HUA HONG SEMICONDUCTOR LIMITED
華虹半導體有限公司

(Incorporated in Hong Kong with limited liability)
(於香港註冊成立之有限公司)
(Stock Code: 1347)
(股份代號：1347)

2022 環境、社會及管治報告

Environmental, Social and Governance (ESG) Report

The Company adheres to the core values of "showing loyalty to and love for the motherland, always keeping the promise, being diligent and dedicated, and always fulfilling the mission", insists on the concept of "openness, innovation and cooperation", actively promotes industrial exchanges and cooperation, and responds to the expectations of stakeholders, including customers, employees and investors with substantive actions, so as to jointly achieve sustainable development.

The Company makes efforts to implement the environment-friendly and sustainable development concept and comprehensively improves the performance level of its environmental, social, and governance (ESG) responsibility by providing green products and promoting the application of green technologies.

The Company has a top-down environmental, social, and governance (ESG) structure, under which the Board undertakes the ESG responsibilities:

a) to direct the formulation of ESG management policies and strategies of the Company and ensure that they are up to date, relevant, and in compliance with applicable legal and regulatory requirements;

b) to direct the identification and determination of the importance of significant ESG issues of the Company;

c) to supervise the setting and implementation of the Company's ESG goals, including: setting ESG management performance goals of the Company; monitoring the progress in achieving the goals; and advising on actions required to achieve the goals;

d) to review and approve the Company's annual Environmental, Social, and Governance Report and other ESG related disclosures.

The management and practical progress of ESG issues in this report were considered and approved at the third meeting of the Board of Directors held in March 2023.

1.1 ESG Management Structure and Strategies

Based on the corporate vision of "Continuous Innovation and Empowering the Future for Global Customers", the Company established a top-down ESG management structure, continues to improve the management system, encourages innovation-driven development and fosters innovative talents, and strives to reduce the impact of business operation on the environment. We also make efforts to improve the supply chain performance and promote the joint creation of corporate business value and social value.

The Board, as the highest decision-making body for the Company's ESG management, is responsible for supervising the formulation and implementation of ESG goals, guiding and reviewing ESG management strategies and policies, properly managing the ESG risks that the Company may suffer and taking ultimate responsibility for such risks. The Board establishes an inter-departmental ESG working group. Under the authorization of the Board, the ESG working group assists in the implementation of ESG management and regularly reports to the Board on the progress of ESG key performance indicators, so as to promote the realization of the Company's ESG management targets.

ESG Management Structure

The Company has integrated ESG management into its products, business operations, and corporate development, and formed a complete ESG management strategy covering the four aspects of "Responsibility for Employees", "Responsibility for the Industry", "Responsibility for People's Livelihood", and "Responsibility for Investors".

"Heart Felt" Value for Employees

- Respect for the Value of Employees
- Caring about the Growth of Employees
- Protecting Occupational Health

Empowering the Future for Global Customers

- Providing Quality Products
- Guaranteeing Rights & Interests of Customers
- Booming Industrial Economy

"Prosperous" Environment for Society

- Promoting Green Development
- Utilizing Resources Efficiently
- Jointly Promoting Social Harmony

"New" Profits for Shareholders

- Development through Innovation
- Consolidate Operations with Integrity
- Sharing the Benefits of China's Growth

1.2 Goals and Development of ESG Management

The Company has set goals for water use efficiency, energy use efficiency, GHG emissions, and waste reduction, based on the development of its business and its ESG performance in operation. The Board of Directors reviews the ESG performance and the achievement of ESG performance goals of the Company for the previous year on an annual basis and discloses the results in the ESG report, so as to promote the achievement of ESG performance goals.

In 2022, the Company increased the management targets on the topic of "sustainable supply chain" and clearly set the due diligence targets for conflict minerals to intensify its management of conflict minerals.

Water resources management	The water consumed per unit product (m^3 per 8-inch wafer) in 2030 will decrease by 12% as compared with 2015	**Target achieved ahead of schedule** The water consumed per unit product in 2022 was 2.46m^3 per 8-inch wafer, decreasing by 23% as compared with 2015
Energy consumption management	Comprehensive energy consumption per unit product (MWh per 8-inch wafer) in 2030 will decrease by 7% as compared with 2015	**Target achieved ahead of schedule** Comprehensive energy consumption per unit product in 2022 was 0.25 MWh per 8-inch wafer, decreasing by 33% as compared with 2015
GHG emissions management	GHG emissions per unit product (tCO_2e per 8-inch wafer) in 2030 will decrease by 12% as compared with 2015	**Target achieved ahead of schedule** GHG emissions per unit product in 2022 was 0.12 tCO_2e per 8-inch wafer, decreasing by 52% as compared with 2015
Waste discharge management	Under the philosophy of lean manufacturing management, the Company will take reduction measures to continuously reduce the hazardous waste produced per unit product and the non-hazardous waste produced per unit product	**Target achieved** • The hazardous waste produced per unit product in 2022 was 4.88 kg per 8-inch wafer, decreasing by 2% as compared with 2021 • The non-hazardous waste produced per unit product in 2022 was 2.36 kg per 8-inch wafer, decreasing by 8% as compared with 2021
Sustainable supply chain management[1]	The due diligence rate on suppliers of conflict minerals will reach 100%, and the utilization rate of compliant minerals will reach 100%	**Target achieved** • Have conducted due diligence on suppliers of "conflict minerals" , with a coverage rate of 100%, and completed the latest version of the investigation report on conflict minerals and extended minerals • According to due diligence, all suppliers are found to use compliant raw materials, with the utilization rate of compliant minerals up to 100%

1 The sustainable supply chain management target is a newly added target in 2022

	National
1	2022 National May Day Labor Award Certificate
2	2022 China IC Design Achievement Award: China Semiconductor Special Contribution Award for 20 Years
3	2021 Excellent (Process) Solution Award for High-Reliability MCUs
	Shanghai
4	2022 Shanghai Worker Pioneer
5	2022 Shanghai March 8 Red Flag Collective
6	Shanghai “13th Five-Year Plan” Advanced Collective for Energy Conservation
7	Quality and Technology Award of Shanghai Association for Quality
8	2021 Outstanding Contribution Award for Scientific and Technological Innovation in Pudong New Area
	Jiangsu Province
9	Jiangsu May Day Labor Award Certificate
10	Jiangsu Worker Pioneer
11	Wuxi Worker Pioneer

1.3 Involvement of Stakeholders

Based on the business and operational characteristics of our Company and leveraging the experience and practices in industry at home and abroad, Hua Hong Semiconductor has determined the following to be our stakeholders: our shareholders, customers, employees, government agencies and regulators, partners, communities, and the public, and actively communicates with all of these stakeholders via various channels and methods, including websites, media, meetings, reports, and social activities.

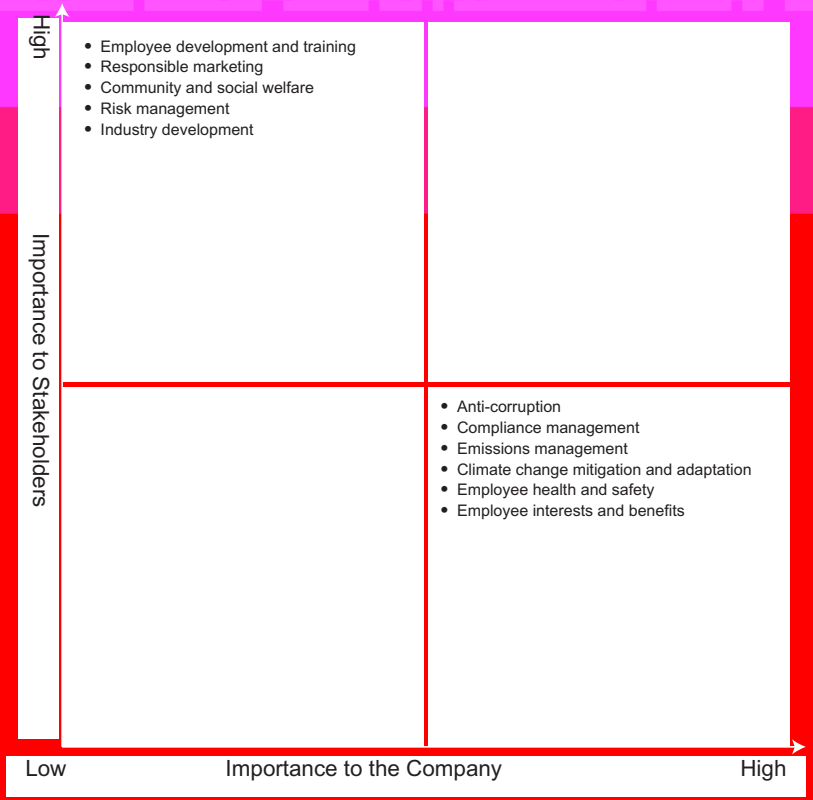
Shareholders and senior management	Domestic and foreign investors holding equity and debt investments in our Company, and senior management members of the Company	Compliant operation, risk management, anti-corruption, customer relationship management, water resource management	Shareholders' meetings, financial reports, performance reports, results road shows, etc.
Customers	IDMs and fabless semiconductor companies	Data security and privacy protection, product quality and safety, customer relationship management, R&D innovation	Product exhibitions, customer research, technical seminars, B2B (such as E-tapeout systems, WIP report and WAT report, etc.), customer service hotlines, and customer satisfaction surveys, etc.
Employees	Our employees and contract personnel who serve our Company on a continuous basis	Employee interests and welfares, employee health and safety, employee development and training	Employee activities, employee representatives congress, intranet, employee trainings, self-service systems, employee manuals, internal publications, etc.
Government and regulators	Manufacturing, tax, environmental protection, security and other departments, local governments, SFC and other governmental or regulatory authorities	Compliant operation, green products, emissions management and energy management	On-site visit, policy enforcement, information disclosure, etc.
Partners	Suppliers, research institutions, industry associations, etc.	Industry development, product quality and safety, customer relationship management, R&D innovation, sustainable supply chain management	Public tender conferences, strategic cooperation negotiations, exchanges and visits, etc.
Communities and the public	Communities in which we operate, the public and media, etc.	Green products, emissions management, community and public benefit	Community activities, employee volunteer activities, public welfare activities, social cause campaigns, etc.

1.4 Identification and Analysis of Substantive Issues

In accordance with the Environmental, Social, and Governance Reporting Guide (the "ESG Guide") of The Stock Exchange of Hong Kong Limited and the Sustainability Reporting Standards of Global Reporting Initiative ("GRI"), the Company identified 19 substantial issues in 2022 based on the concerns of internal and external stakeholders, policy research, and peer benchmark analysis.

- In accordance with the ESG Guide and the GRI Sustainability Reporting Standards, conduct in-depth interpretation on laws, regulations and policies, industry policies, corporate strategies and operation directions, and the Company's ESG concepts and policies
- Based on the research findings of domestic and overseas peer companies and expert opinions, the Company conducts comprehensive analysis and ranking on the importance of material issues, and develop the Matrix of Material ESG Issues
- Highly substantive issues will be mainly disclosed in the report according to the ranking results of issues

Matrix of Substantive Issues



Responsible marketing	The Company ensures the authenticity and accuracy of the product information provided to customers/ consumers and never misleads, exaggerates, or defrauds customers/ consumers during the marketing process	New issue	This adjustment more comprehensively responds to the disclosure requirements in the ESG Guide of The Stock Exchange of Hong Kong Limited
Water resources management	The type of water resources utilized by the Company and its utilization management, resource conservation, etc., including data disclosure related to management methods and resource utilization	Restatement	This adjustment is more in line with standard industry nomenclature and the Company's ESG goals and strategies
Energy management	The type of energy utilized by the Company and its utilization management, energy conservation, etc., including data disclosure related to management methods and energy utilization	Restatement	This adjustment is more in line with standard industry nomenclature and the Company's ESG goals and strategies
R&D innovation	The Company's development and management in the field of scientific and technological innovation, including management and planning for R&D innovation and tracking progress of products under development	Restatement	This adjustment is more in line with standard industry nomenclature and the Company's ESG strategies
Sustainable supply chain management	Supplier classification, environmental and social risk management and green procurement, including data disclosure related to supplier statistics, risk assessment, etc.	Restatement	This adjustment is more in line with standard industry nomenclature

Information security and privacy protection	The Company regulates data processing activities and ensures data security, including management methods, actions, etc.	Restatement	–
Customer relationship management	The Company's management system and measures related to customer relationship, such as customer service, customer complaint and handling, and customer education, including data disclosure related to customer satisfaction, customer service and complaint	Restatement	–

2 Environmental Responsibilities

Main Progress in 2022

Measures	Achievements
Technical transformation related to safety and environmental protection	A total of 49 special technical transformation projects related to safety and environmental protection An investment of RMB17.59 million in safety and environmental protection
Formulate the "energy conservation project plan of 3000 tons of standard coal", covering measures for replacement of equipment with high energy efficiency but low energy consumption, technical transformation, etc.	Economic benefit of RMB7.13 million from energy saving and emission reduction Reduction of natural gas consumption by 344.4 thousand m^3 Reduction of electricity consumption by 412.66 kWh Reduction of carbon emissions by 2,487.21 tons

2.1 Environmental Management System

The Company adheres to the philosophy of environmental friendliness and sustainable development, strictly abides by the Environmental Protection Law of the People's Republic of China and other laws and regulations, and has revised the Exhaust Gas Emission Management Policy, the Related Party Management Procedure, the Radiation Equipment Management Procedure, the Waste Management Procedure, the Management Regulations for Water Use, the Resource and Energy Management Procedure, etc. pursuant to the ISO 14001 Environmental Management System. It has also built an environmental management system covering the whole life cycle and has improved its environmental management level by continuously optimizing environmental management measures.

In addition, the Company actively promotes energy conservation and emission reduction and reduces the impact of production on the environment by constructing green buildings, reducing the energy and resource consumption during operation. In 2022, the Company invested RMB17.59 million in special transformation projects of safety and environmental protection technologies, with a total of 49 optimization and transformation projects involved.

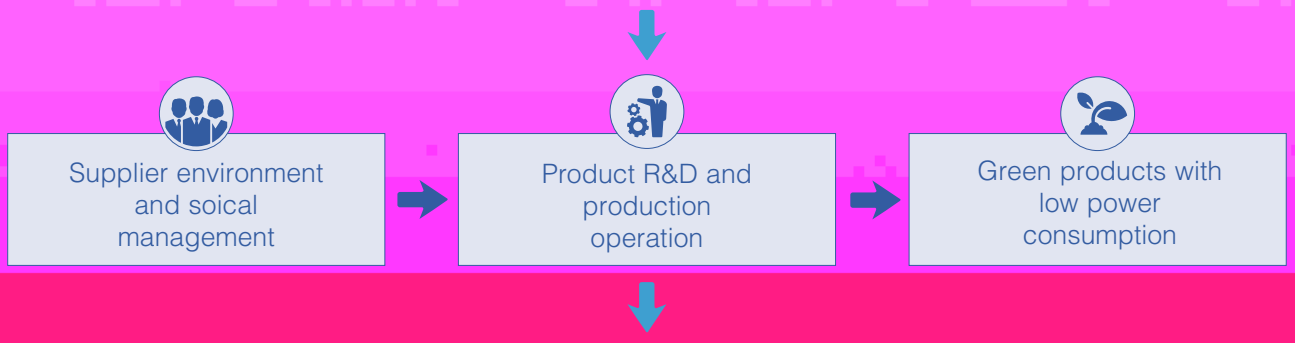
During the Reporting Period, the Company has paid the taxes and fees related to environmental protection in full, and all factories have passed the ISO 14001 System certification, and no violation against the environmental protection laws and regulations has occurred to the Company.

ISO	ISO 14001: 2015 Environmental Management System	All factories
LEED	"Leadership in Energy and Environmental Design" (LEED v4) Gold Award	Hua Hong Wuxi
	Two-Star Green Building Design Label Certificate	Hua Hong Wuxi
IECQ HSPM QC 080000	QC 080000 Hazardous Substance Process Management System	All factories

The Company's EHS Department is responsible for coordinating its environmental management system, including formulation of management regulations, performance analysis and evaluation with respect to energy and resource use, emissions management, etc. It also assists external agencies in the audit and testing of the Company's environmental management system. Furthermore, the Company uses the safety management auditing and tracking system to sort out and list the nonconforming items against the environmental protection regulations found in daily management, then follow up and record the subsequent rectifications through the regular reminder function of the system.

Energy	Electric power, heat, natural gas, and a small amount of gasoline and diesel	Resource and Energy Management Procedure Management Regulations for Water, Electricity, Steam and Gas Metering
Water sources	Municipal water supply	Management Regulations for Water, Electricity, Steam and Gas Metering Management Regulations for Water Use Standard Operating Procedures for Industrial Water Supply System, etc.
Raw materials	Silicon slice, quartz, target material, gas, and chemicals	CSR & RBA Statement for Suppliers Control Policy for Service Life of Raw Materials Risk Identification and Countermeasures for Key Materials Risk Analysis Form for Key Materials Management Specification of the Materials Management Department for Storage of Chemicals and Gases, etc.

Water Resources	
Total water consumed	18,010,226 m^3
of which: Water from municipal water supply	10,284,063 m^3
Wastewater reused	7,726,163 m^3
Water consumed per unit product	2.46 m^3 per 8-inch wafer
Volume of recycled water	107,163,560 m^3
Energy	
Total electricity consumed	954,667 MWh
Electricity consumed per unit product	228 kWh per 8-inch wafer
Natural gas consumed	10,530,287 m^3
Natural gas consumed per unit product	2.52 m^3 per 8-inch wafer
Packaging Materials	
Total packaging materials used for finished products	313.32 tons
Total packaging materials recycled for finished products	53.94 tons
Other Raw Materials	
Silicon slice, quartz, target material, gas, chemicals and other raw materials for production	



Build a responsible value chain and comprehensively evaluate and manage the environmental and social risks of suppliers	Implement full-life cycle environmental management covering processes from design and production to disposal, so as to continuously reduce the environmental impact of the products	The Company's green products are widely used in clean energy, new light source LED, etc., thus contributing to global energy conservation

Air Emissions	
Total hazardous waste	20,385 tons
Hazardous waste produced per unit product	4.88 kg per 8-inch wafer
Total non-hazardous waste	9,864 tons
Non-hazardous waste produced per unit product	2.36 kg per 8-inch wafer
Waste	
Total air emissions	23,910.24 million m^3
Nitrogen oxide (NO_x) emissions	32,650 kg
Sulfur dioxide (SO_2) emissions	3,546 kg
Greenhouse Gas	
GHG emissions	497,938 tCO_2e
GHG emissions per unit product	0.12 tCO_2e per 8-inch wafer
Wastewater	
Total wastewater discharge	8.32 million m^3

Green Culture

The Company continuously promotes the environmental protection concept, regularly holds environmental management sharing sessions, and organizes each production plant to share excellent environmental management cases and measures at the sharing sessions, so as to strengthen employees' awareness of environmental protection and the economical use of office resources and energy.

Practice in Green Culture

Saving paper around the office	• Implementing office informatization to reduce paper consumption. • Making efforts to promote the use of recycled paper, including for printing business cards of employees, to support recycling.
Saving electricity	• Turning off the power supply when leaving work or for a long time. • Reasonably setting air conditioning temperature above 26℃ in summer and below 20℃ in winter.
Saving water	• Developing employees' awareness of saving water and posting water saving tips.
Waste disposal	• Classifying domestic waste in each factory into 4 categories, namely dry, wet, recyclable and harmful waste, and putting up posters for waste classification to raise employees' awareness.
Commuting	• Encouraging employees to commute by public transport. • Using new energy vehicles as shuttle buses for the Company.

2.2 Energy Management

Energy consumed by the Company is mainly electric power, heat, natural gas, and a small amount of gasoline and diesel. The Company strictly complies with the Energy Conservation Law of the People's Republic of China and other laws, regulations and relevant provisions, sets the energy conservation management goals, and formulates various rules, including the Resource and Energy Management Procedure, the Management Regulations for Water, Electricity, Steam and Gas Metering, etc. The Company continues to optimize and improve its energy management system, and constantly enhance the energy efficiency by carrying out various energy-saving technical transformation projects and by using energy-saving equipment.

• Carry out source control and continuous improvement while satisfying and improving productivity, and reduce the impact on the environment while reducing production costs	• By 2030, the Company's comprehensive energy consumption per unit product will decrease by 7% compared with 2015	• Resource and Energy Management Procedure • Management Regulations for Water Use • Management Regulations for Water, Electricity, Steam and Gas Metering	• Carrying out technical transformation for energy-saving • Regularly engaging third-party agencies to conduct energy audits of the Company • Organizing energy-saving publicity and implementation activities and post energy-saving signs

To ensure the stable supply of electricity and smooth production, the Company developed the Emergency Plan for Emergency Unloading, the Emergency Plan for Emergency Power Cut and the On-site Treatment Plan of the Power Department for Power Cut and carried out emergency plan training and emergency drills in fabs on a regular basis. The power supply is guaranteed through daily inspection, special system investigation, and emergency drills.

The Company has actively carried out a series of energy-saving publicity activities, and upheld the energy-saving and low-carbon concept, including sharing existing energy-saving action cases, popularizing relevant laws and regulations, etc. to enhance the energy-saving awareness of all employees.

During the Reporting Period, the Company responded to the "One Percent" Energy Conservation and Carbon Reduction Initiative in Shanghai Industrial and Communication Industry of Shanghai Municipal Economic and Informatization Commission, and formulated the "energy conservation project plan of 3000 tons of standard coal", covering measures such as the replacement of equipment with poor energy efficiency and high energy consumption, transforming the process to use equipment with better energy efficiency and lower energy consumption, technical transformation, waste heat recovery, etc. The Company has also carried out internal and external energy consumption audits to better sort out and analyze the Company's energy consumption, enhance its management level and achieve the goal of energy conservation and efficiency increase.

Fab 1	• To replace the old refrigeration machine with new ones to save energy and reduce consumption	**618,000 kWh** Annual reduction in electricity consumption
Fab 2	• To optimize product flow and reduce usage of pure water and natural gas	**11,700 m³** Annual reduction in natural gas consumption **6,048 tons** Annual reduction in pure water consumption
Fab 3	• DUPS replacement and renovation project in Fab 3	**2,562,300 kWh** Annual reduction in electricity consumption
Fab 7	• NORD Flash Cell New Process Project	**1,890,000 kWh** Annual reduction in electricity consumption **16,000 tons of water** Annual reduction in water consumption **8,000 tons of wastewater** Annual reduction in wastewater discharge

2.3 Climate Change Mitigation and Adaptation

The Company recognizes that climate change mitigation is of great significance to enterprises and the world. For this purpose, the Company formulates the Carbon Trading Management Regulations for achieve carbon emission reduction in response to China's "30 · 60" carbon peaking and carbon neutrality goals. The Company has also regularly carried out carbon emission verification in applicable production factories, continuously improved energy use efficiency in production and operation, developed products with low-energy consumption, and assisted in the realization of China's carbon peaking and carbon neutrality goals.

The Company's GHG emissions mainly come from direct GHG emissions from the use of natural gas and indirect GHG emissions from outsourced electricity. The Company carries out GHG emission reduction work from the management level and the technical level to reduce the carbon emissions generated in its operation activities, thereby lessening the impact on climate change.

Scope 1	Consumption of natural gas of the Company, gasoline for self-owned vehicles and diesel for self-owned vehicles
Scope 2	GHG emissions generated by the consumption of outsourced electricity and steam of the Company

The Company is a key GHG emission entity, with production bases in Shanghai and Wuxi. During the Reporting Period, the Company conducted a third-party carbon emission audit on all factories in the Shanghai Production Base to ensure carbon compliance.

Aspect	Content
Management	• Establish emergency contingency plans and organize emergency drills and trainings on a regular basis • Timely follow up relevant laws and regulations and the government's new requirements, and develop relevant improvement plans to meet the new requirements • Carry out GHG verification, carbon inventory and other work
Technology	• Construct and maintain emergency equipment, replace with efficient and energy-saving equipment, etc. • Use green energy, high-efficiency and energy-saving equipment, etc. to enhance energy efficiency and reduce carbon footprint
Product	• Use green technology and green raw materials to reduce the generation of harmful substances and reduce the impact on the environment • Develop products with lower power consumption and higher efficiency to enhance energy efficiency of the industry and reduce carbon emissions

Green Products

Green products refer to safe, environment-friendly and high-quality products manufactured in the closed-loop process of product design, manufacturing, use, scrapping and reuse, during which the green concept is always considered. Green products are also characterized by low resource and energy consumption, low pollutant emissions, low toxicity and less harm, easy recycling, treatment and reuse. Based on the environmental footprint throughout the whole life cycle of a product, the Company actively develops green products, and continuously reduces their impact on the environment through green procurement, technology improvement and other measures. Meanwhile, the Company's green products are widely applied in many industries, which can help reduce their impact on the environment.

Warehousing of Raw Materials	Product Production	Product Transportation	End-user Products	Disposal
• Carry out hazardous substance examination and systematic control on raw materials • Review the qualification and environmental compliance of suppliers and require suppliers to sign the Environmental Protection Undertaking	• Choose production equipment with low energy consumption and high performance • Implement water recovery projects to improve the overall recycling rate of water • Implement green procurement	• Recycle and reuse product packaging materials to reduce the consumption of packaging materials and waste generation	• By helping customers produce low energy consumption products, reduce the environmental impact of the use of end-user electronic products	• The wafers produced by the Company are monitored for harmful substances, which means that the end-user electronic products manufactured by using the wafers have less impact on the environment after disposal • Recyclable waste is handed over to qualified third parties for recycling

Currently, the Company's products have been widely applied to the fields of industrial frequency conversion, smart grid, new energy vehicles, PV and wind power generation, new light source LED, etc. The Company continues to optimize the energy efficiency of its compound semiconductor power devices, develop silicon-based power devices with higher energy efficiency, and develop new integrated technical solutions such as BCD600V Highside and HiPower to provide environment-friendly solutions for variable frequency household appliances and new energy vehicles, thereby reducing the environmental impact for end users.

Actions for Contribution to Global Climate Change Mitigation

2.4 Sustainable Water Management

The Company sets water management goals and formulates water management strategies in strict accordance with the Water Law of the People's Republic of China. It also introduces higher-efficiency equipment and processes, continuously optimizes water resources management measures, and enhances its water consumption efficiency.

Water Management Target

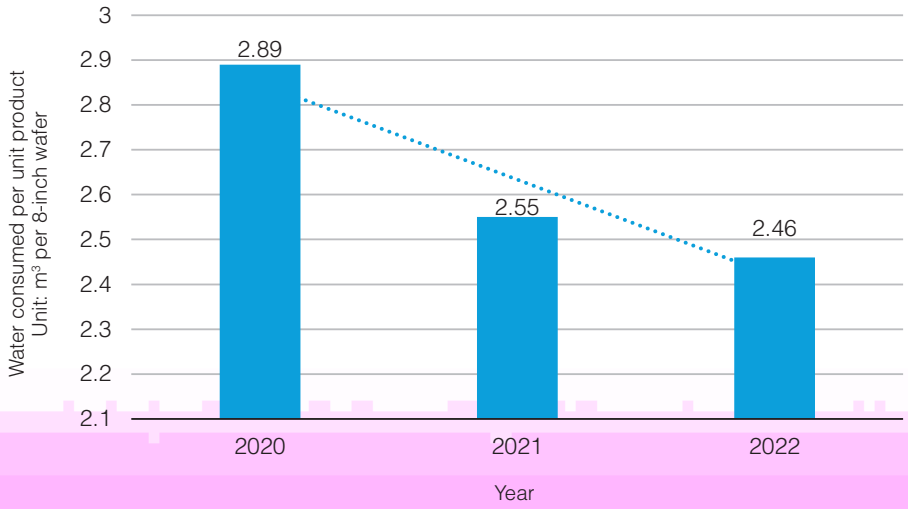
Water consumed per unit product (m^3/8-inch wafers) in 2030 will decrease by 12% as compared with 2015.

Water used by the Company comes from the municipal water supply to a large extent, in addition to a smaller amount of recycled water and air conditioning condensate from the pure water manufacturing process. The Company constantly monitors the risk of water resources in areas where we operate through the "Aqueduct Water Risk Atlas", an external tool from the World Resources Institute (WRI). We analyze the rationality of water consumption for the production and operation of our fabs and the possible impact of water intake, and formulate effective measures to reduce risks and ensure that water resources can support the Company's sustainable development.

WRI Risk Monitoring Results and Countermeasures of the Company

Water risk monitoring indicators	• Type of physical risks: Water consumption risk, drought, decline of groundwater water level, etc. • Condition of physical risks: Coastal erosion, untreated water • Laws, regulations and reputation risks: Quality of drinking water, sanitary conditions, etc.
Monitoring results	• Medium-risk area: Wuxi Fab • High-risk area: Shanghai Fab
Countermeasures	• Relying on water monitoring sites for each fab, the Company has conducted water balance tests on a regular basis to calculate the process water, recycled water, wastewater, and domestic water of each fab • The Company records the flow, volume and recycling of water resources, so as to analyze whether there is any abnormal utilization of water resources and predict the reasonable allocation of water resources among water-consuming units • Build green buildings, upgrade or replace equipment with high water consumption, and enhance water consumption efficiency • Expand the sources of water resources, recycle air-conditioning condensate, organic wastewater, etc., and refine the recycled water into industrial water • Carry out water-saving awareness publicity activities, and post water-saving signs

The Company has continuously improved the lean management of water resources, formulated management regulations such as the Standard Operating Procedures for Industrial Water Supply System and the Disposal Procedures for Abnormal Tap Water Supply, established sound ledger management mechanism to regularly conduct statistics, analysis and improvement on water consumption. While meeting the reasonable water demand, the Company makes efforts to save water resources and maintain sustainable water balance. By taking measures such as water-saving publicity activities, the Company has reduced water consumption in all aspects and continuously reduced water consumption in production systems and process systems. In addition, the Company is committed to taking water-saving measures such as water-saving technological transformation and wastewater recycling in production and operation, and constantly improving efficiency in the use of water resources in all fabs.



During the Reporting Period, the Company won the second prize of the 2022 Shanghai Industrial Water Reuse and Comprehensive Rainwater Utilization Award.

Water Resources Management Work and Achievements in 2022

Actions	Measures	Achievements
• Recycling of process cleaning water	• Lightly contaminated cleaning water containing inorganic acid and organic matters discharged from production shall be collected separately by pipeline and delivered to the transit tank. If the water quality is unqualified, it shall be discharged to the industrial wastewater system; if the water quality is qualified, it shall be recycled to the pure water system for secondary use after treatment with activated carbon and anion resin, so as to reduce the tap water consumption and wastewater treatment.	Recycled water: 7,575 m^3/day
• Recycling of primary RO concentrated water	• Primary RO concentrated water will be produced in the ultra-pure water reverse osmosis treatment system, and will be recycled.	Recycled water: 2,300 m^3/day
• Recycling of condensed water	• Condensed water from air conditioning system will be recycled and used in cooling tower and for exhaust gas washing.	Recycled water: 440 m^3/day

Moreover, in the Supplier Questionnaires, the Company requires the major suppliers to disclose information on sustainable management of water resources use, including water consumption statistics for production and operation, water-saving measures, water-saving goals of the suppliers, etc., so as to continuously reduce the water footprint of products. During the Reporting Period, the Company carried out actions related to water resource management and performance surveys on silicon wafer suppliers, with the coverage ratio of 100%.

2.5 Emissions Management

In order to meet the emission standards and reduce the impact on environment, the Company has standardized the management of air emissions, wastewater and waste discharge in strict accordance with the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, the Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Wastes, Law of the People's Republic of China on the Prevention and Control of Soil Pollution, Law of the People's Republic of China on the Prevention and Control of Water Pollution, as well as other laws and regulations and relevant provisions. During the Reporting Period, no incident of excessive or illegal discharge of pollutants has occurred to the Company, nor has any litigation case arising from the above incidents occurred.

Air Emission Discharge Management

The Company strictly complies with national and local discharge requirements such as the Discharge Standards of Pollutants for Semiconductor Industry (DB31/374-2006). The Company has formulated improved testing plans and management measures for the air emissions discharged during production, including sulfuric acid mist, hydrogen chloride (HCl), nitric oxide (NOx), ammonia (NH_3), and volatile organic compounds (VOCs). The Company has further developed testing plans for major air emissions according to the production situation and regularly carried out testing and evaluation to ensure the compliance of air emissions.

Air Emissions Management

Type		Treatment Method
Air Emissions	Acid air emission	Up-to-standard discharge after removing most of the components through pretreatment and centralized treatment of the washing tower
	Alkaline air emission (mainly ammonia gas)	Purification through a washing tower
	Organic air emission	Purification through activated carbon adsorption, or combustion after concentration
	Air Emissions containing dust (mainly small particulates of silicon dioxide)	Removal through a dust-extraction unit

The Company has standardized the requirements on online monitoring and management of organic waste gas, improved the on-site supervision capacity of its fabs; The Company's waste gas treatment facilities are maintained at a higher level of treatment efficiency through annual overhaul and other measures.

In addition, the Company optimized and improved the treatment technology of its organic waste gas treatment system, enhanced the treatment efficiency of the system, and reduced the emission of organic waste gas.

Waste Management

The Company maintains consistently high standards and strict requirements in the implementation of the waste management system. The Company has formulated the Waste Management Procedure, the Code of Practice for Industrial Waste Management and other management regulations to standardize waste management operations and recorded and managed waste treatment through the unified environmental protection management system of the government to ensure all transportation records are traceable and controllable.

Hazardous wastes generated in the Company's production and operation activities include waste acid and waste isopropanol. The Company has authorized a qualified third-party company for treatment of hazardous wastes, mainly by means of incineration, physical-chemical treatment, and recycling. Non-hazardous solid waste was recycled by the Company or submitted to a qualified third-party agency for collection and treatment to improve the utilization efficiency.

In-house waste management	Outsourced recycling and reuse	Reused for other industrial purpose
• Raw materials are recycled in the fabs, such as raw materials for production and office supplies, to delay raw materials from becoming waste	• Submitted to a qualified third-party company for recycling and disposal	• Wastes are recovered, recycled and reused for other industrial purpose

Non-hazardous waste	Domestic waste and kitchen garbage	Entrusting the environmental sanitation departments in the places where we operate for unified disposal on a regular basis
	Such as sludge	Landfilling
Hazardous waste	Such as waste acid, waste isopropanol, and waste phosphoric acid	Recycling
	Such as waste glass bottles, 200L chemical barrels, and waste liquid from laboratory	Physical-chemical treatment
	Such as cleaning cloths, plastic bottles, organic waste liquid, waste activated carbon, waste resin, and arsenic-containing waste	Incineration

The Company has established a waste discharge management system, and reduced the impact on the environment through technological transformation and reuse of waste based on the concept of "reduction from the source" and "circular economy". Since 2017, the Company has carried out work to reduce the discharge of various hazardous wastes every year to constantly reduce the impact of hazardous waste emissions on the environment.

In 2022, Hua Hong Fab 3 built and put into use an ammonia-nitrogen treatment tank for innocuous treatment of ammonia-containing waste. Waste sulfuric acid generated in the treatment process was delivered to titanium dioxide manufacturers for recycling and reuse, so as to enhance the utilization efficiency of resources.

Wastewater Discharge Management

The Company strictly complies with the Discharge Standard of Water Pollutants for Electronic Industry (GB39731-2020), the Integrated Wastewater Discharge Standard (DB31/199-2018), the Waste Water Quality Standards for Discharge to Municipal Sewers (GBT 31962-2015) – Grade B Standard, and formulates the Management System for Drainage and Waste. The Company also reduces the generation of wastewater by continuously optimizing manufacturing processes and wastewater recovery.

In terms of pollution discharge and information disclosure, the Company carried out online monitoring and management of wastewater, with relevant data of Shanghai Fab disclosed on the environmental information disclosure platform, thus improving transparency of environmental information for the Company.

Wastewater Discharge Management

Categories		Treatment Method
Wastewater	pH, COD, ammonia nitrogen, fluorine ion, etc.	Discharged through a pipeline into a designated urban sewage pipe network after treatment and meeting relevant standards

In 2022, the Shanghai Fab self-monitored the soil and groundwater in its fabs according to the requirements of the Technical Guide for Self-Monitoring of Soil and Groundwater for Industrial Enterprises (HJ1209) issued by the Shanghai Municipal Bureau of Ecology and Environment, and prepared a complete soil and groundwater monitoring report, ensuring that the wastewater discharge complies with the laws, regulations and relevant standards.

3.1 Rights and Benefits of Employees

Rights and Interests of Employees

The Company strictly complies with laws and regulations including the Labor Law of the PRC and the Law on Employment Contracts of the PRC. We insist on fair employment, implement the principle of equal pay for equal work, and ensure that employees are not discriminated against or treated differently based on non-work factors including age, gender, place of birth, religious belief, marital status, or disability. We prohibit the employment of child labor or forced labor.

The Company has formulated relevant management regulations, including the Employment Procedures and the Management Procedures for Trainees. The Company strictly checks the identity information of employees and never employs adolescents under the age of 16. As at the end of the Reporting Period, the Company had 6,760 regular employees. As at the end of the Reporting Period, it has neither infringed the rights and interests of its employees, nor been subject to complaints or penalties by a regulatory authority.

Overview on Employee Rights and Interests

Recruitment and Dismissal	Remuneration	Working Hours and Vacation System	Democratic Participation
• Recruitment: Adhering to the principle of fairness, equity and openness; • Dismissal: The Company and employees go through the dismissal procedure according to relevant laws, regulations, and the Dismissal Management Procedure.	• The Company provides competitive salaries for employees, which are higher than the minimum wage in the place of operation.	• A standard working hours system is adopted. A comprehensive or flexible working hours system is adopted for certain positions with the approval of the government labor and personnel authorities; • Based on holidays and festivals specified by the government, supplementary annual leaves are provided for employees.	• Establishing labor union, employee congress, etc. to ensure the democratic participation of employees in the Company's decision-making.

Employee Communication

An unblocked communication channel is favorable to the establishment of harmonious labor relations. The Company is committed to building and improving employee communication and feedback mechanisms and has formulated the Employee Communication Rules and encouraged the multi-way communication between the Company and employees, between officers and subordinate officers, and among employees through the creation of multiple communication channels.

In May 2022, the Company held a symposium for young employees with the theme of "Devoting to forging a new journey in the new era". The Company's leaders, the Chairman of the Trade Union and many young front-line employees attended the symposium and shared their work experience and feelings, which enhanced the cohesion among employees.

Employee Diversity

Hua Hong attaches great importance to the diversity of employees, formulates relevant regulations and procedures, and continues to create an open, inclusive, respectful and diverse employment environment. We respect the lifestyle of all kinds of employees and try to provide them with convenient conditions to meet their living habits. The Company is also committed to creating better office and service facilities for employees and improving their happiness.

Measures for Creating a Good Working Environment

Office

- An air purification system is installed to improve office air quality;
- Green space is increased in office areas.

Diet

- There are staff canteens and coffee shops in factory zones;
- Establishing a food safety supervision team, adopting the mode of centralized purchasing of food materials and qualified supplier management, and inviting employees and department representatives to carry out supervision;
- Publishing the canteen food cooking guideline to manage balanced nutrition, oil and salt control, for the employees' diet in the canteens.

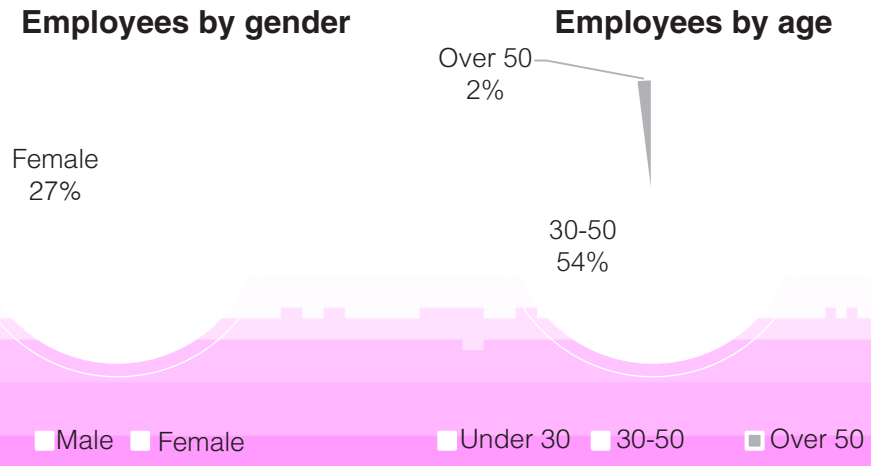
Accommodation

- Construction of dormitory with private bathrooms, 24-hour supply of hot water, and WIFI network, etc.;
- The dormitory area has a library, computer room, snooker room, laundry, TV room, HIVE BOX, and other facilities.

Travel

- Providing all employees with travel allowance;
- Providing free commuter bus services between the park, subway stations, and the dormitory;
- Creating a commuting route for employees living in the transit-challenged areas and arranging commuter bus services for departments which need to have such services on weekends.

In terms of care for female employees, we care for the welfare and development of female employees, by organizing a special physical examination every year, continuously improving human-based management of lactating employees, and providing relevant service facilities to ensure convenience for pregnant employees and lactating employees at work.



In addition, the Company established the Employee Assistance Mechanism, under which we provide assistance for needy employees at special festivals such as Spring Festival, Labor Day, and Mid-Autumn Festival, in addition to routine expression of sympathy and solicitude to injured or families of diseased employees; and we give timely care and support to employees who suffer a significant misfortune and help them overcome their plight as soon as possible through multiple forms of assistance including donation, support, care, and nursing.

3.2 Employee Health and Safety

The Company attaches great importance to occupational health and safety of employees, and strictly complies with the Law of the People's Republic of China on Prevention and Control of Occupational Diseases, the Production Safety Law of the People's Republic of China, the Regulation on Work-Related Injury Insurances, as well as other laws, regulations and provisions. The Company has established a complete occupational health and safety system that meets the safety goal of "zero accident for production safety", defining the occupational health and safety policy, so as to provide employees with a good working environment and ensure their occupational health.

System Construction	• The Company has established the Safe Production Committee; implemented the Committee's Safe Production Responsibility System; and implemented the Regular Safety Meeting System; • All employees at all levels are required to sign the Safety Responsibility Letter, so as to implement the Safe Production Responsibility System for the staff.	**Management Factors**	• Emergency response to hazards/environmental factors; • Special equipment and posts; • Chemicals management; • Occupational health monitoring and Protection.
Internal Audit, Inspection and Hazard Identification	• Safety technology transformation; • Establishing a dual prevention work mechanism of hierarchical control of safety risks and management or hazard identification.	**Construction of Safety Culture**	• Safety awareness and safety training; • Emergency drills.

Safe Production

Improving the Establishment of Systems

The Company pays great attention to safety assurance of employees in the production process, strictly abides by the Production Safety Law of the People's Republic of China, and formulates the Implementation Measures for the Production Safety Responsibility System of the Production Safety Committee. We also establish the safe production management committee and the weekly production safety meeting system to ensure the stable operation of the Company's safe production system. In accordance with the requirements of the Production Safety Law of the People's Republic of China, the Company optimizes various management systems for production safety, consolidates safety responsibilities, intensifies the dual control system, strengthens the emergency response mechanism, ensures safety investment, and facilitates the construction of corporate safety culture.

In 2022, the Company actively implemented the standardization, systematization and intelligent construction of safety work, and optimized the production safety responsibility system of all employees. In accordance with the principle of "one post with one responsibility" and "whoever takes charge and uses shall take the responsibility", the Company has compiled a Safety Responsibility Letter covering all staff with "General Terms + Functional Departments + Business Departments" by combining the post functions. 100% of our employees have signed the Letter. Meanwhile, our contractors are required to sign the "Letter of Commitment on Safety and Environmental Protection", so as to make every department and every employee take their respective responsibility, and optimize the production safety responsibility system of all employees.

In addition, the Company improved systematic procedure management based on its operation experience, established and perfected safety management systems such as safety accident/incident/hidden danger troubleshooting and tracking system, special equipment registration system, equipment terminal infrared detection and recording system, etc., and keep data records to ensure the implementation of corrective measures, thereby standardizing the implementation of procedures and enhancing the Company's safety management efficiency and safety operation level.

So far, all production bases of the Company in Shanghai and Wuxi have passed the certification of ISO 45001 International Occupational Health and Safety Management System.

Hua Hong Shanghai Production Base	Certified	18 April 2024
Hua Hong Wuxi Production Base	Certified	18 April 2024

Construction of Production Safety Culture

In order to carry out the construction of production safety culture and strengthen the staff's awareness of safety culture, the Company organized a series of special activities such as "Production Safety Month", "Safety & Health Cup", "Fire Protection Month", and conducted carried out activities such as production safety publicity, education and training, as well as safety knowledge and skills competition. Various safety publicity and demonstration activities have effectively enhanced the safety awareness and safety knowledge reserve of employees, and promoted all staff to fulfill their safety commitments and responsibilities.

Action Name	Content and Effect
Strengthening safety training	• Carry out diversified trainings on various safety themes, such as "new employee safety, work resumption safety, production safety standardization, fire fighting skills, occupational health, emergency management system, public security and prevention of telecom fraud, and restaurant & traffic safety", to ensure the 100% participation rate in safety education and training, the 100% certificate holding rate for all employees, with approximately 24,423 trainees. • Organize all staff to participate in the national online contest on knowledge about the "New Safety Law", and constantly enhance the staff's safety awareness and ability.
Enhancing emergency response capability	• Each production base has organized and implemented more than 70 comprehensive and special emergency plan drills and more than 1,000 on-site emergency response trainings, with a training rate of 100%. • Complete the expert review and filing of production safety emergency plans, establish and improve the normative documents such as rapid emergency response procedures to abnormal conditions for production base, and organize weekly training, quarterly practice, and annual competition. • Hold ERT personal skills competition and ERT fire fighting skills competition, and build an emergency management system communication platform by carrying out activities. • Organize and carry out the "Fire Protection Month" fire knowledge display board publicity, fire fighting skill trainings, evacuation and escape drills for all staff, and enhance the staff's safety awareness and emergency response ability.
Selecting excellent cases	• Conduct annual evaluation on excellent safety and technical skills, and organize learning and exchange activities. • Carry out evaluation on typical accidents and hidden dangers, with a total of 24 excellent cases awarded.

- Establishing the complete fire fighting system and automatic alarming system.
- Our clean workshops are equipped with toxic, hazardous and flammable gas alarming system, liquid leakage detector and ultra-high sensitivity smoke detector.
- Establish an emergency rescue team and formulate emergency response plans for different disasters; and regularly organize special disaster prevention drills and rectify any problem found in a timely manner.

Chemical Safety Management

With regard to safety protection of chemicals, the Company has formulated a number of management policies and operation procedures, including the Chemicals Management Procedure, the Chemical Substance Review Procedure, the Special Emergency Plan for Chemical Leakage, the Inspection and Registration System for Chemicals Coming In and Out of the Warehouse, the Management Measures for Chemical Turn-on, etc..

Hazardous Chemicals Used in the Manufacturing of Hua Hong Semiconductor Chips

Type	Name
Flammable liquid	Isopropanol, photoresist and diesel
Oxidants and organic peroxides	Hydrogen peroxide
Toxic chemicals	Phosphine and fluorine
Corrosive chemicals	Sulfuric acid, hydrochloric acid, hydrofluoric acid, phosphoric acid, mixed acid, ammonia water and sodium hydroxide
Compressed and liquefied gas	Hydrogen, methane, silane, nitrogen, oxygen, argon, helium, ammonia and chlorine

The Company has established a factory chemical review committee to comprehensively evaluate the environmental protection and safety qualifications and risk prevention and control capabilities of chemical suppliers in advance the Company adopts the chemical substance management system to manage the use, storage and disposal of chemicals, control the maximum storage of chemicals, and dynamically monitor their use and consumption. In addition, the Company makes efforts to eliminate on-site hazard sources and reduce safety risks from the source by giving priority to the use of new technologies and by replacing toxic and flammable hazardous chemicals with non-toxic chemicals.

- The purchase and marketing personnel of chemicals shall work with qualification certificates, and ask for chemical safety specifications and chemical safety labels when purchasing hazardous chemicals.

- Vehicles transporting hazardous chemicals shall be used for special purpose to prevent the chemicals from "running out, spilling, dripping or leaking";
- Chemicals shall be separated, classified and stored by their performance, managed by special personnel and regularly inspected.

- Hazardous chemicals shall be used in strict accordance with the safe operation procedures;
- Hazardous chemicals that need to be disposed of shall be collected by special personnel, sent to the Company's hazardous waste warehouse, and then delivered to the hazardous waste disposal agency for centralized disposal.

Employee Health

Management of Occupational Hazard Factors

In order to provide occupational health protection for employees, the Company identifies occupational hazard factors of employees and formulates corresponding countermeasures in strict accordance with the Law of the People's Republic of China on Prevention and Control of Occupational Diseases and other laws and regulations. The Company's job positions involving occupational hazard factors mainly include ion implantation, diffusion, etching, chemical mechanical grinding, power gasification and other positions involving equipment operation.

Identification of Occupational Hazard Factors of Employees and Countermeasures

Job Positions with Occupational Hazards	Occupational Hazard Factors	Countermeasures
Ion implantation, diffusion, etching, chemical mechanical grinding, power gasification and other positions involving equipment operation	Fluorine and its inorganic compounds, hydrofluoric acid, hydrochloric acid, nitric acid, sulfuric acid, phosphoric acid, ammonia water, hydrogen peroxide, arsenic and its compounds, phosphorus and its compounds, isopropanol, etc.	• The equipment in the clean room is automatically operated in the closed space, and is equipped with closed process exhaust system • Provide employees with personal protective articles and emergency response devices, and regularly check such articles and devices to ensure their effectiveness

In addition, the Company engages external organizations to test the occupational hazards in its production environment every year, so as to ensure that the occupational exposure limits for harmful factors are not exceeded in the production environment, and the Company informs all employees of the test results. In 2022, the Company has replaced the toxic methanol used for wastewater treatment in its factories with non-toxic 25% food-grade glucose solution, thereby continuously reducing the occupational hazard exposure risk of employees.

Improvement of Employee Health

The Company provides an annual health check-up for all employees, including multiple cancer screenings and other items, and establishes employee health records to systematically track the changes in employees' health status. The Company carries out various activities to promote healthy lifestyle to employees, such as health lectures on the theme of "How to stay away from the risk of "hypertension, hyperlipemia and hyperglycemia", "Guidelines for People Infected with COVID-19 at Home" and "Prevention of facial paralysis in alternate seasons", to encourage the employees to live and work in a healthy way.

3.3 Employee Development and Training

Employee Training

The Company has established a sound employee education and training system, and formulated the Operating Procedure of Internal Training System Review, the Education and Training Procedure and department-level training procedures, which are constantly adjusted according to the strategic development and employee needs, to meet the all-round and multi-level training needs of employees in different positions.

The Company has established training facilities (special training rooms and equipment), learning and sharing platforms (including online training registration management platform, training material and position-specific question bank and multimedia learning courseware, etc.), and where necessary, uses external resources for ensuring employees learning and development.

In 2022, the Company continuously carried out "Special Training Camp for Newly-hired Recent College Graduates" training program, and in addition to the refining and concentration of professional theory and practical training into three major series of courses, namely "new era", "new revelation" and "new talents", it further offers courses regarding corporate culture and political literacy, and organizes visits to bases of Chinese revolution, which helped its new employees quickly integrate into the team and meet the challenges of their future work with full enthusiasm.

Employee System

Trainees	Training Contents	2022 Performance
Grass-roots managers	Role recognition, self-management, management of others, and working management	• **Percentage of employees trained: 100%** • **Average training hours per employee: 123.7 hours**
Front-line managers	Develop management skills of front-line shift and team leaders, cultivate a front-line management team with high quality and high business ability, and lay a solid foundation for the Company's management	
Newly-employed university students	Career quality, corporate culture, introduction to special skills and other courses	
Front-line employees	Courses about theory and practical training of the semiconductor manufacturing module	

Career Development

The Company has clear and transparent promotion channels for employees, regularly evaluates employee performance and provides employees with feedback on individual performance and offers personal career development plans for the development of employees. According to industrial characteristics, the Company has set three professional categories, namely, management, technology and functional support and has established corresponding job training. Employees may continuously develop their careers in a single professional title category according to their own specialties, potential, and desires. Moreover, they are able to shift from technology to management.

In addition, the Company has formulated the Implementation Measures for Academic Education Subsidy, which encourages employees to improve their professional and technical knowledge and provides 16 employees with on-the-job academic education subsidies in 2022, so as to promote work performance and efficiency improvement, and continuously train high-quality talent that meets the current and future needs of the Company, thus further improving its comprehensive competitiveness.

As of the end of the reporting period, the overall employee turnover rate of the Company was 12%. Specifically, the employee turnover rates by gender, age and region are as follows.

Employee Turnover Rate of Hua Hong Semiconductor in 2022

Category	Turnover rate (%)
Male employees	12.83
Female employees	9.74
Employees aged below 30	18.34
Employees aged 30 to 50	7.23
Employees aged above 50	0.65
Employees in mainland China	12
Employees from overseas	0

4 Products and Services

4.1 Product R&D and Innovation

Construction of an Innovative Technology R&D System

R&D and innovation are the critical basis for promoting the continuous upgrading of products and ensuring the sustainable development of the Company. In the process of product R&D and innovation, Hua Hong abides by the Law of the People's Republic of China on Progress of Science and Technology, the Patent Law of the People's Republic of China on Science and Technology Progress and the requirements of other laws and regulations, constantly develops and upgrades new technologies, and leads the development of wafer manufacturing process and chip design by focusing on its corporate vision of "Continuous Innovation and Empowering the Future for Global Customers".

In order to stimulate employees' motivation to invest in innovation and R&D, the Company has established the Value Engineering (VE) proposal system to support employees' exploration into their potential and contribution to product innovation through standardized application process, review and reward procedures. The system involves the reduction of raw materials and energy consumption, human resources optimization and production capacity improvement, as well as process and procedure optimization, which can support the improvement and innovative development of all business modules of the Company. All employees in the management, technology, quality control, manufacturing engineering and other relevant support departments can participate in the quantitative review, recognition and reward activities of VE proposals via this system.

In addition, the Company attaches great importance to scientific research innovation and open cooperation, and has established the first workstation of academicians and experts and the first science and technology association of enterprises in the IC industry in Shanghai. Through the introduction of experts, project cooperation, talent training, academic exchange and other approaches, the Company strives to build an industry-university-research technology innovation system, so as to promote the transformation of scientific and technological achievements into productive forces.

Seizing the Clean Energy Opportunity

With the accelerated adjustment of the global energy structure, promoting the use of clean energy has become the focus of development for more and more enterprises. Hua Hong has actively seized the opportunity of clean energy and applied the main process platforms in different application fields to facilitate the development of green products in the downstream value chain.

Hua Hong has accumulated substantial technology and experience in the manufacturing process of upstream components in the new energy application field, such as new energy power generation, etc., which can effectively support its energy transformation and development. Currently, the semiconductor components for new energy, which are already at the international advanced level, will further explore into the technology and reliability of the 8-inch wafer production platform, and gradually transformed to the 12-inch process platform. Hua Hong focuses on development of the "8-inch + 12-inch wafer" production platform, vigorously implements the core development strategy of advanced "Specialty IC + Power Discrete" product mix, and fully supports the high-quality supply capacity of localized components in the new energy infrastructure and application fields. Hua Hong power discrete devices and non-volatile memory processes play an important role in supporting the development of products in the new energy application fields, such as new energy vehicles, energy-saving household appliances, etc.

Products for Supporting Clean Energy Development

Discrete

Power discrete is an important device for new energy power generation and new energy applications. For example, a large number of IGBTs, MOSFETs and other devices are required for PV and wind power generation equipment, electric vehicles and electric two-wheelers.

The Company has accumulated a large number of customers in this field, and has maintained good partnership with leading enterprises in the field for a long time to conduct in-depth development and cooperation together. So far, the revenue of power discrete devices has taken up a significant part of the Company's revenue.

Non-volatile Memory Process

Non-volatile memory process is widely used in chip applications such as MCUs and ASICs, and these chips are also widely applied to new energy end-user application, such as electric tools, electric two-wheelers, electric vehicles, etc.

According to IC Insights, the automotive market accounts for more than 30% of the global MCU consumption market. All of Hua Hong's fabs have passed the IATF 16949 certification for automotive industry, making important contributions to supporting the local manufacturing of automotive semiconductors.

In 2022, the Company made significant progress in research and development of technologies applied in the field of new energy, helping accelerate the transformation progress of the global clean energy.

The seventh generation IGBT technology has been successfully developed and put into mass production. It has been widely used in mainstream new energy vehicles and PV power generation field.

The new super-junction technology has been developed and has been applied to the electric vehicle charging pile and on-board charger (OBC) solutions. Compared with the original super-junction technology, the optimized solution has reduced the process steps by 25%, and lowered the energy consumption by about 10% on average, further improving the effect of energy conservation and emission reduction.

In the future, the Company will further promote the development of silicon-based power devices capable of achieving higher energy efficiency, and initiate the development of compound semiconductor power devices characterized by high power density and low energy consumption, so as to provide continuously optimized solutions for products applied to the clean energy sector, such as variable frequency household appliances, new energy vehicles, and to further improve energy efficiency.

Intellectual Property Protection

The Company advocates independent innovation and respect for intellectual property rights, particularly in the research and development of application-specific integrated circuits, including intelligent chips and information security chips. The Company strictly complies with the Patent Law of the People's Republic of China, the Copyright Law of the People's Republic of China, the Trademark Law of the People's Republic of China and other laws and regulations, and formulates the internal management regulations, such as the Management Regulations for Intellectual Property, to strengthen the protection and management of the Company's intellectual property rights.

The Company has actively filed applications for patents and investigated responsibility for any potential breaches of intellectual property rights. At the same time, we promise that we will never infringe upon the intellectual property rights of any enterprise or individual, and will keep confidential all technological information regarding products of upstream and downstream partners. To reduce the risk of claims of infringement of third-party intellectual property rights against our manufacturing of semiconductor devices or end-user products, we conduct reputational and potential risk audit on customers before accepting product orders, and we have entered into several technology licensing agreements with major technical companies.

Patent Applications in 2022

Type of Patents	Number of Patents (Items)
Total number of patents applied for in the year	654
Total number of patents approved in the year	331
Total number of Chinese and U.S. invention patents obtained	4,139

4.2 Product Quality and Safety

Quality Management System

The Company strictly complies with the Law of the People's Republic of China on Product Quality and other quality laws and regulations, and has formulated the Quality Manual, Code of Practice for Quality Objective Management and other rules. The Company carries out quality management work pursuant to these law, regulations and rules. So far, all the production bases of Hua Hong have successfully passed the ISO 9001 Quality Management System and the IATF 16949 QMS certification for the automotive industry. The Company implements a synthesized quality management model covering five comprehensive modules of quality system and customer satisfaction, supplier management and raw material analysis, quality assurance, reliability assurance, and failure analysis.

Hua Hong Shanghai Production Base	ISO 9001 Quality Management System	21 May 2024
	IATF 16949 Quality Management System for Automotive Industry	21 May 2024
Hua Hong Wuxi Production Base	ISO 9001 Quality Management System	11 November 2025
	IATF 16949 Quality Management System for Automotive Industry	29 December 2023

In accordance with the policies, the Company carries out quality management. The Company shall comprehensively implement excellent performance management, and deeply promote the integration of industrialization and informatization. Actively fulfilling corporate social responsibility, the Company strictly adheres to Zero Defects concept and ensures the delivery of green and high-quality products in a timely order, to continuously provide competitive services. Besides, the Company is supposed to fully meet customer requirements and unremittingly improve customer satisfaction, so as to achieve mutual benefits and a win-win situation.

Whole-Process Quality Assurance Measures

Quality assurance by multiple systems

Pursue excellent quality by multiple management systems, such as personnel management, equipment management, supply chain management, environment management, system management, process management, and customer quality control.

Real-time monitoring and prevention

With these reliable management systems, we are able to achieve real-time monitoring and testing over our entire product cycles from product R&D to production and after-sales feedback; carry out failure analysis on anomalies that may arise during the production and application processes; dig out the nature of problems; and work out corresponding corrective and preventive measures.

During the daily quality management process, the Company holds various daily management meetings to ensure the product quality meets expectations according to the requirements of the overall quality system, such as materials review meetings, change management committee meetings, production meetings and weekly safety meetings. In the meantime, the Company regularly organizes monthly quality and safety meetings to report relevant work to the management, so as to ensure timely communication about and resolution to product quality problems. In 2022, the Company carried out the project quality evaluation activities of "Zero Defect of Characteristic Processes and High-quality Development of Hua Hong". As at the end of the year, 186 department-level projects were reviewed and completed, with the on-time completion rate up to 100%.

Product Safety Assurance

In terms of product safety assurance, the Company has established a hazardous substance management system, formulated the Hazardous Substances Management Procedure and the three-level management system to effectively control the hazardous substances in products.

Hazardous Substance Control System

Process	Measures
Product R&D	The Company incorporates the management of hazardous substances into the product R&D process to reduce the risk of using hazardous substances from the source.
Raw materials testing	Suppliers are required to provide the product test report for hazardous substances, sign the Letter of Commitment on Not Using Hazardous Substances to ensure the safety of raw materials.
Regular inspection by a third-party agency	A third-party organization is entrusted to carry out testing in accordance with the Directive on Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations ("RoHS") and the Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals ("REACH") on a yearly basis to ensure product quality.

Management of Nonconforming Products

For nonconforming products, the Company has formulated the management policy of Nonconforming Product Control Procedure, and has established an optimal product recall system. Our customers may return to us within the warranty period any nonconforming products which do not comply with the prescribed functions or fail to meet the management requirements for hazardous substances. As at 2022, the failure rate of the Company's products on the end-user side was less than one in a billion.

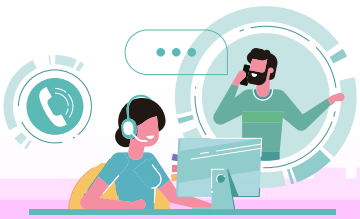
4.3 Customer Service and Protection of Customers' Interests

Customer Service Management

The Company focuses on customer experience, and based on the philosophy of "providing customers with more convenient and safer services", it has established an impeccable customer service system, including the three aspects of customer communication, customer complaint and customer satisfaction, so as to continuously enhance its customer service capabilities.

Customer Communication

- Adopt multiple methods of communication with customers, including customer survey, regular quarterly/annual business reviews, technical seminar and training.



Customer Complaint

- Establish customer complaint channels and formulate the Customer Complaint Handling Procedure, handle and feed back customer complaints in a timely manner.

Customer Satisfaction Survey

- Carry out satisfaction surveys on a sampling basis annually and formulate an improvement plan according to the survey results.

To better satisfy customer service requirements, the Company formulates an annual work plan for customer services and conducts relevant work according to the plan. In addition, the Company implements product introduction, negotiation with customers on their special requirements, customer review and other workflows online and offline synchronously, so as to achieve more sufficient and more efficient communication to meet customer expectations.

The Company attaches great importance to customers' complaint and feedback, and has formulated the Customer Complaint Handling Rules to standardize customer complaint handling and the implementation of corrective and preventative measures. Customers may make a complaint and give feedback to the Company through e-mail, hotline, letter, fax, and other channels. During the Reporting Period, the Company did not receive any complaints from customers.

Occurrence of a Complaint
Normally, communicate and confirm with the customer within 24 hours after the occurrence of a complaint and give a preliminary reply.

Investigation into Failure Causes
Complaints requiring product failure analysis will be submitted to relevant departments for handling. Corrective and preventive measures will be proposed according to the investigation results and a reply will be given to customers.

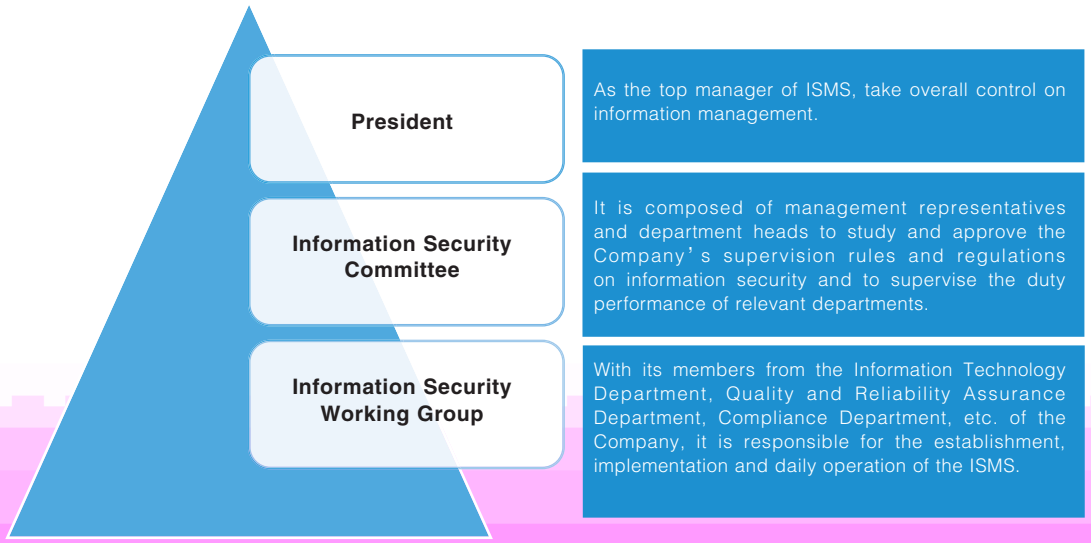
Prevention and Correction
Supervise the implementation of corrective and preventive measures by relevant departments, and verify the correction results by regularly sorting out and analyzing relevant information fed back by customers.

The Company conducts customer satisfaction surveys on a regular basis. In 2022, the Company carried out a customer satisfaction survey in the form of questionnaire to collect customer opinions. The average score of customer satisfaction in the questionnaire was 8.86 (full score: 10 points). The management of the Company reviews the annual satisfaction survey results, organizes the difference analysis and implements improvement measures, and feeds corresponding improvement measures and results back to customers.

Information Security and Privacy Protection

The Company attaches importance to its information security and the protection of customer privacy. It carries out information security protection work in strict accordance with the Cyber Security Law of the People's Republic of China, the Cryptography Law of the People's Republic of China, the Regulation on the Administration of Commercial Cipher Codes, and other laws, regulations and provisions. Meanwhile, the Company has developed and implemented information security management rules such as the Information Security System Manual and the Statement of Applicability (SOA), and conducts management on network security, computer security, encryption control management, user access control, regular backup, etc. to ensure the legal compliance of data processing security and customer privacy protection.

The Company establishes the Information Security Committee, which is fully responsible for the information security protection work of the Company. The Company has established an Information Security Management System (ISMS), which controls information security risks from information asset management, personnel security, physical control, logic control, and other aspects to ensure information security and is ISO 27001 certified (valid until February 2025).



During the stable operation process of ISMS, the Company effectively protects customer information and privacy security by carrying out information security management training and review and by adopting the latest security protection technology and other measures, which, on the other hand, provides the Company with safer and more efficient information management services.

Information Security Management Measures

- Regularly review the information security management system to identify possible risks and ensure smooth operation of information security management
- Carry out information security training and guidance to enhance employees' awareness of information security
- Establish information security incident handling procedure to handle security incidents in a timely manner
- Maintain the machine room regularly to guarantee the normal operation of the equipment in the machine room and ensure information security
- Adopt the latest information security protection technology to prevent data leakage

In 2022, the Company carried out a series of trainings in relation to information security protection in various production and operation bases to strengthen employees' awareness and ability concerning information security protection, and improve the Company's overall information security protection level.

ISMS Training 2022Q1		5,741
ISMS Training 2022Q2		6,180
ISMS Training 2022Q3	Employees of Hua Hong Shanghai & Wuxi Production Bases	5,018
Confidentiality and Information Security Compliance Training		6,400
Quality Month Activity – Information Security Awareness Training for Senior Executives		108

Responsible Marketing

It is Hua Hong's responsibility to customers to carry out responsible marketing and ensure the integrity, accuracy and authenticity of marketing information. The Company strictly abides by the Trademark Law of the People's Republic of China, the Advertising Law of the People's Republic of China and other laws and regulations, implements the product label management pursuant to relevant procedures, and runs the compliance awareness throughout the whole process of business development and contract management, in an effort to eliminate the possibility of improper marketing due to subjective factors.

No incidents of violations concerning the use of labels and promotional information occurred within the Company during the Reporting Period.

5 Responsible Business Operation

5.1 Sustainable Supply Chain Management

Creating a Responsible Supply Chain

Creating a responsible supply chain is an important strategy for long-term development of the Company. The Company has established an excellent supply chain management system, and formulated the Social Responsibility Requirements for Suppliers and the Supplier Risk Identification, Planning and Control Management Procedure in accordance with the Code of Conduct of the Responsible Business Alliance (RBA), so as to conduct comprehensive management on suppliers.

Major Suppliers of Hua Hong

Type of Suppliers	Quantity (Suppliers)
Silicon wafer	21
Chemicals	91
Gas	48

Good supplier cooperation is the foundation for the Company to ensure stable production and operation. The Company has established a supplier management system covering supplier selection and access, supplier review and evaluation, support for supplier growth and supplier elimination.

Supplier selection and access	• The Company formulated the Social Responsibility Requirements for Suppliers in accordance with the RBA, and put forward requirements for suppliers in five aspects: labor, health and safety, environmental protection, business ethics and management system; • Suppliers with outstanding performance in terms of environment, labor and ethics will be preferred in supply and procurement; • In addition to requiring all cooperating suppliers to comply with the Social Responsibility Requirements for Suppliers, the Company also requires its upstream suppliers to recognize and manage in accordance with the Social Responsibility Requirements for Suppliers.
Supplier review and evaluation	• The Company has formulated the Supplier Risk Identification, Planning and Control Management Procedure to carry out comprehensive evaluation and control on the environmental and social risks of suppliers every year, so as to identify the environmental and social risks of suppliers, and formulate corresponding countermeasures; • Suppliers with major violation records are required to carry out a third-party risk audit in terms of their social responsibilities and provide the certificate of passing the audit, or they may be disqualified as suppliers; • The Company's anti-corruption policy covers all suppliers, requiring them to comply with anti-corruption requirements and confirming the compliance at the time of annual evaluation.
Support for supplier growth	• The Company carries out regular publicity trainings on the theme of "CSR " and "RBA Code of Conduct" for suppliers every year, including environment, labor, ethics, etc; • The supplier training program carried out in 2022 covered suppliers of silicon wafer, chemicals, gas, target materials and other categories.
Supplier elimination	• The Company urges the suppliers with poor performance in terms of environment, labor and ethics to rectify and confirm that their rectification meets the requirements. Suppliers who fail to meet the rectification requirements will be disqualified.

Labor	• Free choice of occupation • Youth employees • Working hours	• Salaries and benefits • Humane treatment • Non-discrimination	• Free association
Occupation and Health	• Occupational safety • Emergency plan • Occupational injuries and diseases	• Hygiene management • Physically demanding work • Machine-related protection	• Public health, canteen, and dormitories • Communication of health and safety
Environmental Protection	• Environment-related permits and reports • Preventing pollution and saving resources • Hazardous substances	• Solid waste • Air emissions • Material restrictions	• Management of water resources • Energy consumption and greenhouse gas emissions
Business Integrity	• Operation with integrity • No illegitimate interests • Information disclosure	• Intellectual property rights • Fair trade, advertisement, and competition • Confidentiality on identities	• Responsible procurement of minerals • Privacy
Management System	• Duties and responsibilities of management • Legal and customer requirements • Risk assessment and management	• Performance indicators with implementation plans and measures • Training • Communication	• Employee feedback, participation, and complaints • Review and assessment • Corrective measures

The Company is committed to supporting the growth of suppliers and boosting the development of the domestic chip industry. In 2022, the Company cooperated with Zhonghuan Advanced Semiconductor Materials Co., Ltd. ("Zhonghuan Advanced Semiconductor"), a silicon wafer supplier, in taking the joint development and growth action to jointly promote the improvement of quality management and product quality through mutual solidarity and cooperation. The Company and the quality and technical members of Zhonghua Advanced Semiconductor formed a key team to conduct pre-management in the daily production process of Zhonghua Advanced Semiconductor, and to facilitate the establishment of production process management and control systems such as management system, fault detection and control system, statistical process management system, etc. suitable for the semiconductor industry in Zhonghuan. In the meantime, the Company carried out special audits to assist Zhonghuan Advanced Semiconductor in improving its management process. For key quality control points, we helped Zhonghua Advanced Semiconductor to implement the requirements of the semiconductor industry, carry out independent continuous improvement activities, and constantly enhance its quality management awareness. Furthermore, a series of actions of Zhonghua Advanced Semiconductor have also been applied to the management of its upstream suppliers to facilitate the sound development of the semiconductor industry supply chain.

Responsible Minerals Management

"Conflict Minerals" are obtained by local armed militias by way of long-time forced labor, child labor, and damaging the environment and ecology. Such metals are also the main capital source of illegal armed organizations. According to the Dodd-Frank Wall Street Reform and Consumer Protection Act and research reports of certain international nongovernmental organizations, such minerals are likely to be used for electronic and electrical products, such as mobile phones and computers, in ICT industries.

Metal mineral resources such as gold (Au), tantalum (Ta), tungsten (W), tin (Sn) and cobalt (Co) will be involved in the Company's production and operation process. The Company is aware of the risk of significant negative impacts from mining, trading, processing and exporting minerals in conflict-affected and high-risk areas. In order to effectively reduce the Company's risk in relation to conflict minerals, the Company has formulated the Conflict Minerals Management Policy in accordance with the Responsible Minerals Initiative (RMI). In addition to self-management, the Company also requires all suppliers to promise not to purchase "conflict minerals" in conflict-affected and high-risk areas, so as to ensure the effective management of responsible minerals.

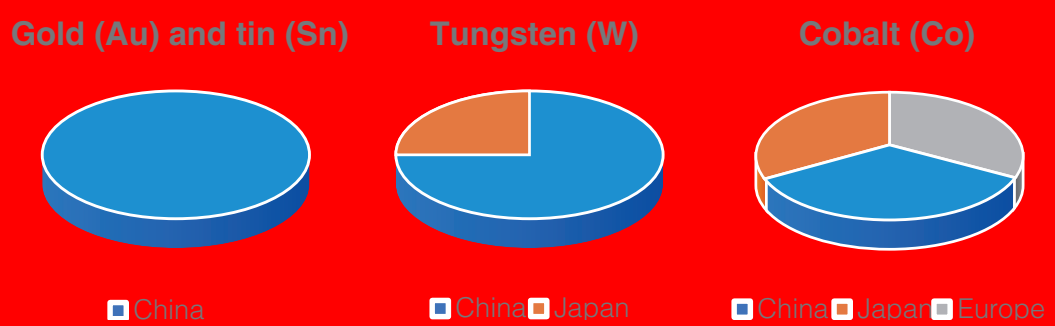
Hua Hong Conflict Minerals Management Policy

The Company takes global social and environmental responsibility as our goal and carries out green procurement and has promised to undertake the following responsibilities in its metal supply chain:

1. We undertake to assume social and environmental responsibilities.
2. Suppliers whose raw materials contain gold (Au), tantalum (Ta), tungsten (W), and tin (Sn) are required to purchase materials according to the Responsible Minerals Policy, while suppliers whose raw materials contain cobalt (Co) are required to disclose the smelters of cobalt.
3. We undertake to cause our suppliers to provide the declaration that they do not use gold (Au), tantalum (Ta), tungsten (W), tin (Sn), and cobalt (Co) from "conflict minerals", and to carry out an investigation into conflict minerals, and complete the Conflict Minerals Reporting Template (CMRT) and the Extended Minerals Reporting Template (EMRT) under the Responsible Minerals Initiative (RMI).

All gold and tin used by the Company in its production process are from China; 75% of the tungsten used comes from China and 25% from Japan; One third of the cobalt used comes from China, one third from Japan and one third from Europe. During the Reporting Period, none of the gold (Au), tantalum (Ta), tungsten (W) or tin (Sn) used by the Company was from the regions with armed conflict.

Types and Sources of Minerals Used



The Company has conducted due diligence on the responsible mineral supply chain of suppliers involving minerals and requires suppliers to disclose information on sources of minerals and smeltery, so as to ensure that our suppliers comply with the Company's management policies for conflict minerals. In 2022, a total of 8 suppliers were involved in the due diligence, covering 100% of suppliers that are involved in "conflict minerals". In the due diligence audit this year, no major issues concerning child labor, inhuman treatment, forced labor, armed conflict, ecological damage, etc. were found; among which, the suppliers who do not use conflict minerals account for 100% as verified by the third-party organization.

5.2 Anti-Corruption and Anti-Bribery

The Company is committed to the development of a business ethics culture and has formulated the Undertaking System on Anti-Corruption and Business Ethics, the Anti-Corruption and Anti-Bribery Policy, and other internal management regulations, explicitly specifying that companies having business dealings with the Company (including all suppliers) shall sign the Undertaking Against Commercial Bribery and that all the relevant internal personnel shall sign the Undertaking on Business Ethics.

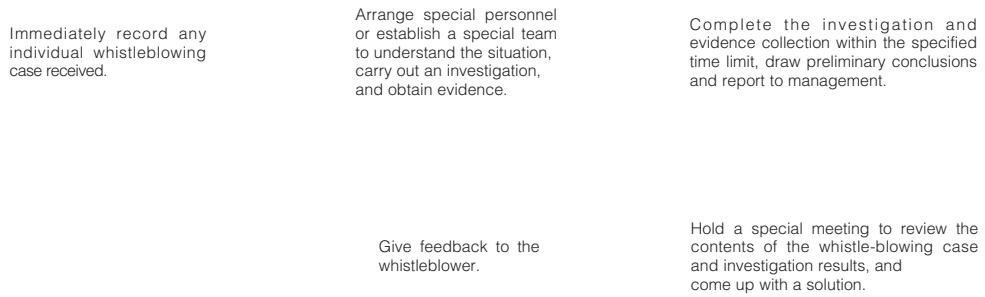
Anti-Corruption and Anti-bribery Policy of Hua Hong Semiconductor

All employees (including part-time employees), senior management, and Board members are required to abide by relevant laws and regulations practice and behave with integrity, diligence, and self-discipline. Corruption and bribery in all forms are prohibited, including:
prohibiting commercial bribery and maintaining fair competition order;
prohibiting seeking for illegitimate benefits through taking advantage of influence in position and work; never violating financial management and operation regulations, or seeking personal gain in the name of the Company;
prohibiting practicing fraud to undermine the legitimate interests and reputation of the Company;
prohibiting any receipt of presents, cash gifts, securities and finances that may cause a negative influence on work.

The Company carries out audits on anti-corruption and business ethics on a regular basis. In 2022, the Company has completed audits of internal management on anti-corruption and business ethics, and found no violation. In addition, the Company is committed to creating a sound business ethics culture by regularly introducing warning articles and cases in internal publications and providing training activities on anti-corruption and business ethics for all employees. On 15 September 2022, the Company held the 2022 Business Ethics Education Conference, and carried out a special training on the theme of "Knowledge on Anti-Corruption Party Conduct and Business Ethics" for all key positions and related personnel.

The Company sets up smooth whistle-blowing channels, and provides defined whistle-blowing channels, including E-mail, hotline and mailbox, to encourage employees to make real-name or anonymous complaints and whistle-blowing. The Company comprehensively handles whistle-blowing calls and letters at any time to achieve early detection, resolution and control, as well as appropriate treatment.

The Company establishes a standardized whistle-blowing case treatment procedure, and carries out the whistle-blowing procedure, classified acceptance, investigation and treatment work. In addition, the Company takes measures to protect whistleblowers, and all information related to whistleblowers will be kept strictly confidential. The Company protects the employees or external personnel from unfair treatment such as dismissal, demotion, suspension, intimidation, harassment or any other form of retaliation for whistle-blowing through legal channels.



During the Reporting Period, no corruption, bribery, extortion, fraud or money-laundering event has occurred to the Company, nor has any litigation case arising from the above events occurred.

5.3 Risk Management

The Company continuously improves its risk management organization system, and optimizes its internal control system. Since 2016, the Company has established procedures for risk management through the Internal Audit Department, which issued the "Rules about Comprehensive Control of Risks" and carried out related projects. It continuously improves the risk maps, and upgrades relevant policies and processes, so as to effectively enhance its comprehensive risk management capabilities.

In 2022, the Company comprehensively prevented and supervised its internal and external risks based on the "three-line model" of risk management, taking into account the principle of comprehensiveness and importance. The Company carried out an annual comprehensive risk assessment covering Shanghai and Wuxi, interviewed management with regard to risks through risk questionnaires, identified major risk areas, and formed an annual risk management report. Each business line collected and reported the respective risk events for the record quarterly or irregularly. In addition, the Company carried out risk management training, and discussed risk events among various business lines and at the corporate level.

Key Operational Risks and Countermeasures

Risk Category	Risk Factor	Countermeasures
Strategy	Strategic planning	The Company formulated strategic objectives from top to bottom and appropriately deconstructed and implemented such objectives in specific business models of corporate operation, to ensure the accomplishment of strategic objectives.
	External economic and policy impact	The Company can always maintain a high growth momentum through reasonable adjustment of product structure and gradual substitution with domestic products.
Operation	Talent reserve and development	We set up the talent resume database, carried out a talent inventory, continuously explored recruitment channels, optimized the salary structure, and improved the supporting welfare policies to comprehensively enhance the Company's attraction and employee satisfaction.

	Supply chain	The Company enhances its right to speak in the industry chain through its technological advantages, signs medium – and long-term strategic agreements with suppliers, sets a safe inventory level for each production material, regularly reviews the rationality of the safe inventory level, makes timely adjustments according to market changes, and continuously evaluates suppliers' capacity and product quality to ensure stability of the supply chain.
	Information security	The Company has established its information security framework and management policy; implements the risk evaluation procedure for information security every year; and continuously monitors all kinds of key information through data protection system (DLP), so as to maintain the optimal interests of the Company, its shareholders, its customers, its suppliers and its employees.
	Research and development	The Company improves the R&D project management system, conducts comprehensive monitoring on R&D project initiation, implementation, and post-evaluation, enhances the ability of project managers, and develops new products with commercial value continuously in a timely manner.
	Exchange fluctuations	Transactions denominated in foreign currencies are settled in the same foreign currency whenever possible to reduce the need for foreign currency exchange, thus reducing risks arising from exchange rate fluctuations.
Environment and Safety	Environment	We design management procedures based on our observation, assessment, and control of environmental factors and list major environmental factors.
	Safety check	Safety checks focusing on troubleshooting and fault diagnosis are carried out continuously and regularly.
	Occupational health	We have developed the goals, indicators, and program management forms for our environmental and occupational health and safety programs, in accordance with the Company's established goals, indicators, and program management procedures for health, safety, and environment ("HSE").

5.4 Protection of Investors' Rights and Interests

As a listed company on the Main Board of the Stock Exchange of Hong Kong Limited, the Company strictly complies with the requirements of the Listing Rules, the Companies Ordinance, the Securities and Futures Ordinance, the Takeovers Code and the Code on Share Repurchases, and sets up a professional working group to carry out investor relationship management and to strengthen the communication between the Company and investors. The Company has also established channels for the Company's management to receive suggestions from investors, so as to continuously improve the corporate governance level, and effectively protect the legitimate rights and interests of investors.

While carrying out investor relationship management, the Company communicates with the capital market through multiple channels about the Company's business operation and management status, financial position, product technology, major issues and other information, based on the principle of "equal treatment of all investors", the requirement on "compliance information disclosure" and the standard of "honest and trustworthy operation and interactive communication". The Company also proactively discloses information related to the Company concerned by investors, and fully protects the legitimate rights and interests of investors.

Investor Communication Channel

In 2022, the Company held one annual general meeting and two special general meetings of shareholders, at which resolutions were passed by voting. Meanwhile, all shareholders of the Company were invited to participate in the above meetings, including all small – and medium-sized investors of the Company. Furthermore, the Company held four performance exchange meetings during the Reporting Period, with a total of 1,303 participants.

6.1 Industry Development

The Company actively participated in the industry co-development activities to facilitate the high-quality development of the IC industry and to help Shanghai build an ecological highland for the IC industry. During the Reporting period, the Company has participated in the drafting of one industry standard and the review of five industry standards, and actively attended in the industry summit to jointly promote the high-quality development of the industry.

6.2 Community and Charity

In order to enhance the safety awareness of community residents, the Company has provided the "First Aid Course for Accidents" in the community where the headquarters operates, including First Aid knowledge and cardiopulmonary resuscitation, for five years.

The Company is enthusiastic in public welfare undertaking, and persists in organizing voluntary blood donation every year. In addition, the Company has organized employees to regularly visit the elderly in the community nursing home every year, to chitchat, make wontons, and carry out activities, so as to entertain and care for the elderly. During the COVID-19, the Company has actively participated in the volunteer services, helped maintain the order on the spot, and delivered residents' living materials for quarantined buildings. The Company has received many letters of appreciation for its contribution to the community's anti-pandemic work.

Volunteer Service Highlights Performance in 2022	
Actively participated in community epidemic nucleic acid testing volunteer service	A total of 4,198 employees participated in volunteer service
Actively participated in the Company's internal epidemic prevention and control	A total of 89 employees, with 1,098 hours of service in aggregate

7.1 Quantitative Performance

Environment

Total air emissions	10,000 m^3	1,773,740	2,319,307	2,391,024
Nitrogen oxide (NOx) emissions	Kg	19,688	36,857	32,650
Sulfur dioxide (SO_2) emissions	Kg	338	2,239	3,546
Total wastewater discharge	10,000 m^3	603	704	832
GHG emissions[1]	Ton of CO_2 equivalent	448,614	713,649	497,938
Of which: Direct GHG emissions	Ton of CO_2 equivalent	18,135	24,803	24,877
Indirect GHG emissions[2]	Ton of CO_2 equivalent	430,479	697,899	473,060
GHG emissions per unit output	Ton of CO_2 equivalent/8-inch wafers	0.23	0.20	0.12
Total hazardous waste	Ton	9,262	17,363	20,385
Hazardous waste produced per unit output	Kg/8-inch wafers	3.96	4.96	4.88
Total non-hazardous waste[3]	Ton	6,143	8,981	9,864
Non-hazardous waste produced per unit output	Kg/8-inch wafers	2.67	2.57	2.36
Use of Resources				
Total electricity consumed	MWh	720,840	867,682	954,667
Electricity consumed per unit product	kWh/8-inch wafers	313	248	228
Natural gas consumed	m^3	10,312,006	11,456,569	10,530,287
Natural gas consumed per unit product	m^3/8-inch wafers	4.49	3.27	2.52
Total water consumed[4]	m^3	9,907,631	15,707,212	18,010,226
Of which: Water from municipal water supply	m^3	7,035,272	8,928,040	10,284,063
Wastewater reused[5]	m^3	2,872,359	6,788,287	7,726,163
Water consumed per unit product[6]	m^3/8-inch wafers	2.89	2.55	2.46
Recycled/reused water	m^3	4,042,020	86,119,337	107,163,560
Total packaging materials used for the shipment of finished products	Ton	128	253.5	313.32
Packaging materials used for the shipment of per unit finished product	Kg/8-inch wafers	0.06	0.07	0.07
Recycled packaging materials used for the shipment of finished products	Ton	22	48.5	54.0

Notes:

1 GHG emissions are calculated in accordance with the GB/T 32150 General Guideline for Calculation and Reporting of GHG Emissions from Industrial Enterprises and the GB/T 32151 Requirements on Calculation and Reporting of GHG Emissions published by the Standardization Administration of China.

2 In 2022, the indirect GHG emissions in Shanghai and Wuxi production bases were calculated according to the Guidelines for Accounting and Reporting of Greenhouse Gas Emissions in Shanghai (Trial) (Hu Fa Gai Huan Zi [2012] No. 180) and the Notice on the 2023-2025 Corporate Greenhouse Gas Emission Reporting Management in Power Generation Industry, respectively, among which, Shanghai production base uses a default value of electricity emission factor of $4.2tCO_2/10^4kWh$, and Wuxi production base uses the national average grid emission factor of $0.5703tCO_2/MWh$ when calculating.

3 Non-hazardous waste is sludge produced in wastewater treatment.

4 Total water consumption = water consumption from municipal water supply + wastewater reuse.

5 In 2022, the Company revised the amount of wastewater recycled in 2021, and the total amount of water consumption in 2021 was revised accordingly. The data in relation to wastewater recycled and total water consumption for 2021 set out in this report shall prevail.

6 In calculation, water consumed per unit product only includes water from the municipal water supply.

Employment and Labor Practice

Total number of employees	Person	5,682	6,084	6,760
Including: Number of male employees	Person	4,164	4,426	4,932
Number of female employees	Person	1,518	1,658	1,828
Number of employees working under a labor contract with the employer	Person	5,682	6,084	6,760
Number of employees working under a labor contract with a labor dispatch company	Person	113	85	81
Part-time employees	Person	0	0	0
Number of employees aged under 30	Person	2,542	2,676	2,983
Number of employees aged between 30 and 50	Person	3,018	3,271	3,624
Number of employees aged above 50	Person	122	137	153
Number of employees from Mainland China	Person	5,673	6,075	6,751
Number of foreign employees	Person	9	9	9
Health and Safety				
Occupational disease incidence	%	0	0	0
Number of work-related fatalities	Person	0	0	0
Percentage of work-related fatalities	%	0	0	0
Lost days due to work injury	Day	235	367	83
Employee Training				
Average training hours completed per employee	Hour	100.1	119.9	122.2
Including: Average training hours completed per non-management employee	Hour	101.4	121.5	123.7
Average training hours completed per management member	Hour	18.3	23.5	26.5
Average training hours completed per female employee	Hour	96.8	123.8	124.3
Average training hours completed per male employee	Hour	101.3	118.5	121.4
Percentage of employees trained	%	100	100	100
Including: The percentage of non-management employees trained	%	100	100	100
Percentage of management member trained	%	100	100	100
Percentage of female employees trained	%	100	100	100
Percentage of male employees trained	%	100	100	100

Product Responsibility and Customer Service

Product return rate	%	0.07	0.05	0.11
Percentage of products sold subject to recalls for safety and health reasons	%	0	0	0
Number of complaints received in relation to products and services	Case	8	0	0
Percentage of customer complaints resolved	%	100	/	/

Supply Chain Management

Supply Chain Management				
Total number of suppliers	Supplier	535	545	550
Total number of local suppliers	Supplier	399	410	413
Total number of foreign suppliers	Supplier	133	136	138
Number of suppliers assessed[1]	Supplier	110	115	112
Number of suppliers subject to rectification	Supplier	0	0	0
Percentage of raw and auxiliary material suppliers signing the Environmental Protection Undertaking	%	100	100	100
Percentage of raw materials purchased from local suppliers [2]	%	28	29	31

Notes:

1 The number of suppliers which were assessed by the Company in terms of labor, health and safety, environment, and business ethics.

2 Raw materials purchased include silicon slices, quartz, target materials, gases, chemicals, and other raw materials for production.

Anti-corruption

Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period	Case	0	0	0

Community Investment

Number of employees participating in volunteer services	Person	449	1,324	4,189
Total hours of volunteer activities	Hour	450	1,986	6,283

a) List of Regulations and Relevant Policies Observed by the Company

Fields	Names of Laws and Regulations
Environmental Protection	Environmental Protection Law of the People's Republic of China, Law of the People's Republic of China on Prevention and Control of Atmospheric Pollution, Urban and Rural Planning Law of the People's Republic of China, Marine Environment Protection Law of the People's Republic of China, Energy Conservation Law of the People's Republic of China, etc.
Product and Service	Cyber Security Law of the People's Republic of China, Cryptography Law of the People's Republic of China, Accounting Law of the People's Republic of China, Regulation on the Administration of Commercial Cipher Codes, Company Law of the People's Republic of China, Constitution of the People's Republic of China, Law of the People's Republic of China on Product Quality, Customs Law of the People's Republic of China, Metrology Law of the People's Republic of China, Foreign Trade Law of the People's Republic of China, Anti-Unfair Competition Law of the People's Republic of China, Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals ("REACH"), Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances ("RoHS"), etc.
Intellectual Property Protection	Patent Law of the People's Republic of China, Copyright Law of the People's Republic of China, Trademark Law of the People's Republic of China, etc.
Employee Employment	Law of the People's Republic of China on Employment Contracts, Law of the People's Republic of China on Protection of Women's Rights and Interests, Employment Promotion Law of the People's Republic of China, Social Insurance Law of the People's Republic of China, Civil Code of the People's Republic of China, Labor Law of the People's Republic of China, Criminal Law of the People's Republic of China, Measures for the Administration of Health Insurance, Measures for Application for and Payment of Unemployment Insurance Money, etc.
Occupational Health and Safety	Law of the People's Republic of China on Prevention and Control of Occupational Diseases, Production Safety Law of the People's Republic of China, Regulation on Work-Related Injury Insurances, etc.

During the Reporting Period, no violation against the above-mentioned laws, regulations and relevant provisions has occurred to the Company, nor has any litigation case arising from the above events occurred.

b) Benchmarking Index

Governance Structure	ESG Management System
Reporting Principles	Preparation of the Report
Reporting Boundary	Preparation of the Report

Aspect A1. Emissions	
General Disclosure A1	Emissions Management
KPI A1.1	Key Quantitative Performance Statement
KPI A1.2	Climate Change Mitigation and Adaptation
KPI A1.3	Quantitative Performance
KPI A1.4	Quantitative Performance
KPI A1.5	ESG Management Strategy
KPI A1.6	Emissions Management
Aspect A2. Use of Resources	
General Disclosure A2	Energy Management Water Resources Management
KPI A2.1	Energy Management
KPI A2.2	Water Resources Management
KPI A2.3	Energy Management
KPI A2.4	Water Resources Management
KPI A2.5	Quantitative Performance
Aspect A3. Environment and Natural Resources	
General Disclosure A3	Energy Management Water Resources Management
KPI A3.1	Energy Management Water Resources Management
Aspect A4. Coping with Climate Change	
General Disclosure A4	Climate Change Mitigation and Adaptation
KPI A4.1	Quantitative Performance

General Disclosure B1	Employee Interests and Benefits
KPI B1.1	Quantitative Performance
KPI B1.2	Quantitative Performance
General Disclosure B2	Employee Health and Safety
KPI B2.1	Quantitative Performance
KPI B2.2	Quantitative Performance
KPI B2.3	Quantitative Performance
General Disclosure B3	Employee Development and Training
KPI B3.1	Quantitative Performance
KPI B3.2	Quantitative Performance
Aspect B4. Labor Standards	
General Disclosure B4	Employee Interests and Benefits
KPI B4.1	Employee Interests and Benefits
KPI B4.2	No Violation
Subject Area B. Social Operating Practices	
Aspect B5. Supply Chain Management	
General Disclosure B5	Sustainable Supply Chain Management
KPI B5.1	Quantitative Performance
KPI B5.2	Supply Chain Management
Aspect B6. Product Responsibility	
General Disclosure B6	Customer Service and Protection of Customers' Interests
KPI B6.1	Quantitative Performance
KPI B6.2	Quantitative Performance
KPI B6.3	Customer Service Management
KPI B6.4	Customer Service Management
KPI B6.5	Information Security and Privacy Protection
Aspect B7. Anti-corruption	
General Disclosure B7	Anti-corruption
KPI B7.1	Quantitative Performance
KPI B7.2	Anti-corruption
Aspect B8. Community Investment	
General Disclosure B8	Voluntary Service and Public Charity
KPI B8.1	Voluntary Service and Public Charity
KPI B8.2	Quantitative Performance

c) Glossary of Proper Terms and Abbreviations

Tapeout	With the original meaning of “off the line”, it refers to the final step of integrated circuit (IC) or printed circuit board (PCB) design, namely, delivery for manufacturing.
WIP (Working In Progress)	Also known as workshop production management, it refers to the work-in-process area of the work center, which provides the storage space of raw materials, finished products and semi-finished products for the work center.
WAT (Wafer Acceptance Test)	It refers to the test of special test key, which monitors whether each process is normal and stable through electrical parameters.
CDA (Compressed Dry Air)	It refers to Compressed Dry Air.
MAU (Make-up Air Unit)	It refers to a fresh air unit, a kind of air conditioning equipment that provides fresh air.
BCD (Bipolar-CMOS-DMOS)	It is a monolithic integrated process technology, which can produce Bipolar, CMOS and DMOS devices on the same chip.
ERT (Emergency Response Team)	It refers to the emergency response team, or the response team in emergency.
IGBT (Insulated Gate Bipolar Transistor)	It refers to Insulated Gate Bipolar Transistor, which is a composite fully-controlled voltage-driven power semiconductor device composed of BJT (Bipolar Junction Transistor) and MOS (Insulated Gate Field Effect Transistor).
MOSEFT (Metal-Oxide-Semiconductor Field-Effect Transistor)	It refers to Metal-Oxide-Semiconductor Field-Effect Transistor, known as MOSFET.
MCU (Microcontroller Unit)	It is a microcontroller unit, also known as single-chip microcomputer or single-chip computer. It reduces the frequency and specification of the central processing unit appropriately, and integrates peripheral interfaces such as memory, counter, USB, A/D converter, UART, PLC, DMA, and even LCD drive circuit on a single chip to form a chip-level computer for different combination control for different applications.
ASIC (Application Specific Integrated Circuit)	It refers to the Application Specific Integrated Circuit, which is an integrated circuit designed and manufactured in response to the requirements of specific users and specific electronic systems.
OBC (On Board Charger)	It refers to the on-board charger fixed on the electric vehicle.
PMIC (Power Management IC)	Also know as Power Management IC, it is an application specific integrated circuit, with its function to manage the power supply of the master system.
BMS (Battery Management System)	It refers to the battery management system, mainly used to carry out intelligent management and maintenance of each battery cell, prevent overcharge and over discharge of the battery, extend the service life and monitor the status of the battery.

d) Preparation of the Report

In the Environmental, Social and Governance Report of Hua Hong Semiconductor Limited 2022 (the "Report"), key issues and opportunities of concern to stakeholders are identified through materiality analysis, and the Company's actions and achievements in economic, social and environmental aspects are disclosed to various stakeholders.

Scope of the Report

Organizational Scope: The Report covers Hua Hong Semiconductor Limited and its subsidiaries, and is consistent with the scope of the annual consolidated financial statements of the Company.

Reporting Period: From 1 January 2022 to 31 December 2022

Basis of the Report

- Environmental, Social and Governance Reporting Guide (effective from January 2022) published by The Stock Exchange of Hong Kong Limited

Source

There are no material changes in the methods of obtaining and calculating the information in the Report, compared with annual reports for previous years. Data and cases in the Report originate from original records and financial reports of the Company generated in actual operations. In case of any inconsistency, data in the financial reports shall prevail. Unless otherwise specified, all the monetary amounts in the Report are denominated in RMB.

Reporting Principles

- Materiality principle. The Company identifies the substantive issues in relation to business operation concerned by investors and other stakeholders as the focus of this Report. The reporting on substantive issues in this Report also focuses on the industry characteristics and regional characteristics involved in the Company's operation. In the meantime, this Report highlights the ESG matters that may have significant influence on investors and other stakeholders.

- Quantitative and consistency principle. This Report discloses key quantitative performance indicators and historical data as much as possible. The statistical and disclosure methods of the same indicator in this Report are consistent in different reporting periods; Any change, where possible, in the statistical and disclosure methods shall be fully explained in the notes to the Report, so that the stakeholders can conduct meaningful analysis and evaluate the quantitative principle for the development trend of the Company's ESG performance level. The Report has disclosed the basis of calculating the quantitative ESG KPIs and emissions of the Company. For details, see Appendix Quantitative Performance to the Report.

- Balance principle. The Report reflects the objective facts and discloses both positive and negative information related to the Company impartially. The Company has searched the objects within the scope of this Report through Shanghai Qingyue Credit Database (data.epmap.org), and did not find any negative events that should be disclosed but not disclosed during the Reporting Period.

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