# 2018 企業社會責任報告 CORPORATE SOCIAL RESPONSIBILITY REPORT



Our concept of sustainable development and the pursuit of long-term performance is to achieve these under consideration of economic, environmental and social aspects, as these aspects interact with and support each other, enabling long-term, sustainable performance. We strictly comply with all local applicable laws and meet social expectations in our operations, and we align our standards for environmental protection to those of the leaders in international industry. We devote ourselves to sustainable cities and communities. In following our corporate vision of *Continuous Innovation and Empowering the Future for Global Customers*, we promptly respond to Stakeholders including customers, employees, investors, communities and countries where we operate, toward the goal of the sustainable development of enterprises and society.

#### 1.1 Social Responsibility Policy

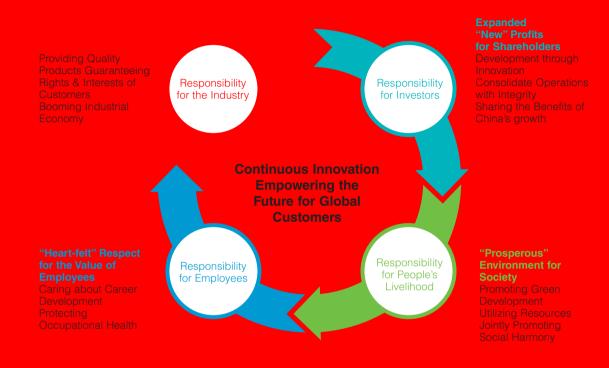
We believe the fulfillment of corporate social responsibility first requires pro-active adherence to and implementation of the highest international standards of business and social ethics while creating value for and sharing value with all Stakeholders. To this end, in addition to compliance with all laws, regulations and rules of the state in terms of operation, we also incorporate environmental and social responsibilities directly into our business strategies and operations. We take a prudent approach to manage our environmental and social risks by perfecting our management system, improving supply chain performance and reducing resource consumption and environmental emissions. We encourage innovation-driven development and foster innovative talents, thereby promoting social harmony.

#### 1.2 Social Responsibility Management Mechanism

Effective social responsibility management also requires the ongoing attention of senior management and the involvement of all employees. We established a Corporate Social Responsibility ("CSR") working group to set up a CSR organization system that enables management to participate in and coordinate with the functional departments horizontally and member companies vertically. The working group comprises responsible officers from diverse functional departments.



# Provided by the Board of Directors as the CSR Decision Maker, the following four aspects summarize the social responsibility of the corporate vision Continuous Inscription and Employering the Future for Clobal Continuous



#### 1.2 Involvement of Stakeholders

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

#### **Expectations and Responses of Stakeholders**

Shareholders and senior management	Domestic and foreign investors holding equity and debt investments in our Company, and senior management members of the Company	Risk management, economic performance, industrial development, customer communication and satisfaction	Shareholders' meetings, financial reports, performance reports, results road shows, etc.
	IDMs, systems and fabless semiconductor companies	Protection of customer rights and information, product and service quality, customer communication and satisfaction	Product exhibitions, customer research, technical seminars, B2B (such as E-tapeout systems, WIP report and WAT report, etc.), customer service hotlines and complaints, 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, trainings, self-service systems and employee manuals, internal publications, etc.
Government and regulators	Industry, tax, environmental protection, security and other departments, local governments, SFC and other governmental or regulatory authorities	Compliant operation, green products, emissions management and energy utilization	On-site visit, official correspondences, policy enforcement, information disclosure, etc.
Partners	Suppliers, research institutions, industry associations, etc.	Industrial development, compliant operation, product and service quality, customer satisfaction and communication	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.

#### 1.3 Risk Management and Identification and Analysis of Substantive Issues

Risk Management

We continuously improve our risk management system by upgrading relevant processes and policies, thereby effectively enhancing our risk management abilities. Since 2016, the Company has established procedures for risk management through Internal Audit department, which issued the guideline "Rules about Comprehensive Control of Risks" and launched related projects. In 2018, based on the three lines of defense for risk management and in consideration of both inclusiveness and importance, the Company continuously optimized the risk map, identifying a total of 86 main risk factors, and systematically prevented or supervised internal and external risks to the Company.

The Company developed a risk management platform, which fully realizes informatization of processes from uploading risk map amendments, collecting risk information and sending down risk questionnaires to forming a risk evaluation report, thus improving the digitization level and the management efficiency of risk information. We also conducted the annual comprehensive risk evaluation, designed a questionnaire about risks, carried out interviews with management, identified key areas of risk, and formed an annual risk management report. We adopted a quarterly risk communication and reporting mechanism under which each business department collects and reports risk events in the department, quarterly or from time to time. We held risk department management meetings from time to time and carried out two risk trainings in 2018, in which a total of 22 managers at all levels in the Company communicated risk problems in all business lines.

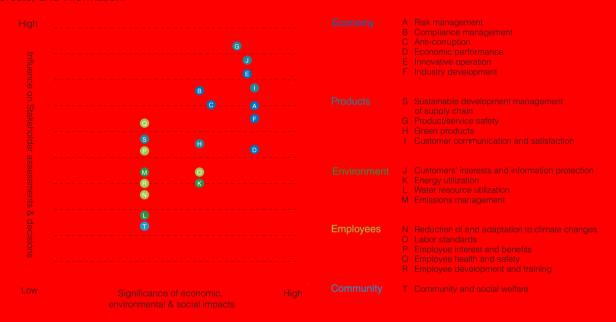
#### **Key Operational Risks and Countermeasures**

Strategy	Strategic planning	The Company formulated strategic objectives from top to bottom, appropriately deconstructed and implemented such objectives in specific business models of corporate operation, to ensure the accomplishment of strategic objectives
	Investment Decision	We conduct prudent pre-investment analysis, continuous process supervision, and effective post-investment evaluation to control the investment risk to an acceptable range in a multi-pronged manner
	Supervising and management system	Our well-organized systems and processes, taken together with the Company's risk management system with its three lines of defense, can efficiently assure accomplishment of strategic objectives
Operation	Reserve of Talents	We set up the talent resume database, carried out the talent inventory, continuously explored the recruitment channels, optimized the salary structure, and comprehensively enhanced the company's attraction and employee satisfaction by combining the synergies of brand building and cultural promotion.
	Information security	Based on our <i>Management Rules about Information Security</i> , the Company established its information security framework and management policy. We implement the risk evaluation procedure for information security every year to maintain the optimal interests of all Stakeholders
	Research and development	The structured R&D closed-loop mechanism conducts comprehensive monitoring on R&D initiation, implementation and post-evaluation, and helps develop new products with commercial value continuously and in a timely fashion
	Intellectual property	The comprehensive intellectual property protection awareness and management procedures protect the intellectual property rights of the Company and customers
Finance	Cash flow	Monthly cash flow statements record cash flows and dispatch the same to relevant departments for follow-up actions
	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
	Occupational health	We have developed the goals, indicators and program management forms of 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")

#### Identification and Analysis of Substantive Issues

We check social responsibility issues on a regular basis, and identify the more substantive ones on which to focus our operations, reporting and disclosures through periodic identification, evaluation and screening. We consider both internal and external factors such as our strategic and operational direction, Stakeholders' concerns and expectations as well as national and international standards and policies.

In 2018, we followed "2016 Sustainability Reporting Standards" of Global Reporting Initiative (GRI), thus raising the importance of anti-corruption, innovative operation, product and service quality, protection of customer rights and interests and information

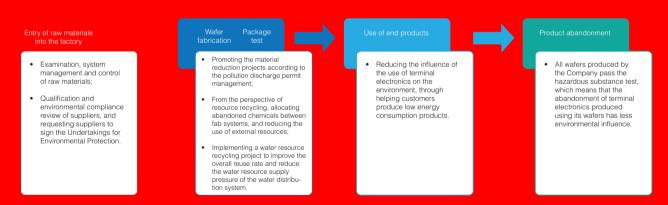


We take "Zero Accidents" and sustainable operation as our goal, and devote ourselves to clean production and continuous improvement. In 2018, we continued to carry out the projects related to environmental protection and technological upgrading, in an effort to pursue better performance in energy conservation and emission reduction waste management, etc. As of the end of 2018, the Company was not subject to any environmental complaints of punishments or involved in any environmental pollution events.

#### 2.1 Environmental Management System

The Company gradually shifted its focus from production management to control of product life cycles and risks, and was committed to improving environmental performance at every step of the process, including procurement of raw materials, production and waste management; and passed the new ISO 14001:2015 environmental management system certification in 2018. In terms of supervision and management, we added a review and follow-up system to the security management system in the Company's intranet, so as to collect and list matters violating environmental protection regulations which are identified in daily management, and follow up and record subsequent collections, through regular system reminders.

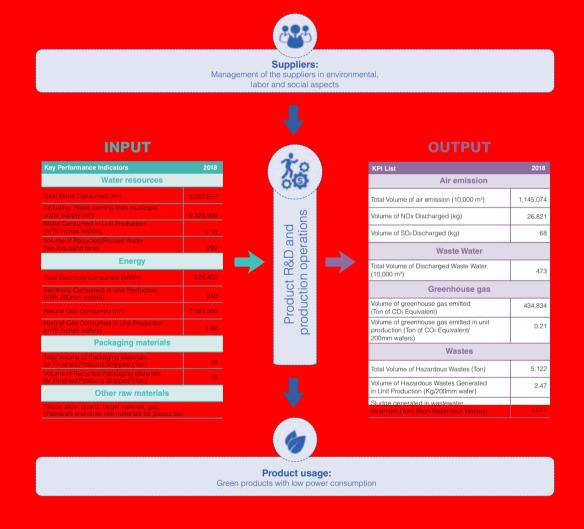
In 2018, the Company signed the "Responsibility Statement of Enterprises in Key Industries in Pudong New Area for Soil Pollution Prevention". Throughout the year, it completed 26 energy saving and emission reduction projects with an electricity saving of 9,907 MWh, water saving of 4.279 million m³, a CO₂ reduction of 2,835.9 tons and the generation of economic benefit of RMB17 459 million in total



**Environmental Management Throughout Product Life Cycle** 

#### **Overview on Environmental Management Performance**

The Company took full consideration of the environmental impacts arising from our own business operations: As the "inputs", the Company's production and operation requires the use of such resources as energy, water and other raw materials; as the "outputs", emissions such as air emission, water and solids are generated. In addition, we have been considering promoting supplier environmental management and providing low-power green products in an effort to achieve better environmental management performance throughout the value chain.



#### 2.2 Action and Achievements in Environmental Management

#### Energy Management

The Company's energy consumption mainly includes electricity, heat and natural gas (and a small amount of gasoline and diesel). The "Procedure of Resource and Energy Management" document specifies applicable principles of resource and energy management. This enables source-control continuous improvement while satisfying and enhancing production efficiency based on the principle of saving energy, reducing consumption and wastes. It reduces environmental impact while lowering production cost so as to achieve sustainable and environmentally harmonious development. Additionally, the Company established energy saving goals during the "13th Five-Year Plan" period by referring to the control objectives for the total amount of energy and the energy utilization efficiency improvement objectives of the Shanghai government in 2020: As of 2020, the Company's comprehensive energy consumption of RMB10,000 output value will decrease by 12% as compared to that in 2015, and the unit production consumption of 200mm IC wafers will decrease by 13% as compared to that in 2015; and the Company will entrust a third-party agency to conduct energy auditing and propose technological upgrading solutions for energy savings.

#### **Energy Saving Work and Achievements in 2018**

Change of BDWGOJ01/BDWGOS03 drain method	Monthly electricity saving of approximately 1,000 kWh and monthly water saving of approximately 24 tons
Installation of DAS scrubber backup system	Average electricity saving by the equipment more than 20%
Installation of a power-saving valve at the exhaust end of a dry pump (new in 2017)	Average electricity saving by the equipment more than 20%
FAB1A OAC dew-point temperature adjustment	Annual electricity saving of 5.921 million kWh and annual reduction of 1,204 tons of standard coal consumption
Energy-saving transformation of air conditioning equipment at the second floor	Annual electricity saving of 0.835 million kWh and annual reduction of 415 tons of standard coal consumption
Reduction in the thickness of polycrystalline silicon to reduce energy consumption, consumption and emission of relevant chemical gas	Annual electricity saving of 0.635 million kWh and annual reduction of 286.3 tons of standard coal consumption
Simplification and combination of 0.18CE inter-metal deposition steps	Annual electricity saving of 0.339 million kWh and annual reduction of 136.8 tons of standard coal consumption
Reduction in the test time of Cypress S8 WAT	Annual electricity saving of 0.308 million kWh and annual reduction of 124.4 tons of standard coal consumption
Transformation of 10kV power transformation and distribution system at the north area of Fab 3	Annual electricity saving of 0.268 million kWh and annual reduction of 106.2 tons of standard coal consumption

#### Water Resource Management

The Company mainly uses water supplied by Shanghai Municipal Administration. In addition, some of our water comes from recycled water from our production facilities and condensate water from air-conditioning. Through technologica reform and recycling, we actively seek ways of improving efficiency in saving water and utilizing water resources. The Company carried out water recycling and recycled pure water for process manufacturing purposes and used other water (air-conditioning condensate water) to replenish water for the cooling tower. The Company totally recycled 2,920,000 cubic meters of water a year, accounting for 32%1 of the total water consumed.

#### Water Resource Saving Work and Achievements in 2018

FAB1A OAC dew-point temperature adjustment	Annual water saving of 4.245 million m <sup>3</sup>
Reduction in the thickness of polycrystalline silicon to reduce energy consumption, consumption and emission of relevant chemical gas	Annual water saving of 23.1 thousand m <sup>3</sup>
Reduction in the process time of BEWAAD02 OF	Annual water saving of 4.7 thousand m <sup>3</sup>

#### Prevention and Control of Pollutants

In prevention and control of pollutants, we follow the rules and regulations related to environmental protection and relevant matters. The waste discharged during production includes sulfuric acid mist, hydrogen chloride, nitric oxide ammonia and volatile organic compounds. We established a system for processing air emission that meets new requirements for controlling emissions. This system can eliminate over 90% of the VOCs generated. In terms of waste water discharge, the Company began adoption of the Grade B Standard of the GBT 31962-2015 (Waste Water Quality Standards for Discharge to Municipal Sewers) in 2017, and reduced the discharge through recycling washing water used for production and manufacturing in the factory.

In terms of pollution discharge and information disclosure, the Company carried out online monitoring of waste water, with relevant data disclosed on the Environmental Information Disclosure Platform for Shanghai Enterprises and Public Institutions, thus improving the transparency of the environmental information of the Company.

#### **Pollutant Discharge Management**

Air emission	Acid air emission	Up-to-standard discharge after removing most of the components through a 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
	Dusty air emission (mainly small particulate matters of silicon dioxide)	Removal through a dust-extraction unit
Waste water	pH, COD, ammonia nitrogen, fluorinion, etc.	After treatment, up-to-standard discharge through a pipeline into a designated urban sewage pipe network

<sup>1</sup> The calculation method is as follows: the total annual water recycled/(water consumption from municipal water supply 4 wastewater reuse) \* 100%.

#### **Discharge Reduction Work and Achievements in 2018**

Replacement of valves of the catch-basin of Fab 1 Optimization of the drainage system around Fab 1

0.18um Product DSTI CMP optimized

Transformation of RO and No.2 UV zones for noise reduction Sewage collection transformation of garbage chambers Transformation of the No.2 acid exha

Installation of a digital flow meter on the scrubber

Ensuring the compliance of discharge management

Additionally, providing hardware support for management of emergent discharge

Expected monthly reduction of 700 litres of grinding fluid

Reduction in the risk of emission of factory boundary noise

Avoiding the possible risk of discharging the combination of rain and contaminate

Improving the ability to manage and control up-to-standard discharge

Improving the ability to manage and control up-to-standard

#### Wastes Management

Wafer production generates hazardous wastes, such as waste acid and isopropanol. We authorized a qualified third-party company for treatment of these wastes, mainly by means of incineration, physical-chemical treatment and recycling. The Company has formulated a Waste Management Procedure, standardized waste management operations, recorded and managed waste treatment through the unified environmental protection management system of the government to ensure that all transportation records are traceable and controllable. The non-hazardous wastes such as sludge generated in wastewater treatment were treated by the wastes disposal agency by landfill.

Moreover, the Company entrusted the Wastes Management Center of Shanghai Pudong New Area to uniformly clear and transport the domestic wastes and kitchen garbage on a regular basis.

#### **Treatment Methods for Hazardous Wastes**

Recycling	Such as waste acid, waste isopropanol and waste phosphoric acid
Physical-chemical treatment	Such as waste glass bottle, 200L chemical barrels, and waste liquid from laboratory
Incineration	Such as cleaning cloth, plastic bottles, organic waste liquid, waste activated carbon,
	waste resin, and arsenic-containing wastes

#### Greenhouse Gas Management

The emission of large amounts of greenhouse gases such as CO<sub>2</sub> is the main contributor to global warming. We realize that climate change mitigation is of great importance to enterprises and the globe. We actively took part in relevant work of carbon emission trading by Shanghai Municipal Development and Reform Commission to cut greenhouse gas emission and slow down climate change. In 2018, the Company completed settlement of carbon credits of approximately 434,834 tons.

The Company also set an emission target according to the carbon trading management measure of Shangha Municipal Development & Reform Commission and reduced the greenhouse gas emission through energy saving and emission reduction projects; in 2018, it invested a total of approximately RMB2.36 million in the transformation or energy saving and emission reduction technologies.

#### Reduction in Production Material Consumption

Production materials used by the Company mainly include chemicals and special gas. The Company reduced consumption of production materials mainly through technology improvements. In 2018, it replaced the original RRC Pump with a new MINI Pump, thus achieving a 47% reduction in consumption per wafer of P117 photoresist, an annual consumption reduction in P117 photoresist of 627 liters, generating an economic benefit of RMB1.241 million.

#### 2.3 Green Products

#### Control of Hazardous Substances

In accordance with the regulation Restriction of Hazardous Substances (RoHS) and the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) as formulated by the EU, as well as customer requirements, we worked out standards for control of hazardous substances, established an implementation system and carried out risk evaluation for raw materials in production, thus guaranteeing that products are in compliance with requirements of customers regarding control of hazardous substances. The Company entrusted Sociéte Générale de Surveillance S.A. (SGS) to conduct tests for hazardous substances, and realized 100% compliance in investigation of hazardous substances in 2018. All manufacturing devices of the Company are verified to comply with the standards and requirements of QC 080000 reduction of reducing hazardous substances in electronic elements and apparatus and products.

#### Energy Saving of Electronic Products

With risks resulting from the global climate change and increasing demands for energy saving and emission reduction in the society, a reduction in the high energy consumption of electronic products becomes one of the current focuses in the industry. In the field of professional integrated circuit manufacturing service, the Company has been committed to producing more advanced, energy-saving and environmentally friendly products, creating competitive advantages of power consumption, efficiency and chip size optimization for customers and reducing the influence of the scientific and technological progress on the environment. Through our wafer fabrication technologies, designs of customers are able to be extensively used in computer, communication, consumer, automotive and other electronics, thus supporting the creation of a low-carbon and environmentally-friendly society.

#### 2.4 Green Culture

We persist in promoting environmentally friendly business concepts and undertake external and internal environmental protection measures. In terms of routine operation and administration, the Company implements a sustainable development concept using science and technology and by adopting good practices. For example, we adopt web-connected printing and use office automation equipment intensively to control paper consumption, and we also encourage the use of recycled paper to support recycling. *The Office Application System for General Affairs and Food Management System* was developed for online use which makes it convenient to handle relevant work, improves work efficiency and saves consumption of paper. At the same time, the Company strongly supports the use of electric vehicles, and uses new energy vehicles in its own vehicle fleet. The Company took part in electronic wastes recycling activities organized by alahb.com to prevent secondary contamination of the environment while recycling wastes. The Company classified domestic garbage in factory zones by four categories of dry, wet, recyclable and hazardous garbage according to the requirements of the *Environmental Protection, City Appearance and Health Administration of Pudong New Area* for obligatory classification of domestic garbage generated by enterprises and public institutions, and we also advocated garbage classification among employees and cleaning personnel.

The Company always strives to provide our employees with an environment that is equal, healthy, safe and comfortable. We endeavor to protect all legitimate rights and interests of employees in accordance with related laws and regulations. We established a safe working environment and organized regular trainings and emergency drills for employees. We created a comfortable working and living atmosphere, and improved employee satisfaction. As of the end of 2018, no infringement of the rights and interests of employees occurred, and we were not subject to any employee-related complaints or penalties by the regulatory authority.

#### 3.1 Rights and Benefits

Overview of Employee Rights and Benefits

We insist on fair, equal and open recruitment and employment, and are committed to providing equal opportunity in all our human resources activities such as employee selection, recruitment, promotion, transfer, and remuneration. We do not implement or engage in discriminatory policies or injurious actions for any reason, in particular nationality, region, color of skin, ethnicity, religion, age, family conditions or other factors. We have formulated and follow the guidelines described in "Employment Procedures and the Management Procedures for Trainees". We strictly check the identity information of our employees, and do not employ children or adolescents under the age of 16 years. We strictly followed related laws and regulations such as the Labor Law of the People's Republic of China and the Special Rules on Labor Protection of Female Employees, and resolutely prevented all compulsory labor practices.



Adhering to the principle of fairness, equity and

The Company and employees go through the resignation procedure according to relevant laws, regulations and the Resignation Management Procedure



The standard working hours system specified by the state is adopted. The comprehensive working hours system or flexible working hours system is adopted for relevant positions due to the nature of the work and requirements of production and operations, with the approval by the labor and personnel authority of the government.

Based on holidays and festivals specified by the state, supplementary annua leaves are provided for employees.



Labor union, employee congress, etc.



For attracting and retaining talents, the Company provides employees with competitive remuneration and a comprehensive benefit assurance plan

We purchase legal insurance coverages as required by law and provide accident insurance, outpatient and emergency medical insurance and other supplementary commercial insurances

Employee recuperation, holiday gifts, and assistance to non-local employees in household registration.

#### Harmonious Relation

An unblocked communication channel and sincere care are vital for the establishment of a harmonious labor relation. The Company has formulated the *Employee Communication Rule* and encouraged the fair, straight-out and multi-way communication between the Company and employees, between officers and subordinate officers, and among employees through the creation of multiple communication channels.

In addition, we established the *Employee Assistance Mechanism*, under which we provide assistance for needy employees at special festivals such as Spring Festival, May 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. We care for the demand and development of female employees, annually organizing a special physical examination, continuously improving human-based management of lactating employees, and providing relevant service facilities to ensure convenience for pregnant employees and lactating employees at work.

#### 3.2 Health and Safety

Occupational Health and Safety Management

To guarantee the health and safety of our employees, we established mechanisms for occupational health and safety in compliance with requirements of OHSAS 18001. We clearly stipulate the guidelines about professional health and safety, and strictly follow laws and regulations on safety, health and environmental protection, advocating clear production and continuous improvement. We create a safe, healthy and comfortable working environment, strenuously pursuing the highest goal of "zero accidents" and sustainable operation, and work hard to become a model of corporate citizenship.

The Company mainly eliminated or controlled safety risks in production activities of employee from four major aspects, namely fire-fighting equipment, alarm monitoring system, personal protection and emergency measure. The Company annually engaged external institutions to test the production environment, and analyzed and corrected items below standard, so as to ensure that the production environment met the occupational exposure limits for hazardous agents in the workplace, and notified the test results to all employees.



Establishing a perfect a fire-fighting system and an automatic alarm system.

There are toxic, harmful and inflammable gas warning systems, liquid leakage detectors and ultra-high-sensitivity smoke detectors in the clean workshop.



Providing necessary personal protective equipment and emergency protective equipment:

Regularly checking whether there is a complete set of equipment and whether the equipment is effective.

Establishing an emergency rescue team and formulating emergency plans for differen disasters:

Annually organizing special disaster prevention drills, and in a timely manner, correcting problems identified in the drill

#### Progress in Protecting Health and Safety of Employees in 2018

## Improving Safety and Responsibility System

- Internally, the Safety Responsibility Statement for the President, Executive Vice President, Vice President, Factory Director (Director), Department Chief and Section Chief and the Commitment Statement of Guaranteeing Safety shall be signed level by level, thus improving and perfecting the safety responsibility system that covers all departments and employees;
- Externally, we signed Safety Management Agreement and Commitment Statement for Contractors on Safety Education with all units and contractors that handle field operation which provide on-site service in the Company:
- The Company advanced the safety management information construction
  promoted the warehousing in and out registration of chemicals, management
  of chemical substances, thermal imaging detection & management of
  special equipment personnel, as well as integrated and information-based
  management of employee training materials and job position-related test library
  systems.

## Upgrading System for Identification of Hidden Risks

- Dangers and Emergency Plan 119 projects for safety reform and investment of RMB29.510.000:
- Establish the Company's safety contingency plan system of "1+12+1702" (namely, 1 comprehensive plan + 12 special plans + 1702 on-site treatment plans);
- Establish the response disposal mechanism to cope with the extreme weather, strengthen safety inspection, implement emergency plan drilling, pay attention to warning information, intensify emergency on-duty shift, and respond to actions timely;
- Establish mini fire stations in the three fabs, equipped with the firefighting equipment and materials, and give special fireman qualification trainings to ERC part-time personnel of the fabs;
- More than 4,300 employees were organized to receive fire- fighting trainings in 2018

# Safety training is standardized • and examination for performance is done

- Carry out propaganda and training about "three knows and three cans" fire
  control principle, prepare the examination database, and organize online
  computer examination, and promote the standardization of safety training from
  the perspective of systems and mechanisms;
- In 2018, we organized 144 safety trainings, with 13,496 attendances:
- In 2018, we organized safety education for 7.215 contractor workers

#### We organize competitions to activate awareness of safe production

 We activated awareness of safe production and capability of safety and protection of employees by awarding them "ANKANG" labor competitions and special contribution awards.

#### 3.3 Training and Career Development

#### **Employee training programs**

Medium and senior level managers	Create excellent leadership, and enhance management capability of medium and senior level managers
Grass-roots managers	Role recognition, self-management, management of others, and working management
Tier-one managers	Develop management skills of tier one shift and team leaders, cultivate a tier-one 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
Tier-one employees	Courses about theory and practical training of the semiconductor manufacturing module

The Company keeps track of international treaties, local and foreign laws and regulations that are relevant to our products and customers in places where our business operates, regularly updates our management policies governing products and services in terms of health, safety, labels, privacy, and other areas, and establishes quality assurance systems and customer service systems. As of the end of 2018, the Company had not been involved in any litigation regarding infringement of the interests of customers, nor did the Company receive any litigation from customers regarding product quality.

#### 4.1 Product Liability

Quality Control

According to the philosophy of "the quality is vital for the existence of an enterprise", the Company has formulated the Quality Management Policy, and successively passed the ISO 9001 quality management system and IECQ QC 080000 hazardous substance process management system certification, and successfully completed the upgrade from ISO/TS 16949 automotive quality management system certification to IATF 16949 in 2018. The new 16949 system focuses more on the risk management concept, while various risk control audit, management and review conducted by the Company since 2016 meet such requirement.

The Company implemented an inclusive quality management model in accordance with the Quality Management Policy covering the five far-reaching departments and sections of: quality system and customer satisfaction; supplier management and raw materials analysis; quality engineering; reliability assurance and failure analysis. To reduce human error, we established multiple management systems such as personnel management, equipment management, supply chain management, environment management, systems management, process management and customer quality control. 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. The Company has established an optimal product recall system, and for the products whose functions or hazardous substances fail to reach the standard, our customers may return such non-conforming products to us within the warranty period. As of 2018, failure rate of the Company's products on the end-user side was lower than one in a billion.

#### **Product Quality Management System Certification**

ISO 9001 Quality Management System

IATF 16949 Quality Management Systems for Automotive Industry

IECO OC 080000 Hazardous Substance Process Management System

November 6, 2001 August 2, 2005 November 18, 2009

#### Technological Innovation

The Company has always focused on transparent technological innovation and a willingness to cooperate in the creation of ICs under independent innovation. It established the first Expert Workstation and the first Enterprise Association for Science and Technology in the integrated circuit industry in Shanghai, and endeavors to establish fully an industry-university-research technology innovation system through introduction of experts, project cooperation, talent cultivation, academic exchange, etc., thus promoting the transformation of scientific and technological achievements into actual productive forces.

In 2018, the expert workstation innovated an activity forum, holding a "chip vision" salon, while the enterprise association for science and technology maintained the wave of the technological salon by inviting industry experts to establish a communication bridge together with internal engineers of the Company, with focus on semiconductor hotspots, for scientific and technical workers. In 2018, the workstation again won the title of the "Excellent Exper Workstation in Shanghai", and the enterprise association for science and technology was awarded the title of the "Excellent Enterprise Association for Science and Technology in Pudong New Area".

#### Intellectual Property Protection

As a science-oriented enterprise, we advocate independent innovation and respect intellectual property rights in our research and development of application-specific integrated circuits, including intelligent chips and information security chips. According to the Company's *System for the Management of Intellectual Property*, we actively filed applications for patents and investigated responsibility of 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 individuals, 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 products, we only accept orders from reputable customers with no known potential risk of infringement. We have entered into several technology licensing agreements with major technology companies.

#### 4.2 Customer Service and Protection of Customers' Interests

#### Customer Service System

According to the philosophy of "providing customers with more convenient and safer services", the Company has established an impeccable customer service system, including three main aspects, namely customer communication and feedback, customer complaint treatment and customer satisfaction.

In 2018, the Company integrated and optimized customer service management of all factory zones, enhanced the response to product technology demands of customers, reduced the error probability and improved the technical support service to customers.

#### Customer Communication and Feedback

Making efforts to improve the customer service level, through multiple communication methods, including a customer service hotline, customer survey, regular quarterly/semi-annual business reviews with major customers, technical seminar and trainings.

The Customer Satisfaction Measurement Procedures require us to carry out a customer satisfaction survey once every six months and to develop an improvement scheme based on the scores given and any dissatisfaction expressed by customers.



#### Customer Complaint Treatment

The Customer Complaints Handling Procedures sets out the processes for handling customer complaints, the responsible department(s) and key points for handling, and specifies that preliminary survey results and responses should be given within 48 hours upon receipt of a general customer complaint, and a final report should be complete and a reply shall be made within fourteen calendar days:

Through periodic collation and analysis of relevant information provided as to customer complaints, relevant departments are required to formulate an improvement plan, and the improvement effect is supervised and evaluated.

#### Protection of Customer Information

The company attaches great importance to maintaining customer information security. We have established an ISMS information security management system, 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. An Information Security Committee was established within the Company to clarify the responsibility of information security.

Meanwhile, we audited our photomask partners to ensure the security of their data management and storage. As fo waste masks generated during the production process, we return them to customers or destroy them, thus preventing to the utmost the disclosure of customer information on such waste masks. No incidents of infringement against laws or regulations concerning customer privacy occurred within the Company during the year.

The Company keeps track of international treaties, laws and regulations relevant to compliance in places where our businesses operate, and regularly updates management policies governing supply chain management, risk control corruption and bribery prevention, business fraud, and other aspects. In addition, the Company is in strict compliance with such laws and regulations with respect to compliance in business operation as the *Criminal Law of the People's Republic of China*, the *Contract Law of the People's Republic of China*, and the *Anti Unfair Competition Law of the People's Republic of China*, thereby deepening the implementation of supplier review work and proactively engaging in the promotion of clean and honest industrial practices and anti-corruption governance. As of the end of 2018, the Company had not been involved in any litigation with respect to any commercial bribery or corruption.

#### 5.1 Responsible Value Chain

Creating the CSR value chain is an important strategy of long-term development of the Company. It has established a perfect value chain management system, conducted comprehensive assessment, management and control of the environment and social risks of suppliers. It is committed to supporting the growth of suppliers to promote the development of the chip industry in China.

We mainly identify and assess risks of the supply chain end in terms of price, delivery period, corporate social responsibility, technical response quality management, etc...

#### **Management Policy**

We have established a CSC Procurement Review Committee and formulated a management policy in terms of environment, safety, health, ethics of suppliers, etc..



#### **Industry Growth**

We actively help Chinese suppliers in improving the management ability and the production level, so as to promote the development of the chip industry in China.

#### **Continuous Improvement**

We regularly audit suppliers in terms of environment, labor, ethics, etc., to promote continuous improvement of suppliers.

The Company established a CSC Procurement Review Committee and implemented an open bidding process as our main procurement approach to guarantee an equitable, open and fair procurement process. As a member of ECOVadis in France, we monitored the environmental and social risks of suppliers. By entering into the Undertakings Against Commercial Bribery with suppliers, we move to eradicate all unfair competition activities. In terms management of conflict minerals, the Company undertakes to refuse the purchase of conflict minerals, while proactively eliminating the metals derived from the supply chain that uses illegal mining areas, conflict minerals, or poor mining environment We continuously update our investigation report about the production of conflicted mines.

The Company continued raising requirements on our suppliers with respect to labor, health and safety, environment ethics and management system in accordance with the *Code of Conduct of the Responsible Business Alliance* (formerly known as EICC) and offering relevant trainings. Through the annual supplier assessment system, the Company requires those unqualified suppliers to make rectifications, thereby further promoting the development of our green supply chain.

We proactively support the growth and development of our suppliers in China, and constantly assist suppliers in improving their management capacities and production levels. In addition, we proactively encourage small and medium-sized enterprises to participate in the localization of key raw materials, including gases, chemicals and silicon wafers. Therefore, we've cultivated a growing batch of local raw materials and equipment suppliers, thereby powerfully promoting the development of chip design industry in China.

#### 5.2 Anti-corruption

The Company has a long-term commitment to the development of an integrity and credibility culture, whether for the management of external customers and manufacturers or for the management of internal cadres. The Company continuously provides training and education on clean and honest practices for employees in major positions; actively promotes the execution of the *Undertakings Against Commercial Bribery* and the *Undertakings to Refuse Commercial Bribery*, and carries out regular visits and random checks. We constantly promote clean and honest practices and organize training programs with respect to anti-corruption and clean and honest initiatives, and publish clean and honest practice publicity documents through the intranet; the Company's "Measures about Complaints and Reports Management by Employees" has provided the channels of reporting through emails, telephones and mailbox, to encourage employees to report any suspicious breach of regulations with the Company.

- Through special supervision, the discipline inspection commission of the Company promoted the standardization
  of business operations and process formulation, developed the business personnel's awareness of rules and
  formed a pressure on them, properly maintained the clean and honest practices in the Company and completed
  four special inspections including inspection of performance and remuneration of leading cadres.
- Enhancing publicity, education and self-discipline consciousness. Cases for warning are monthly published in
  the "Keep Ringing the Alarm Bell" column in the intranet, with a total of 24 articles uploaded in 2018. In June
  2018, it organized employees to learn 80 Prohibitions Under Eight-point Decision and other relevant clean and
  honest practice requirements. On the eve of an important festival, it reminded employees of honesty at the
  festival and supervised employees to self-consciously comply with clean and honest practices.
- Holding discipline inspection work meetings on 11 June and 18 September, providing business and quality
  training for discipline inspection workers, and organizing them to study the Regulations of the Communist Party
  of China on Internal Oversight and new amendments to the Regulation of the Communist Party of China on
  Disciplinary Actions.

The Company insists on continual concern about and deep integration with the community. The Company focuses or the needs of the community and regards mutual development with the community as an important part of our social responsibility, and feedback to society in collaboration with all walks of life. With regard to community investment, we focus on targeted poverty alleviation, joint construction of the community and volunteer services.

#### **Targeted Poverty Alleviation**

Since Huahong Group started to provide partner assistance for Youqiao Village, Shuxin Town, the Company has aligned with efforts as it views such work as essential. It organized employees to visit the people in impoverished circumstances, expressing sympathy and solicitude, hear the thinking of villagers of Youqiao Village, and expressing sympathy and solicitude for and send greetings to the elderly in rural areas at a festival. In consideration of existing needy conditions of Youqiao Village, we heightened partner assistance for co-construction and supported targeted poverty alleviation, thus making contribution to maintaining and promoting the harmony and stability of Youqiao Village.

#### **Joint Construction of Communities**

In order to enhance the safety awareness of community residents, the Company has provided a First Aid Course for Children's Accidents in the community where the headquarters operates, including first aid common sense for children and cardiopulmonary resuscitation for children, for two successively years. As a science-oriented enterprise, the Company cooperated with the enterprise association for science and technology in launching a pilot project of the community STEM science workshop, for providing children with programming enlightenment activities.

#### Volunteer Service

We encourage our employees to serve the local community and express their solicitude. To this end, we established a Volunteer Association consisting of 176 volunteers who have provided volunteer services for 352 hours. In 2018, the Company continued to visit Meixin Nursing Home and Zhangjing Town Nursing Home, for delivering care and offering flowers and plants, fruits and snacks to the elderly; and worked with parents and children in Tangchen Residential Quarter to write and direct cultural programs, for sharing happiness with the elderly. In addition, the Company organized employees to carry out public benefit activities for environmental protection, including picking up rubbish from the sidewalk, lawns, tree pits and other areas around the Company, and treating the problem of indiscriminate parking of shared bicycles in the city, thus influencing the surrounding residents with practical actions and advocating the environmental beautification.

#### Awards of State and Industry Level

- 4th ranking in 2018 China's Top 100 Enterprises in Innovation
- 2 Top 10 Enterprises in Power Semiconductors of New-energy Vehicles
- 3 2018 CITE Innovative Product and Application Gold Award
- 4 Top 50 Enterprises in Social Contribution to China's Electronic Information Industry in 2018
- 5 China's Patent Excellence Award granted for "Method for Obtaining the Vertical-type High-voltage Super-junction Semiconductor Apparatuses"
- 6 Top 10 Enterprises in Power Semiconductors of New-energy Vehicles
- 7 Informatization Exploration Award in National Golden Card Project (twenty-five years)/Golden Ant Award in National Golden Card Project Best Product Matching Award
- 8 Enterprise Award for Power Device Innovation in China in 2017
- "China's Twelfth (2017) Innovative Semiconductor Product and Technology" Award granted for "0.11µm Ultra-Low-Leakage (ULL) Embedded Storage Process Platform"

#### **Provincial Awards**

- 10 2018 "Shanghai Worker Pioneer"
- 11 2018 "Excellent Expert Workstation in Shanghai"
- 12 First Prize for Scientific and Technological Progress in Pudong New Area in 2017
- 13 Top 10 Enterprises with Best Economic Benefit in the Integrated Circuit Industry in Shanghai in 2017
- 14 Economic Contribution Award for Excellent Enterprises in Zhangiiang Science City in 2018

#### **Environment**

**Emissions** 

Total Volume of Air Emission Emitted	10,000 m <sup>3</sup>	1,060,281	1,121,958	1,145,074
Volume of NOx Discharged	Kg	26,260	26,374	26,821
Volume of SO <sub>2</sub> Discharged	Kg		62	68
Total Volume of Waste Water Discharged	10,000 m³	454	436	473
Volume of greenhouse gas emitted	Ton of CO <sub>2</sub> equivalent		424,151	434,834
Volume of greenhouse gas emitted in	Ton of CO <sub>2</sub> equivalent/		0.22	0.21
unit production	8 inches wafers			
Total Volume of Hazardous Wastes	Ton	4,324	4,641	5,122
Volume of Hazardous Wastes Generated in	Kg/8 inches wafers	2.44	2.43	2.47
Unit Production <sup>1</sup>				
Total Volume of Non-hazardous wastes <sup>2</sup>	Ton	2,746	3,982	4,017
Resource Unitization				
Total Electricity Consumed	MWh	481,830	509,877	528,402
Electricity Consumed in Unit Production <sup>3</sup>	kWh/8 inches wafers	271	268	240
Natural Gas Consumed	m³	6,580,000	7,155,253	7,481,586
Natural Gas Consumed in Unit Production	m³/8 inches wafers	3.70	3.75	3.66
Total Water Consumed	m³	5,045,000	4,898,783	9,267,637
Including: Water coming from	m³	5,045,000	4,898,783	6,325,999
municipal water supply				

#### Notes

- There is a change in the unit for calculating the per unit production for 2016 and 2017 which is disclosed in 2017 Environmental Social and Governance Report of Hua Hong Semiconductor Limited, and the volumes of hazardous wastes generated have been determined to be 2.44kg per 8-inch wafer and 2.43kg per 8-inch wafer in this report.
- The volume of non-hazardous wastes is the volume of sludge generated in wastewater treatment.
- The electricity consumed in unit production which is disclosed in 2017 Environmental, Social and Governance Report of Hua Hong Semiconductor Limited has been revised to 268 kWh per 8-inch wafer in this report.
- <sup>4</sup> The base for calculating the water consumed in unit production only include municipal water supply

## **Employment and Labour Practice**

Employment				
Total number of employees	Individual	3,938	4,138	4,512
Number of male employees	Individual	2,772	2,914	3,227
Number of female employees	Individual	1,166	1,224	1,285
Number of employees subject to labor contract system	Individual	3,938	4,138	4,512
Number of employees subject to non-labor contract system <sup>1</sup>	Individual	225	215	209
Number of employees aged < 30	Individual	1,922	2,001	2,129
Number of employees aged 30-50	Individual	1,936	2,054	2,284
Number of employees aged> 50	Individual		83	99
Number of Mainland China employees	Individual	3,928	4,128	4,503
Number of overseas employees	Individual	10	10	9
Health and Safety				
Occupational disease occurrence rate of employees				
Occupational mortality	Individual			
Number of days absent from work due to injury	Day	201.0	193.0	206.0
Development and Training				
Per-capita Time Length of Training Attendance of Employees <sup>2</sup>	Hour	101.8	72.3	77.0
Including: Per-capita Time Length of Training Attendance of	Hour	103.7	72.6	78.0
Junior Employees				
Per-capita Time Length of Training Attendance of Managers	Hour	9.3	11.6	13.0
Per-capita Time Length of Training of Attendance of	Hour	126.2	69.9	66.0
Female Employees				
Per-capita Time Length of Training of Attendance of	Hour	91.4	74.3	
Male Employees				
Rate of Employees Receiving Training		100	100	100
Including: Rate of Junior Employees Receiving Training		100	100	100
Rate of Managers Receiving Training		100	100	100
Rate of Female Employees Receiving Training		100	100	100
Rate of Male Employees Receiving Training		100	100	100

#### Notes:

Stated as "Number of employees subject to labor dispatching system" in the CSR Report of 2016 and 2017

<sup>2</sup> Apart from junior employees and managers, the number of employees also includes the interns and employees dispatched

## **Product Liability**

Product Liability				
Product return rate		< 0.1	0.3	0.104
Percentage of sold products recalled due to safety and health issues				
Customer complaint cases		11	10	
Percentage of customer complaints addressed		100	100	100
Supply Chain Management				
Supply Chain Management				
Total number of suppliers	Supplier	495		520
Number of local suppliers	Supplier	375		393
Number of overseas suppliers	Supplier	120	123	127
Number of suppliers receiving evaluation <sup>1</sup>	Supplier	31	115	112
Number of suppliers requiring rectification	Supplier			
The Percentage of suppliers of raw and auxiliary materials signing the Undertakings for Environmental Protection		100	100	100
Proportion of raw materials sponding on local suppliers 2			23	

#### Notes:

It means the number of suppliers on which the Company conducts evaluation with respect to labor, health and safety environment and ethics.

<sup>2</sup> Baw materials purchased include: silicon slice, quartz, target material, gas, chemicals and other raw materials for production

## Anti-corruption

Anti-corruption  Number of concluded legal cases regarding corrupt practices brought against the issuer or its employees during the reporting period				
Community Investment				
Community investment				
Number of employees participating in volunteer services	Individual	310	178	176
Accumulated time length of volunteer activities	Hour	560		
Compliance				

EHS	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, Production Safety Law of the People's Republic of China on Prevention and Control of Occupational Diseases, 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, Registration, Evaluation, Authorization, and Restriction of Chemicals ("REACH"), Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances ("RoHS") etc.
Information security	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, Cyber security Law of the People's Republic of China, The Regulation of Commercial Encryption Codes etc.
Quality	Constitution of the PRC, Law of the People's Republic of China on Product Quality, Customs Law of the PRC, The Foreign Trade Law of the PRC etc.
RBA	Anti Unfair Competition Law of the People's Republic of China, Employment Promotion Law of the People's Republic of China, Social Insurance Law of the People's Republic of China, Contract Law 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, etc.

#### Report Overview

This 2018 ESG Report of Hua Hong Semiconductor Limited (hereinafter referred to as "this Report") disclosures its principles in fulfilling CSR and the work carried out in 2018. It mainly addresses our Stakeholders about the sustainable development regarding the relevant economic, environmental, and social issues.

#### Reference Basis

This Report adopts the "Environmental, Social and Governance Reporting Guide" issued by the Stock Exchange of Hong Kong Limited and the "Sustainability Reporting Standards (2016)" of the Global Reporting Initiative (GRI) as its reference basis

#### Scope of Report

Organizational scope: The Company as defined This Report by the Company, Hua Hong Semiconductor Limited

includes all subsidiaries of the Company.

Reporting period: From 01 January 2018 to 31 December 2018

Release cycle: This is an annual report

#### **Data Descriptions**

Data and cases in this Report originate from the Company's original records in day-to-day operation or financial reports. In case of discrepancies, the financial reports data shall prevail.