.4	219.7	7.2	96.9	16,910.6
Water Consumption Quantity		89.6	3,548.3	21.4	4.5	130.8	3,794.5	109.0	2,938.4	52.6	4.4	20.6	3,125.0	89.3	2,483.6	21.4	2.9	55.3	2,652.5

Note:
1. Scope of statistics: SAS (Headquarter, Chunan Plant 2, Chunan Plant, Yilan Branch's Plant 1/Plant 3, Hsu-Hsin Branch) Subsidiaries (GlobalWafers, Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company). Group (SAS, GlobalWafers, Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company).
2. Intensity: Water consumption density (106 L)/consolidated revenue (KNTD)

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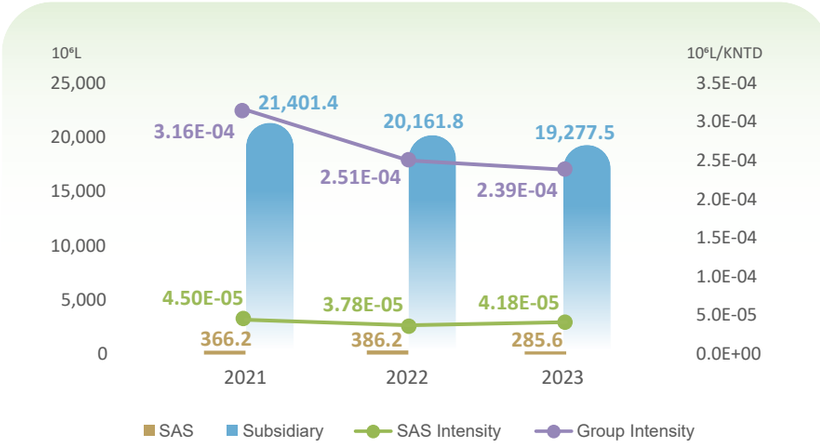
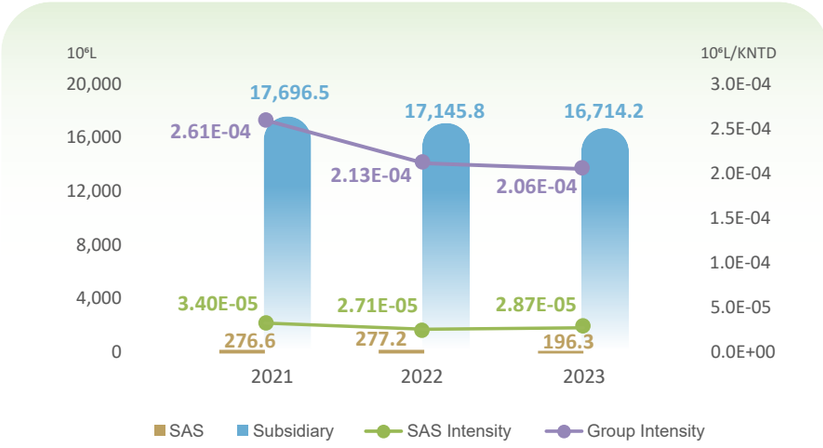
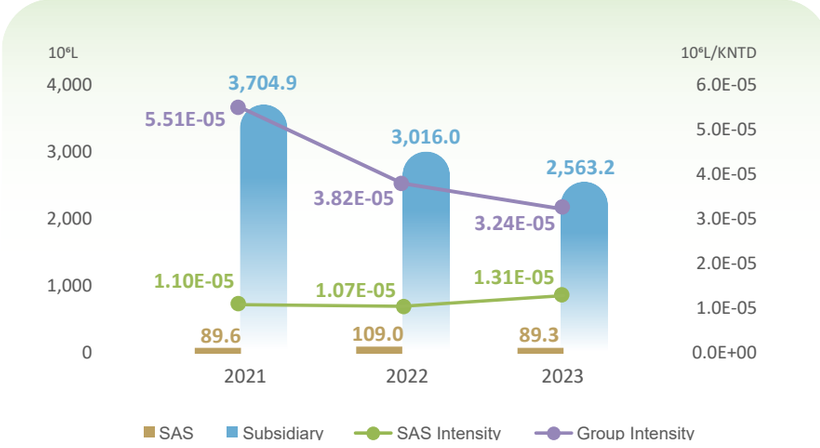
Water withdrawal



Discharge



Consumption



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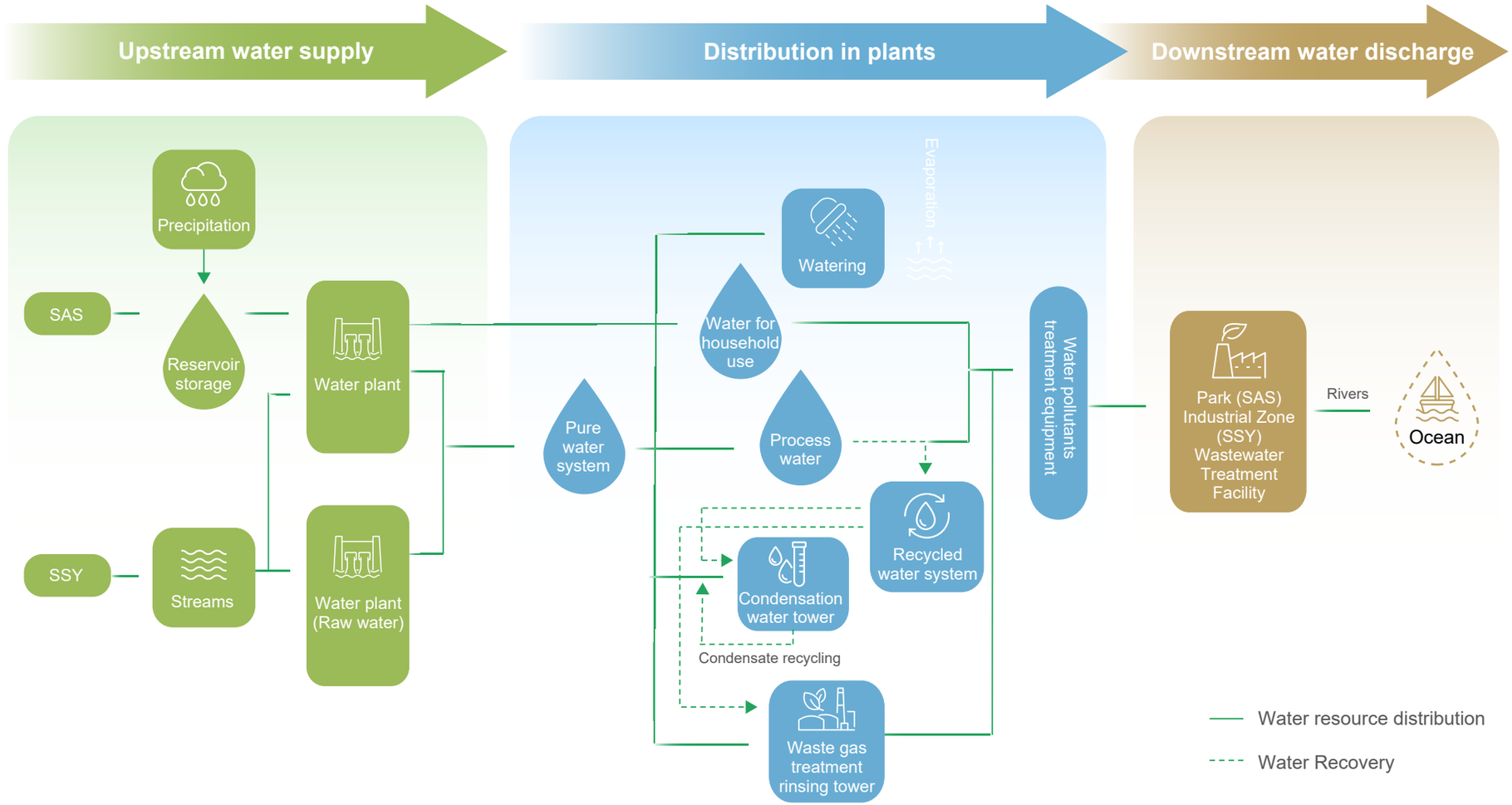
Water Resource Management and Conservation

In recent years, extreme climate issues have led to extreme rainfall patterns in Taiwan, challenging the stability of the water supply. In addition to ongoing water-saving measures, the Yilan plant switched the water source for the air pollution scrubber to the discharge water from the cooling tower recycling system at the end of 2021. This change saved 5,575 m³ of water in 2023.

Flowchart of Water Use and Discharge Flowcharts



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3.3 Pollution Prevention and Waste Reduction Management

Regarding pollution and emissions, SAS installs adequate pollution control equipment with corresponding treatment capabilities to maintain the efficiency of treatment operations. Every piece of equipment is regularly maintained and inspected. Dedicated specialist personnel are appointed to conduct relevant operations in accordance with relevant regulations to reduce pollutant emission concentrations, ensure compliance with legal standards, and minimize environmental hazards and impacts with the ultimate goal of realizing the vision of environmental protection and sustainability.

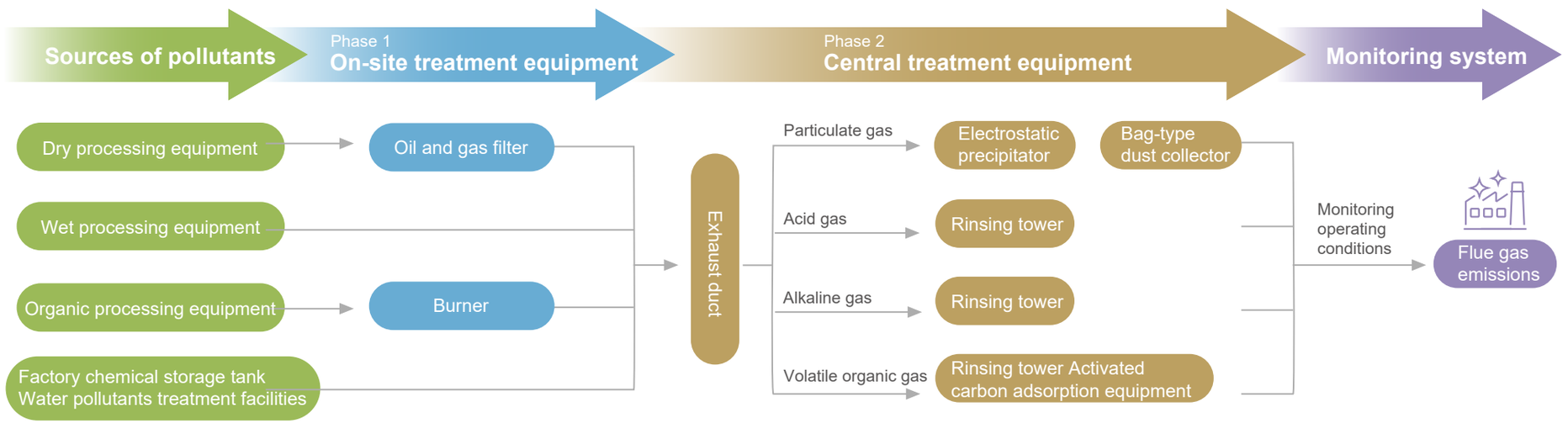
3.3.1 Air Pollution Control

Air Pollution Emission Quantity

The production processes of various SAS plants are different, so the process exhaust gas from each plant area is slightly different. Chunan Branch has 3 major types of waste gas: acidic, volatile organic compounds, and particulate pollutants. Yilan Branch (including Plant 1 and Plant 3) has 3 major types of waste gas: acidic, alkaline, and volatile organic compounds. Based on the characteristics of process exhaust gases, we implement source separation at the pollution source. For gases such as oil vapors and combustible gases, high-concentration pollutants are pre-treated using on-site equipment before the gases are sent to central treatment facilities for secondary end-stage pollution control. This two-stage process enhances the efficiency of air pollution treatment.

We continuously monitor the operational stability of air pollution control equipment. We have installed NMHC (Non-Methane Hydrocarbons) concentration monitors, continuous automatic flow meters, and other monitoring instruments before the exhaust pipes. Additionally, we have backup equipment in place to be activated in case of equipment failure, ensuring stable operation of pollution control systems and minimizing pollution risks. Our plant facilities team conducts daily on-site inspections of the control equipment systems, implementing a walk-through management approach to ensure that the air pollution control systems are operating normally and all operational parameters remain within control limits. In 2023, we did not experience any abnormalities in our air pollution control equipment or any other air pollution-related penalties.

Air Pollution Control and Treatment Process



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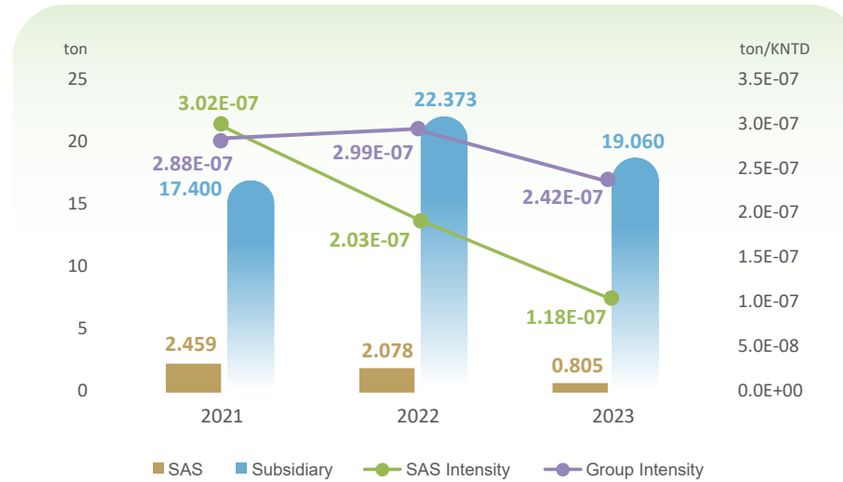
Air pollutant emissions from 2021 to 2023

Unit: (ton /yr)

	Item	2021						2022						2023					
		SAS	Subsidiary				Group	SAS	Subsidiary				Group	SAS	Subsidiary				Group
			GlobalWafers	Actron Technology Corp.	TSCS	Advanced Wireless Semiconductor Company			GlobalWafers	Actron Technology Corp.	TSCS	Advanced Wireless Semiconductor Company			GlobalWafers	Actron Technology Corp.	TSCS	Advanced Wireless Semiconductor Company	
Air pollution emission quantity	Particulate Matter Pollutants (Par)	0.398	5.513	-	-	-	5.911	0.823	4.655	-	-	-	5.478	0.341	4.566	-	-	-	4.907
	Nitric acid (HNO_3)	0.166	9.254	-	-	-	9.420	0.098	8.190	-	-	-	8.288	0.004	5.126	-	-	-	5.130
	Hydrofluoric acid (HF)	0.011	1.471	-	-	-	1.482	0.024	1.639	-	-	-	1.663	0.006	1.798	-	-	-	1.804
	Hydrogen chloride (HCl)	0.004	7.512	-	-	-	7.516	0.008	8.577	-	-	-	8.585	-	6.939	-	-	-	6.939
	Volatile organic compound (VOC)	2.459	10.334	2.510	-	4.555	19.858	2.078	8.993	9.350	-	4.030	24.451	0.805	10.384	7.450	-	1.226	19.865
	Ammonia (NH_3)	0.037	11.847	-	-	-	11.884	ND	12.580	-	-	-	12.580	-	27.067	-	-	-	27.067
	Phosphoric acid (H_3PO_4)	0.039	0.017	-	-	-	0.056	ND	0.007	-	-	-	0.007	-	0.007	-	-	-	0.007
	Sulfuric acid (H_2SO_4)	-	0.099	-	-	-	0.099	<0.001	0.155	-	-	-	0.155	-	0.122	-	-	-	0.122

Note:
1. Scope of statistics: SAS (Headquarters, Chunan Plant 2, Chunan Plant, Yilan Branch's Plant 1/Plant 3, Hsu-Hsin Branch)
   Subsidiaries (GlobalWafers, Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company).
   Group (SAS, GlobalWafers, Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company).
2. Regular pollution source emission matter is disclosed according to the regular pollution source operation permit.
3. Emission estimation: The pollution emission intensity*annual output or usage amount is calculated based on third-party qualified laboratory testing data.

VOC emissions amount



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Air Pollution Emergency Response Drill

The process exhaust gases from Chunan Branch and Yilan Branch contain air pollution emergency-controlled substances (hydrofluoric acid, hydrochloric acid). We have conducted at least one air pollution emergency drill every year for units that use controlled substances in the factory and reported the drill results to the competent authority. The goal of the regular drills is to help reduce the environmental impact, personal injury, and loss of equipment and property due to possible accidents; and to prepare staff to take appropriate contingency measures effectively and immediately in case of an accident.

Drill of the Yilan Branch's hydrofluoric acid storage tank leakage

The scenario of a hydrofluoric acid storage tank leakage was used as a drill to test whether the composition in the factory affairs area could operate normally and if correct protective gear was worn in response. The test result showed that the composition in the factory affairs area was functioning normally.

1. Immediately notify the unit supervisor and the Safety Management Department of the occurrence of the accident.
2. The situation and task assignments were well communicated by the command team to the regional emergency response team members.
3. The safety protection team shall take precautionary measures to prevent pollution and hazards from entering the spill area, seal the site off, control personnel, and provide appropriate assistance.
4. The disaster response team successfully retrieved A-level gas-tight chemical protective suits and self-contained breathing apparatus (SCBA) from the nearest response cabinet, and their condition was good.
5. The accuracy and speed of donning the A-level gas-tight chemical protective suits and SCBA were satisfactory.

Gather the members of the regional emergency response team of the Plant Affairs Department [Command Team]

Notify the occurrence of the accident and contact the relevant units [Notification Team]

Preventive Vigilance Measures to Prevent Pollution and Dangerous Entry into the Release Area [Safety Protection Team]

Respond to the incident wearing A-level gas-tight chemical protective suits and self-contained breathing apparatus (SCBA) [Disaster Relief Team]

Confirm the leak at the pump outlet valve and close the pump inlet valve to stop the leak [Disaster Relief Team]

Workers of Disaster Relief Team 2 wore Class-C protective clothing and used decontamination equipment to help remove contamination. [Disaster Relief Team 2]

Perform decontamination operations. [Disaster Relief Team 2]

Review and discuss the items for improvement during the drill. [Drill Review Meeting]

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3.3.2 Water Pollution Prevention

The plants of SAS are located in different regions, and their wastewater was discharged to the Chunan Park Sewage Treatment Plant and Letzer Industrial Park Sewage Treatment Plant of the Hsinchu Science Park Bureau, MOST, for management. To be able to monitor and respond immediately, water volume and water quality monitoring facilities (monitoring pH and fluoride ion concentration) are set up before discharge, and regular waste water testing and reporting are performed in accordance with the law. The quality of wastewater discharged must meet or exceed the regulatory requirements. There are also random inspections at the discharge outlets on an irregular basis to double check the quality of the discharged water. In 2023, there were no major leaks, spills, or environmental penalties at any of the SAS facilities.

SAS has prioritized production source reduction as its water pollution prevention strategy. Under the principle of waste liquid separation and reclassification treatment, wastewater is classified according to its characteristics and then treated by the wastewater treatment facility in the factory. The Chunan Branch and Yilan Branch Plant 3 have established a complete biological treatment system (anaerobic + aerobic biological treatment) system in addition to the chemical treatment system to strengthen the wastewater treatment efficiency. According to the wastewater discharge quality analysis results, the discharge quality of all plants in 2023 from all SAS facilities was well below the regulatory standards set by the Science Park Administration and the Letzer Industrial Park Management Center, indicating that the wastewater treatment facilities of all SAS wafer plants were quite stable.

Wastewater Discharge Quality Control and Improvement

Yilan Plant Fluoride Wastewater Tank Upgrade Project to Improve Treatment Efficiency: Due to corrosion and aging of the fast and slow mixing tanks for fluoride wastewater at the Yilan plant, the equipment was upgraded in 2023. The tank volume was increased by 100%, doubling the retention time of fluoride wastewater during the treatment process. This improvement reduces the occurrence of excessive chemical addition due to incomplete reactions, and is expected to decrease the usage of calcium carbonate and calcium chloride. The project was completed at the end of August, and adjustments were made to optimize and minimize chemical usage while ensuring that the water quality meets discharge standards (fluoride ion below 15 mg/L; pH: 6-9). Comparing the average monthly chemical usage (calcium carbonate + calcium chloride) from September to December 2023 with that from June to August 2023, calcium carbonate usage decreased by 9.7% and calcium chloride usage decreased by 23.0% (as detailed in the table below). Continuous adjustments and optimizations are being made to further reduce chemical usage.

In 2024, the Yilan Plant expects to collect nitric acid-containing wastewater separately, and set up a set of fluoride ion removal treatment reaction tanks, so that nitric acid (nitrate nitrogen) wastewater can enter the biological system independently to decompose nitrate nitrogen, significantly reducing the biological system's treatment load, increasing retention time, and enhancing treatment effectiveness.

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3.3.3 Waste Management

The first priority of the waste management strategy by SAS is to focus on reduction at the source by improving process design and reducing the use of raw materials from the source to reduce waste output, followed by the second priority of recycling and reuse in the factory. The effort not only can increase the recycling rate for process materials and reduce waste output, but it can also reduce the use of raw materials, outsourced semi-finished products, and consumables as well as transportation energy consumption. The third priority is recycling and reusing the resources outside of the plant. The last is commissioned treatment (incineration, physical treatment, chemical treatment, burial, etc.).

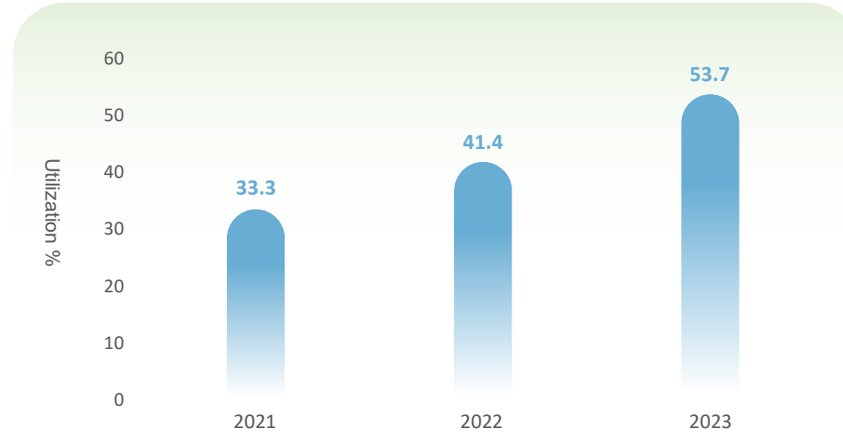
The relevant information on the waste solar panels produced by SAS, such as the quantity of waste photovoltaic panels and their model numbers, must be registered using EPA's "Waste Solar Panel Recycling Service Management Information System" platform. The platform then compares the serial number of the solar photovoltaic panels and the factory information. After confirmation, the EPA then dispatches a legal removal and disposal agency to clean up the waste solar photovoltaic panels. SAS's current waste solar panels are all processed domestically, and there is no cross-border (overseas) processing.

Waste-Related Impacts and Mitigation Actions

To mitigate the impact of waste generated by our own operations, SAS has taken the following actions:

- Reducing the use of limited raw materials through the use of recycled materials: For polysilicon ingot products, SAS uses internally recycled silicon materials and began purchasing external silicon recycled materials in 2022. The proportion of recycled raw materials used in silicon ingots gradually increased from 33.3% in 2021 to 53.7% in 2023.
- Priority is given to reuse of waste resources: Some of the empty waste acid barrels and saw wire empty reels produced will be recycled and reused by the original suppliers first.

Renewable raw materials used in silicon ingot



Waste Generation

The total waste outputted in 2023 by the SAS Chunan and Yilan branches (including silicon recycle material, waste recycled by suppliers, and then returned to the factory for use) was 2305.4 metric tons. General waste accounted for 99.8% (2300.6 metric tons) of the total waste, and hazardous waste accounted for 0.2% (4.8 metric tons) of the total waste. In terms of waste treatment, we give priority to the waste recycling operations that are implemented during waste disposal (as detailed in the reuse and recyclingNote), which account for approximately 93.7% of the total waste disposal volume. The types of wastes generated in 2023 and their disposal methods are summarized as follows

Note：
1. Reuse: Take a product or composition intended for waste and adopt the inspection, cleaning, or repair methods to reuse it for its original purpose.
2. Recycle: Reprocessing products or components that would otherwise become waste through various methods (such as chemical, physical, or thermal treatment) to create new materials.

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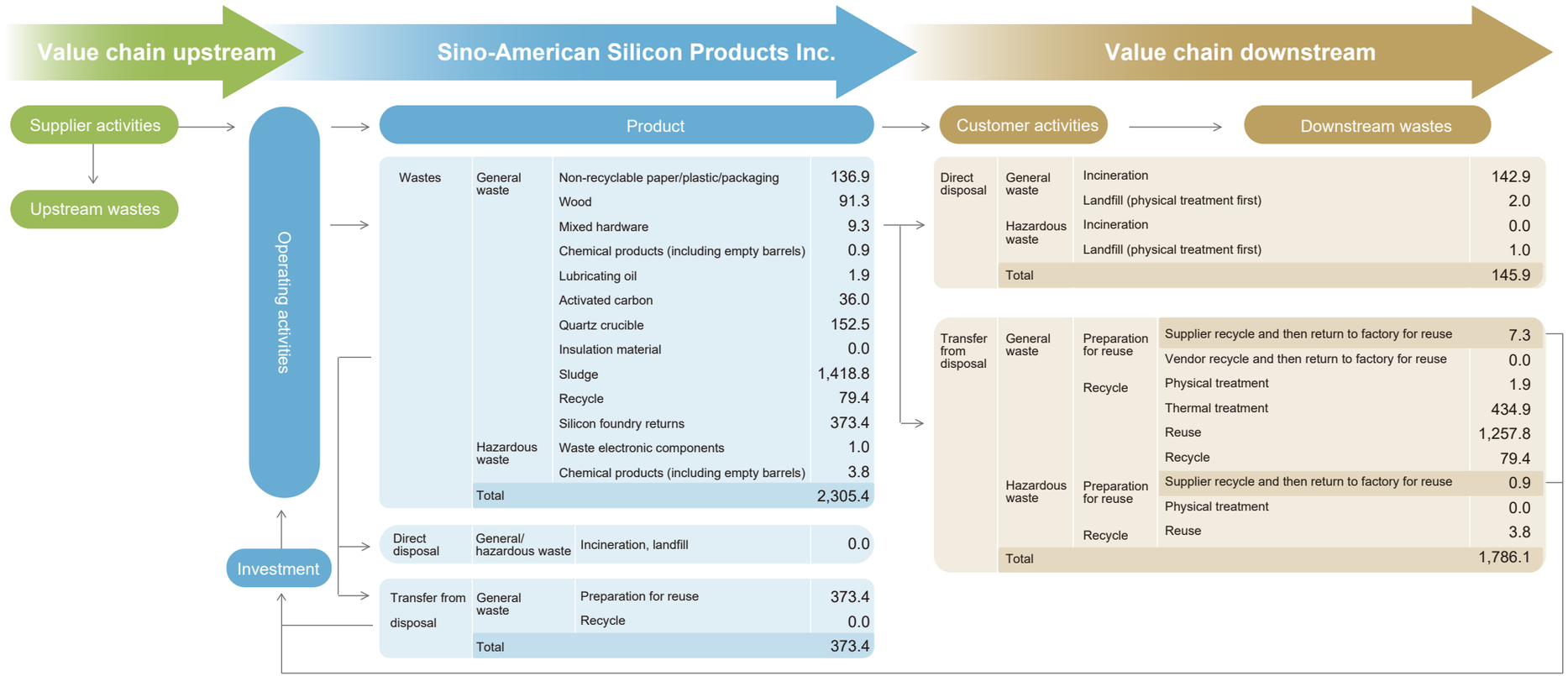
2023 SAS Waste Volume

Unit: Metric Ton

Type of waste	Total output	Transfer during disposal				Direct disposal			
		Transfer method	On-site	Off-site	Total	Disposal method	On-site	Off-site	Total
General waste	2,300.6	Preparation for reuse	373.4	7.3	380.7	Incineration	0.0	142.9	142.9
		Recycle	0.0	1,774.0	1,774.0	Landfill	0.0	2.0	2.0
		Total	373.4	1,781.3	2,154.7	Total	0.0	144.9	144.9
Hazardous waste	4.8	Preparation for reuse	0.0	0.9	0.9	Incineration	0.0	0.0	0.0
		Recycle	0.0	3.8	3.8	Landfill	0.0	1.0	1.0
		Total	0.0	4.7	4.7	Total	0.0	1.0	1.0
Total	2,305.4	Total	373.4	1,786.1	2,159.5	Total	0.0	145.9	145.9



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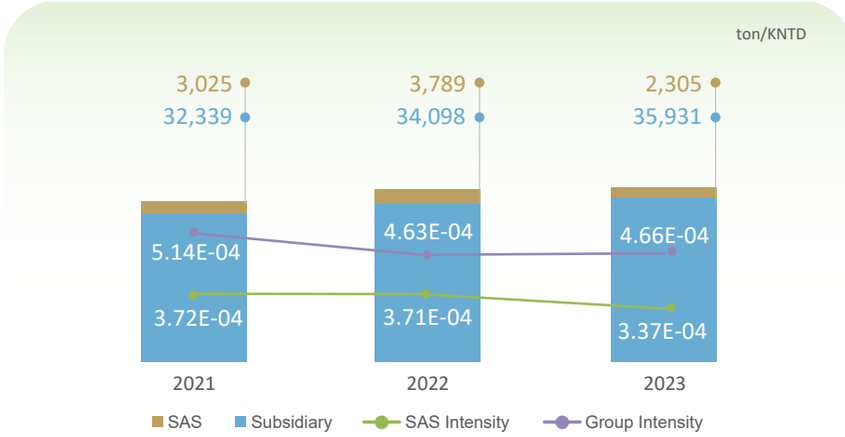
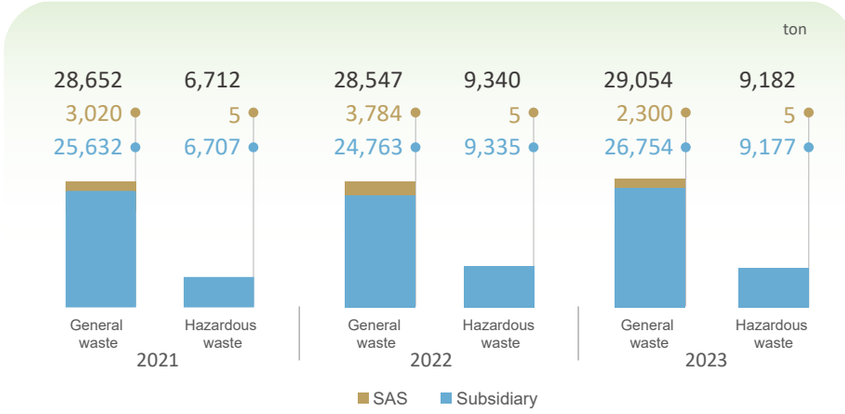
Total waste output of SAS and its subsidiaries from 2021 to 2023



General waste and hazardous waste from 2021 to 2023



Note:
1. Scope of statistics: SAS (Headquarter, Chunan Plant 2, Chunan Plant, Yilan Branch's Plant 1/Plant 3, Hsu-Hsin Branch)
   Subsidiaries (GlobalWafers, Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company).
   Group (SAS, GlobalWafers, Actron Technology Corp., TSC, Advanced Wireless Semiconductor Company).
2. Waste density: Waste volume (ton)/Consolidated revenue (KNTD)

Management of Outsourced Waste Removal/Disposal

SAS has established the in-plant waste management and treatment agency procedures according to the "Regulations Governing Determination of Reasonable Due Care Obligations of Enterprises Commissioning Waste Clearance":

Internal Waste Management

Regularly conduct self-inspection and review waste storage conditions, online declaration records, vendor clearance qualifications, and track and keep records of proper waste disposal.

Management of Waste Management Organization

- The waste disposal agencies must be jointly inspected by the relevant units (officers in charge of waste disposal, safety and health, procurement, and legal matters) to ensure the agencies and their employees have not violated the Waste Disposal Act or received any penalty fines in order to become qualified agencies. For new clean up agencies, a relevant unit in the factory shall be dispatched to conduct an on-site inspection of the waste cleanup agencies, to verify whether their treatment/reuse equipment (facility) has sufficient capacity to dispose of the received waste properly. The sales status of re-manufactured products after treatment to reduce the risks of illegal waste dumping or disposal.
- For inspections, high-risk waste treatment/reuse agencies shall be visited at least once a year. The inspection contents shall cover the vendor's operation records, whether the processed products meet the saleable standards, as well as their sales/in-plant inventory status, environmental protection licenses, on-site environmental safety regulations compliance, etc. The inspection score results are divided into grades A, B, and C. If the grade is C (with ≧ 3 defects), the vendor will be dismissed. In 2023, the inspected vendors all received an A grade.

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Labor Relations and Labor Rights

Human Rights Policy

SAS upholds a core philosophy and value of respecting employees and implementing a human-centric approach. This involves adhering to labor-related laws, protecting employee rights, giving voice to employees , promoting labor-management harmony, ensuring gender equality, and preventing harassment or discrimination. Supply chain partners are required to apply the same standards in their operations, complying with local laws and supporting the spirit and fundamental principles of international human rights conventions such as the Universal Declaration of Human Rights, the United Nations Global Compact, and the International Labour Conventions.

For more information on our human rights policy, please refer to the SAS company website.

Policy Guidelines

- Continue to create diversity, inclusiveness, and equal opportunities, and prohibit any form of discrimination (based on gender (including sexual orientation), race, class, age, marital status, language, ideology, religion, political affiliation, place of origin, place of birth, appearance, facial features, physical or mental disabilities, etc.)
- Prohibition of forced labor and child labor
- Create a safe and healthy work environment
- Provide fair and reasonable compensations and working conditions
- Provide a channel and environment for the free expression of opinions, and respect employees' to freely associate

Provide a Harassment-Free Work Environment

To prevent employees from experiencing physical or mental unlawful infringement while performing their duties, SAS has established management measures forworkplace unlawful acts. This includes planning educational training programs and implementing necessary safety measures to ensure employees' safety and mental health. Notices regarding the prevention of unlawful infringement in the workplace are posted on bulletin boards within the facilities, multiple grievance channels are provided for employees, and regular risk assessments of workplace unlawful infringement are conducted. Based on the findings of these assessments, appropriate safety measures are planned to build an equal, safe, and friendly working environment.

Eliminating Unlawful Discrimination and Ensuring Equal Employment Opportunities

The Company adheres to the principles of diversity, inclusiveness, and equality. We do not discriminate based on race, class, age, marital status, language, ideology, religion, political affiliation, place of origin, nationality, appearance, facial features, or physical or mental disabilities.

In 2023, the Company received an Excellence Award for its efforts in participating in workplace gender equality promotion in the Hsinchu Science Park.

Prohibition of forced labor and child labor

When recruiting employees, the Company strictly checks employee identity documents and prohibits the use of child labor in any manufacturing process, except for legal workplace learning programs that comply with laws and regulations.

When establishing an employment relationship, both parties sign a written labor contract based on mutual consent, with no forced or compulsory labor.

Working Hour Management

Employee working hours are managed in accordance with local labor laws, ensuring that employees have two days of rest every seven days (one rest day and one holiday) Daily working hours shall not exceed 12 hours, and employees shall be granted at least 30 minutes of rest after every four consecutive hours of work. Overtime work shall not exceed 46 hours per month.

A comprehensive attendance system is in place, which automatically notifies employees of any violations or irregular attendance, making it easy for employees to check their attendance records.

When overtime work is necessary, employees must give their consent, and overtime pay or compensatory time off is provided in accordance with the law.

For indirect employees, the Company offers a thirty-minute flexible start and end time to help them balance work and life.

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Personal data protection

To ensure the security of personal data for employees, customers, and partners, as well as to protect the Company's interests, we adhere to the Personal Data Protection Act and its Enforcement Rules. The collection, processing, or use of personal data must respect the individuals' rights and be conducted with honesty and integrity. The purpose of data collection must be reasonably related to and justified by the intended use, balancing the protection of individual privacy rights. It shall not exceed the scope necessary for the specific purpose. When the Company's business requires the collection of personal data, the purpose and scope of the collection shall be communicated to the parties concerned, and their consent shall be obtained in writing.

Employee Communication Channels

SAS values employee opinions and rights, establishing multiple communication channels, including an employee opinion and grievance mailbox, and holding labor-management meetings to facilitate two-way communication. Employees can express their opinions through any of these channels. The company handles employee opinions and grievance cases as confidential matters. The Human Resources department conducts necessary interviews and investigations and responds with the investigation results.

Workforce structure

SAS (headquarter & Chunan, Yilan, Hsu-Hsin branches) and GlobalWafers had 7,927 employees in 2023.

SAS has a total of 622 employees. Based on gender, men accounted for 72.8%, and women accounted for 27.2%. Based on age, 5.0% are under 30 years old, 70.3% are 30-50 years old, and 24.8% are over 50 years old. Based on the work area, Hsinchu accounted for 6.1%, Chunan accounted for 26.5%, and Yilan accounted for 67.4%. Based on job attributes, direct personnel account for 56.1%, and indirect personnel account for 43.9%. Based on employment type, regular employees account for 100%, and informal employees account for 0%. Based on employment contracts, fixed contracts accounted for 0.2%, non-fixed contracts accounted for 99.8%, and employees requiring visas accounted for 0.2%.

2021~2023 Staff Structure Analysis

Year / Workforce structure		2021		2022		2023	
		SAS	GlobalWafers	SAS	GlobalWafers	SAS	GlobalWafers
By gender	Male	482	5,446	555	5,590	453	5,628
	Female	175	1,649	174	1,701	169	1,677
Full-time/Part-time	Official (General Employees)	647	6,755	729	6,740	622	6,765
	Non-official (Dispatch, part-time)	10	340	0	551	0	540
By employment contract	Unfixed term	636	6,095	658	6,371	621	6,522
	Fixed term (Appointment)	21	1,000	71	920	1	783
By nature of work	Direct	393	4,426	453	4,535	349	4,388
	Indirect	264	2,669	276	2,756	273	2,917
By education level	Doctoral degree	3	62	3	67	3	76
	Master's degree	82	493	83	543	83	561
	Bachelor's degree	401	1,752	463	1,556	387	1,651
	Senior high school and vocational school	151	4,344	156	3,515	129	3,894
	Junior high school and below	20	444	24	1,610	20	1,123
By age	< age 30	53	1,381	88	1,493	31	1,095
	Age 30-50	566	3,852	592	3,824	437	413
	> age 50	38	1,862	49	1,974	154	2,667
Area	Taiwan	657	1,674	729	1,711	622	1,701
	Offshore	0	5,421	0	5,580	0	5,604
Foreign employees and employees stationed overseas	Work visa exemption	0		0		0	7
		11	236	66	276	1	222
Total		7,752		8,020		7,927	

Note:
1. SAS' informal employees in 2023 are dispatched personnel (SAS has no part-time or seasonal employees).
2. In 2023, SAS did not hire employees without guaranteed hours.

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Hiring of local personnel and disabled persons

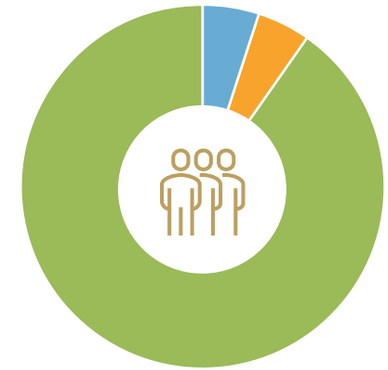
Based on its commitment to social care, SAS cooperates with government policies on employing persons with disabilities and employs individuals with disabilities in compliance with legal requirements. As of 2023, the Company employs 9 individuals with disabilities, accounting for 1.4% of the workforce, fostering an inclusive and diverse work environment.

Supervisor

Regarding management level, the total number of SAS supervisors is 83, of which 71.1% are males and 28.9% are females. Regarding management ranks, there are 50 individuals in senior and mid-level management positions (manager and deputy manager levels and above) and 33 individuals in entry-level management positions (section manager level and above but below the manager level).

All Levels	Sino-American Silicon Products Inc				GlobalWafers				Total			
	Male	Female	Total	Percentage	Male	Female	Total	Percentage	Male	Female	Total	Percentage
Senior and Mid-level Management Roles	38	12	50	8.0%	276	67	343	4.7%	314	79	393	5.0%
Entry-level Management Roles	21	12	33	5.3%	284	64	348	4.8%	305	76	381	4.8%
Non-management Roles	394	145	539	86.7%	5,068	1,546	6,614	90.5%	5,462	1,691	7,153	90.2%
Total	453	169	622	100%	5,628	1,677	7,305	100%	6,081	1,846	7,927	100%

Note:
1. Senior and Mid-level Management Roles: (Deputy) Manager level and above.
2. Entry-level Management Roles: Section Manager level and above but below (Deputy) Manager level.
3. Non-management Roles: including fellows, professional personnel (engineers, administrators), assistant engineers, technicians, etc.



New Recruits and Leaving Employees Statistics

In 2023, SAS and GlobalWafers had 649 new employees. By gender, new male employees accounted for 6.1% of the total workforce at the end of the year, while new female employees accounted for 2.0%. By age, new employees <30 years of age accounted for the highest percentage at 4.4%, followed by those aged 30-50 at 2.9%.

In 2023, the number of resigning employees was 785. By gender, male employees who resigned accounted for 7.3% of the total workforce at the end of the year, while female employees accounted for 2.6%. By age, employees aged 30-50 who resigned accounted for the highest percentage at 4.7%, followed by those <30 at 3.7%.

When employees submit their resignation letter, the HR department would immediately schedule an exit interview to understand reasons for the resignation. This also enables the HR department to provide active assistance in adjustments and detailed explanations with regard to work contents, personal characteristics, and identified problems to achieve the goal of talent retention. In addition, the Group will announce internal recruitment information when there are vacancies, taking into account the career development needs of the organization and individuals and enhancing the transfer of internal talents to reduce the turnover rate.

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2021~2023 Statistical Analysis for New Employees

2021

Area		Yilan		Chunan		Hsinchu		GlobalWafers-Taiwan		GlobalWafers-overseas		Total	
Age		No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Male	< age 30	1	<0.1%	30	0.4%	2	<0.1%	113	1.5%	223	2.9%	369	4.9%
	age 30~50	8	0.1%	51	0.7%	0	0.0%	104	1.4%	99	1.3%	262	3.5%
	≧ age 50	0	0.0%	2	<0.1%	1	<0.1%	3	<0.1%	22	0.3%	28	0.4%
Female	< age 30	1	<0.1%	2	<0.1%	2	<0.1%	51	0.7%	72	0.9%	128	1.7%
	age 30~50	2	<0.1%	4	0.1%	8	0.1%	71	0.9%	42	0.6%	127	1.7%
	≧ age 50	0	0.0%	0	0.0%	2	<0.1%	2	<0.1%	15	0.2%	19	0.3%
Total		12	0.2%	89	1.2%	15	0.2%	344	4.5%	473	6.2%	333	12.3%

2022

Area		Yilan		Chunan		Hsinchu		GlobalWafers-Taiwan		GlobalWafers-overseas		Total	
Age		No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Male	< age 30	53	0.7%	20	0.3%	0	0.0%	103	1.3%	358	4.6%	534	6.9%
	age 30~50	48	0.6%	45	0.6%	0	0.0%	102	1.3%	143	1.8%	338	4.4%
	≧ age 50	0	0.0%	0	0.0%	0	0.0%	1	<0.1%	29	0.4%	30	0.4%
Female	< age 30	7	0.1%	0	0.0%	1	<0.1%	67	0.9%	129	1.7%	204	2.6%
	age 30~50	11	0.1%	0	0.0%	2	<0.1%	48	0.6%	48	0.6%	109	1.4%
	≧ age 50	0	0.0%	1	<0.1%	0	0.0%	3	<0.1%	22	0.3%	26	0.3%
Total		119	1.5%	66	0.9%	3	<0.1%	324	4.2%	729	9.4%	1,241	16.0%

2023

Area		Yilan		Chunan		Hsinchu		GlobalWafers-Taiwan		GlobalWafers-overseas		Total	
Age		No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Male	< age 30	0	0.0%	1	<0.1%	0	0.0%	51	0.6%	222	2.8%	274	3.5%
	age 30~50	0	0.0%	3	<0.1%	1	<0.1%	35	0.4%	121	1.5%	160	2.0%
	≧ age 50	4	<0.1%	0	0.0%	1	<0.1%	3	<0.1%	48	0.6%	53	0.7%
Female	< age 30	0	0.0%	0	0.0%	1	<0.1%	18	0.2%	52	0.7%	71	0.9%
	age 30~50	0	0.0%	0	0.0%	5	0.1%	25	0.3%	39	0.5%	69	0.9%
	≧ age 50	0	0.0%	0	0.0%	0	0.0%	3	<0.1%	19	0.2%	22	0.3%
Total		1	<0.1%	4	<0.1%	8	0.1%	135	1.7%	501	6.3%	649	8.2%

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2021~2023 Statistical Analysis for Resigned Employees

2021

Area		Yilan		Chunan		Hsinchu		GlobalWafers-Taiwan		GlobalWafers-overseas		Total	
Age		No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Male	< age 30	9	0.1%	15	0.2%	1	<0.1%	68	0.9%	106	1.4%	199	2.6%
	age 30~50	35	0.5%	23	0.3%	3	<0.1%	105	1.4%	87	1.1%	253	3.3%
	≧ age 50	1	<0.1%	0	0.0%	1	<0.1%	7	0.1%	48	0.6%	57	0.8%
Female	< age 30	4	0.1%	0	0.0%	0	0.0%	31	0.4%	64	0.8%	99	1.3%
	age 30~50	19	0.3%	7	0.1%	7	0.1%	52	0.7%	33	0.4%	118	1.6%
	≧ age 50	0	0.0%	0	0.0%	1	<0.1%	7	0.1%	31	0.4%	39	0.5%
Total		68	0.9%	45	0.6%	13	0.2%	270	3.6%	369	4.9%	765	10.1%

2022

Area		Yilan		Chunan		Hsinchu		GlobalWafers-Taiwan		GlobalWafers-overseas		Total	
Age		No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Male	< age 30	12	0.2%	15	0.2%	0	0.0%	76	1.0%	246	3.2%	349	4.5%
	age 30~50	28	0.4%	34	0.4%	0	0.0%	107	1.4%	120	1.5%	289	3.7%
	≧ age 50	0	0.0%	3	<0.1%	0	0.0%	0	0.0%	76	1.0%	79	1.0%
Female	< age 30	6	0.1%	0	0.0%	0	0.0%	35	0.5%	119	1.5%	160	2.1%
	age 30~50	14	0.2%	0	0.0%	2	<0.1%	55	0.7%	67	0.9%	138	1.8%
	≧ age 50	0	0.0%	1	<0.1%	0	0.0%	4	0.1%	49	0.6%	54	0.7%
Total		60	0.8%	53	0.7%	2	<0.1%	277	3.6%	677	8.7%	1,069	13.8%

2023

Area		Yilan		Chunan		Hsinchu		GlobalWafers-Taiwan		GlobalWafers-overseas		Total	
Age		No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%	No. of people	%
Male	< age 30	27	0.3%	8	0.1%	0	0.0%	46	0.6%	150	1.9%	231	2.9%
	age 30~50	48	0.6%	22	0.3%	0	0.0%	65	0.8%	129	1.6%	264	3.3%
	≧ age 50	0	0.0%	3	<0.1%	0	0.0%	23	0.3%	55	0.7%	81	1.0%
Female	< age 30	1	<0.1%	0	0.0%	3	<0.1%	24	0.3%	35	0.4%	63	0.8%
	age 30~50	1	<0.1%	4	0.1%	1	<0.1%	58	0.7%	46	0.6%	110	1.4%
	≧ age 50	0	0.0%	0	0.0%	1	<0.1%	14	0.2%	21	0.3%	36	0.5%
Total		77	1.0%	37	0.5%	5	0.1%	230	2.9%	436	5.5%	785	9.9%

Note:
1. The percentage of new and resigned employees is based on the ratio of the total number of employees at the end of the previous year.
2. The statistics are divided by region and age. "Chunan" covers: SAS Chunan Branch and Hsu-Hsin Branch. (The operating locations of Chunan and Hsu-Hsin branches are both located in Chunan)
3."GlobalWafers - Taiwan": Covers GlobalWafers headquarter, Chunan Plant, and Taisil Branch.

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4.2 Salaries and Benefits

Remuneration policies

To attract and retain talented individuals, SAS offers competitive compensation and benefits. Each year, the Company sets annual salary adjustment standards based on factors such as the Company's operating performance, industry-wide salary adjustment rates, inflation index, and employee performance. To ensure fairness, employee compensation is determined based on job-related criteria such as position, seniority, and professional abilities, ensuring equal pay for equal work and avoiding discrimination or disparities based on gender, age, or other conditions.

In addition, compensation is provided in accordance with the profitability of the company to increase employee cohesion, motivate employees to exceed annual business goals, create profits, and share joint achievements. Promotion recommendations are submitted on an annual basis based on work performance and contribution appraisals. We hope our employees feel that SAS is committed to sharing the company's success with everyone and maintaining strong relationships. This approach aims to enhance unity and a sense of belonging, fostering a culture of proactive growth and creating a desirable work environment for professionals.

Benefits System

SAS aims to continuously support the well-being of our employees by providing six key protections at all operational sites for full-time staff: life insurance, medical insurance, disability insurance, parental leave, retirement plans, and employee stock ownership trusts. These basic protections enable employees to focus their passion on their work while being willing to grow with the Company.

In addition, at our Taiwan plants, we provide employee labor and health insurance, labor retirement and group insurance, an employee meal subsidy, annual travel subsidy, employee health exams, gifts for three major festivals and birthday, wedding and funeral subsidies, hospitalization subsidies for injuries and illnesses, club activities subsidies, education and training subsidies, on-site physicians, cancer condolences, epidemic prevention protection measures, vaccine subsidy, employee stock ownership trusts, workplace psychological counseling, and other related benefits to help employees reach a balance between work and life.

Item		Sino-American Silicon Products Inc. (Headquarter and Chunan, Yilan, and Hsu-Hsin branches)			GlobalWafers (GlobalWafers Headquarter, Chunan Plant, and Taisil Plant)		
		2022	2023	Difference compared to the previous year	2022	2023	Difference compared to the previous year
Non-supervisory positions	Number of full-time employees (persons)	660	617	-6.97%	1,593	1,655	3.89%
	Average salary (NT$ thousands)	1,432	1,452	1.40%	1,307	1,386	6.04%
	Median salary (NT$ thousands)	1,381	1,370	-0.80%	1,228	1,280	4.23%

Note:
1."Full-time employees" refer to those whose working hours have reached the normal working hours or statutory working hours stipulated by the Company； or the rough average working hours have exceed 35 hours per week for those whose normal working hours are not set.
2."Full-time non-supervisory employees" refers to the number of full-time employees after subtracting the supervisor positions, part-time positions, and those eligible for exemption from statistics from all employees. Employees in supervisory positions refer to Company managers or "managers" within the scope as defined by the regulations of the competent authority: General manager and equivalent; deputy general manager and equivalent; associate manager and equivalent; head of the financial department; head of the accounting department; and other persons who have the authority to manage the company's affairs, provide authorization signatures, and consistent within the scope of insiders (managers) and (managers) declared by the annual shareholders meeting report.
3."Salary" refers to the employee's salary attributable to the current year according to the accrual basis based on the occurrence of powers and responsibilities. It shall include recurring salary (monthly basic salary, fixed allowance, and bonus), overtime pay (regardless of taxable or tax-free), and non-recurring salary (non-monthly allowances, bonuses, employee compensation, etc.).
4.The number of employees listed above is based on the weighted average statistical concept (the average number of employees for each month), and only covers GlobalWafers and the Taisil Branch.

Rewards to Excellent Employees

The Company has established various reward schemes to encourage proactive and outstanding workers, such as outstanding achievements, project submissions, and patent rewards. The Taiwan region also implements the annual model employee selection activity, whereby model employees are selected and publicly praised for recognition. The goal is to build a more positive and active corporate culture, and strive to fulfill the promise of continuous improvement.

Employee Stock Ownership Trust

In Taiwan, the Company will reward 100% of the amount corresponding to the employees' monthly deposit. The goal is to encourage employees to enjoy the steady returns of shareholder value through regular and fixed investments in the Company's stocks. We want to uphold the employees' independent rights, improve their benefits, and assist them in planning for retirement.

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Insurance and pension system

In addition to the legally mandated labor and health insurance system, SAS offers each employee group insurance that exceeds labor law requirements. The coverage includes term life insurance, accidental injury insurance, aviation accident insurance, major burns insurance, medical injury insurance, hospitalization medical insurance, cancer insurance, and epidemic prevention insurance. We aim to provide comprehensive protection to maintain the safety and health of employees.

In accordance with the Labor Standards Act, employees eligible under the old labor pension system have 2% of their monthly salary allocated to a retirement reserve fund, which is deposited into a retirement reserve account at the Bank of Taiwan. At the end of the year, the full amount of the retirement fund is allocated as required by law. The aforementioned Labor Pension Reserve Supervisory Committee not only holds quarterly meetings and oversees labor pension-related matters as required by law but also conducts an annual pension actuarial assessment through a professional actuarial consulting firm. This ensures sufficient funds are allocated to the retirement fund, safeguarding employees' future pension entitlements.

For employees eligible under the new labor pension system, the company allocates 6% of their monthly salary to their individual accounts with the Bureau of Labor Insurance.

Application for Leave Without Pay

At Sino-American Silicon Products Inc., the categories for applying for leave without pay include military service, major illness or injury, and parental leave. Employees who have been with the company for at least 6 months and have children under the age of 3 are eligible to apply for parental leave without pay, ensuring that their family care needs are met and their children receive the best possible care.

Execution results of unpaid child care leave application

Item	Gender	Sino-American Silicon Products Inc.			GlobalWafers - Taiwan		
		2021	2022	2023	2021	2022	2023
Total employee staff number eligible for unpaid child care leave	Male	40	34	34	60	41	46
	Female	10	13	16	24	21	22
Total number of employees who actually took unpaid child care leave	Male	2	2	5	2	7	2
	Female	3	4	7	11	8	9
Total number of reinstated employees upon the expiration of their child care leaves	Male	2	3	3	2	6	4
	Female	9	7	6	11	7	12
Total number of employees who actually resumed their duties upon the expiration of their child care leaves	Male	2	3	2	2	2	3
	Female	4	7	5	8	6	6
Ratio of employees who resumed their duties upon the expiration of their child care leaves (reinstatement rate)	Male	100.0%	100.0%	66.7%	100.0%	33.3%	75.0%
	Female	44.4%	100.0%	83.3%	72.7%	85.7%	50.0%
Total number of employees still in service 12 months after expiration of their unpaid child care leaves	Male	2	1	2	2	0	1
	Female	2	4	3	5	7	4
The ratio of employees still in service 12 months after expiration of their parental leaves (retention rate)	Male	66.7%	50.0%	66.7%	100.0%	0.0%	50.0%
	Female	50.0%	100.0%	42.9%	83.3%	87.5%	66.7%

Employment meals

SAS provides free meals for its employees during working hours in staff restaurants. The goal is to provide a comfortable dining environment and diverse meal choices to cater to staff members' different culinary demands. A restaurant monitoring task force has been established to ensure the meal quality and nutritional value and implement staff health and catering controls.

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Welfare committee system

The SAS Employee Benefits Committee was established in 1988 to actively strive for employee benefits and welfare measures, including emergency relief and first-time cancer relief, to help those in the face of drastic changes in life to survive the hardship. Cash compensation is also given to those getting married, giving birth, and processing funerals. Festival and birthday gifts in the form of cash, education scholarships, illness & hospitalization subsidies, concessions in designated shops are also provided, plus regular outings, year-end parties, and sponsorship for social welfare organizations, sporadic family days, to which all staff members and their families are invited in order to build cohesion and identification with the Company. The goal is to inspire colleagues and family members to understand the Company's operations better and promote family harmony. Establish employee associations to improve colleagues' physical and mental health, promote proper entertainment, cultivate teamwork, and inspire the spirit of mutual assistance and sincere exchanges between colleagues. Hold irregular beach cleaning activities to contribute to society and make the natural environment cleaner. Add audio-visual facilities to improve the quality and comfort of employees' dining environment.

During the COVID-19 period, the spring and autumn employee travel was replaced by gift voucher issuance. This alternative solution can reduce unnecessary personnel movement and gathering while subsidizing the employees' daily necessities. The Company has also established a vaccination reward system to encourage employees to vaccinate against COVID-19. Each year, the Company also fully subsidizes employees who voluntarily receive the flu vaccine.

In 2023, the annual subsidy expenses reached NTD 9.67 million, and the average employee subsidy was NTD 15,000. Throughout the year, more than 20 new babies were born to employees, with a birth rate exceeding 4%, surpassing Taiwan's average birth rate of 1%. The autumn employee trip saw participation from over 400 employees and their families, totaling more than 800 people, with an attendance rate of over 65%.

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4.3 Education and Training

All-round Learning Environment and Development

To improve our employees' skills and attainments, we have established education and training management regulations as the basis for implementing education and training programs. These programs are conducted annually through internal instructors, external lecturers, and external training sessions. With the easing of the pandemic, training has gradually resumed in-person classes and online courses, enabling employees to enrich their professional knowledge and foster continuous growth. Each department plans the following year's training programs in line with the company's annual operational goals, departmental KPIs, and competency needs. At the end of each quarter, the training courses conducted are reviewed and evaluated to ensure effective employee skill development. This approach enhances employee efficiency and competitiveness while aligning personal growth with the Company's sustainable development goals.

SAS has established an E-Library Academy to allow employees to read and review training materials at any time. The stored data covers a wide range of diverse topics and is easily accessible to busy staff members, thereby creating a reading culture in the company. The Academy also offers training materials for every professional field, allowing employees interested in cross-disciplinary learning opportunities for self-study and rapid personal growth. SAS firmly believes that continuous learning leads to continuous improvements in overall company operational performance. The total training development hours for SAS and GlobalWafers in 2023 is 208,764.7 hours.

For SAS, our plants' average hours of education and training for men and women according to gender are 28.2 hours and 28 hours, respectively. Based on employee classification, the average hours of education and training received by direct and indirect personnel are 23.7 hours and 33.9 hours, respectively.

SAS provides an all-around, diversified learning environment.

Number of people and hours for education and training from 2021 to 2023

Training Type		2021				2022				2023			
		Number of sessions	Number of people	Total class opening hours	Total class hours	Number of sessions	Number of people	Total class opening hours	Total class hours	Number of sessions	Number of people	Total class opening hours	Total class hours
SAS	Competency training for new recruits	57	75	476.0	633.0	62	159	467.5	1,147.5	11	11	135.0	135.0
	Professional competency training	831	17,589	1,589.0	15,285.5	911	15,130	2,210.5	16,114.0	704	12,440	1,939.5	12,882.5
	General management competency training	105	1,251	159.0	1,900.5	298	3,297	475.0	5,306.0	252	2,493	420.0	4,514.0
	Total	993	18,915	2,224.0	17,819.0	1,271	18,586	3,153.0	22,567.5	967	14,944	2,494.5	17,531.5
GlobalWafers	Competency training for new recruits	295	1,092	1,571.0	9,258.5	441	1,422	3,284.0	26,529.0	316	1,282	1,586.0	9,553.0
	Professional competency training	1,426	12,513	24,830.0	57,709.0	1,580	15,471	5,462.7	80,770.0	1,951	13,757	25,282.0	79,075.0
	General management competency training	767	39,749	6,481.9	55,624.0	747	29,832	13,235.3	56,455.9	1,263	47,246	3,163.0	102,606.0
	Total	2,488	53,354	32,882.9	122,591.5	2,768	46,725	21,981.9	163,754.9	3,530	62,285	30,032.0	191,233.0
Total		3,481	72,269	35,106.9	140,410.5	4,039	65,311	25,134.9	186,322.4	4,497	77,229	32,526.1	208,764.7

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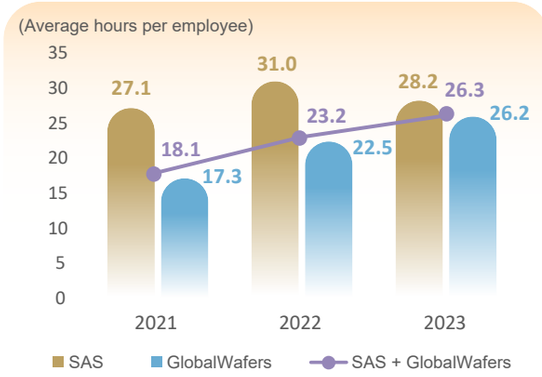
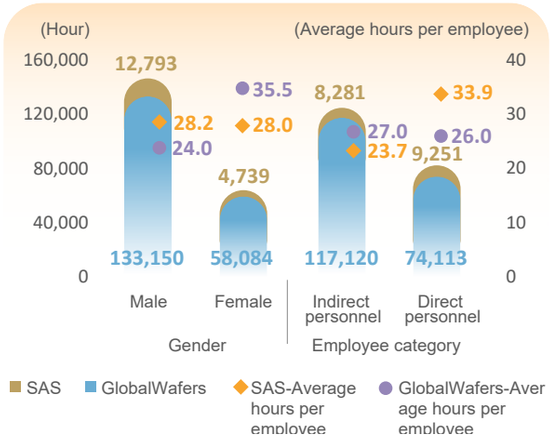
Average employee education and training hours in 2021 to 2023



Average hours of education and training of employees according to their gender and category in 2023



Note:
1. Direct Personnel: Operation personnel directly engaged in production related operations, including those engaged in technological tasks and team leaders in production sites.
2. Indirect Personnel: Personnel not directly engaged in production related tasks, including management, product design staff, accounting staff, procurement staff, engineers, etc.

Talent cultivation

SAS plans its annual education and training programs each year based on its operational strategy and short-, medium-, and long-term goals. The Company emphasizes the transfer of technology and talent development by offering a variety of training courses, academia-industry collaboration, and research projects for our staff members to stay tuned to real-time global political and economic trends and status and technology updates while supplementing the training with job substitutes, job rotation, and on-the-job training to strengthen the different professional capacities of our employees. We provide diverse training resources through a comprehensive training system that includes six major areas: New Recruits Orientation Academy, General Administration Academy, Management and Business Academy, Professional Core Academy, Environmental Health and Safety Academy, and Health Promotion Academy. The goal is to provide employees with appropriate training courses at different stages of career development; enable the Company and colleagues to adapt to the rapid changes in world trends; and help everyone to keep abreast of the latest knowledge, technology, and skills.

To promote the Company's learning culture and encourage employees to fully utilize their expertise and training resources, the Company has established "Regulations for Internal Lecturer Management," implementing the Company's knowledge management and technology inheritance and consolidating core competitiveness.

Employee Satisfaction Survey

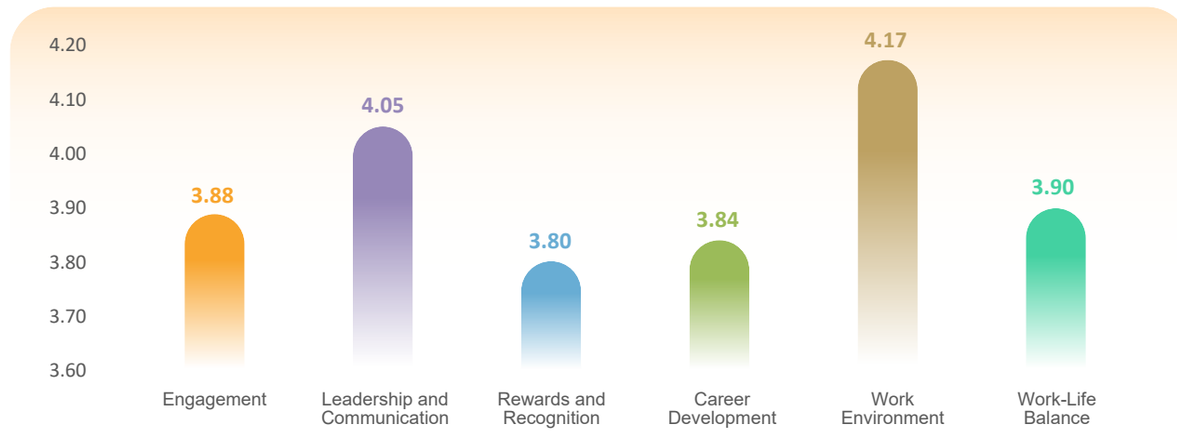
Employee satisfaction is a comprehensive indicator of employees' loyalty, cohesion, and sense of belonging to the company. It is used to understand the overall level of employee satisfaction with the organization.

Scope of investigation: SAS Headquarter, Chunan Branch, Yilan Branch, Hsu-Hsin Branch

Number of participants: 474 respondents (76.58%)

Average employee satisfaction rate: 3.94

Employee satisfaction analysis (full score: 5)



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4.4 Social Care

Charity and Public Welfare

Donation to World Vision Taiwan-Rescue Turkey's Syria Disaster Relief Assistance

In the early morning of February 6, 2023, a 7.8 magnitude earthquake struck southeastern Turkey, near the Syrian border, resulting in over 55,000 fatalities and leaving at least 850,000 children homeless. Given the severe earthquake disaster in Turkey and Syria and the difficult living conditions faced by the victims, SAS collaborated with World Vision Taiwan to launch an internal employee fundraising campaign. This initiative aimed not only to encourage employees to care for and pay attention to vulnerable groups in society but also to provide much-needed assistance to those affected by the disaster, helping them overcome their immediate challenges. The project supports World Vision Taiwan's efforts to aid children and families affected by the earthquake in Turkey and Syria. It encompasses emergency relief in the immediate aftermath of the disaster and long-term recovery efforts, accompanying the victims as they heal from their trauma and embark on the road to recovery.

Stage	Assistance Planning
Stage 1: Search and Rescue and Support (Day 0-14)	The government and professional organizations launched a search operation. World Vision evaluated the needs and provides humanitarian aid such as heaters, fuel, and other warming equipment, as well as emergency food supplies.
Stage 2: Emergency Response (Day 7-90)	World Vision worked with local partners to distribute supplies: clean water, shelter space, survival necessities, basic medical assistance and resettlement for disaster victims, and provided child protection and other services.
Stage 3: Restoring resilience (Day 90+)	Activated long-term rebuild and recovery programs, expected to include repair/reconstruction of schools and clinics, provision of livelihood support for households, and restart of essential services such as clean drinking water/other critical systems

Distribution of comforters and fuel at World Vision

Food distribution and cash assistance

Temporary Shelter in Syria

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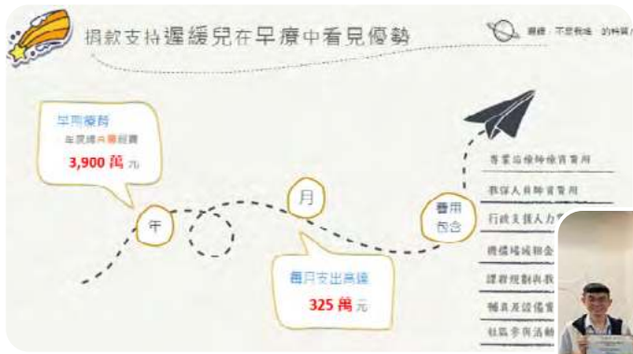
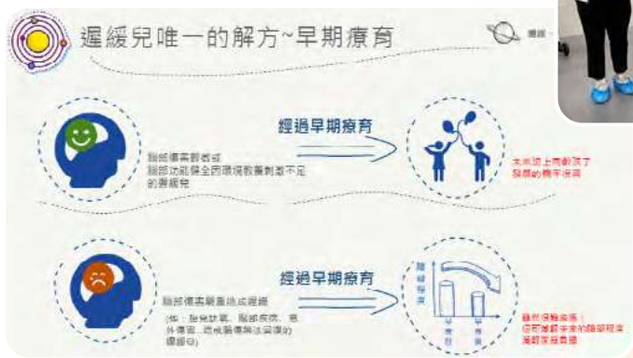
Syin-Lu Social Welfare Foundation Hsinchu Branch - Local Care and Early Intervention Therapist Fundraising

According to statistics from the Ministry of Health and Welfare, since 2020, the number of reported cases of children aged 0 to 6 with developmental delays has exceeded 26,000 annually.

Research indicates that if children with developmental delays do not receive early assistance (such as medical rehabilitation and special education), they may become part of the population with physical and mental disabilities, which could burden their families and society. Providing necessary assistance to children with developmental delays often requires parents to spend significant amounts of money. In situations where social resources are insufficient, many children cannot receive the help and care they need. SAS upholds the principle of "taking from society, giving back to society" and aims to contribute to families and society. Recognizing that these children with developmental delays are not receiving the necessary assistance and proper care, SAS has partnered with the Syin-Lu Social Welfare Foundation to raise funds. Through donations, the goal is to support early intervention programs, alleviate the financial pressure on these families, and ensure that social welfare resources are sufficiently available to provide professional therapy. This initiative aims to support these families and children in need.





Miaoli Branch of Genesis Social Welfare Foundation-Local Care, Help the Equipment Update Program of Genesis Miaoli Nursing Home

SAS Group has long been committed to assisting disadvantaged groups in society. The Genesis Foundation is the only social welfare organization in Taiwan that specializes in taking care of vegetative people. Since the general public has little knowledge about vegetative people, this part of the donation is relatively higher. Since it is difficult to raise funds, the Group collaborated with Genesis Foundation Miaoli Branch in 2022, to launch the "Guardian of the Family" fundraising activity to raise funds for daily meals for those in vegetative state and contribute to these people in a vegetative state and their families. In addition, Genesis Foundation Miaoli Branch has been established for more than 20 years, and a lot of the equipment in the hospital are outdated and in urgent need of replacement. Therefore, the Group actively invested and launched a fundraising activity in 2023 to meet these needs. Through these fundraising activities, we transform compassion into concrete actions, enabling vegetative patients to receive more comprehensive care.

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5 Occupational Health and Safety

5.1 Safe Workplace

5.2 Health Promotion and Care

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5.1 Safe Workplace

5.1.1 Occupational health and safety management system and organization

Occupational health and safety management system and its policy commitments

SAS values the expectations of stakeholders, management, and employee participation. We have implemented an Occupational Health and Safety Management SystemNote, ensuring that occupational health and safety (OHS) is no longer regarded as an independent operation but is viewed from the perspevtive of operation soundness and sustainability. We adhere to ISO 45001:2018 and ISO 14001:2015 to establish our environmental, health, and safety policies, which are signed by the highest level of management (Chairperson) and published on the Company's internal information portal, purchase orders (or other external documents), and the company website to communicate our commitment to stakeholders in achieving the goals of "providing a safe and healthy working environment, fulfilling environmental protection responsibilities, and promoting green operations." To fulfill this commitment, we have established several management procedures to prevent or mitigate workplace hazards or health impacts and have provided internal and external communication channels to collect and listen to stakeholders' opinions. Relevant management explanations are provided in subsequent chapters.

Note:

1. The sites covered by the Occupational Health and Safety Management System include the SAS headquarters, Chunan, Yilan, and Hsu-Hsin branches. These sites account for 100% of SAS employees (622 people) and 31.4% of non-employees (86 people).
2. Among the sites the system manages, the Chunan and Yilan branches of SAS regularly conduct internal audits, which are verified by third-party units. These sites account for 91.0% of SAS employees (566 people) and 31.4% of non-employees (86 people).

Occupational health and safety organizations

According to law, SAS has established the Occupational Health and Safety Committees in each plant area. Their purpose is to hold regular quarterly meetings, which shall be chaired by the president or presided over by the vice presidents of each plant, and all department heads and labor representatives must participate in these meetings. The meetings shall discuss occupational safety and health management plans, work environment measurement improvement and countermeasures, occupational safety and health education and training, occupational safety and health auditing, occupational safety and health management performance, accident awareness and prevention, health management, and promotion, etc. The matters discussed in the meetings must be recorded, and the improvement and completion rates must be tracked.

5.1.2 Occupational Safety Management

SAS is well aware of the importance of operating environment safety. The on-site management by supervisors at all levels is responsible for strengthen discipline and autonomy of the employees, enhance the employees' safety awareness, and establish a corporate safety culture.

Hazard Identification and Risk Assessment

Appropriate hazard identification and risk assessment can effectively control hazards and risks, prevent and reduce disasters, as well as improve occupational safety and health management performance. There are many methods for hazard identification and risk assessment. For routine and non-routine factory operations, SAS uses a combination of job safety analysis and failure mode and effects analysis as the main risk assessment models. Each unit trains qualified personnel to conduct hazard identification and risk assessments for the operations and activities under its jurisdiction and reviews the identification results regularly every year.

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Risk assessment process

Work Environment or Job Hazard Inventory

All related operations or projects covering routine and non-routine processes, activities, or services; including past hazardous events.

Hazard Identification

Divide the hazards into five categories: physical, chemical, biological, human factors, and psychological. Then further subdivide items such as slips, falls, cut/scrape injuries, or electric shocks. Consider whether there is the root cause of the injury, the personnel who may be injured and the cause of the injury, and identify all possible potential hazards according to the work inventory of each unit.

Risk Assessment

Judge the risk level via hazard severity and hazard frequency (risk assessment matrix).

Decision and Adoption of Risk Control Measures

- Define acceptable risks (risks that have been reduced to a certain level and can be tolerated based on mandatory regulations and occupational safety and health policies) and unacceptable risks
- If the risk cannot be completely eliminated, try to reduce the risk level and control the residual risk, and review and evaluate the residual risk every year. Control measures for risk reduction must be prioritized in the order of elimination, replacement, engineering control, management control, and personal protective equipment.

Review the Applicability and Effectiveness of Risk Control Measures

Regularly monitor the control measure implementations to ensure that they are completed in accordance with the established schedule. After completion, confirm their control effectiveness, incorporate performance monitoring and measurement mechanisms, and record the data for management review.

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Health Hazard Risk Management

In addition to the aforementioned risk assessment and control measures, we also conduct semi-quantitative exposure assessments for all chemicals in the plant. These assessments consider factors such as the physical and chemical properties of the chemicals, their usage amounts, the work environment, and the frequency of operations. Based on the risk levels determined from these assessments, we decide whether to include them in the workplace environment monitoring. Furthermore, graded management is implemented based on the monitoring or exposure assessment results.

- Level 1 management (exposure concentration <1/2 allowable exposure standard): Maintain current control or management measures and reevaluate exposure levels every 3 years.
- Level 2 management (1/2 allowable exposure standard < exposure concentration < acceptable exposure standard): perform inspections on equipment, operating procedures, or operating methods (such as local exhaust facilities, respiratory protective equipment, or operating environment), encourage personnel to make suggestions for improving the operating environment, and reevaluate the exposure concentration every year.
- Level 3 management (exposure concentration > allowable exposure standard): take immediate improvement control measures and reevaluate the exposure concentration after the improvement is completed to ensure that the exposure concentration to personnel is lower than the allowable exposure standard.

SAS does not use chemicals known to be carcinogenic, nor mutagenic or reprotoxic (CMR substances category 1) substances. Our health hazards chemical exposure assessment results indicated that all chemicals used are classified as level 1 management (maintain current control or management measures).

Emergency & Contingency

There is usually not enough time to decide who should be responsible for what, how to do it, and how to obtain outside support when an emergency occurs. Failure to take effective control measures within a short period can lead to serious consequences. In addition to conducting emergency response drills annually based on the hazard identification and risk assessment results within the plant, we further optimized and improved the emergency response drill process in 2023. Previously, drills were often scripted and formalized; however, we shifted to scenario-based drills where only the disaster scenarios were provided. This allows drill participants to independently devise and implement the disaster response processes. This change prevents people from "acting" during drills and strengthens participants' ability to think through disaster response processes, making the drills more realistic.

2023 Emergency

Establish a contingency group assessment mechanism

✓ Assess the integrity of the operations of each team member in a disaster scenario

Setup of emergency response kits

Emergency Response Kit - Real-Time Information

Photos
- Chemical storage layout
- Floor plan
- Firefighting equipment layout
- Evacuation routes
- Safety data sheet

Paper documents

Electronic documents - tablet

Response process
- Emergency response operation process
- Accident notification process
- Fire response process
- Response to leakage of chemicals
- Seismic response to the area of responsibility and response
- Responsibilities of the Emergency Response Organization
- Hydrofluoric acid treatment process

Contact information
- List of ERT personnel
- External communication hotline
- Ambulance contact number

Emergency response equipment
- Emergency response equipment list
- Emergency response equipment layout
- Location of first aid equipment
- Instructions for Use with Hexafluoride/Difluoropropane

Transfer of command
- Handover checklist for fire brigade
- Commander emergency response checklist

Notification terms
- Notification to the competent authority
- Notification of major occupational hazards
- Equipment support of partner factories

✓ Simple information ✓ Easy-to-understand language ✓ Easily accessible information ✓ Larger diagrams

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2023 Emergency Response Drills

Q4 wastewater plant Hydrochloric acid leak drill

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傷者救護

任務指派

廣播、區域管制

除污、卸裝

殘酸測試

應變處理

個人防護

2023 Emergency Response Drills (SSY)

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2/20 Silane Drill

通報班
通報事故發生並連絡相關單位。

指揮班
召集廠務部區域性緊急應變編組成員集合。

安全防護班
預防警戒措施防止污染及危險進入洩漏區。

安全防護班
穿戴防火面罩、防火衣、防火手套、防火鞋。

救災班
穿戴防火面罩、防火衣、防火手討、防火鞋。

救災班
檢查確認鋼瓶狀況，關閉鋼瓶上的閥件。

安全防護班
滅火器進行防護，防止矽甲烷外洩情形擴大以避免災情擴及鄰近區域。

3/29 Chemical Liquid Leakage Drill

通報班
通報事故發生並連絡相關單位。

指揮班
召集廠務部區域性緊急應變編組成員集合。

安全防護班
預防警戒措施防止污染及危險進入洩漏區。

救災班
前往搶救應著C級化學防護衣。

救災班
使用防溢條及吸液棉片防止災害擴大。

救災班
使用廢棄物化學處理袋回收防液條及吸液棉片。

救護班
救護人員將傷者抬出至冷區進行救護。

演練檢討會會議
檢討、討論演練過程Mid可改善事項。

2023 Emergency Response Drill (SSY)

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03/29 Fire and Evacuation Drill

生產人員發現火災啟動消防警報運作正常。

廠務人員進行消防廣播。

生產部進行初步滅火。

救災班加入滅火。

滅火器無法有效滅火救災班拉水線。

救災班拉水線滅火。

受傷人員抬出至冷區進行救護。

人員避難引導。

避難人員往集合點集合。

清點避難人員No. of people。

09/27 Hydrofluoric Acid Leakage Drill

協助進行除污、通知區域負責主管及廠護。

通知廠務進行廣播，召集緊急應變編組成員集合。

指揮班說明目前洩漏情況，清點No. of people，指派任務。

救災班穿著A級防護衣。

安全防護班拉起封鎖區及設立除污區。

救災班使用吸液棉片及棉條進行吸液及圍堵。

救災班穿著C級防護衣使用除污設備幫忙進行除污。

指揮班清點各班別No. of people確認No. of people無誤演練結束。

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Procurement Management

SAS has integrated the engineering, property, or labor service safety and health requirements into the procurement management operating procedures. During procurement proposals, suppliers must submit safety and health specification requirements, safety inspection plans, and related record documents required for the case. These may include information on industrial safety facilities, protective gear, qualifications/operator techniques, safety protection that should be installed or used with mechanical equipment, equipment safety performance verification documents or test reports, and other items required by laws, regulations, or international standards. This is to prevent safety and health hazards or risks that may occur during purchases and ensure compliance before acceptance.

For external suppliers of major raw materials, an annual assessment and evaluation of environmental and occupational health and safety measures are conducted. The evaluation items include energy and pollution management measures, safety and health management systems (such as monitoring and measurement of operational hazards, emergency response drills, and occupational disaster investigation and statistics). Only those who pass the evaluation can become qualified external suppliers.

Additionally, contractor personnel entering the plant must have at least 6 hours of safety and health education training and provide proof of insurance (specific operations have additional regulations) before they are allowed to enter the plant for work. SAS aims to leverage its organizational influence and business relationships to improve safety and health management actions, safety awareness, and personnel protection in case of emergencies among external suppliers and contractors, thereby mitigating their safety and health risks and impacts.

Workers' Participation, Consultation, and Communication

Employee Communication

SAS has formulated consultation and communication management procedures to effectively address complaints from within and outside the Company, as well as suggestions from all levels. The goal is to strengthen consultation and communication with employees before executing any job security system plans. The content of consultation includes occupational safety and health policies, how to fulfill legal and other requirements, occupational safety and health goals, supervision and measurement matters, and other relevant control measures. In addition, we have established a communication platform called "Environmental Safety Area" on the Company's internal information service station. Its purpose is to publish the fire-fighting facilities configurations in the plant, emergency response, accident investigation and analysis, operating environment monitoring, regulatory changes, and industrial safety and environmental protection promotion (including social and industry accidents). We have also set up complaint mailboxes to strengthen employee awareness and communication channels.

Non-employee worker communication

SAS also actively communicates with non-emploee workers to establish contractor partnerships and operation management methods, and to implement our commitment to health and safety. In addition to requiring contractors to comply with safety and health management laws and regulations, contractors must also meet the Company's qualifications for construction personnel, equipment and materials, and safety protection before signing a contract. The Company informs contractors of any working environment, project hazard risks, or relevant safety and health regulations before they enter the Company's premises and require them to participate in safety meetings convened by the safety and health management personnel. In addition, we have established a comprehensive electronic construction application system to control the construction application and management before, during, and after each project. We require contractors to assign on-site supervisors and hold daily pre-construction toolbox meetings to coordinate safety matters for the operations.

The Company's official website provides contact information for stakeholders to convey their opinions via email or phone.

Contractor tool box meeting

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Occupational safety and health education and training

To strengthen workers' occupational safety and health awareness and adaptability, all SAS colleagues must participate in annual environmental, safety, and health education plans and training programs to comply with management system requirements and external topics. The training is provided subjects include new and in-service employees, supervisors at all levels, and contractors to develop their occupational safety and health awareness, regulatory awareness, and adaptability. In 2023, in addition to conducting occupational safety and health education and training courses for new and current employees, we also provided a series of training sessions based on various needs. These included construction management training (for contractors entering the facility, supervisory personnel, and special operations within the facility), respiratory protective equipment fit testing and training, and emergency response training.

Additionally, we followed regulatory requirements for operational qualifications by training (and retraining) machinery operators, supervisors, safety personnel, and first aid personnel, ensuring they all obtained the necessary certifications through legal training.

Snugness Tests on Breathing Protection Gears

Test subjects perform actions such as bending forward, running in place, and moving their heads side-to-side/up-and-down. These actions are used to test the fit of their facial and respiratory protective equipment using instruments or test substances (sweeteners/bitter agents).

Quantitative Fit Test

Qualitative Fit Test

Emergency Response Training Series- Wearing of Personal Protective Equipment

Safety Culture activity

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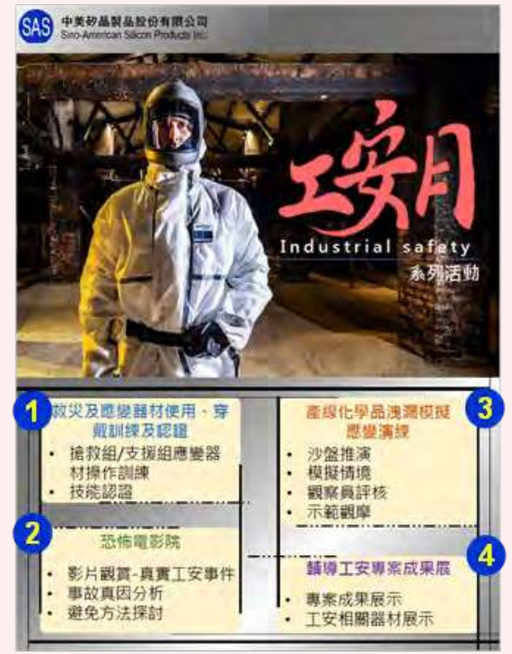
Occupational Safety Month

To raise our employees' awareness of workplace safety, we organized the Occupational Safety Month in 2023. The activities included industrial safety lectures, emergency response drills, horror movies, and occupational safety equipment demonstrations. These initiatives aimed to increase employees' awareness of safety, improve their ability to identify potential hazards, and enhance communication and collaboration skills to prevent work-related injuries and accidents, ultimately ensuring the health and safety of all employees. The activities are as follows:

2023 Safety Culture Activities



"Little Safety Officer" Activities

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Safety Culture Activity (Little Safety Officer)

To strengthen the management of safe behaviors, effectively promote the achievement of a safety culture, and reduce the occurrence of occupational accidents, we launched the Little Safety Officers activities in 2023. The activities amided to integrate the spirit of the safety culture into employees' daily routines. Using "Little Safety Officers" as a bridge, we sought to enhance employees' safety awareness, strengthen employees' safety awareness and conduct safety behavior management, as well as integrating safety inspections and automatic inspections to gradually move towards autonomous safety behavior management.

"Little Safety Officer" Activities

Unlike passive problem-solving, we aim to gradually change and correct behavior through safety behavior management.

Purpose: Through the role of "Little Safety Officer," we aim to integrate the spirit of safety culture into employees' daily routines.Using the "Little Safety Officer" as a bridge to strengthen employees' safety awareness, we are gradually moving towards self-managed safety behavior."

1 Preparation

Instructions for Little Safety Officers

Occupational safety regulations overview

Self-inspection methods and suggestions

2 Launch

1st self-inspection discussion

- Safety self-inspection report for Little Safety Officers
- Demand feedback for loading and unloading equipment
- Checking deficiencies and improving progress tracking

3 Process (Development)

A self-inspection discussion for Little Safety Officers is held on the last Thursday of each month.

- Flexible adjustment of self-inspection topics and training based on the safety feedback status and incidents from Little Safety Officers
- Previous self-inspection topics - confined space, hazardous chemicals

4 Reward system

Incentives are allocated quarterly

- Provide basic incentives to each Little Safety Officer
- In addition, 2 Little Safety Officers will be selected and rewarded.

5 Phased achievements

2023 (Statistics up to the end of the current year)

- A total of 108 self-inspection reports were made
- Improvement completion rate: 97.2%

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5.1.3 Accidents and Management

Incident Investigation and Correction

According to the iceberg effect based on Frank E. Bird's accident frequency, among the 1.75 million industrial disaster accident cases, every 641 incidents include 1 disabling injury accident, 10 minor injury accidents, 30 financial loss accidents, and 600 false alarm accidents. Accordingly, the occurrence of occupational disasters is only the tip of the iceberg. American scholar Heinrich studied the direct causes of occupational safety and health accidents from insurance industry's occupational accident claims database. He found that 88% of accidents are caused by unsafe behavior, 10% are caused by unsafe environments, and 2% are caused by unpreventable factors. Therefore, 98% of accidents can be prevented through management measures.

SAS has established incident notification, handling, and investigation procedures, as well as for managing non-conformity correction measures. We have also promoted incident notification and emergency rescue procedures (including government/medical institution instant messages and emergency chemical spill handling) on our intranet platforms - the "Environmental Safety Area" and "Health Area." All incidents, regardless of severity, must be investigated. Investigators include incident-related management, supervisory, operating personnel, as well as labor representatives who are qualified through incident investigation education and training. Incident investigation should focus on finding the root cause of the incident. The hazard risk assessment, along with remedial and improvement measures, must be reexamined and adjusted to ensure the improvement measures can eliminate the cause of the accident and prevent its recurrence. Safety and health personnel must track and review all such cases.

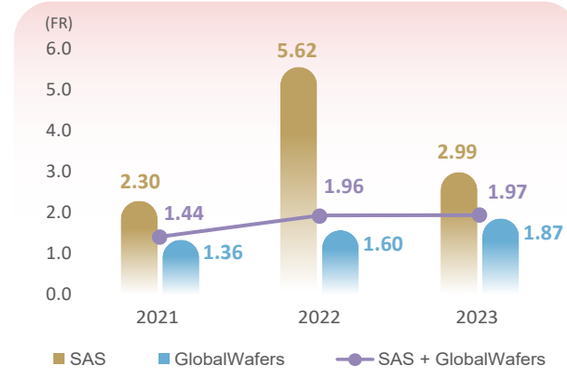
If any immediate danger at workplace is discovered, the worker can stop the operation and retreat to a safe location on his/her own without endangering the safety of other workers, and immediately notify the on-site supervisor without receiving any unfavorable punishment from the Company.

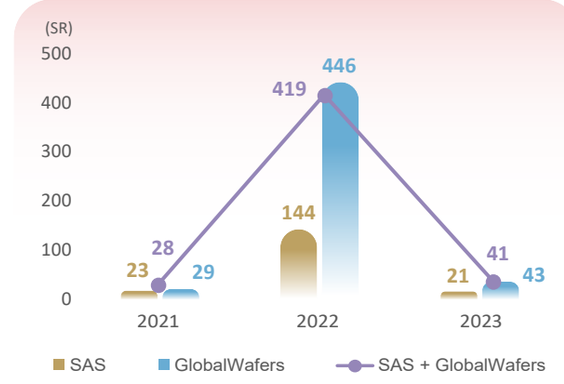
Occupational hazards management

Employees

CMIC Silicon did not experience any work-related deaths, occupational diseases, or major occupational accidents in 2023. There were a total of 6 recordable occupational injuries (excluding employee commuting accidents), with one accident for each of the following: being hit, splashed, falling, and pinched; along with 2 other types. We conducted special investigations for each occupational disaster incident and implemented corrective measures based on the root cause of the incident (such as improving facilities/equipment, establishing standardized document specifications, or reinforcing personnel education and training). These measures were also extended to other departments to prevent similar incidents from happening again.

In 2023, SAS recorded a disabling injury frequency rate (FR) of 2.99 and a disabling injury severity rate (SR) of 21, as defined by the Ministry of Labor. In Q3 2022, high-ranking executives initiated self-inspections for workplace safety across all units within each plant of the Group, tracking their progress until the improvements were completed. In 2023, we launched an advanced version of the safety culture activity - "Little Safety Officers" to incorporate the spirit of safety culture into employees' daily routines through the role of Little Safety Officers, strengthening the safety concept of employees and gradually moving towards self-management of safe behaviors.





Workers who are not employees

Our non-employee workforce primarily consists of contractors in engineering/maintenance and other service providers under contract with the Company (such as security guards, cleaning personnel, catering services, etc.). In 2023, there were no work-related injuries involving non-employee workers operating within SAS facilities.

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2021~2023 Major Occupational Disaster Statistics

Item	2021				2022				2023			
	Sino-American Silicon		GlobalWafers (Taiwan)		Sino-American Silicon		GlobalWafers (Taiwan)		Sino-American Silicon		GlobalWafers (Taiwan)	
	Employees	Non-employees	Employees	Non-employees	Employees	Non-employees	Employees	Non-employees	Employees	Non-employees	Employees	Non-employees
No. of people	657	195	1,674	88	729	294	1,711	110	622	274	1,701	133
Work hours	1,303,846	573,932	3,321,216	265,810	1,422,974	867,088	3,408,312	320,011	1,339,600	794,512	3,372,672	377,512
No. of disability injuries	3	0	3	0	8	0	7	0	4	0	2	0
Days of disabling injuries	30	0	14	0	205	0	6,218	0	28	0	52	0
Death toll due to work	0	0	0	0	0	0	1	0	0	0	0	0
No. of severe occupational accidents	0	0	0	0	0	0	0	0	0	0	0	0
No. of recordable occupational injuries	5	0	10	0	10	0	34	0	6	0	30	0
Recordable occupational injury rate (IR)	0.767	0	0.602	0	1.406	0	1.995	0	0.896	0	1.779	0
Occupational disease rate (ODR)	0	0	0	0	0	0	0	0	0	0	0	0

Note：
1. Non-employees: Refer to workers who are not employees but whose work and/or workplace is controlled by the organization. Divide the total number of workers for the year by 365 to calculate the average number of people entering the plants every day.
2. Work hours: Employees - calculated based on the actual work hours of the year. Other non-employee workers - calculated based on the total number of workers for the whole year, followed by 8 hours per day.
3. Severe occupational disasters: Injuries in which workers are unable or cannot recover to their pre-injury health status within 6 months after the occupational injuries.
4. Recordable occupational injuries: Refer to occupational injuries that caused death, loss of work, restricted work, or work transfer; emergency care or higher level medical treatment; loss of consciousness; and serious injury or illness diagnosed by a doctor.
5. Recordable occupational injury rate (IR): (Number of recordable occupational injuries/total number of hours worked)*200,000
6. Occupational disease rate (ODR): (Total number of occupational diseases occurring/total number of hours worked) *200,000
7. SAS's headquarters is covered by the occupational safety and health management system implemented by GlobalWafers' headquarters. Information related to other non-employee workers is aggregated under GlobalWafers' headquarters statistics.

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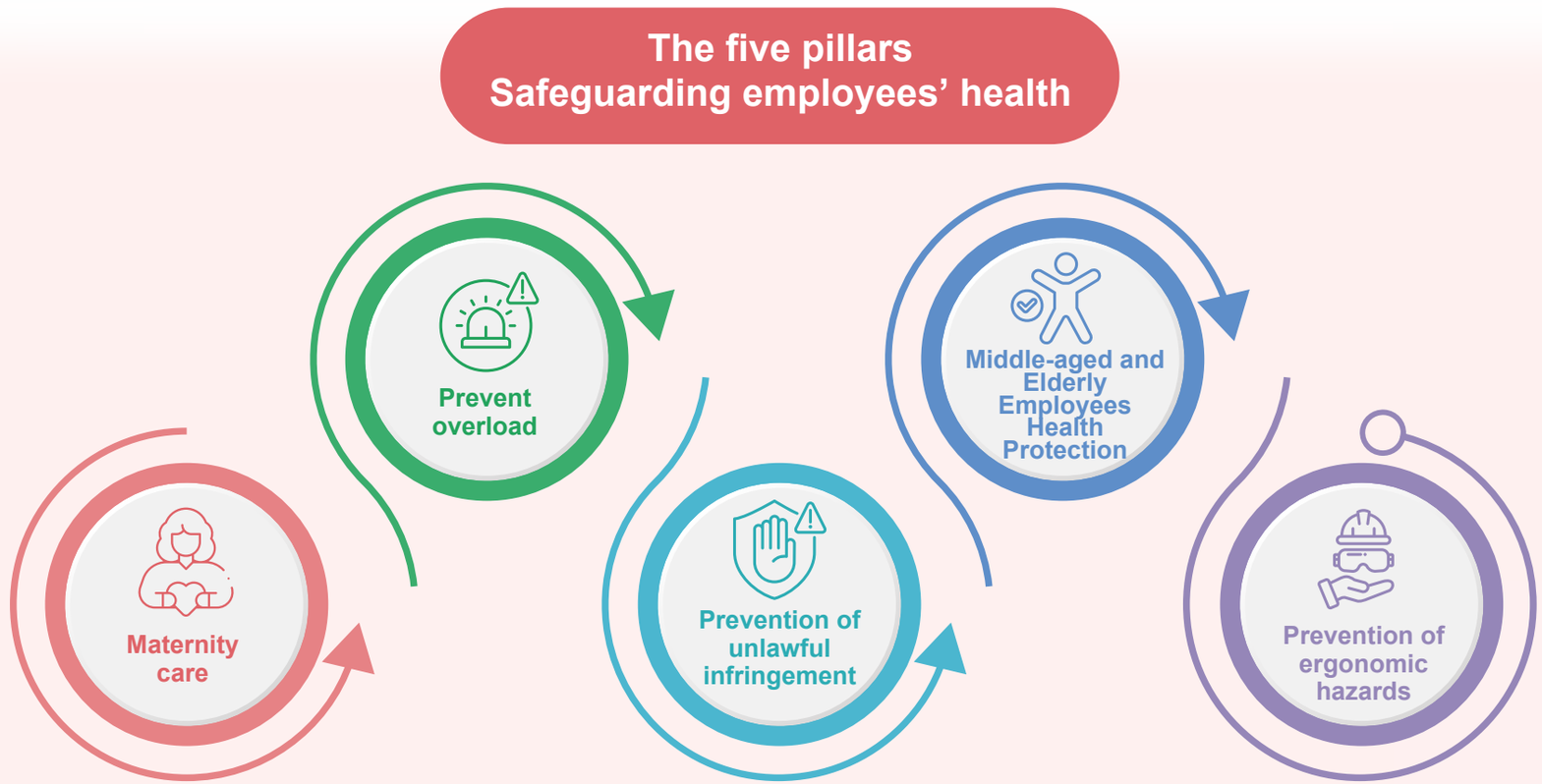
5.2 Health Promotion and Care

Employee health is critical for a company to build and strengthen its competitiveness. SAS has established health centers in all of its plants, staffed with full-time nurses and specially appointed physicians. These centers provide various health care services for employees, track and manage health issues, and offer referral or medical services.

Furthermore, SAS continues to prioritize five major pillars: maternity protection, prevention of overloading, prevention of unlawful infringement, health protection for middle-aged and elderly employees, and prevention of human factor injuries. These initiatives aim to safeguard the physical and mental well-being of our employees. Through various healthcare programs, health seminars, and a wide range of health promotion activities, SAS was awarded the CHR Health Corporate Citizen Certification by Common Health Magazine in 2023, striving to set a benchmark for a healthy and happy workplace.



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The Five Pillars of Health Protection

Maternity care

To prevent workplace health hazard exposure to female employees, we have established a maternal health protection plan and implemented the maternal health risk assessment. These measures aim to protect the health of female employees of childbearing age in the workplace and prevent pregnant or breastfeeding employees (with a child under 12 months old) from exposure to workplace health hazards that may affect embryonic development or effect the health of mothers and infants. The Company implements hierarchical management and work adjustments after referencing comprehensive evaluations from professional medical doctors. Additionally, we provide exclusive parking spaces, breastfeeding rooms, care armbands, and pregnancy gift packs for pregnant employees.

Execution direction: Conduct health risk assessments for pregnant female employees who want to return to the workplace after childbirth, offer physician consultation and care services, and provide expecting mothers with a good maternity pack to protect the physical and mental health of pregnant, postpartum, and breastfeeding colleagues.

2023 results: Level I ~ III management: people
(SAS 8 people; GlobalWafers - Taiwan 13 people)
Health risk assessment completion rate: 100%

Middle-aged and Elderly Employees Health Protection

As Taiwan's population ages, we have formulated health protection management regulations for middle-aged and elderly employees to ensure their health is suitable for their workload. These regulations involve identifying hazards, assessing risks, taking preventive and improvement measures, and tracking the effectiveness of implementation. These efforts aim to protect the health of middle-aged and elderly employees, promote their physical and mental well-being, and prevent occupational accidents.

Execution direction: To ensure the health and suitability of middle-aged and elderly employees for their workload, we conducted hazard identification and risk assessments, implemented prevention and improvement measures, and tracked the effectiveness of these actions to protect the health of middle-aged and elderly employees.

2023 results: Tracking management: people
(SAS 66 people; GlobalWafers - Taiwan 328 people)

Prevention of ergonomic hazards

SAS plants have established human-induced hazard prevention procedures. The goal is to adopt employee injury surveys and questionnaires, and provide ranking matrix according to the human hazard risk assessment survey results. When the risk ranking level is ≧ 4, a target improvement plan must be established. In 2023, the Chunan Plant had 1 human risk improvement.

Execution direction: We conduct ergonomic hazard risks surveys on all departments based on their work content/operation. Operation observation, personnel interviews and medical treatment record investigation are conducted to screen and identify priority improvement targets (operation). Next, based on their operation hours, loading of weight, postures and work conditions, a quantitative risk assessment is in place for the risk grade calculation (KIM) to gradually improve the operation/construction by the year and to prevent the ergonomic hazards.

2023 results: Human-factor hazard risk improvement: 1 case
(SAS 1 case; GlobalWafers - Taiwan 0 cases)

Prevent overload

To prevent diseases caused by work shifts, nighttime work, long work hours, and other irregular workloads, we have established plans to prevent overwork-related illnesses. We conduct a summarized analysis based on all employees' health examination data, work hours, and overwork questionnaire results. We implement tiered management and identify high-risk groups through occupational doctor interviews, health guidance, and relevant preventive measures. We also regularly provide health and fatigue prevention information to help reduce disease risks and ensure the physical and mental health of our employees.

Execution direction: Based on employee health examination data, Flemingham Risk Assessment Scale, overwork scale, and other data to analyze the high-risk overload groups and provide factory medical consultation and protection guidance measures for such groups. The nursing staff regularly distribute health messages to strengthen the physical and emotional heart, prevent overwork, and continue to implement employee tracking and care.

2023 results: Tracking management: people
(SAS 45 people; GlobalWafers - Taiwan 164 people)

Prevention of unlawful infringement

To provide a friendly workplace environment, the plants have established workplace violence prevention management measures to prevent physical or mental unlawful infringement while performing duties. We have posted a workplace unlawful infringement prevention statement on the factory's announcement board and provided multiple complaint channels for employees. Regular workplace unlawful infringement risk assessments are conducted, and relevant safety measures are planned based on the survey results. Additionally, we regularly conduct seminars on workplace unlawful infringement prevention, sexual harassment prevention, and interpersonal relations to ensure employee safety at work and protect their physical and mental well-being.

Execution direction: To provide a healthy and positive workplace, we conduct a risks assessment for the entire factory once every two years. Positivity courses like unlawful violation and spiritual growth are arranged to construct an excellent work environment.

2023 results: All new recruits have completed the education and training on workplace violence prevention and sexual harassment within 30 days of arrival. Organized lectures on preventing workplace violence and sexual harassment and improving interpersonal relationships. Shared well-being articles regularly every month to care for employees' physical and mental health.

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Health promotion and reinforcement of health concepts

SAS embraces the concept of diversified employee healthcare. Annual health management plans are formulated based on employee health check reports, addressing relevant needs and outlining improvement strategies to maintain employees' physical health. Additionally, SAS provides customized health checks that consider the varying physical demands of different operational roles. These health check items and frequency exceed legal requirements and include free cancer screenings (colon, cervical, breast, and oral cancer) in conjunction with hospital services, ensuring a thorough understanding of employee health conditions. Following health checks, professional on-site medical personnel conduct follow-up tracking for any abnormal results. This data serves as a key reference for health improvement activities and health promotion initiatives.

SAS promotes various health promotion activities, including cancer screenings, health lectures (such as "Spoiling Eyes - Eye Care Knowledge," "A Healthy Day for People Who Eat Out," and "Defeating the Potential Killer Twins - Hypertension and High Cholesterol"), blood donation drives, emergency rescue courses, weight loss activities to combat abdominal obesity, and fitness exercise classes. These activities aim to establish correct health knowledge among employees and enhance their healthcare awareness. In 2023, a total of 3,357 participants took part in these activities. To further strengthen the employees' health awareness, the Company irregularly announces and shares critical illness or health information, enabling colleagues to gain a comprehensive understanding of health topics and enhance their self-care and weight management knowledge. Free flu vaccines are provided to employees to help them prevent infectious diseases (such as influenza). The company also offers comprehensive vaccine consultation services and convenient in-plant vaccinations to ensure staff health and create a safety net.

New recruits
- General physical examination
- Completed in designated hospitals before arriving for work
- Assessment record archive for work selection operation

Existing employees
- General health check-up
- Implemented in line with regulations regarding labor health protection
- Assessment record archive for work distribution operation

High-ranking executives
- Exquisite health examinations
- Implementation exceeding standards as required by regulations regarding labor health protection
- Assessment record archive for health risk

Catering personnel
- Health examination for food catering personnel
- In line with Clause 322 in the occupational safety and hygiene facilities regulations
- Catering contractors conduct self-assessment and submit the record/report to the company.

2021~2023 Health Promotion Activities

Unit: No. of people

Year	2021	2022	2023
Sino-American Silicon (Headquarters and Chunan, Yilan, Hsu-Hsin branches)	2,813	2,517	3,357
GlobalWafers - Taiwan (GlobalWafers Headquarters, Chunan Plant, Taisil Plant)	4,589	7,223	7,173
Total number of people	7,402	9,740	10,530

The health center utilizes annual health check data, new employee data, work burnout questionnaire results, and working time analysis to identify medium- and high-risk groups. Health management measures, such as one-on-one consultations with physicians, individual health education guidance, and work pattern adjustments, are adopted to minimize risks for these identified groups. Additionally, convenient blood pressure self-check stations have been established throughout the company, allowing employees to easily monitor their blood pressure. Health education information is also posted in offices to reinforce self-care awareness among employees.

To improve workplace safety, the company has installed a 24-hour automatic external defibrillator (AED) in the plant and arranged for employees to participate in CPR+AED education and training. This empowers colleagues with basic rescue skills, enabling them to provide immediate emergency assistance at the scene of an incident. The goal is to create a healthy and safe working environment for employees and achieve the Safe Place Certification from the Ministry of Health and Welfare.

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CPR and AED Training Courses

Health promotion activities

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Tracking and concern for special groups

The SAS health center aims to better understand groups with abnormal results in physical exams results, including new recruits, high-risk groups, and maternity health protection groups. The company arranges consultations with physicians based on individual needs and provides support and psychological counseling.

In addition, the Company offers care to colleagues who have suffered a work-related injury or traffic accident. This support includes psychological counseling, insurance claims service instructions, and on-site physician consultations to help colleagues return to work as soon as possible.

Number of services for special ethnic groups and number of people tracked from 2021 to 2023

Number of service sessions		2021	2022	2023
Sino-American Silicon	Yilan Branch Company	539	933	508
	Chunan Branch Company	377	497	393
	Hsu-Hsin Branch	19	31	26
	Hsinchu Headquarters	23	38	30
	Total	957	1,499	957
GlobalWafers - Taiwan		1,247	1,690	1,193
Total		2,205	3,189	2,150

No. of people being tracked		2021	2022	2023
Sino-American Silicon	Yilan Branch Company	138	163	159
	Chunan Branch Company	90	103	124
	Hsu-Hsin Branch	2	7	13
	Hsinchu Headquarters	13	11	33
	Total	243	284	329
GlobalWafers - Taiwan		915	1,069	1,565
Total		1,158	1,353	1,894

Note:1. Definition of special ethnic group: (1) Overload (tracking B2 or higher in the current year), (2) Maternity (tracking the case received in the current year), (3) Disability (track the current year, once every 2 years), (4) New recruits (abnormalities), (5) Special class-2, (6) Annual health checkup (class 4 or higher), (7) Work-related injuries (from the day of occurrence), (8) Psychology (above 19 points / suicidal intent).

Safe and healthy workplace

SAS prioritizes creating a healthy and supportive workplace, allowing employees to work with peace of mind. They are committed to exceeding legal requirements with their maternity protection plan and workplace-friendly initiatives. These include a comfortable milk collection room, maternity subsidies, exclusive discounts for contracted corporate nurseries and kindergartens, and even a thoughtful maternity pack containing a breastfeeding pillow for expectant mothers. Encouraging pregnant colleagues to report their pregnancy early ensures they receive immediate maternal workplace health assessments and protective measures. Ultimately, SAS aims to cultivate a mother-friendly environment where employees can feel supported and comfortable as they embark on the journey of parenthood.

Moreover, utilizing annual health exam results, we have planned the year's health promotion activities and lecture topics, and arranged consultations with clinic service physicians. Collaborating with medical institutions, we provide medical and healthcare services, promote preventive medicine and disease prevention, and strengthen employees' health awareness. Our 2023 health promotion initiatives encompassed various lectures and activities such as "four cancer" screening, lung cancer screening, and influenza vaccination, providing colleagues with accurate health knowledge and concepts.

We prioritize the prevention and management of epidemic infectious diseases, implementing an active infectious disease notification system to safeguard the workplace and ensure uninterrupted business operations. We regularly update our internal website with the latest domestic and international epidemic information, reminding employees to prioritize personal hygiene and strengthen their understanding of disease prevention. Annual free influenza vaccination campaigns are organized at our plants to bolster employee immunity. Additionally, we equip colleagues with "epidemic prevention kits" for business trips, offering essential information on epidemic and disease prevention, along with health promotion tips, to protect them from potential health threats while traveling for work.

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Physical and mental balance and a blissful workplace

SAS recognizes that its employees are its most valuable assets and understands that a healthy workforce is key to increased productivity. With this in mind, we are dedicated to fostering a safe, healthy, and supportive work environment.

Since 2021, SAS has offered the Employee Assistance Program Service Center (EAPC) to provide comprehensive care for our employees. EAPC services include support for emotional management, interpersonal relationships, legal matters, career development, family and parenting issues, financial concerns, and more. Each employee is entitled to two free one-on-one consultations annually. Our nurses proactively refer individuals with high scores on the mood thermometer questionnaire to EAPC and provide regular follow-up care and support. During new employee training, we introduce our services and distribute contact information cards. We also regularly share articles on mental health activities and offer professional counseling to assist employees in addressing and resolving issues at their core. Our ultimate goal is to create a workplace where employees feel secure, supported, and empowered to thrive.

Employee Assistance Program Center (EAPC)

Employee Assistance Program Center (EAPC)			2021	2022	2023
Live chat, e-mail consultation service	Sino-American Silicon + GlobalWafers - Taiwan		23 people	38 people	69 people
1-on-1 Expert advisor consultation	Sino-American Silicon	Yilan Branch Company	1 person	0	3 people
		Chunan Branch Company	0	0	3 people
		Hsu-Hsin Branch	0	0	0
		Hsinchu Headquarters	0	0	0
	GlobalWafers - Taiwan		8 people	7 people	10 people
Total number of consultation			31 people	46 people	16 people
Overall satisfaction with on-site psychological counseling from colleagues			100 points	97%	96.7%

In 2023, the Company organized a workshop titled "Meet Yourself in Aromatherapy: DIY Stress Relieving Handicrafts." During this workshop, participants learned about aromatherapy through creating aroma stones, practicing self-massage techniques for the shoulders and neck, and applying essential oils. The workshop aimed to provide a therapeutic experience and promote physical and mental relaxation for all attendees.

The Company, through its Welfare Committee, organizes several staff outings annually to recharge employees and foster team cohesion. Family members are encouraged to participate, promoting bonding and camaraderie among employees, demonstrating care for their families outside of work, and enhancing work-life balance.

SAS values its employees' voices. Various channels, including labor-management consultation meetings, employee suggestion boxes, OSH committees, meetings on the old pension system, and a staff benefits committee, enable employees to express their views and opinions openly. Through meetings and discussions, employees can fully communicate their thoughts, creating an effective two-way communication channel between labor and management. This fosters mutually beneficial outcomes for all parties. Furthermore, the HR Department distributes monthly electronic newsletters featuring articles, columns, English learning sections, and information about events and health. These newsletters provide employees with opportunities to learn new things and participate in internal and external events, contributing to a healthy work-life balance and supporting their physical and mental well-being while fulfilling their work responsibilities.

Sources and related content

SAS also designates dedicated management personnel to assist and support foreign blue-collar migrant workers in their work and daily lives. Annual activities are organized to show continuous care for these employees and to understand their needs and concerns. This enables timely communication and assistance, ensuring they enjoy their work and have a fulfilling life in Taiwan.

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2-2	Entities included in the organization's sustainability reporting	SAS - Company Overview	12		◎
2-3	Reporting Period, Frequency and Contact Point	About This Report	3		◎
2-4	Restatements of information	-	-	-	◎
2-5	External assurance	External Verification Disclaimer	127		◎
2-6	Activities, Value Chain and Other Business Relationships	2.2 Customer and Product Services 2.5 Value Chain	67 70		◎
2-7	Employees	4.1 Recruitment and Human Resources	90		◎
2-8	Workers Who Are Not Employees	5.1 Safe Workplace	113		◎
2-9	Governance Structure and Composition	Sustainable Management	16		◎
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2-11	Chair of the Highest Governance Body	Sustainable Organization 1.1 Corporate Governance	16 47		◎
2-12	Role of the Highest Governance Body in Overseeing the Management of Impacts	1.1 Corporate Governance	47		◎
2-13	Delegation of Responsibility for Managing Impacts	Sustainable Organization	16		◎
2-14	Role of the Highest Governance Body in Sustainability Reporting	Sustainable Organization	16		◎
2-15	Conflicts of Interest	1.1 Corporate Governance	48		◎
2-16	Communication of Critical Concerns	1.1 Corporate Governance	47		◎
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2-19	Remuneration policies	1.1 Corporate Governance	-	2-19-b Remuneration policy is not yet fully related to ESG performance	◎
2-20	Process to Determine Remuneration	1.1 Corporate Governance	50		◎
2-21	Annual Total Compensation Ratio	-	-	Information on Uncalculated Ratios	◎
2-22	Statement on Sustainable Development Strategy	Sustainable Organization	16		◎
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2-24	Embedding Policy Commitments	Climate Change Risks and Actions - Carbon Emission Management 1.1 Corporate Governance 4.1 Recruitment and Human Resources	41 52 89		◎
2-25	Processes to Remediate Negative Impacts	Sustainable Organization	17		◎
2-26	Mechanisms for Seeking Advice and Raising Concerns	1.1 Corporate Governance	53		◎
2-27	Legal Compliance	1.1 Corporate Governance	56		◎
2-28	Membership of associations	SAS - Participation in External Associations	15		◎
2-29	Approach to Stakeholder Engagement	Sustainability Management - Stakeholder Engagement	19		◎
2-30	Collective bargaining agreements	-	-	Not applicable, no union	◎

GRI 3: Material Topics 2021

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GRI 305-3	Other Indirect (Scope 3) GHG Emissions	Climate Change Risks and Actions - Carbon Emission Management	45		◎
GRI 305-4	GHG Emissions Intensity	Climate Change Risks and Actions - Carbon Emission Management	44		◎
GRI 305-5	Reduction of GHG emissions	Climate Change Risks and Actions - Carbon Emission Management	41		◎
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GRI 404-2	Programs for Upgrading Employee Skills and Transition Assistance Programs	4.3 Education and Training	97		◎
Talent Attraction and Retention					
GRI 201-1	Direct Economic Value Generated and Distributed by the Organization	4.2 Salaries and Benefits	94		◎
GRI 401-1	New employee hires and employee turnover	4.1 Recruitment and Human Resources	91		◎
GRI 401-2	Benefits Provided to Full-Time Employees	4.2 Salaries and Benefits	94		◎
GRI 401-3	Parental leave	4.2 Salaries and Benefits	95		◎
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GHG emissions	TC-SC-110a.1	Global Total Emission Volume (Scope 1 Total emissions from perfluorinated compounds	Quantitative	Climate Change Risks and Actions - Carbon Emission Management	43
	TC-SC-110a.2	Discuss long- and short-term strategies or plans for managing Scope 1 emissions, emission reduction targets, and performance analysis	Qualitative	Climate Change Risks and Actions - Climate Action Indicators and Targets	41
Energy Management in Manufacturing	TC-SC-130a.1	Total Energy ConsumptionRatio accounted for by electricity grid compared to total energy consumedRatio accounted for by renewable energy compared to total energy consumed	Quantitative	3.1 Energy Management and Development	73
Water resource management	TC-SC-140a.1	Total water withdrawal and ratio of areas with high water stressTotal water consumption and ratio of areas with high water stress	Quantitative	3.2.1 Water Resource Management	78
Waste Management	TC-SC-150a.1	Hazardous waste generated in the manufacturing process and the ratio recycled	Quantitative	3.3.3 Waste Management	85
Employee Health and Safety	TC-SC-320a.1	Describe how to assess, monitor, and reduce employee exposure to hazardous environments	Qualitative	5.1 Safe Workplace	102
	TC-SC-320a.2	Total monetary damages due to legal incidents related to employee health and safety	Quantitative	1.1.4 Legal Compliance5.1 Safe Workplace	56
Recruit and manage global professional talents	TC-SC-330a.1	Percentage of employees requiring work visas	Quantitative	4.1 Recruitment and Human Resources	90
Product Lifecycle Management	TC-SC-410a.1	Ratio of product revenue including IEC62474 substances	Quantitative	The stakeholders are mainly concerned about the RoHS directive and REACH Substances of Very High Concern (SVHC) from the Company's products, and the test results of the products meet the standards.	—
	TC-SC-410a.2	The processor's overall system-level energy efficiency:(1) Server (2) Desktop (3) Notebook	Quantitative	Not terminal product manufacturer, no corresponding content	—
Raw material procurement	TC-SC-440a.1	Describe the risk management method for critical materials used	Qualitative	2.5 Value Chain	70
Intellectual property protection and competitive behavior	TC-SC-520a.1	Total monetary damages attributed to legal events related to anti-competitive conducts	Quantitative	1.1.2 Integrity & ethics	52
Activity Indicators	TC-SC-000.A	Total output	Quantitative	1.2 Operation performance	59
Activity Indicators	TC-SC-000.B	Percentage of output from self-owned factories	Quantitative	1.2 Operation performance	59

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Climate-related Information of TWSE/TPEx Listed Companies

Item	Status of implementation
1. Describe the board of directors' and management's oversight and governance of climate-related risks and opportunities.	Please refer to "Climate Change Risks and Actions (Special Chapter)"
2. Describe how the identified climate risks and opportunities affect the business, strategy, and finances of the business (short, medium, and long term).	Please refer to "Climate Change Risks and Actions (Special Chapter)"
3. Describe the financial impact of extreme weather events and transformative actions.	Please refer to "Climate Change Risks and Actions (Special Chapter)"
4. Describe how climate risk identification, assessment, and management processes are integrated into the overall risk management system.	Please refer to "Climate Change Risks and Actions (Special Chapter)"
5. If scenario analysis is used to assess resilience to climate change risks, the scenarios, parameters, assumptions, analysis factors and major financial impacts used should be described.	Please refer to "Climate Change Risks and Actions (Special Chapter)"
6. If there is a transition plan for managing climate-related risks, describe the content of the plan, and the indicators and targets used to identify and manage physical risks and transition risks.	Please refer to "Climate Change Risks and Actions (Special Chapter)"
7. If internal carbon pricing is used as a planning tool, the basis for setting the price should be stated.	Carbon emissions from operating activities are included in our financial cost estimates with reference to the Carbon Border Adjustment Mechanism (CBAM) price (tentatively set at EUR 90 in 2024) as our internal carbon pricing mechanism. (Calculation formula is as follows) Calculation: Verified carbon emission quantity (Scope 1 + Scope 2) * EUR 90 *10%
8. If climate-related targets have been set, the activities covered, the scope of greenhouse gas emissions, the planning horizon, and the progress achieved each year should be specified. If carbon credits or renewable energy certificates (RECs) are used to achieve relevant targets, the source and quantity of carbon credits or RECs to be offset should be specified.	Please refer to "Climate Change Risks and Actions (Special Chapter)"
9. Greenhouse gas inventory and assurance status, as well as reduction targets, strategies and concrete action plans	Refer to the table below

Year	Scope	Total emissions (tons CO_2e)	Intensity (tons CO_2e/NTD million)	Assurance body	Statement of assurance
2022	Scope 1	2,428.2	0.0050	DNV	Reasonable assurance level
	Scope 2	48,465.1			
2023	Scope 1	551	0.0042	DNV	Reasonable assurance level
	Scope 2	28,268.7			

The above information covers the following locations: SAS headquarter, Chunan Branch (Chunan Plant, Plant 2), Yilan Branch (Plant 1, Plant 3), and Hsu-Hsin Branch

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DNV

Independent Assurance Statement

Scope and Approach

Sino-American Silicon Product Inc. ("SAS" or "the Company") commissioned **DNV Business Assurance Co., Ltd.** ("DNV" or "we") to undertake independent assurance over the 2023 Sustainability Report for the year ended 31 December 2023 ("the Report").

We performed our work using DNV's assurance methodology VeriSustain™[1], which is based on our professional experience and international assurance best practices, including International Standard on Assurance Engagements 3000 (ISAE 3000) and the Global Reporting Initiative (GRI) Sustainability Reporting Standards.

The Report also incorporated disclosures with reference to relevant sustainability reporting guidelines, such as the Sustainability Accounting Standards Board's (SASB) Sustainability Accounting Standard for the Semiconductors industry (version 2023-12) and the Recommendations of the Task Force on Climate-related Financial Disclosures.

We understand that the reported financial data and information are based on the data from the Corporation's Annual Report and Accounts, which are subject to a separate independent audit process. The Green House Gases Emission has been verified by third party, we tested transposition from these sources to the report. Both the review of financial data taken from the Annual Report and the Green House Gases Emission are not within the scope of our work.

We planned and performed our work to obtain the evidence we considered necessary to provide a basis for our assurance opinion. We are providing the evaluation of reporting principles with a Type 1, Moderate level of assurance, according to the DNV VeriSustain™ Protocol.

Responsibilities of the Directors of Sino-American Silicon Product Inc. and of the Assurance Providers

The Directors of SAS have sole responsibility for the preparation of the Report. In performing our assurance work, our responsibility is to the management of SAS; however, our statement represents our independent opinion and is intended to inform all of SAS's stakeholders.

DNV was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement. DNV has provided further services to the Company, none of which constitutes a conflict of interest with the current assurance engagement under the established policies and procedures.

DNV's assurance engagements are based on the assumption that the data and information provided by the client to us as part of our review have been provided in good faith. DNV expressly disclaims any liability or co-responsibility for any decision a person or an entity may make based on this Assurance Statement.

Basis of Our Opinion

A multi-disciplinary team of sustainability and assurance specialists performed work at the Company and site level. We undertook the following activities:

- Review of the current sustainability issues that could affect SAS and are of interest to stakeholders.
- Review of SAS's stakeholder engagement approach and recent outputs.
- Review of information provided to us by SAS on its reporting and management processes relating to the Principles.
- Interviews with selected senior managers responsible for the management of sustainability issues and review of selected evidence to support the issues discussed.
- Site visits to SAS's Yilan branch in Yilan and data checks with the Hsinchu Headquarters and major operations in Chunan, to assess processes and systems for preparing site-level data and implementing sustainability strategies.
- Review of supporting evidence for key claims and 2023 data in the Report, as reported information beyond 2023 is not within the scope of the current engagement. Our checking processes were prioritised according to materiality, and we based our prioritisation on the materiality of issues at the consolidated corporate level.
- Review of the processes for gathering and consolidating the specified performance data and, for a sample, checking the data consolidation. Where data on financial performance and greenhouse gas emissions had been checked by other assurance providers or engagements, we tested the transcription from these sources to the Report.
- An independent assessment of SAS's reporting according to the Global Reporting Initiative (GRI) Sustainability Reporting Standards.
- The verification was conducted based only on the Chinese version Report.

[1] The VeriSustain™ Protocol is available on dnv.com

DNV

Opinion

On the basis of the work undertaken, nothing came to our attention to suggest that the Report does not properly describe SAS's adherence to the Principles.

In terms of reliability of the performance data, in accordance with Moderate level assurance requirements, nothing came to our attention to suggest that these data have not been properly collated from the information reported at the operational level nor that the assumptions used were inappropriate.

Observations

Without affecting our assurance opinion, we also provide the following observations.

Stakeholder Inclusiveness
The Company has identified the expectations of stakeholders through internal mechanisms in dialogue with different groups of stakeholders. The stakeholder concerns are well identified and documented, and the significant sustainability issues identified through this process are reflected in the Report. As progress is made to develop longer-term sustainability strategies, for instance, on the net-zero roadmap and business continuity management, we encourage the Company to broaden the basis of continuous engagement with potential stakeholders.

Sustainability Context
The Report provides an accurate and fair representation of the level of implementation of related corporate sustainability policies and meets the content requirements of the GRI Standards. We acknowledge the important efforts in incorporating the concept of impact and encourage further consideration across the Company's expanding business areas and along value chains.

Materiality
The process developed internally has not missed out any significant, known material issues, and these issues are fairly covered in the Report. A methodology has been developed to evaluate the priority of these issues. On the basis of current material topics identified with the revised methodology, we encourage the continual development of systematic and long-standing impact management, supported by coordinated annual targets and indicators.

Completeness
The Report covers performance data against the GRI Standards disclosures that are identified as material within the Company's reporting boundary. The information in the Report includes the Company's most significant initiatives or events that occurred in the reporting period.

Accuracy and Reliability
The Company has developed the data flow for capturing and reporting its sustainability performance. In accordance with Moderate level assurance requirements, we conclude that no systematic errors were detected which causes us to believe that the specified sustainability data and information presented in the Report are not reliable.

For and on behalf of DNV Taiwan
Date: 15 May, 2024

Nasa Chen Lead Verifier Business Assurance DNV Taiwan	David Hsieh District Manager, Business Assurance DNV Taiwan

Statement Number: C681051-2023-AG-TWN-DNV

Sino-American Silicon Products Inc.