

2019

CORPORATE SOCIAL RESPONSIBILITY ANNUAL REPORT



PSMC Powerchip Semiconductor Manufacturing Corp.

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About

"2019 Corporate Social Responsibility (CSR) Report for Powerchip Semiconductor Manufacturing Corporation" is the second CSR report of Powerchip Semiconductor Manufacturing Corporation (hereinafter referred to as "PSMC" or "the Company"). The content of the report is provided and prepared by all units of the Company. The report is formulated according to the "Core" of the GRI Standards published by the Global Reporting Initiative (GRI). The information prepared and disclosed in the Report has been approved by the internal unit of PSMC.

The CSR is prepared and published each year to respond to any issues concerning stakeholders. The sustainability plans of PSMC and their implementation process and performance will be disclosed in a transparent manner in hopes of making more positive changes for the society.

Report Scope and Boundary

The reporting period is from January 1, 2019 to December 31, 2019. The Report is published in November 2020 and the boundary of the report includes the 12-inch fabs (formally Powerchip Technology Corporation) and the 8-inch fabs (formally Maxchip Electronics Corporation) which are located in Hsinchu Science Park. The content of the report covers aspects on the implementations and practices of economy, environment and society that concern stakeholders. Compared to the previous draft, the Report has added information on the 8B fab that has started production since 2019. Further, data which comprises of reorganized information will be noted in respective forms.

Note: The disclosure boundary of the 12-inch fabs include P1/2 and P3 fabs. The disclosure boundary of the 8-inch fabs include 8A (including 8AD) and 8B fabs.

Editorial Basis and Guiding Principles

The content structure of the Report is based on GRI standards and AA1000 Accountability Principles (AA1000AP). Using a material analysis model to identify sustainability issues and decision making priority that stakeholders are concerned with, the Report determines the environmental protection issues, the relevant strategies, their goals and measures, labor behavior, human rights and social impact for the purpose of disclosure. The Report is prepared based on the management policies listed (see Appendix 2 for details). The following principles and initiatives are taken as references:

- Global Reporting Initiative (GRI) and GRI Sustainability Reporting Standards (hereafter, GRI Standards)
- Sustainable Development Goals (SDGs)
- AA1000 Accountability Principles (AA1000AP) 2018
- ISO 26000 Guidance on Social Responsibility (ISO 26000)
- United Nations Global Compact (UNGC)

Reporting cycle

- Date of last issuance: December 2019
- Date of current issuance: November 2020
- Date of next issuance: September 2021

Audit of the Report

To increase the integrity of the Report, the Company engaged British Standards Institution (BSI) to audit the Report based on GRI Standards and AA1000 Assurance Standard 2008 (AA1000 AS), as well as Type II High Level Assurance Report in the Appendix of the 2018 Report. The audit conducted by BSI certifies that the Report has fulfilled the aforementioned framework and assurance level, thus increases the transparency and reliability of the organization of the Report. The assurance statement is attached as Appendix 1 of the Report, whereas the GRI content index is attached as Appendix 2 for the reference of readers.

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Foreword by the Chairman

Due to the restructuring of the parent company, Powerchip Technology Co.,Ltd. (hereafter "Powerchip Technology") on May 1, 2019, Powerchip Semiconductor Manufacturing Corporation (hereafter "PSMC") issued new common stocks to purchase three 12-inch fabs and their relevant businesses and assets. After the acquisition, the Company now possesses three 12-inch fabs and two 8-inch fabs, with approximately 7,000 employees. Knowing the larger the business scale, the more influence it has in both the industry and society, PSMC therefore hopes to make use of its operational experiences to build a sustainable development model and embrace the society to create the positive cycle of shared prosperity, while balancing the interest of stakeholders, society and the Company.

As the global trading landscape experienced a tumultuous year in 2019 coupled with the memory market shrinking, the order placed with OEMs has weakened. Summarizing the pro forma financial performance of the Company in 2019 (the same hereinafter), the consolidated operating revenue fell 28.1% to NT\$35.9 billion, whereas the gross margin fell 22.2% to 8.4% as compared to the previous year. Even though the operating cost was lowered to NT\$32.9 billion and the operating expenses was also reduced to NT\$5.27 billion, the Company still incurred NT\$2.64 billion in net loss after taxes, or a loss per share of NT\$0.94, presenting an overall loss for the first time in seven years.

As the heat of the US-China trade war is subsiding and the business opportunity of 5G, emerging AI and IoT, the demand for OEM services is greater than supply. The Company is expected to turn profitable this year, as opposed to a loss last year. Via enhancing customer structure, promoting manufacturing technology, and increasing OEM pricing and production utilization rate, our competitiveness can be further heightened, restoring the sustainable profitability that Powerchip Technology once made.

Apart from the foresight in business management, accurate pursuit of profitability and oversight of employee and Shareholder interests, we will continue to support Powerchip Cultural Foundation, charity groups, staff benefit committee and other welfare mechanisms to enhance social and cultural elegance, as well as promote positive energy. From 269 questionnaires collected last year from employees, job applicants, customers, investors (Shareholders), suppliers, competent authorities, contractors and neighboring factories/neighbors pertaining to eight major issues that the stakeholders of the Company are concerned with, and 35 questionnaires collected from division heads of the Company pertaining to the impact of various issues, we endeavor to gain an understanding on the views and expectations of different stakeholders for the Company, in hopes of deepening the communication with them and making concerted efforts for the sustainable development of the Company.

Furthermore, we are continuing our efforts in reducing energy and paper use, increasing the recovery rate of water used in the manufacturing process, curtailing GHG emissions, boosting recycling rate of waste to accentuate the symbiotic relationship between corporates and the environment, and thus fulfilling our social responsibilities.

In the future, we will continue to face challenges with a cautious and perseverant attitude. We believe the best way to maximize profit is for enterprises to create growth momentum by sharing their prosperity with employees, shareholders, partners and society. With a consistently positive and honest attitude, we will rise to face, communicate and overcome all problems and challenges, firmly believing that sharing is a must in becoming a good and sustainable corporate citizen.



Chairman Frank Huang

A Note from the President

We are delighted by the publication of the "Powerchip 2019 Corporate Social Responsibility Report". After corporate restructuring in 2019, the Company is now divided into the memory products business group and logic and application-specific products business group. The memory products business group is mainly involved in the technological development and provision of wafer OEM services for DRAM and NAND/NOR Flash memory products; the logic and application-specific products business group is mainly involved in the technological development and provision of wafer OEM services for faceplate driven IC, power management IC, separated components, CMOS image sensor and embedded nonvolatile memory. As an international leading semiconductor manufacturer, while creating profit and taking responsibility for the interests of Shareholders, we also take our responsibilities towards employees, customers, suppliers, the economy, environment and society seriously. We disclose relevant information in the Report in hopes of helping all of the stakeholders to understand our commitments and efforts, demonstrating our priority and determination in fulfilling our corporate social responsibility, and implementing sustainable development of the Company.





The President Brian Hsieh


Through concerted efforts in the last few years, the Company has become the sole OEM in producing multiple generations memory and logic and application-specific products globally. In addition to making differentiated products on behalf of our customers, in the future, the Company will also extend its technological reach to heterogeneous integration (memory and logic IC) in an innovative system-on-a-chip system. We will continue to promote international collaborations and develop proprietary technology to gain a competitive advantage in a fast changing high tech industry, and create win-win solutions with customers. Using our reliable capability in financial planning and business execution, we will create a better profitability to reward our Shareholders. Apart from fulfilling the basic requirements in making profit and creating economic interest for an enterprise, the Company believes that the effectuation of social responsibilities is a more important strategic mindset. Therefore, using diversified development strategies and management models, PSMC will transform external challenges into new business opportunities. In addition to creating profits for Shareholders, the Company will create more value for all stakeholders, so as to reduce the impact of its production and operation on the society and environment at large, and thus fulfilling its responsibilities as a good corporate citizen.


Lastly, we would like to offer our heartfelt gratitude to all the partners whom we have grown together. We shall make our utmost effort to manage our businesses and reward all stakeholders with actual operational performance. For our customers, we will research and develop all types of product technologies to satisfy their different requirements in terms of production planning and therefore, strengthen their trust in us. For our investors, we will improve our performance and increase the stability in profit making and reduce investment risk for Shareholders in an effort for them to increase their willingness to make long-term investments with us. For our employees, we will do our best to protect their interests in terms of their health and safety, and provide incentives on a regular basis. We also provide an excellent and healthy workplace to attract more talents. For our suppliers, we implement various product planning in a bid to help our suppliers satisfy our requirements for all materials and components and reduce their operational risk in production and inventory. We are fully committed to the concept of "giving back", and continuously practice our corporate social responsibilities. We also welcome and look forward to any suggestions, as these suggestions are what make us strong and enable us to share and make contributions.

Results and Performance of Sustainable Development in 2019

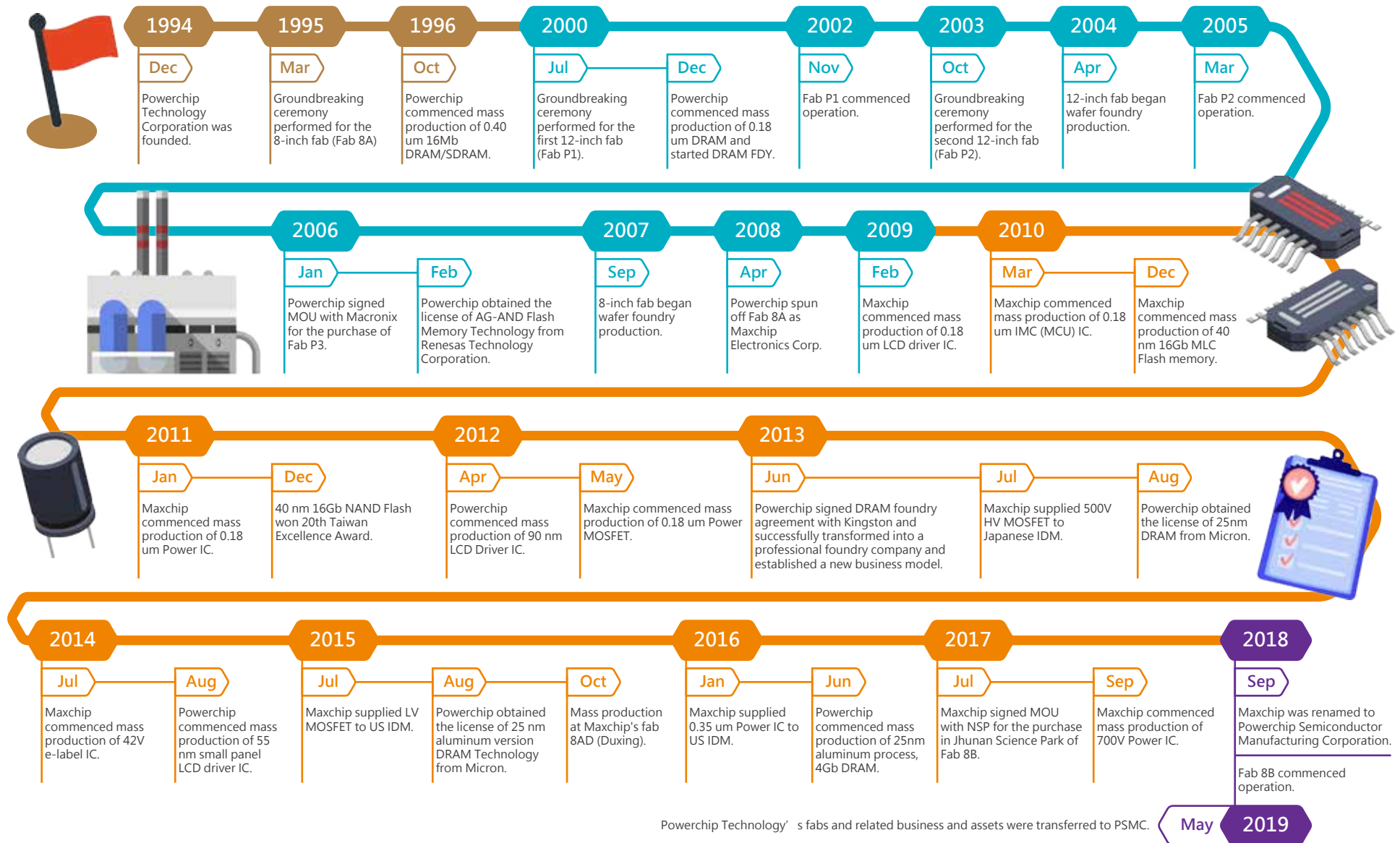
 Communicating Sustainable Development	269 copies	Number of questionnaires collected that covered 8 issues concerning stakeholders.
	35 copies	Number of questionnaires collected that covered the impact of issues from all division heads.
	24 issues	Topics identified as the most important in regards to sustainability.

 Integrity governance and active innovation	None	Corruption cases in 2019
	None	Major violations of PSMC operating locations in 2019
	15 seconds	Establish an emergency evacuation attendance taking system. The evacuation time of 15 to 20 minutes has since dropped substantially.
	None	Major information security incidents at PSMC in 2019.
	Met target	PSMC Internal 6S Race Results for 2019.
	None	Major Infractions in Customer FAB Audit for 2019.
	100%	Presenting rate of GP test report of production raw material/ letter.
	99.17%	The passing rate of vendor evaluation in 2019
	100%	The ratio of conflict minerals PSMC has agreed not to use in its target materials and gas vendors.
	187 vendors	The number of suppliers PSMC had conducted an evaluation on in 2019.
	55 vendors	The number of contractors PSMC had conducted an evaluation on in 2019.
	74 patents	Patents obtained by PSMC in 2019
	30%	Optimization of production process of 2x nm DRAM, whereby the number of DDR4 chips in each wafer could be increased by.
	29%	In 2019, the Company developed the OEM technological platform for NAND Flash 28 nm, providing customers with this much more production output as compared to the 40 nm technological platform.
	Completed	In 2019, the Company developed an AIM platform to fulfill the application specific high speed edge computing of 5G and AI.
	Completed	In 2019, the Company developed aluminum processing for 80 nm platform of small faceplate driven IC, cutting costs for later stage production.
	96 points	The average overall customer satisfaction rate of PSMC in 2019.

 Energy optimization and care for the environment.	Achieved	In 2019, PSMC's yearly target on energy conservation by 1%.
	18%	Paper use reduction in 2019.
	Over 85%	PSMC's water recovery rate in 2019
	None	Disciplinary actions against PSMC taken by competent authorities of environmental protection in 2019.
	Down by 2.4%	PSMC's total greenhouse gas emission in 2019 as compared to 2018.
	93.5%	PSMC's efficiency of volatile organic compounds removal in 2019 was better than the stipulated 90% by regulations.
	Increased by 1%	PSMC's waste re-use rate in 2019 compared to 2018.
	None	Effective prevention of COVID-19. No confirmed cases.

 Social caring and interest sharing.	100%	Response rate of PSMC's communication platform, "Feedback Corner" in 2019.
	1.6%	PSMC overall employee turnover rate was down as compared to 2018.
	100%	Percentage of all employees at the Company receiving performance evaluation on a regular basis in 2019.
	1,108 employees	Employees receiving human rights protection training in 2019.
	1.9%	Employee retention rate of PSMC in 2019 (higher than 2018).
	95%	Annual training course satisfaction rate in 2019.
	18 sessions	Artistic and cultural events hosted or organized in 2019.

Milestones of PSMC



About PSMC

In April 2008, the 8-inch fabs of Powerchip Technology were divided and established as Powerchip Semiconductor Manufacturing Corporation (formerly Maxchip Electronic Corp.). Originally focusing on production of DRAM, the parent company decided to exit the standard DRAM market in 2012. In 2013, the Company was transformed and became a professional foundry. In addition to customized operating flexibility, high efficiency and diversified process management, and the self-developed "Open Foundry" service strategy that is widely recognized by customers, the Company also offers customers many competitive advantages in the market.

To focus on professional foundry and a clear industry positioning, Powerchip Group completed corporate restructuring in May 2019. The relevant operations and assets of 3 12-inch fabs had been transferred to Powerchip Semiconductor Manufacturing Corporation ("PSMC", a whole-owned subsidiary of Powerchip Technology) by Powerchip Technology Corporation. Thus, Powerchip became a holding company.

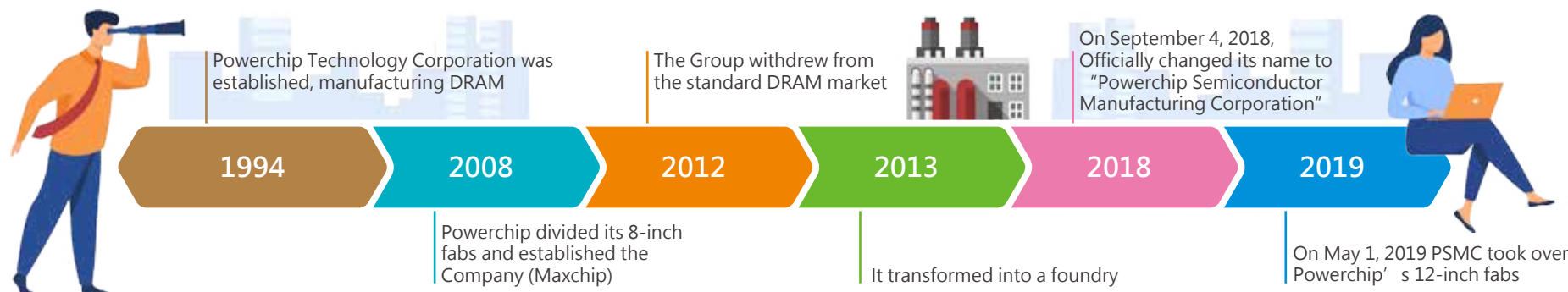
Company Profile	
Company name	Powerchip Semiconductor Manufacturing Corporation
Date of incorporation	2008
Date of listing/stock code	Stocks are publicly issued as of December 2019.
Major products	Foundry
Chairman	Frank Huang
Number of employees	6,878 employees (as at December 31, 2019)
Capital	NT\$31.05 billion
Operating revenue	NT\$35.9 billion
Operating location	The address of the head office is No. 18, Lixing 1st Rd, Hsinchu Science Park, Hsinchu city, Taiwan. There are two 8-inch fabs and three 12-inch fabs in Hsinchu Science Park.



A Focus on Foundry

Currently, the Company has two 8-inch, three 12-inch fabs and 6,900 employees, offering three major OEM services for advanced memories, customized logic integrated circuits, and discrete devices. The Company maintains the Open Foundry operating model, from chip design, manufacturing services to equipment and capacity sharing. Accommodating different customers and requirements, the Company builds a close and flexible operation mechanism with customers.

We persist in improving technologies, strict quality control and high-efficient manufacturing. We will also continue to promote an international collaboration strategy, introduce top end technology and develop our own technologies so as to expand the market steadily. We are committed to providing professional foundry services and build a win-win situation for our customers. We hope to accumulate competitive advantages in this fast-changing high-tech industry and become a consistently profitable world-class semiconductor company.



External participation

PSMC is in a semiconductor industry that is changing rapidly. In addition to improving its production technology, the Company must acquire first-hand industry trends via participation in various organizations to gain information and communication with other industry counterparts.

Organization names	Identity
Taiwan IoT Technology and Industry Association	Chairperson, Director
ROC-USA Business Council	Member
The Third Wednesday Club	Member
The Allied Association for Science Park Industries	Director
Computer Audit Association	Member
The Institute of Internal Auditors, Taiwan	Member
Taiwan Semiconductor Industry Association	Director

Organization names	Identity
Global Semiconductor Alliance (GSA)	Member
Taiwan IC Industry & Academia Research Alliance	Supervisor
Taipei Computer Association	Member
Taiwan India Business Association	Member
Cross-Strait CEO Summit	Member
PM2.5 Control Association	Director
Taiwan Environmental Management Association	Member



Sustainable development strategies

The Company masters the manufacturing process technologies for memories and logic products simultaneously. With advanced technology and capacity, the Company provides a diverse range of DRAM products, high-capacity flash memory, LCD driver chips, power management chips, CMOS image sensors, and foundry services for information, communication and consumer electronics markets.

With the booming of new applications, such as Internet of Things (IoT) and Artificial Intelligence (AI), PSMC has an opportunity to acquire a first mover advantage in the future market, and thus shall continue to promote international collaboration strategies, introduce top-end technologies, and make steady investment and expansion so as to accumulate competitive advantages in the rapid-changing high-tech industry and become a semiconductor manufacturer and sales service provider that creates a win-win with customers, employees, shareholders and the society at large.

Expectations	Improving technologies, serving customers, and becoming a world-class semiconductor company that profits stably.
Mission	Establish efficient management teams, provide customers with the best products and services while improving people's quality of life, and maximize investors interests (Shareholders and employees)
Corporate values	Innovation, improvement and flexibility
Management strategies	<ol style="list-style-type: none"> Enhance R&D and foundry opportunities, building a long-term win-win mechanism. Accumulate multiple manufacturing process capabilities; develop foundry manufacturing process platforms for logic, special products, and memories. Develop R&D technology strength while proactively acquiring low-cost competitive advantages. We are committed to developing world-leading advance technologies, especially integrated technologies that involve logic and memory products. Focus on new opportunities in computing memories, precision medicine, special memory, diversified top-end sensors, automotive ICs, AIoT and AR/VR. We continue to enforce investment in semiconductor manufacturing bases in Taiwan, while focusing on the growth of Mainland China's semiconductor market and localization trends as a means to maximize benefits.

Note: Metal oxide semiconductor (MOS); complementary metal oxide semiconductor (CMOS)

The Company has integrated the three values of the corporate culture into the core of its business philosophy, and its goal is to become an enterprise that shares its prosperity with society while keeping its commitment to conform to the Code of Conduct—Responsible Business Alliance, RBA Version 6.0 (formally known as the EICC). We are also committed to ensure employee welfare, occupational health and safety, environment protection, ethics conformity and management systems stay connected to the Sustainable Development Goals (SDGs) set by the UN, disclosing the concrete actions undertaken. We shall do our utmost to fulfill our corporate responsibility in promoting positive sustainable development for the society.



Communicating with stakeholders

Identifying and managing material issues

We listen and take actions to mitigate any issues concerning stakeholders. The substantial analysis is incorporated into the process of preparing the CSR report, in hopes of identifying the sustainability issues concerning stakeholders via a systematic analysis model. The issues serve as a basis of reference for the disclosure of the Report, which will be beneficial for effective communication with all stakeholders. The analysis of the major aspects of the Report is divided to the following five steps:

Identifying stakeholders

PSMC conducted stakeholder identification. To achieve sustainable development and maintain long-term business operations, we used the five principles of the AA1000 SES standards as references, conducted discussions with division supervisors and colleagues, and referred to CSR reports of industrial counterparts to identify **8** kinds of key stakeholders of the Company, which included employees, job applicants, customers, investors (Shareholders), suppliers, competent authorities, contractors, and neighboring factories/neighbors.

Collecting issues on sustainability and summarizing them.

Identified issues were mainly from external and internal sources. External sources included GRI Standards, whereby 33 issues set by GRI Standards served as the basis of disclosure, while issues and standards in which the international community concerned with were added subsequently. These issues were then compiled into a list and subject to the examination and selection of the CSR preparation team to produce the preliminary list. Internal sources included the feedback and discussion from the CSR preparation team, and a total of **46** issues were determined.

Understanding the related issues

In 2019, via surveys, the Company tried to gain an understanding on the view of stakeholders on certain issues; the Company also conducted a survey on the senior executives in order to evaluate the impact of each issue on the Company's operation. In 2019, a total of **304** surveys were analyzed. Among these, **269** surveys from the stakeholders were collected. A total of **35** surveys regarding the impact were collected.

Results of major issues identified


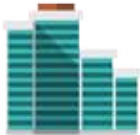


After prioritizing the issues according to the degree of awareness of the stakeholders and the assessment made by the Management, these issues were analyzed and ranked. After discussion, the Management determined **24** major issues that PSMC would tackle in 2019.

Review and discussion

According to the analysis and discussion on the identified yearly major issues, the issues were segregated into eight major aspects - "Corporate Governance", "Information Security", "Sustainable Profitability", "Customer Trust", "Energy Resources", "Pollution Prevention", "Friendly Workplace" and "Safe Environment", all of which had their management polices disclosed. PSMC shall continue to enforce supervision and make relevant disclosures in future CSR reports.

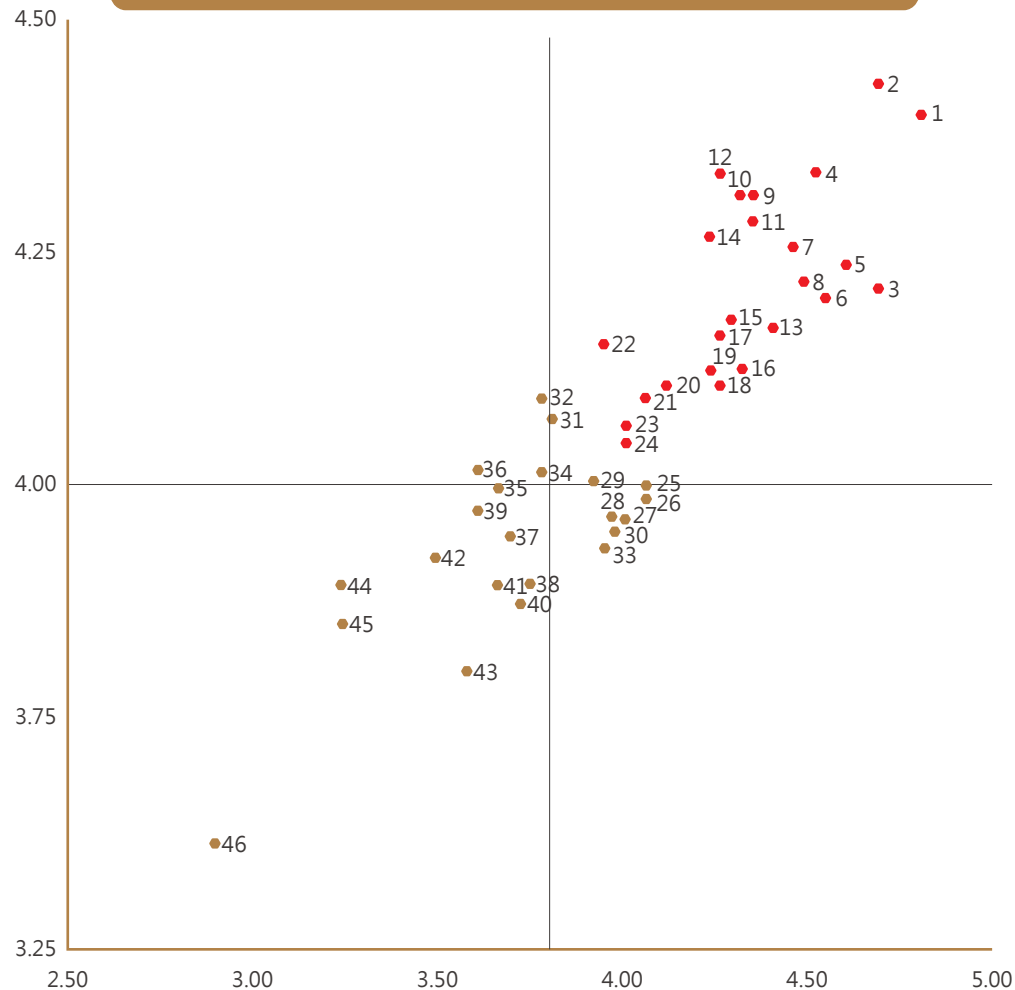
Response to stakeholders

Stakeholders	The importance of stakeholders	Points of Interest	Channels and frequency of communication	Response from the Company
 Employees	<p>Employees are the Company's most valuable assets; they are also the key in terms of pushing forward production proposals. The Company looks after employees in the workplace so that employees can work with a healthy body and mind. It will allow the Company to improve its competitiveness and create a win-win between employees and the Management.</p>	<ul style="list-style-type: none"> • Economic performance • Integrity Management • Production management and quality control • Legal compliance of socio-economic regulations • Management of employee occupational competency 	<ol style="list-style-type: none"> 1. Announced on the Company's website, with inquiry available (real time). 2. Feedback Corner/Employee Wellness Site (any time). 3. Quarterly meetings (quarterly). 4. Complaint hotline (anytime): to assist and handle issues raised by employees. 5. Labor-Management meetings (quarterly), welfare meetings (quarterly): provide suggestions to the Company and conduct a solution. 6. Employee feedback (anytime) and suggestion box set up 7. Occupational Safety, Health and Environmental Protection Committee meetings (quarterly) 8. Consultation with health servicing doctors and specialists (weekly). 	<ol style="list-style-type: none"> 2.1 Competitive niche 1.2 Integrity and conformity to the law 2.4 Customer service 4.3 Occupational competency development
 Job applicants	<p>The influence of a pleasant job application experience can go beyond the job applicants. The ripple effect shows that other people will not only know about the experience, they may also be interested in the products or services of the Company.</p>	<ul style="list-style-type: none"> • Labor/Management relationship • Economic performance • Training and education • Occupational safety and health (Preventive measures of occupational disaster) • Production management and quality control 	<ol style="list-style-type: none"> 1. Recruitment hotline or e-mail address on PSMC's company website (https://www.powerchip.com/job6.html?getId=77) (anytime). 2. Contact numbers or e-mail addresses of HR interviewers (anytime). 	<ol style="list-style-type: none"> 2.1 Competitive niche 4.2 Employee welfare 4.3 Occupational competency development 4.4 Health enhancement 2.4 Customer service
 Customers	<p>Customers' satisfaction and suggestions are what makes us to strive for better and grow. We persist in improving technologies, strict quality control and high-efficient manufacturing, and we are committed to providing professional foundry services!</p>	<ul style="list-style-type: none"> • Integrity Governance • Production management and quality control • Product service and R&D innovation • Customer privacy • Intellectual property rights 	<ol style="list-style-type: none"> 1. Customer service phone number/email (anytime). 2. Customer satisfaction survey (annually). 3. Participate in exhibitions of relevant products to directly grasp customers and direction of market development (anytime). 4. Visits to customers by employees from the marketing business department (anytime). 	<ol style="list-style-type: none"> 1.2 Integrity and conformity to the law 2.4 Customer service 2.2 Innovation and R&D 1.5 Information security control
 Investors (shareholders)	<p>The entire capital of the Company is provided by Shareholders and investors. Therefore, it is the Company's basic responsibility to protect their interests.</p>	<ul style="list-style-type: none"> • Economic performance • Integrity Governance • Labor/Management relationship • Information disclosure • Intellectual property rights 	<ol style="list-style-type: none"> 1. Announce operating overview information (monthly) and financial statements on a regular basis. 2. Shareholder meetings (annually): annual financial reports prepared according to regulations. 3. Investor relations section on company website (https://www.powerchip.com/investor.html)(real time): Financial information, stock information, annual reports. 4. Shareholder contact window and e-mail (anytime). 5. Spokespersons contact window set up (anytime). 	<ol style="list-style-type: none"> 2.1 Competitive niche 1.2 Integrity and conformity to the law 2.2 Innovation and R&D 4.1 Human resources

Stakeholders	The importance of stakeholders	Points of Interest	Channels and frequency of communication	Response from the Company
 Suppliers	As a global professional management team, apart from strengthening competitiveness by managing our own product quality, we are also committed to a sustainable supply chain management. We maintain the quality of the supply chain via supplier management measures, initial assessment of new suppliers, existing suppliers' sampling audit/evaluation.	<ul style="list-style-type: none"> • Economic performance • Anti-corruption • Information disclosure • Production management and quality control • Product service and R&D innovation 	<ol style="list-style-type: none"> 1. Supplier conferences (occasionally) 2. Supplier evaluation (bi-annually) 3. E-Supplier system (anytime) 	<ol style="list-style-type: none"> 2.1 Competitive niche 2.4 Customer service 2.2 Innovation and R&D
 Competent authority	The competent authority is the supervisor of the relevant regulations for a company to operate its business. Law-abiding governance is the most important corporate social responsibility of a company.	<ul style="list-style-type: none"> • Integrity Governance • Occupational safety and health • Non-discrimination • Emissions • Waste water 	<ol style="list-style-type: none"> 1. Maintain a good relationship with the competent authority and participate in the conferences and seminars held by the competent authority (anytime). 2. Identification of management system regulations (anytime). 3. Participate in Official correspondence, proposal discussion, public information (anytime). 4. Take part in the functional organization and operation held by Hsinchu Science Park Bureau and Ministry of Science and Technology (anytime). 	<ol style="list-style-type: none"> 1.2 Integrity and conformity to the law 4.1 Human resources 3.3 Green production 3.2 Risk management for water resources
 Contractors	Contractors are the manufacturers whom the Company works with in business promotion and engineering quality; their prosperity is in tandem with the Company's.	<ul style="list-style-type: none"> • Information disclosure • Legal compliance of socio-economic regulations • Economic performance • Production management and quality control • Product service and R&D innovation 	<ol style="list-style-type: none"> 1. Contractor evaluations (annually). 2. Contractor Meetings (quarterly). 3. Toolbox meetings (daily). 	<ol style="list-style-type: none"> 2.1 Competitive niche 2.4 Customer service 2.2 Innovation and R&D
 Neighboring plants/neighbors	Any operating areas within the park are our neighbors and we maintain good communication and contact with neighboring factories/neighbors within the Park. We also maintain the safety and environment of the Park.	<ul style="list-style-type: none"> • Emissions • Waste • Legal compliance of environmental protection regulations • Waste water • Economic performance 	<ol style="list-style-type: none"> 1. Weekday interviews and telephone communication (anytime). 2. Company website (anytime). 3. Take part in group activities or seminars (anytime). 4. Take part in external association operations (anytime). 	<ol style="list-style-type: none"> 2.1 Competitive niche 3.3 Green production 3.2 Risk management for water resources

Compared to the CSR Report for 2018, after internal identification and discussion, the number of major issues in the Report for 2019 increased from 20 to 24 items. As opposed to 2018, Integrity Management was incorporated into Corporate Governance and thus strengthening the disclosure of Integrity Governance. The newly added Production Management and Quality Control and Customer Health and Safety represented the commitment of the Company toward its customers in fulfilling the product quality and safety requirements. To pursue steady professional human resources, Management of Employee Occupational Competency was added. Lastly, to continue the effort on sustainable environment, Supplier Environmental Assessment was also promoted to be a major issue. The remaining 20 major issues were unchanged. The management policies and performance were made in accordance with the 24 major issues. The secondary issues of relative importance were disclosed as much as possible for transparency reasons.

Matrix Diagram of Major Issues Analysis for 2019







Major Issues





1. Economic performance
2. Integrity Governance
3. Product service and R&D innovation
4. Legal compliance of environmental protection regulations
5. Production management and quality control
6. Intellectual property rights
7. Legal compliance of socio-economic regulations
8. Customer privacy
9. Emissions (air pollutants emission management)
10. Waste
11. Waste water
12. Occupational safety and health (Preventive measures of occupational disaster)
13. Management of employee occupational competency
14. Information disclosure
15. Occupational safety and health (prevention of occupational diseases)
16. Anti-corruption
17. Supplier environmental assessment
18. Labor/Management relationship
19. Labor/Management relationship
20. Health and safety of customers
21. Emissions (greenhouse gas emissions)
22. Training and education
23. Water
24. Energy (energy consumption reduction)

Secondary Issues

25. Anti-competitive behavior
26. Market status (salary level)
27. Marketing and Labeling
28. Non-discrimination
29. Employee diversity and fair opportunities
30. Energy (energy consumption control)
31. Child labor
32. Forced or compulsory labor
33. Energy (energy consumption control)
34. Social assessment of suppliers
35. Local Communities
36. Freedom of Association and Collective Bargaining
37. Indirect Economic Impact
38. Biodiversity
39. Green energy opportunities
40. Non-use of conflict minerals
41. Raw Materials
42. Security Practices
43. Procurement Practices
44. Human Rights Assessment
45. Rights of Indigenous Peoples
46. Public Policy

Description of Material Issue Boundaries

Sustainability Domain	Major Issue	Boundary of Impact of All Aspects				Management Policy and Corresponding Chapters
		Within the Company (direct impact)	Business partners (impact of business activities)			
			Customers	Suppliers	Contractors	
 Corporate Governance	GRI 419 - Legal compliance of socio-economic regulations	●		●	●	1. Strive for integrity management/1.2 Integrity and conformity to the law
	GRI 205 - Anti-corruption	●				1. Strive for integrity management/1.2 Integrity and conformity to the law
	Integrity Governance (self-configured issue)	●				1. Strive for integrity management/1.2 Integrity and conformity to the law
	Information disclosure (self-configured issue)	●				1. Strive for integrity management
 Information Security	GRI 418 - Customer privacy	●	●			1. Strive for integrity management/1.5 Information security control
 Sustainable profitability	GRI 201 - Economic performance	●				2. Strive for green innovations/1.3 Financial performance
	Intellectual property rights (self-configured issue)	●				2. Strive for green innovations/2.2 Innovation and R&D
	Product service and R&D innovation (self-configured issue)	●				2. Strive for green innovations/2.2 Innovation and R&D
 Customer Trust	Production management and quality control (self-configured issue)	●				2. Strive for green innovations/2.3 Customer service
	GRI 416 - Customer Health and Safety	●	●			2. Strive for green innovations/2.3 Customer service
	GRI 414 - Supplier environmental assessment	●		●	●	2. Strive for green innovations/2.4 Suppliers

Sustainability Domain	Major Issue	Boundary of Impact of All Aspects				Management Policy and Corresponding Chapters
		Within the Company (direct impact)	Business partners (impact of business activities)			
			Customers	Suppliers	Contractors	
 Energy Resources	GRI 302 – Energy (energy consumption reduction)	●				3. Strive for a sustainable environment/3.1 Climate change and carbon management
	GRI 303 (2018) - Water	●				3. Strive for sustainable environment/3.2 Risk management for water resources
	GRI 305 – Emissions (greenhouse gas emissions)	●				3. Strive for a sustainable environment/3.1 Climate change and carbon management
 Pollution Prevention	GRI 305 – Emissions (air pollution emissions management)	●				3. Strive for sustainable environment/3.3 Green production
	GRI 306 - Waste water and waste	●				3. Strive for sustainable environment/3.3 Green production
	GRI 307 - Legal compliance of environmental protection regulations	●		●	●	3. Strive for sustainable environment/3.3 Green production
 Friendly Workplace	GRI 402 - Labor/Management relations	●				4. PSMC as a happy enterprise/4.1 Human resources
	GRI 402 - Labor/Management relations	●				4. PSMC as a happy enterprise/4.2 Employee welfare
	GRI 404 - Training and education	●				4. PSMC as a happy enterprise/4.3 Occupational competency development
	Management of employee occupational competency (self-configured issue)	●				4. PSMC as a happy enterprise/4.3 Occupational competency development
 Safe Environment	GRI 403 (2018) - Occupational safety and health (Preventive measures of occupational disaster and diseases)	●		●	●	4. PSMC as a happy enterprise/4.4 Occupational health and safety

Development Strategies and Sustainability Goals of PSMC

Since 2018, the disclosure which has been made in the CSR Report pertains to relevant measures undertaken by the Company that corresponds to the Sustainable Development Goals (SDGs) set by the United Nations (UN). In 2019, the Company implemented the targets and directions of its CSR in accordance with the concrete goals listed in the SDGs.

Aspects	Sustainability Domain	Strategy	Execution Results for 2019	Goal of 2020	Mid and Long-term Goals	SDGs
 Economic aspect		Major Issues: Legal Compliance of Socio-Economic Regulations, Anti-Corruption, Integrity Governance and Information Disclosure				
	Corporate Governance	Exhaustive internal control system and regulations were used to manage different regulation risks. Regular audit was conducted to ensure implementation.	<ul style="list-style-type: none"> No occurrence of corruption. No major violations at all operating locations of PSMC 	<ul style="list-style-type: none"> No occurrence of corruption. No violation of regulations. Information that will enhance the understanding of stakeholders on corporate governance 	<ul style="list-style-type: none"> Continue to comply with the legal requirements of all business areas. Strengthen integrity education and training for our employees Information that will enhance thorough understanding of stakeholders on corporate governance in a transparent manner. 	10.3 16.5 16.6
	Sustainable profitability	Targeting market trends and potential customer requirements, via patent R&D and technological innovation, the Company offers customers more advanced and comprehensive solutions.	<ul style="list-style-type: none"> Until the end of 2019, PSMC possessed a total of 899 valid patents. In 2019, the Company obtained 74 patent certifications. In 2019, using 25 nm manufacturing technology, the R&D team managed to produce the first AIM chip and submitted it to important customers for testing. 	<ul style="list-style-type: none"> In 2020, a total of 140 patent proposals were made. 	<ul style="list-style-type: none"> Combine diversified product technologies and high grossing production, and sales portfolios to improve production technology to increase profitability. Strengthen AIM functions and expand product applications. 	8.2
		Major Issues: Production management and quality control, Customer Health and Safety and Supplier environmental assessment				
	Customer Trust	Promote internal 6S activities and implementing "QC080000" to enhance the qualities of production processes. Comply to the procurement policy of PSMC to ensure stable material sources from suppliers.	<ul style="list-style-type: none"> In 2019, the 6S performance of different divisions all met requirements. The participating units of the customer FAB's 6S audit had no major infraction. The order fill rate provided in the production raw material/letter of undertaking in GP's test report is 100%. The average overall customer satisfaction rate of PSMC in 2019 reached a score of 96. 	<ul style="list-style-type: none"> Complete IECQ QC080000 certification for five factories of the Company in 2020. 100% of the raw material vendors and contractors will go through evaluation process in accordance with the selection principles. 100% of new suppliers will go through preliminary survey. The examination rate is expected to reach 100%. 	<ul style="list-style-type: none"> Establish the required score of 6S for different teams in every quarter. Improve and maintain customer satisfaction score of at least 85. Satisfy customer requirements for environmental protection specifications. 	12.4 12.6 12.7

Aspects	Sustainability Domain	Strategy	Execution Results for 2019	Goal of 2020	Mid and Long-term Goals	SDGs
 Environmental aspect	Energy Resources	Major Issues: Water, Energy (energy consumption reduction) and Emissions (greenhouse gas emissions)				
		Introduce the relevant international management system and supervise accordingly with PDCA mechanism for continuous management, while promoting the relevant measures in reducing electricity and water uses, carbon emission, and energy resources, so as to mitigate the possible impact caused by climate change.	<ul style="list-style-type: none"> Met the yearly target on energy conversation of 1%. The process water recovery rate of PSMC exceeded over 85%. PSMC's greenhouse gas emission in 2019 dropped 2.4% as compared to 2018. 	<ul style="list-style-type: none"> Introduce ISO 50001 Energy Management System in 8-inch fabs. 	<ul style="list-style-type: none"> Process water recovery rate shall reach the goal - $\geq 85\%$ Reduce energy by 1% each year. The plan for reducing greenhouse gas is in compliance with government laws. All factories to pass ISO 5001 Energy Management System certification. 	6.5 7.3 7.a 12.2
	Pollution Prevention	Major Issues: Waste water and waste, Emissions (air pollutants emission management) and Legal compliance of environmental protection regulations				
		Introduce the relevant international management system and use the best practicable control technology to implement curtailing at the source and ensure the processes meeting environmental protection standard. Set a standard stricter than the law and regulations as a goal.	<ul style="list-style-type: none"> In 2019, PSMC did not receive any disciplinary actions from environmental protection authorities. The efficiency of volatile organic compounds removal reached 93.5%, higher than the percentage stipulated in the regulation - 90%. Re-use rate in 2019 increased by 1% as compared to 2018. 	<ul style="list-style-type: none"> Air pollution:the capacity of VOC treatment facility is greater than 92.5%. Waste water: water reclamation rate is greater than 85%. Waste: Re-use rate as high as 85%. 	<ul style="list-style-type: none"> Business operations comply with Environmental Protection Act. Air pollution:the capacity of VOC treatment facility is better than the best practicable control technology standard. Waste water: reduce waste water discharge. Waste: Re-use rate as high as 85%. 	6.3 11.6 12.4 12.5

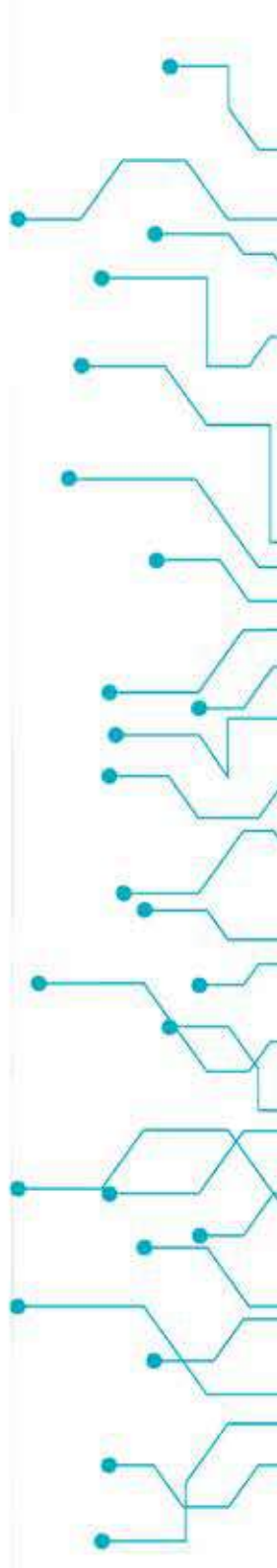
Aspects	Sustainability Domain	Strategy	Execution Results for 2019	Goal of 2020	Mid and Long-term Goals	SDGs
 Social aspect	Information Security	Major Issues: Customer privacy Regularly promote information security awareness campaign, increase purchase in information security analysis software and develop telecommunication examination system to ensure the protection on information security.	In 2019, PSMC had no occurrence of "proven violation of customer privacy" and "complaint on missing customer information" that would damage the interest of an external party. Internally, the audit on various information use found no abnormal storage and retrieval of information that would evidently damage the Company's interest.	No occurrence of information security.	Prevent the occurrence of violation of information security.	
	Friendly Workplace	Major Issues: Labor/Management relationship, Training and education, and Management of employee occupational competency Establish comprehensive communication channels pertaining to employee needs and recommendations, and provide supporting measures and system adjustments, so as to build a conducive and friendly workplace.	<ul style="list-style-type: none"> The response rate of the employee communication platform, "Feedback Corner", amounted to 100%. Overall employee turnover rate decreased by 1.6% compared to 2018. 100% of the employees accepted regular performance evaluation. In 2019, 1,108 employees received human rights protection training. Employee retention rate increased by 1.9% compared to 2018. The satisfaction rate for annual training course amounted to 95%. 18 artistic and cultural events were hosted or organized. 	<ul style="list-style-type: none"> Achievement rate of training programs to reach 80%. The response rate of the employee communication platform, "Feedback Corner", to reach 90%. 	<ul style="list-style-type: none"> Foster good labor/management relations for mutual growth of our colleagues and the Company. Provide colleagues with equal career development opportunities and a comprehensive training mechanism. 	4 教育品質 4.4 4.5 8 就業與經濟成長 8.7 10 減少不平等 10.3
	Safety and Health	Major Issues: Occupational safety and health (Preventive measures of occupational disaster) and Occupational safety and health (prevention of occupational diseases) Conduct daily operations in accordance with occupational health and safety management system, and impose examinations and correctional measures on the overall working conditions of the operational system to fulfill the goal of continuous improvement.	<ul style="list-style-type: none"> Completed the verification preparation for ISO 45001 and CNS 45001 on occupational health and safety management system. In 2019, the Frequency-Severity Indicator (FSI) of the Company (0.01) was lower than one-third of the industrial average (0.09), achieving the goal of zero significant incidents in industrial safety and environmental protection. 	<ul style="list-style-type: none"> FSI lower than one-third of the industrial average. 	<ul style="list-style-type: none"> Achieve zero significant incidents in industrial safety and environmental protection and strengthen environmental safety as well as emergency response ability, so as to reduce operation losses caused by accidents in plants. No pain at work leads to healthy lifestyles. 	3 健康與福祉 3.9 3.d 8 就業與經濟成長 8.8



1

Striving for integrity management

- 1.1 Organization Structure
- 1.2 Integrity and conformity to the law
- 1.3 Financial performance
- 1.4 Risk Management
- 1.5 Information security control



1. Striving for integrity management

Corporate Governance and Management Policy

Regulatory compliance is the basic criterion for the sustainability of a corporation. Failure in effectively managing regulatory compliance and corruption risks would bring negative impact to the Company's image and operation. We have established relevant rules and demand our employees to follow the ethical standards when conducting business; the Company's stakeholders are also made aware of the standards. Further, information on the corporate governance is also disclosed on the Company website. These rules are put in place to help the Company in fulfilling its social responsibilities and achieving integrity management.

Covered issues

Legal Compliance of Socio-Economic Regulations, Anti-Corruption, Integrity Governance, and Information Disclosure

Norms



- Establish "Professional Norms", "Directors and Managers Code of Conduct", "Employee Code of Conduct" and "Internal Control Standards", and require the Board of Directors, the Management and all colleagues to strictly follow the ethical standards and commit to the policies of Integrity Management.
- Implement Integrity Management and establish effective internal control systems, the Internal Audit Division will conduct regular audits in accordance with the Internal Control Standards and submit the audit results to the Board of Directors. The Company conducts a self-evaluation on its internal control system at least once a year, and The Board of Directors and the President will issue the Internal Control System Statement. The annual financial reports of the Company requires a resolution passed in the Board of Directors Meeting and the completion of external audit, before forwarding to the Supervisor for review and issuance of the review report, then the Supervisor will forward the financial reports to the Shareholders' Meeting for approval.
- Comply with Securities and Exchange Act, Article 36 and Regulations Governing the Applicable Scope of Special Circumstances for the Public Announcement and Filing of Financial Reports and Operational Status Reports by Public Companies, and make financial information disclosure on the Company website.

Targets



- No occurrence of corruption.
- No violation of regulations.
- Material information that will enhance the understanding of stakeholders on corporate governance

Execution



- Established Diligence Promotion Committee to receive anonymous or non-anonymous emails from employees and external parties and handle the whistle blowing cases in violation of the Professional Norms.
- Used e-mail and announcements on the website to raise the awareness of employees of anti-corruption and business ethics.
- The Internal Audit Division conducted audits on the internal control system of various operations on a regular or irregular basis, so as to ensure the effectiveness and the implementation of the internal control design.
- Disclosed financial information of the Company and the contact details of different divisions on the Company website, so as to establish a proper mechanism on handling major internal information and disclosure; implemented a spokesperson system, and announce the monthly consolidated revenue on a regular basis.

Management



- For those that violate the Professional Rules, the Diligence Promotion Committee will report to the president and (or) the chairman depending on the seriousness of the offence, and he/she will be handled and (or) sent to the judicial unit according to the Company's Personnel Rules.
- Results of the self-assessment of all units and subsidiaries, any deficit in the internal control or improvement for abnormality found in ordinary audits are reported to the Board of Directors by the Company's audit office.
- The Internal Audit Division will conduct regular audits in accordance with the Internal Control Standards and submit the audit results to the Board of Directors. The Company conducts a self-evaluation on its internal control system at least once a year. The Board of Directors and the President will issue the Internal Control System Statement
- The annual financial reports of the Company requires resolutions passed in the Board of Directors Meeting and the completion of external audit, before forwarding to the Supervisor for review and issuance of review report, which the Supervisor will in turn forward to the Shareholders' Meeting for approval.
- The Chairperson Office and share administration unit collects the Company's information and discloses on the Company website.

Performance



- No occurrence of corruption.
- No major violations at all operating locations of PSMC

Information security and management policy

Failure to earn customer trust will affect the working relationship with them and their purchase orders, thus impacting the sustainability of the Company. As such, the Company makes concerted effort on "ensuring the security of the Company and the customers/collaborative partners' assets and thus guaranteeing the Company and stakeholders' interests."

Covered issues

Customer privacy

Norms



- Formulate "Information Security Policy" and "Information Security Management Measures". We are dedicated to protecting information and documents related to our customers through strictly controlling records of the Company's internal system, ensuring that customer privacy is fully protected. In addition, approval and activation of the operation authorization of internal personnel will be handled according to the relevant operation regulations of the systems.

Targets



- No occurrence of information security.

Execution



- Established Information Security Committee - responsible for formulating and implementing the Company's security control operations. The Committee holds meetings regularly to discuss and resolve issues relating to information security, covering areas on human resources, physical security, and information security. When major changes or a breach of information security occurs, an emergency meeting is held for discussion.
- The Company purchased IBM's QRadar system to perform internal and external network traffic analysis. Using the score mechanism of the reputation system provided by IBM Exchange, once network traffic from a high risk website is detected, the preventive measures in the firewall setting will be triggered. The Company also purchased Nessus, a vulnerability assessment software, to conduct internal vulnerability scanning and thus ensuring the security of the servers. The Company has developed an SOC system to conduct checking on multiple telecommunication tools (e-mails, VPN etc.), to ensure the information security of PSMC.
- We have been promoting less paper use to our employees since February 2018, in hopes of replacing paper with electronic equipment, so as to improve our systemic operations (application/enquiry/reading) to achieve the goal of reducing paper use, further reducing information security risks posed by paper documents more effectively.
- Information Security Office is responsible for the promotion of information security. All of our colleagues must participate in the "Information Security Management Measures" course each year.
- As of 2018, the Company has launched a trade secret control project internally to enforce various software and hardware control measures.

Management



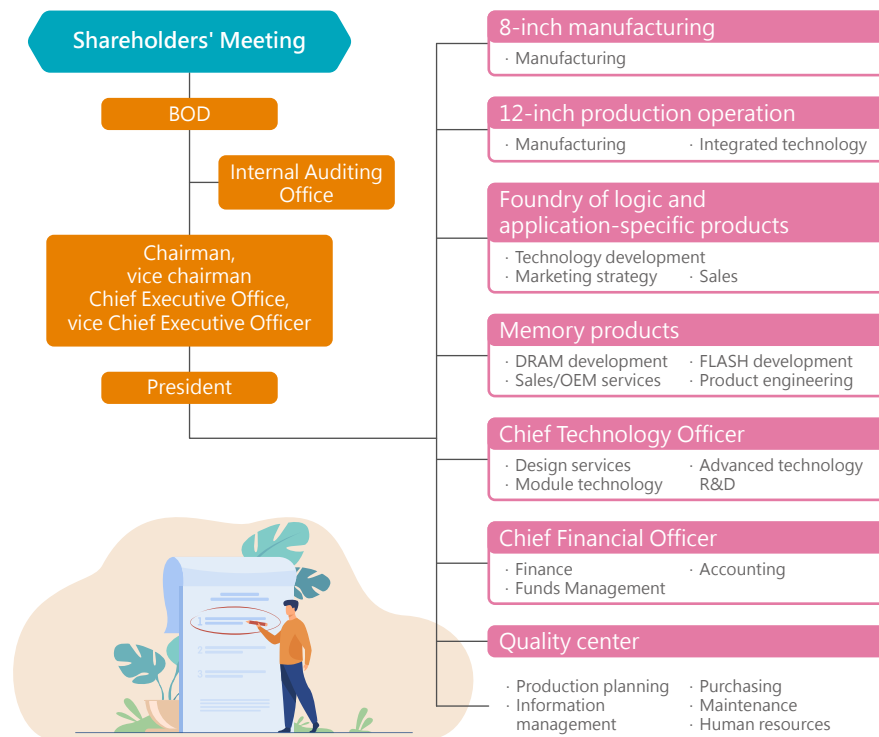
- In 2019, PSMC had no occurrence of "proven violation of customer privacy" and "complaint on missing customer information" that would damage the interest of an external party. Internally, the audit on various information use found no abnormal storage and retrieval of information that would evidently damage the Company's interest.
- The Information Security Committee regularly discusses issues relating to information security and when major changes or a breach of information security occurs, a meeting is held by the Committee for discussion of adjustments of operation.

Performance



In 2019, PSMC had no occurrence of "proven violation of customer privacy" and "complaint on missing customer information" that would damage the interest of an external party. Internally, the audit on various information use found no abnormal storage and retrieval of information that would evidently damage the Company's interest.

1.1 Organization Structure



In regards to the current governance structure, the Company has yet to establish functional committees. PSMC has established the Board of Directors and Supervisors in accordance with the law and regulations. The Board of Directors consists of Directors; all members of the Board of Directors and supervisors are elected by all shareholders via voting. The responsibilities of Directors are to establish the Company's vision and strategies, manage business operations, oversee budget planning, as well as plan the Company's medium to long-term development direction while supervising the Company's operational projects and their execution. It is the duty of the supervisors to oversee the business operation and the due diligence performed by the Directors and Managers. The supervisors must also monitor the enforcement of the internal control system to mitigate any financial crises and business risks.

The Board of Directors of PSMC consists of nine Directors and two Supervisors; their responsibilities include business operation, future development management, and supervision. All of the Directors and Supervisors are experienced professionals who are instrumental in operational and strategic planning. The Company has established Professional Rules which has regulations governing the conflicts of interest. There are also regulations governing the conflicts of interest in the Board of Director Meeting Rules. In meeting matters, those who have a vested interest regarding themselves or their representing person may not engage in discussions and voting. Matters regarding conflicts of interest are stated in the minutes of the meeting.

The Management team consists of professional managers hired and approved by the Board of Directors. All of the managers have professional qualifications and are extremely experienced in the industries. The Managers are responsible for the Company's daily operations and management. As for economic, social and environmental aspects, the Vice Presidents of Finance Accounting and of Administration, as well as other relevant high-level managers will make the decisions and deliver reports on these aspects at the meeting.

The recusal of Director(s) in resolution(s) with a conflict of interest for 2019:

On December 24, 2019, the Board of Directors passed the resolution for a donation made to Powerchip Cultural Foundation for 2020. The Chairperson of PSMC and Powerchip Cultural Foundation, Frank Huang, and Director of PSMC and Powerchip Cultural Foundation, Chen Jui-Lung, did not participate in the discussion to avoid conflict of interest. Tsai Kuo-Chih was appointed as acting convener. The resolution was passed after the acting convener solicited opinion from the rest of the Board of Directors and received no objection.

All members of the Board of Directors and supervisors are elected by all shareholders via voting. Considering operational status, development, and practical needs, the Company selects the candidates for directorship based on their professional background, education (experience), integrity, profession or relevant professional qualification and experiences. The diversity in their background and outlook are taken into consideration, including gender, age, nationality and culture. The Board of Directors selects qualified candidates with vast industrial experience to improve the overall professional knowledge and skills of the Company, so as to achieve the ideal goal of corporate governance. As such, the Directors and Managers are also arranged to take part in courses related to economy, society, and environment.

Measures taken to develop and improve the Management in their knowledge in economic, social, and environmental issues: PSMC provides Directors and Supervisors information on courses and regulations from time to time.

◆ Continuing Education for Directors and Supervisors in 2019:

Name	Course name	Number of further education hours
Frank Huang	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Tsai Kuo-Chih	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Chen Jui-Lung	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Hsieh Tsai-Chu	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Tung Kuei-Tsung	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Wang Chi-Kuo	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Shao Chang-Jung	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3

Name	Course name	Number of further education hours
Wu Yuan-Hsiung	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Martin Chu	• Legal Issues Concerning Directors and Supervisors of Public Listed Companies	3
	• Performing Duties of Directors and Supervisors of Public Listed Companies	3
Huang Chung-Heng	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
Chen Chin-Lung	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3
	• Legal Liability and Investigation of Employees' Malpractice	3
	• Applicability and Legal Liability of Business Judgment Rules in White Collar Crime	3
Nancy Hu	• Execution Duties and Management Judgment Rules for Directors and Supervisors	3
	• International and Domestic Development of Anti-Tax Evasion and Reactive Behavior of Corporations	3



1.2 Integrity and conformity to the law

◆ Professional norms

In order for employees to comply with ethical standards when conducting business and our stakeholders to comprehend the Company's ethical standards, PSMC has specifically established the "Professional Norms" which is included in the orientation training of new recruits, whereby the integrity principles which must be upheld when conducting business are also communicated to them. They should execute all Company business with good faith and are forbidden to undertake any improper engagement with other vendors. The anti-corruption and integrity business propaganda is usually delivered via e-mails and announcements on the Company website. These practices are put in place to help the Company in fulfilling its social responsibilities and achieving integrity management.

The Company has established "Directors and Managers Code of Conduct" and "Employee Code of Conduct" which require the Board of Directors, the Managers, and all colleagues to strictly follow the ethical standards and commit to the policies of Integrity Management.

As a responsible corporate citizen, PSMC is committed to conform to Code of Conduct of Responsible Business Alliance (RBA). The Code of Conduct is a principle established by the electronic industry or the imperative members of the electronic industry and the corresponding supply chain, to ensure the environmental safety of the workplace, the respect and dignity for the employees, and conformity of business operations to the environmental protection and business ethics regulations. Areas such as labor, health and safety, environment, ethics, and management system will be reviewed on a regular basis, so as to fulfill social responsibility and achieve sustainability. In 2019, the score of SAQ self assessment survey amounted to 94%, which met the regulation of RBA.

The Company has also established the "Diligence issue declaration/reporting system" and an e-mail address for whistle-blowers. The employees must make declarations in accordance with "Professional Norms", which will be consolidated by the Internal Audit Division before being submitting to the President. Internal/External parties may blow the whistle anonymously or non-anonymously and the Diligence Promotion Committee will be responsible in following up. The Company will ensure the confidentiality and anonymity of the whistle-blower and all personnel taking part in the investigation of the Professional Rules violation to avoid retaliation. For those that violate the Professional Rules, the Diligence Promotion Committee will report to the President and (or) the Chairman depending on the seriousness of the offence and it will be handled and (or) sent to the judicial unit according to the Company's Personnel Rules.

The Internal Audit Division had not received any request for assistance from the Diligence Promotion Committee, Managers, Directors and Supervisors of the Company in 2019. In addition, no corruption cases and whistle-blowing on violations of Professional Norms were reported.

◆ Internal control

Under the management philosophy of integrity, transparency and responsibility, the Company has established an internal control system that is based on integrity and legal compliance, of which the internal accounting control system must operate base on the principle of existence, effectiveness and continuity. The Management conducts risk assessment on the impact that arises from achieving the Company goals. Based on the results of the assessment, the Company designs the necessary control procedures, so as to achieve the three major goals in operation, reporting, and legal compliance. Every year, the Internal Audit Division will conduct regular audits in accordance with the Internal Control Standards and submit the audit results to the Board of Directors. The preparation of the financial reports is made in accordance with the account policies of the Company - "Regulations Governing the Preparation of Financial Reports by Securities Issuers", other relevant rules and regulations, and the Generally Accepted Accounting Principles. The annual financial reports requires resolution passed in the Board Meeting and the completion of external audits before being forwarded to the Supervisor for review and issuance of review report, in which the Supervisor will in turn forward the financial reports to the Shareholders' Meeting for approval. At least once a year, in accordance with the assessment items on the effectiveness of the internal control systems stipulated in the Regulations Governing Establishment of Internal Control Systems by Public Companies, the Company conducts a self assessment on the design and execution of the internal control system of various divisions and subsidiaries. Based on the assessment results and the findings of the Internal Audit Division on the defect or irregularity of the internal control systems, the BOD and President of the Company are of the opinion that as of December 31, 2019, the internal control systems (including supervision and management on subsidiaries), including comprehending the effectiveness and efficiency in achieving the operational goals and its reporting, were reliable, timely, transparent, and compliant with the relevant rules and regulations. Further, the design and execution of the internal control systems, which were in accordance with the relevant regulations, were effective. Therefore, it is reasonably assured that the aforementioned objectives were achieved.

On January 20, 2020, the Company issued the Internal Control System Statement for 2019, which acknowledged the effectiveness of the design and the execution of the internal control systems. In 2019, there were no major violation incidents in various operating locations. In regards to the regulatory compliance of the Company in 2019, please see below.

Human Rights Compliance	Anti-competitive Behavior	Regulations Relating to the Company
<ul style="list-style-type: none"> ✓ Labor Standards Act compliance ✓ No child labor used ✓ No discrimination involved ✓ No violation of aboriginal rights ✓ No violation of freedom of assembly and association ✓ No forced labor 	<ul style="list-style-type: none"> ✓ No anti-competitive behavior involved ✓ No antitrust incident ✓ No Monopolies 	<ul style="list-style-type: none"> ✓ No violation of the Company Act ✓ No violation of the Business Act ✓ No violation of Securities and Financial Law ✓ No corruption involved

1.3 Financial performance

On May 1, 2019, due to the restructuring of the parent company, Powerchip Technology Co., Ltd., the Company issued common stocks of NT\$22.61 billion to acquire three 12-inch fabs and their relevant businesses and assets. As such, the Report was prepared based on the operational scale after the acquisition (i.e. three 12-inch and two 8-inch fabs), and various pro forma financial data was analyzed.

As the global trading landscape experienced a tumultuous year in 2019 and the shrinking memory market, the order placed with OEMs weakened. By summarizing the pro forma financial performance of the Company in 2019, the consolidated operating revenue fell 28.1% to NT\$35.9 billion, whereas the gross margin fell 22.2% to 8.4% as compared to the previous year. Even though the operating cost was lowered to NT\$32.9 billion and the operating expenses were also reduced to NT\$5.27 billion, down by 5% and 20.7% respectively as compared to 2018, the Company still incurred NT\$2.64 billion in after tax net loss, or a loss per share of NT\$0.94, presenting an overall loss for the first time in seven years.

Due to the operational plight in 2019, the Company managed to increase operational capital by NT\$4.0 billion via cash capital increase through common stock issuance. Currently, the share capital amounts to NT\$31.05 billion. After corporate restructuring, the Company is now divided into the memory products business group and the logic and application-specific products business group. The memory products business group mainly involves in the technological development and provision of wafer OEM services for DRAM and NAND/NOR Flash memory products; the logic and application-specific products business group mainly involves in the technological development and provision of wafer OEM services for faceplate driven IC, power management IC, separated components, CMOS image sensor and embedded nonvolatile memory. Currently, the two largest business units each occupy half of the wafer production capacity.

As the heat of the US-China trade war is subsiding and with the business opportunities of 5G, AI, and IoT beginning to emerge, the demand for OEM services is greater than the supply. The Company is expected to turn profitable this year, as opposed to a loss last year. Via enhancing customer structure, promoting manufacturing technology, and increasing OEM pricing and production utilization rate, our competitiveness can be further heightened, restoring the sustainable profitability that Powerchip Technology once made. As such, the major management goals of the Company in 2020 are as follows:

1. Increasing production capacity and utilization rate, and gross margin.
2. Expediting the technological development and mass production of AI chips, NOR Flash, CMOS image sensor, power management IC, and power discrete devices (MOSFET/IGBT).
3. Initiating IPO, and prudently evaluating the Tongluo factory project and business development planning.
4. Obtaining the certification of QC080000 Hazardous Substance Process Management to satisfy the environmental protection requirements of customers.

Through concerted effort in the last few years, the Company has become the sole OEM in producing multiple generations memory, and logic and application-specific products globally. In addition to making differentiated products on behalf of our customers, in the future, the Company will also extend its technological reach to heterogeneous integration (memory and logic IC) in an innovative system-on-a-chip system. We will continue to promote international collaborations and develop proprietary technology to gain competitive advantage in a fast changing high tech industry and create win-win solutions with customers. Using our steady capability in financial planning and business execution, we will create better profitability.

(Unit: NT\$ thousand)

Item/Year	2018	2019
Operating revenue	49,913,779	35,897,121
Gross profit	15,280,265	3,000,668
Operating profit/loss	8,886,597	(2,098,779)
Non-operating income and expenses	(246,549)	(516,106)
Profit before tax	8,640,048	(2,614,885)
Profit of continuing operations	6,914,744	(2,643,184)
Net income (loss)	6,914,744	(2,643,184)
Other comprehensive income for the period (net income after tax)	(12,043)	(111,219)
Total comprehensive income for the period	6,902,701	(2,754,403)
Net income attributable to parent	985,928	(1,480,370)
Net income attributable to equity holders of the Company	5,890,576	(1,162,814)
Net income attributable to predecessors' interests under common control	38,240	-
Total comprehensive income attributable to parent	998,480	(1,551,814)
Total comprehensive income attributable to equity holders of the Company	5,892,189	(1,162,814)
Total comprehensive income attributable to predecessors' interests under common control	12,032	(39,775)
Earnings per share	2.56	(0.94)
Employee wages and benefits	11,891,600	8,068,231
Payment of shareholders' dividends (cash) ^{Note 1}	-	95,234
Payment of government taxes ^{Note 1}	143,185	40,759

Note: Financial information for 2018 and 2019 are retrospective restatement after restructuring.

Note 1: Payments made by PSMC.

Tax credit of investment applied for 2019:

Unit: NT\$

Tax credit of R&D expenditure	Tax credit of intelligent machinery investment	Total tax credit of investment
NT\$55,078,580	NT\$30,000,000	NT\$85,078,580

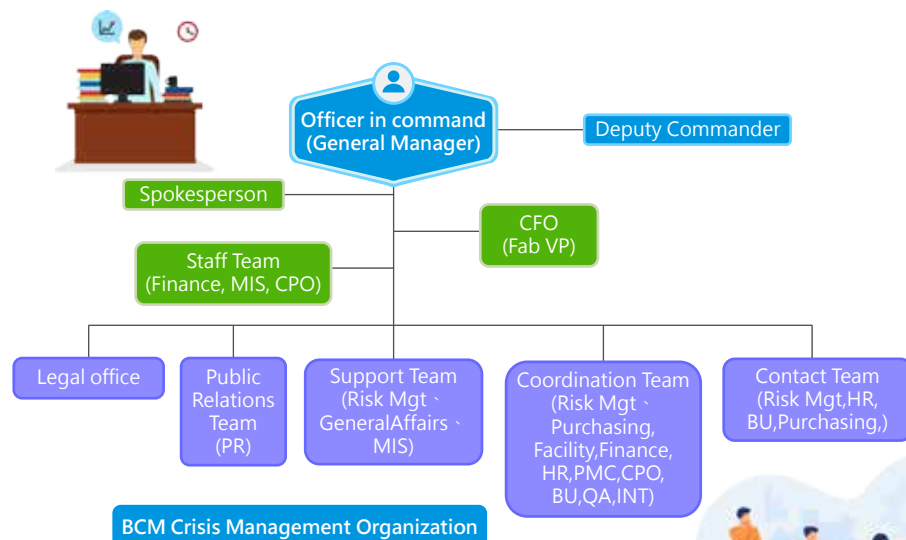
1.4 Risk Management

Operational Risk Diagnosis

We use the operational impact analysis method to identify the Company's key operations and the possible impact these operations may cause and establish an optimal operation recovery time.

We analyze these key operations using operation impact. Through risk assessment charts, we analyze the potential threats, weaknesses and consequences of these hazards individually within operations, and understand the existing prevention and detection control measures. Then according to the seriousness level of the analysis level chart, occurrence analysis chart, risk level judgment standards, we can determine and grasp the operating risks and establish risk control policies to reduce risks.

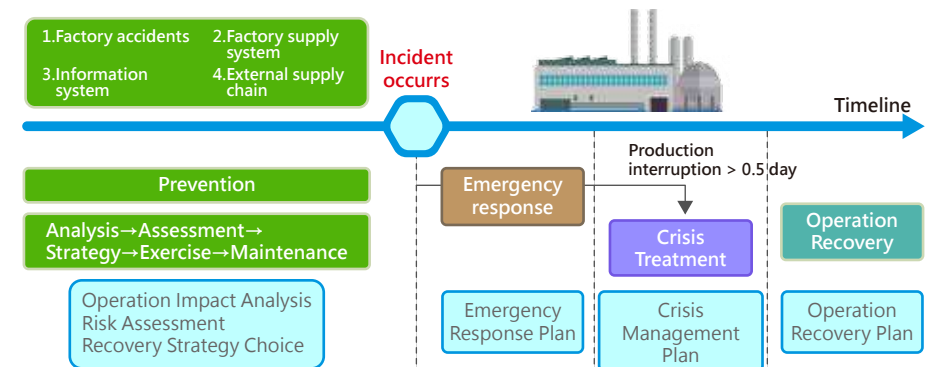
Operational risk diagnosis is made by the joint evaluation and diagnosis of all units; these include plant affairs, risk management, manufacturing, engineering, automation, information management, property management, purchasing, sales, production management, finished products, finance, human resources, and quality customer service



Continuous Operation Management

PSMC is an enterprise that pursues sustainable operations. To ensure that the Company does not experience operation interruption in the event of a major incident or crisis, and minimize the loss of property, employee lives, corporate image, customers and investors, the Company has management plans that handle crises systematically.

To restore operations back to normal in the shortest time possible in the event of a major incident or crisis, PSMC has formulated crisis management plans and recovery plans on certain crises such as power and water shut-down for an extensive period, severe fires, destructive earthquakes, climate changes, interruption of raw material supplies, shortage of labor, hacking of the information system and key equipment malfunctioning; themed drills are carried out each year. The drill completion rate of continuous operation management amounted to 100%. The Company will continue to uncover weaknesses and make improvements.



References for continuous operation management

- Operating Procedures for HSE Risk Evaluations
- Plant Disaster Emergency Response Measures
- Procedures for Crisis Management Plans
- Procedures for Operation Recovery Plan
- Procedures for emergency response on water supply interruption and restriction
- Standard operating procedures for electricity recovery for plant affairs
- Procedures for emergency response on raw material shortage
- Procedures for MIS backup

◆ Measures Taken for Continuous Operation and Risk Diversification amid COVID-19 Outbreak

In response to the outbreaks of infectious diseases (such as COVID-19, bird flu and MERS), in accordance with government regulations, the Company has established the "Preventive Protocol for Infectious Diseases", which lays out the measures corresponding to the level of severity of an outbreak. Apart from establishing the "crisis management team for infectious diseases" to immediately consolidate the Company's resources, the health center will also keep in contact with our medical units and amend any of the preventive measures and measures to raise awareness at any time, such as preparing the disease prevention supplies, body temperature monitoring of all staffs (including the manufacturers, visitors and family members of our employees) in the factory, and establishing the criteria for sterilization method or frequency (including for the operational areas, staff dormitories and factory vehicles), workplace isolation and infection control. To avoid panic among the employees, the Company has also strengthened the measures in raising awareness and holding training seminars, so as to relieve the employees of any confusion they might have over the infectious diseases.

Control Measures	
Management	On February 5, 2020, the Disease Prevention Command Center was established. To reduce the risk of spread in large crowd gatherings, meetings on disease prevention were held via the P-team method. The frequency of the meetings was adjusted according to the development of the pandemic.
Employees	<ol style="list-style-type: none"> The staff of each department is divided into two teams. Both teams will provide support for each other. <ul style="list-style-type: none"> Divisions dealing with external parties are divided into teams, which will work in different places within the Company. When the pandemic reaches the level whereby the sources of community spread in Hsinchu and Miaoli areas are unknown, teams take turns to work from home. When the pandemic reaches the level whereby there is a countrywide spread, working from home is maximized. Investigation regarding travel and contact history is conducted on all employees. Full body temperature monitoring. Employees with irregular body temperatures were advised to rest at home or work at a different place. Tracing is conducted until the employees fully recover. Contractors are not allowed access to the factories. Preventive measures announced on PSMC's website to facilitate the querying of employees.
Supply chain	<ol style="list-style-type: none"> Make procurements to ensure sufficient supply in raw material. Ensure inventory of crucial raw material exceeds usual amounts. Strict management in dealings with external parties and construction workers coming into the Company and the clean rooms. Conduct investigation regarding travel and contact history on all contractors and visitors. Monitor body temperature. Contractors with irregular body temperature will be denied access to the factories.

Due to the COVID-19 outbreak in 2020, PSMC actively put in place a series of control measures to prevent spread. As of the second quarter of 2020, the measures were successful and no confirmed cases were reported.

Countermeasures for outbreak

Grade	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
Domestic pandemic status	Cases reported in neighboring countries with whom we have frequent contact, but no confirmed cases domestically	Confirmed imported cases reported	Confirmed imported cases and person-to-person spread in the Company's Hsinchu and Miaoli base of operation	Source of community spread unknown	Countrywide spread
Work from home	None		Planning according to group division	Implement according to group division	Total implementation



Visual material of travel and contact history questionnaire



COVID-19 Prevention Graphics

◆ Financial risks

- (1) The impact of fluctuation in interest rate, exchange rates, and inflation on the Company's profit or loss and its future countermeasures:

1. Fluctuation in interest rate

Unit: NT\$ thousand; %

Year/Item	2018	2019
Consolidated interest expense	465,883	523,363
Consolidated operating revenue	49,913,779	35,897,121
Percentage of consolidated interest expense over net revenue	0.93	1.46

Source of information: Audited consolidated financial reports

In 2018 and 2019, the percentage of interest expense over net income amounted to 0.93% and 1.46% respectively; in which for 2019, the increase in percentage was mainly due to utilization of syndicated loan and short-term borrowings, causing a hike in interest expense. However, the percentage for both periods was deemed low, mainly due to the operational needs and capital expenditure arising from loan interest expense by financial institutions. The interest rate might fluctuate, but it did not impact the revenue and profitability of the Company significantly. The Company had both fixed and floating rate loans, and therefore monitors and analyzes the interest rate's fluctuations of the financial market and the cash flow impact caused by interest payments; timely evaluations on interest rate risks posed by the interest loans were also made consistently. Measures would be taken according to the needs at the time to reduce the impact interest rate fluctuation had on the profit and loss of the Company.

2. Fluctuation in exchange rate

Unit: NT\$ thousand; %

Year/Item	2018	2019
Consolidated net exchange gains or losses	166,282	(68,070)
Consolidated operating revenue	49,913,779	35,897,121
Percentage of consolidated net exchange gains or losses over net operating revenue	0.33	(0.19)

Source of information: Audited consolidated financial reports

In 2018 and 2019, the percentage of consolidated net exchange gains or losses over net operating revenue amounted to 0.33% and (0.19)% respectively. Since the Company's capital expenditures and manufacturing costs are mostly incurred in non-Taiwan currency such as USD and JPY and its revenue is mainly

in USD, extensive fluctuations in exchange rate may have a negative impact on the Company. The Company adopts a natural hedging strategy while supplementing with forward exchange contracts to mitigate exchange rate risks according to the fluctuation of the exchange rate market, actual position and capital status.

3. Inflation

The Company has not been significantly affected by inflation. Further, the Company closely monitors market inflation and has good interactive relationship with suppliers and customers so as to avoid the impact caused by inflation on the Company's profit or loss.

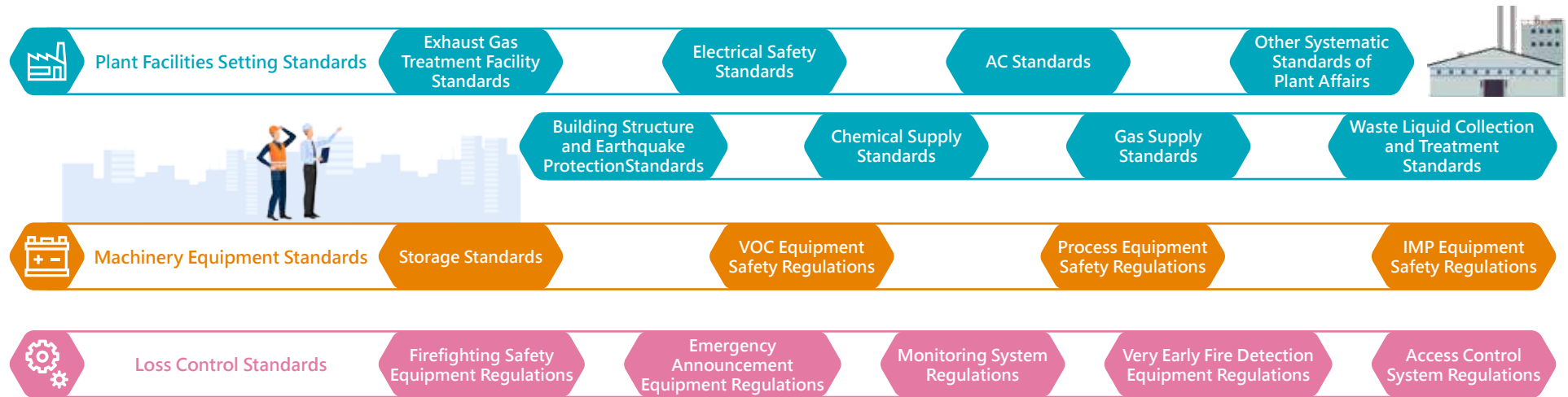
- (2) The rationale of policies and future countermeasures for the profit or loss incurred for engaging in high-risk, high-leverage investments, loaning funds to others, endorsements/guarantees and derivatives:

1. The Company has established "Procedures for Lending Funds to Other Parties", "Procedures for Endorsements/Guarantees" and "Procedures for the Acquisition or Disposal of Assets" which serve as the basis of compliance for the Company. The Company has not engaged in high-risk and high-leverage investments, lending funds to other parties and extending endorsements/guarantees.
2. The Company mainly engages in derivative transactions to mitigate the exchange rate risks for USD-NTD and JPY-NTD. The risk arises from assets and liabilities in foreign currencies. The derivative transactions are risk mitigating in nature and are strictly subject to the "Procedures for the Acquisition or Disposal of Assets", which serves as the basis of compliance for these transactions. As such, the Company is not exposed to major risks.

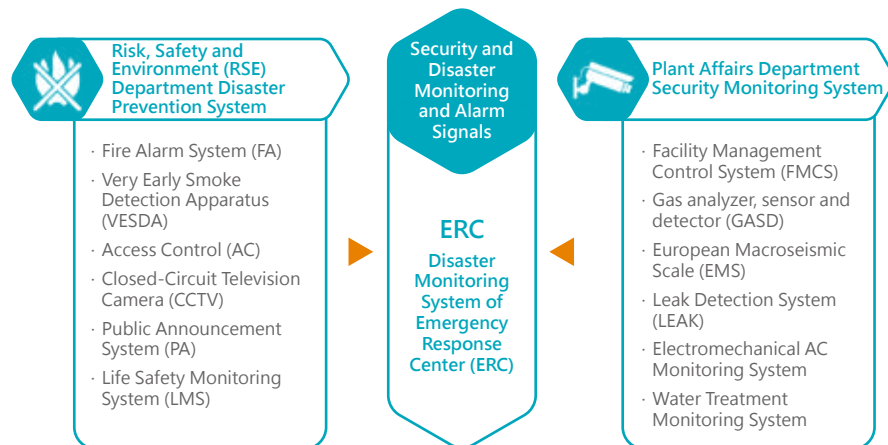


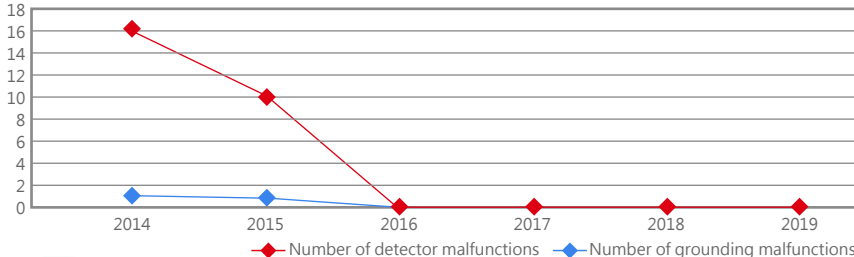
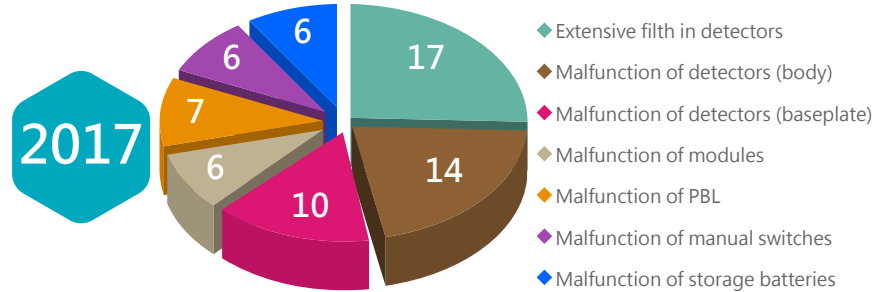
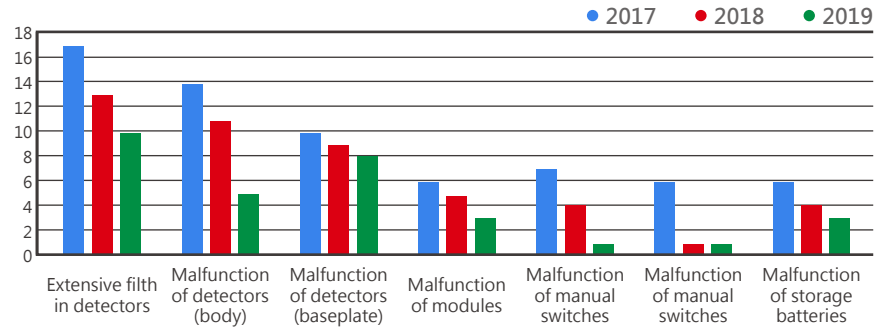
◆ Security Surveillance

The hardware facilities used in the Company's daily production are in compliance with the domestic and foreign regulations as well as the actual conditions of various plants. Security standards and control measures of plant machinery and equipment are compiled by the professionals of Risk Department; ensuring industrial safety risks are controlled from the source.



Further, Emergency Response Center (ERC) is established in all factories. Through an integrated disaster monitoring system, the Company has more time to respond when disasters occur. Proper early response can not only reduce casualties and environmental pollution to the minimum, it can also substantially reduce equipment loss and increase the recovery of the factories.

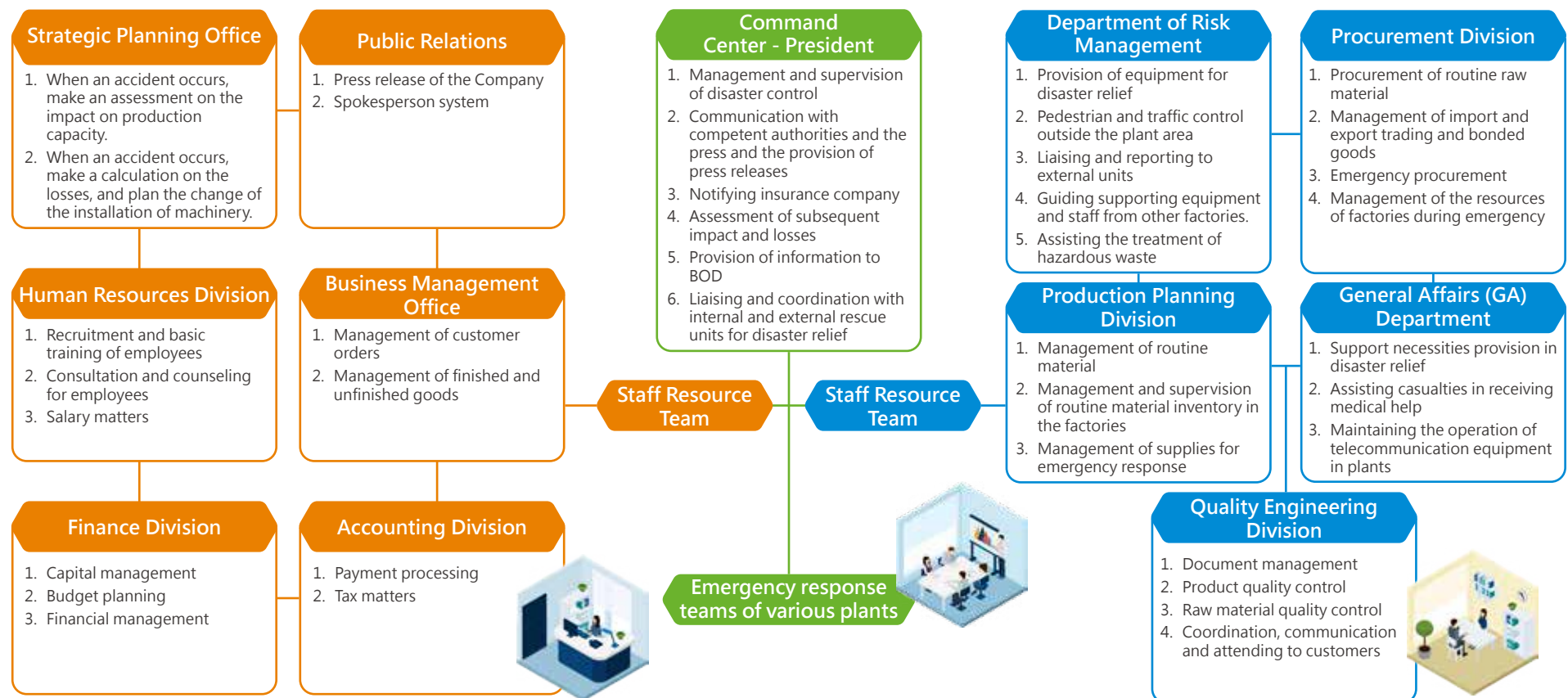


Safety Improvement performance		
	P3 Factory Area Fire Alarm System	P1/2 Factory Area Fire System
Yearly Improvement Schedule	<ul style="list-style-type: none"> As the supply for the relevant equipment has been discontinued (2006~), it is expected that the existing 8 main engines of the old system will be replaced. Outdoor detector/circuit aging can easily cause detectors to malfunction and form a ground loop. 	<ul style="list-style-type: none"> Using the malfunction data of the fire system in 2017 as the basis of analysis, the systemic preventive management for 2018 to 2019 was conducted to strengthen the existing system especially in regards to the high malfunction rate of the equipment. Improvement projects on systems in high risk areas were undertaken. Budget items were executed according to schedule. For high risk areas (areas in which systems frequently malfunction due to environmental factors), increase inspection rate. Management of system spare parts (established safe level of storage and checked the quantity quarterly). Regular inspection on special areas and replacement of lifetime system components.
Concrete Results	<p>Apart from replacement of equipments, the pipelines had to be replaced as well.</p> <p>From the data in the table, this year (for the past four years), the number of earth faults and the replacement of malfunction detectors were both zero, an evident improvement compared to data of 2014 and 2015.</p> <p>Completed</p> <p>Gamewell FACP was to be only used in the P3 factory in Taiwan, but the related equipment has been discontinued (2006~), so the existing old system (Gamewell) with 8 mainframes will be replaced with an existing new system (Notifier). The planned replacement schedule is as follows:</p> <div> <div> <p>Phase 1 (2016)</p> <p>Due to the serious aging of the system in the peripheral and outdoor areas, the NODE7 mainframe fire and fire alarm system will be replaced first, and NODE4 mainframe will also be replaced. The areas concerned are FAB6~8F and SUP6~8F; the original equipment (NODE mainframe, Detector... etc.) will be kept as spare parts for other areas.</p> </div> <div> <p>Phase 2 (2017)</p> <p>The NODE2 and 8 mainframes will be replaced; areas concerned are FAB1F, SUP B3F~3F, SUP building escape ladder rooms, of which the SUP2F and 3F replacement areas will be outside the clean rooms.</p> </div> <div> <p>Phase 3 (2018)</p> <p>NODE3, 5, and 6 mainframes will be replaced; areas include clean rooms, FAB2~5F and SUP 2~5F.</p> </div> <div> <p>Phase 4 (2019)</p> <p>Considering that NODE1 includes the whole fab area's alarm bell broadcast system, it was replaced lastly, includes the whole CUB building and PS building.</p> </div> </div> 	<ul style="list-style-type: none"> For areas with less optimal environmental conditions, the fire detectors were replaced earlier than schedule to reduce the occurrence of malfunctions and false alarms. For malfunctions in detectors, the baseplate should be examined. It is replaced altogether to reduce the occurrence of malfunctions and false alarms. Detectors with extensive filth are replaced ahead of schedule to reduce the occurrence of malfunctions and false alarms. The statistics of the number of malfunctions in system components from 2017 to 2019 present a downward trend.  

♦ Emergency response

To apply the correct and effective response measures in case of an emergency so as to minimize the casualties, property damage and impact on the environment due to an accident, the Company has established the "Plant Disaster Emergency Response Measures" and formed and trained an emergency response team. The team is subjected to a departmental drill at least once every six months, and a comprehensive (cross-departmental) drill once a year. General employees are subjected to one evacuation drill every year.

Organizational Chart for Emergency Response



Organizational Chart for Regional Emergency Response

Regional Command Center

1. Coordinate contingency command
2. Decide the evacuation of the personnel in the area of responsibility
3. Contact and coordinate the response of each group
4. Announce the situation has been cleared and decide if personnel can return
5. Notify emergency rescue units outside the plant



Staff Support Team

1. Confirm the disaster prevention system
2. Report on-site conditions
3. Coordinate personnel work
4. Assist in resource scheduling and confirmation
5. Assist the commander



Security Control Team

1. Guide personnel in evacuation
2. Control Personnel
3. Isolate disaster area
4. Record all entry and exit to and from the disaster area/ inspect equipment
5. Set up decontamination/ decontaminate equipment

Rescue Team

1. Search and rescue personnel at the scene of accident
2. Rescue and contain scene of accident
3. Remove and block dangerous objects
4. Salvage important materials
5. Support firefighters who are in rescue
6. Inspect the environment

Emergency team

1. Set up a temporary first-aid station
2. Treat the injury and send to hospital if necessary



Equipment wearing training



Fire fighting training at Minghu Fire Station



Training of the use of a fire extinguisher



Evacuation drill

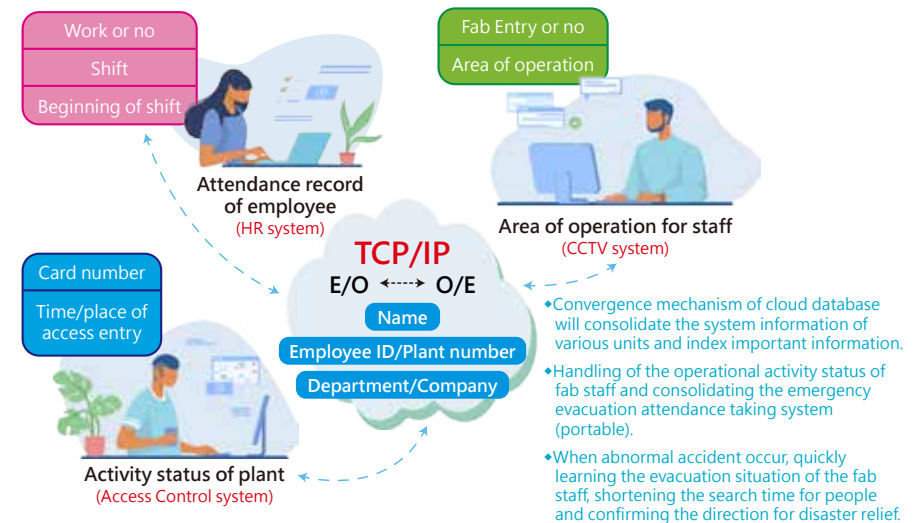


We plan to execute courses in emergency personnel practice and examination quarterly, and regularly hold emergency personnel refresher training to greatly increase the emergency response capability of emergency personnel. The related courses takes into consideration the characteristics of 24 hours shift working time of the employees, so an E-learning system and health management system is employed for the employees to receive health information and take training courses anywhere, anytime.



Diagram for E-Learning system

Establish an attendance taking system for emergency evacuation. The gathering time for attendance taking may be reduced from between 15 to 20 minutes to 15 seconds, significantly lowering the required time for attendance taking and human error. Via the gathering of cloud information, the search area of the rescue team can be targeted to the last access entry which can effectively reduce the number of rescuers and rescue time.



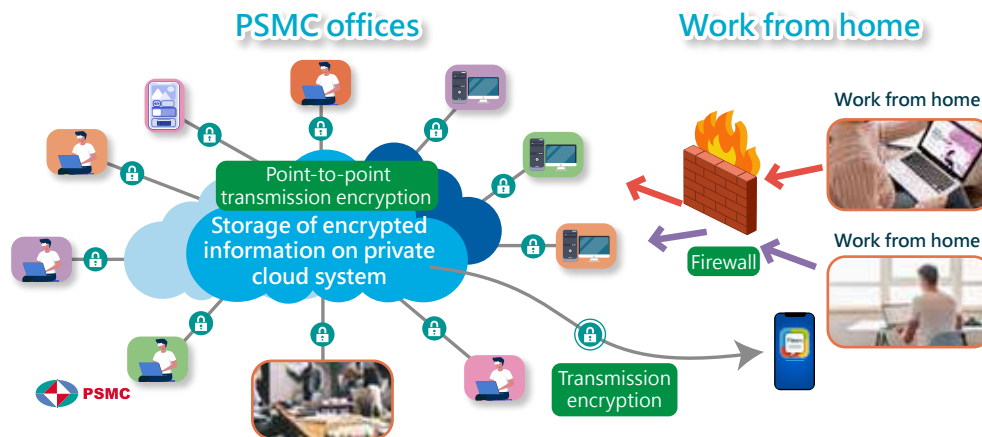
Column - Creative communication

Pteam Project

With the development of information technology, communication tools have advanced from telephone, e-mail, instant messaging to collaboration tools. Communication efficiency thus has increased significantly. However, the challenges faced pertaining to information security is also becoming grimmer. After assessing the collaboration tool products on the market, it is noted that for information security protection, these products are unable to satisfy PSMC's commitment in the protection of trade secrets. As such, the Company has gone a step further than its industrial counterparts and decided to develop the Pteam collaboration tool. By totally leading and controlling the product's technology, software and hardware specifications/framework and database servers, PSMC can protect its crucial intellectual properties and make real-time adjustments to the functions according to the operational needs, earning the optimal adaptability and immediacy from the system completely.

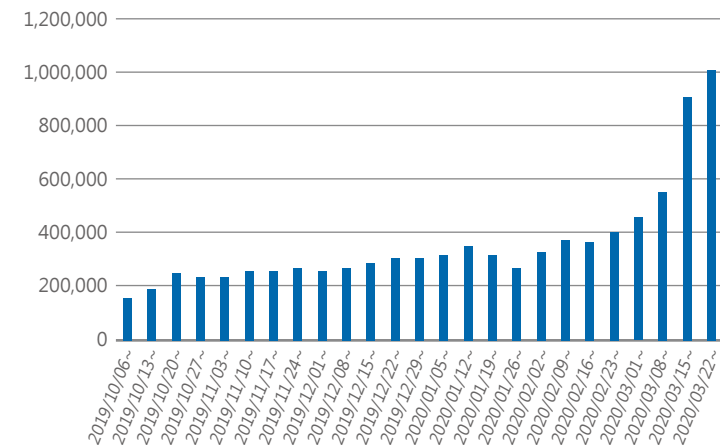
In addition to the general collaboration tool functions, Pteam also focuses on the information security management on mobile devices. Due to the COVID-19 outbreak at the beginning of 2020, Pteam made preparations ahead, launching online meetings, body temperature monitoring, working from home and other functions in time, thus providing the best practicable solution for disease prevention measures. Seeing that the external environment is ever changing, corporations must upgrade themselves in order to survive. Pteam is PSMC's response in the advent of the 5G era, proving our determination in the pursuit of excellence.

Since going online, the use of communication and online meeting on Pteam has grown substantially, and thus further developing the work-from-home platform and reducing the impact caused by operational interruption due to the outbreak.

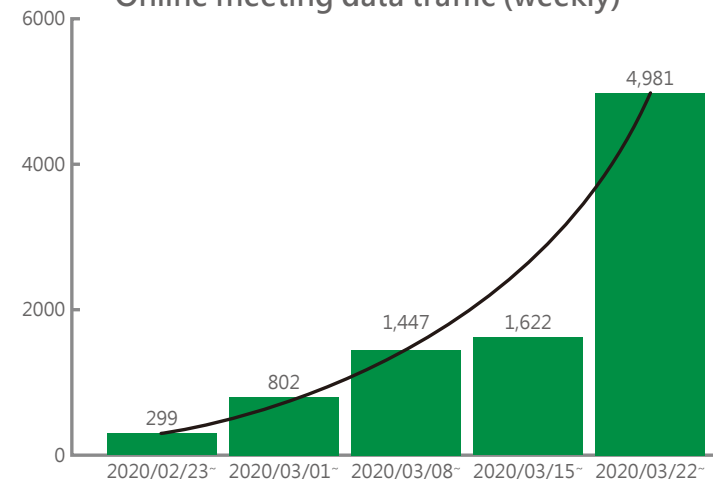


- Instant messaging/voice messaging, consolidated internal systems, online meeting, body temperature monitoring, work from home, clock in from home...
- Disease prevention: Reduce crowd gathering, maintain indoor social distance of 1.5 meters. Use of Pteam facilitates online discussion.

Data traffic (weekly)



Online meeting data traffic (weekly)



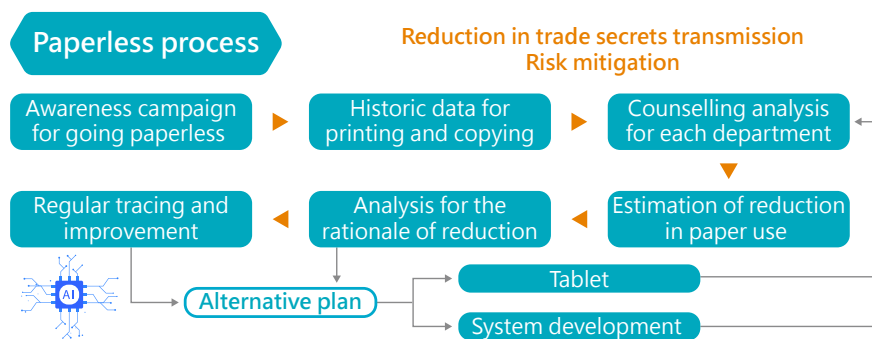
1.5 Information security control

Information Security Policies

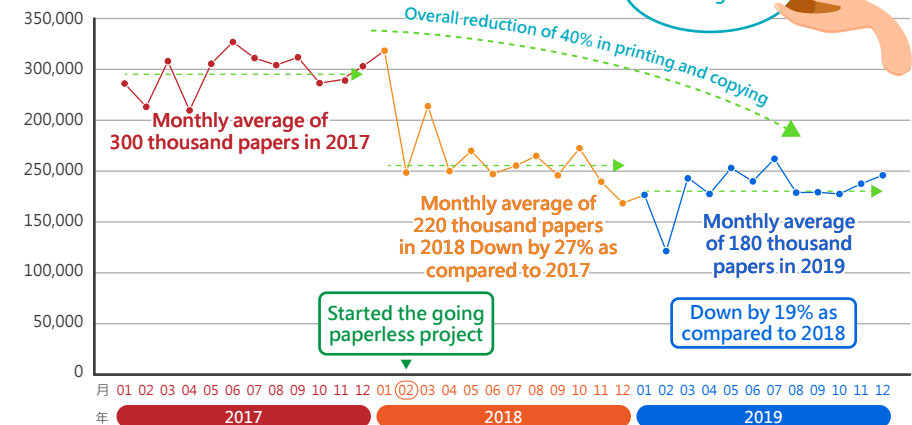
To ensure the information security of the correspondence between the Company and its customers/partners, and thus protecting the interest of the Company and its stakeholders.

The Company is a technology-intensive company. We are well aware that our competitiveness is built on the security of our intellectual properties. As such, the Company has established the "Information Security Policies" and "Information Security Management Measures" internally to regulate relevant measures undertaken by the Company to protect important information, including trade secrets and intellectual properties, while protecting correspondences with our customers. All information and documents sent between the Company and customers are strictly controlled and documented under the internal system. The approval and activation of the access level of internal personnel shall be handled in accordance with the relevant operational procedures of the systems.

When implementing information security management, it is difficult to control paper trail in practice. Due to raised awareness for environmental protection in recent years, PSMC began to implement a plan to reduce paper use in February 2018, in hopes of replacing paper with electronic equipment, so as to improve systemic operations (application/enquiry/reading). Thus implementing the environmental protection measures of energy saving and carbon reduction policies while strengthening information security. In 2019, the plan to reduce paper use continued. For 12-inch fabs, the monthly average of 220 thousand papers used at the end of 2018 was reduced to 180 thousand papers at the end of 2019, down by another 19% (during 2018, monthly average of 300 thousand papers used was reduced to 220 thousand papers). For 8-inch fabs, due to restructuring in May 2019, the monthly average of 104 thousand papers used during the restructuring was reduced to 85 thousand papers at the end of 2019, down by 18%. The Company will continue to answer the call for environment protection with actions and implement measures for energy saving and carbon reduction, while reducing information security management risks posed by paper documents more effectively.



Results of going paperless at 12-inch fabs



According to the "Information Security Policies", the Information Security Committee is composed by the representatives appointed by all relevant units who are responsible for formulating and implementing the Company's security control operations. The Committee holds meetings regularly to discuss and resolve issues relating to information security, covering aspects on human resources, physical security, and information security. When major changes or an incident involving information security occurs, an emergency meeting is held. Each year, via training and internal announcements, the Company promotes and communicates the importance of information security to all its employees to implement its information security policy.

Since 2018, the Company has launched a trade secret control project, strengthening access control and monitoring, information system access management, and the storage and review on access logs, so as to strictly control personnel access and data access (such as prohibiting the use of private storage devices in the Company; installation of monitoring software on computers distributed by the Company, personal mobile phone with cameras and controlling software; security checks on personnel entering and leaving the company). We also avoid any improper storage, retrieval and tampering of company information; and also prevent theft or leakage of trade secrets and intellectual properties. In 2019, PSMC had no occurrence of "proven violation of customer privacy" and "complaint on missing customer information" that would damage the interest of an external party. Moreover, all of our colleagues must participate in the training on "Information Security Management Measures" (including information security training for the orientation of new recruits) each year to strengthen their awareness on the issue, so as to ensure information security for the Company as a whole. During 2019, all employees of PSMC (not including expatriates) had completed the training on "Information Security Management Measures".

A person with a backpack is walking away from the camera on a wooden bridge or path through a dense forest. The trees are tall and thin, with green foliage. The scene is slightly hazy, suggesting a misty or early morning atmosphere. The bridge has a wooden railing. In the bottom left corner, there are orange hexagonal outlines. In the top right corner, there are orange circuit-like lines.

2

Striving for green innovations

2.1 Competitive niche

2.2 Innovation and R&D

2.3 Customer service

2.4 Suppliers

2. Striving for green innovations

Sustainable profitability and Management Policies

PSMC is in the high-tech industry where making a steady profit is a basic requirement for the sustainability of an enterprise. We are therefore committed to maximizing the Shareholders' and stakeholders' interests. As such, we strive to maintain technological advantages to create stable profits, as the sustainability of the Company is our most important goal.

Covered issues

Economic performances, intellectual property rights, production services, and R&D innovation

Regulations



- The Company conforms to the “Enterprise Patent System (E.P.S) and “Intellectual Property Management Measures.” Through patent research and development and technological innovation, we offer more advanced and comprehensive solutions to secure a stream of orders from customers.

Goals



- Annual operation management target: Diversify product technologies and high gross profit products and sales portfolios. Advance process technology to increase profitability (including in 5G, automotive, big data, AIoT).
- Short-term goal: Acquire 140 patent proposals in 2020.
- Long-term goal: In the Computing-in-Memory technology platform, strengthen the AIM functions, add wireless data transmission, and expand product applications, such as Advanced Driver Assistance Systems (ADAS).

Execution



- Established an Intellectual Property Office that is responsible for the protection of intellectual properties. Through e-learning courses, the Company increased the employees' regulatory knowledge in intellectual property and secured its overall R&D results via the Intellectual Property Office.
- Expanded IP, established a reward system to encourage employee contribution.
- Established a Technology Development Center that is responsible for process technology R&D of various product lines, and promoted the “Open Foundry” operation model.
- Established a Strategy Planning Office that is responsible for formulating the direction of the Company's operations and customer development.

Management



- By combining the strategic considerations and operational goals, the Company continued to improve its patent management system, optimized the patent portfolio, and planned its maintenance costs meticulously. The internal patent proposals were reviewed and selected by the Intellectual Property Review Committee, in which proposals that were innovative and practicable for industrial use were chosen for patent application.
- KPIs were set according to the existing technological development schedule. Regular meetings were held to monitor the progress.
- Business management and performance review meetings were held regularly to set the goals and the corresponding necessary measures to be taken for operation management.

Performance



- Until the year-end of 2019, PSMC possessed a total of 899 valid patents.
- In 2019, the Company applied for 162 patents, of which 74 were granted patent certification, achieving the target for 2019.
- In 2019, the R&D team used 25 nm process technology and successfully produced the first AIM chip which was submitted to important customers for testing.
- As of July 2020, pertaining to the technical patent of the AIM chip, the Company had submitted a total of 22 multinational patent applications. One patent certification was granted.

Customer Trust and Management Policy

PSMC strives to ensure the production processes conforming to international environmental protection, satisfy customers' requirements in product quality and environmental protection specifications, and select proper suppliers for a steady material provision. These efforts are to earn customer trust so that they will continue to place orders with PSMC and create greater profitability.

Covered issues

Production management and quality control, customer health and safety, evaluation of the supplier environment

Regulations



- The Company has introduced the QC080000 management system, proving its commitment to systemizing the management of hazardous substances.
- Procurement policy of PSMC: Suitable material, suitable timing, suitable quantity, and suitable pricing.

Goals



- Establish the targeted score of 6S for different teams every quarter.
- Complete IECQ QC080000 certification for five factories in 2020.
- Improve customer satisfaction and maintain a score of 85.
- Assess and select 100% of the raw material vendors and contractors in accordance with the selection principles.
- Subject 100% of new suppliers to go through the preliminary survey.
- Achieve a 100% examination rate.

Execution



- The Company established 6S Management Teams, with the chiefs of factory areas as the conveners, and held many competitions and gave out cash rewards to encourage the employees in discovering production issues in the daily operations and making improvement recommendations and actual measures.
- In accordance with company policies and ISO/IEC QC080000 regulations, the overseeing unit strived to fulfill its duties in assisting with the management of hazardous substances.
- To ensure uninterrupted supplies from vendors, reasonable pricing, quality materials, and on-time deliveries, the Company conducted a vendor assessment every six months, and a contractor assessment every year. New vendors are all subjected to a preliminary survey.

Management



- In 2019, all competing departments had met their targets. Further, customers found no material weakness in the FAB audit.
- GP test report of production raw material/letter of undertaking for order fill rate was 100%.
- In 2019, 242 vendor assessments were conducted, in which two vendors did not pass the assessment and were canceled or had their contracts terminated. The rest of the vendors passed the assessment and fulfilled the regulations and requirements of the factories.
- Every quarter, the Management held the Management Review Meeting with the Environmental, Health and Safety unit, where the results of 6S participation in departmental improvement were announced.
- The effectiveness of hazardous substance management was reviewed regularly and the production processes were continuously improved.
- In 2019, the passing rate of vendor evaluation in 2019 amounted to 99.17%.
- The Company has established "Employee Professional Norms." Violations of supply procurement regulations can be reported to the Company via ethic@powerchip.com.

Performance



- In 2019, various departments achieved the 6S scores and the customer FAB 6S audit participating unit found no material weakness.
- GP test report of production raw material/letter of undertaking for order fill rate was 100%.

2.1 Competitive niche

According to the survey of World Semiconductor Trade Statistics (WSTS), in 2019, the global semiconductor market value amounted to US\$409.0 billion, down by 12.8% as compared to US\$468.8 billion in 2018. Looking to 2020, the market is expected to experience a positive growth of more than 5%, with main growth momentum coming from optoelectronic, sensor, analog, and logic products.

In recent years, due to capital expenditure saving and cost reduction considerations of major integrated design manufacturers (IDMs), the percentage of foundry outsourcing to OEMs have increased, which is helpful to the revenue performance of wafer foundries. According to the forecast of IHS Markit, in 2020, the market of foundry service itself is expected to see a positive growth of over 9%, which is a better performance than the overall semiconductor industry.

However, the COVID-19 outbreak that first occurred at the beginning of 2020 has since spread to every corner of the world. Concerns at the consumer market or the deferred effect cast over the product demand at the consumer end require careful observation of the subsequent impact on the global economy.

As the use of smartphones and peripheral products has become ubiquitous, they are serving as the interface for Smartphone as a Platform. This pivotal platform is going to connect more consumers to corporate applications. From 2019 to 2020, many countries are starting to give their full support to 5G commercial operations. The leading countries include South Korea, the USA, Australia, the UK, and Mainland China. The world has formally embarked on the 5G era. This year (2020), more big brands are going to launch 5G smartphones. The characteristics of 5G technology include high-speed transmission, low latency, and massive data. In addition to business opportunities brought by the construction of 5G infrastructure, the upgrading of terminal equipment will also manifest growth.

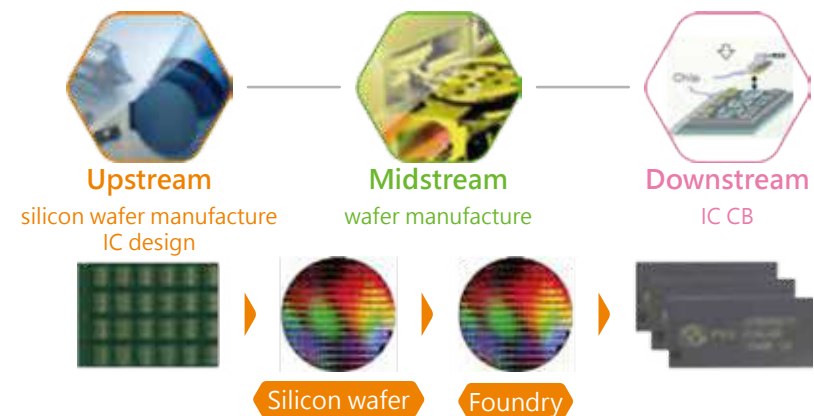
With the increase of computational capacity and data transmission speed, and the maturing networking and cloud data mining technology, the use of data to develop AI has become an important technological issue in recent years. It is expected that the AI application installed at terminal devices will develop in the following six directions: voice assistant, advanced photography, intuitive user interface, reduction in power consumption to prolong battery use, increase in networking quality, and increase in personal security protection. AI is gradually developing an all-round application for terminal devices, including smartphones, smart wear, drones, smart home, smart factory, smart driver assistance, smart mobile health services, public or security management or genome sequencing. These terminal devices are all connected to

AI. When 5G commercial operation succeeds and the AI era arrives, connecting IoT, Internet of Vehicle (IoV), smart environment, portrait or voice recognition, other application scenarios, behaviors and habits, it will bring massive changes and business opportunities to the semiconductor industry.

Meanwhile, with the advancement in AI technologies and its effectiveness, the maturing of IoT, and the construction of 5G mobile infrastructure, new forms of terminal devices will emerge, and thus increasing the complexity of chip designing. Apart from pursuing the consolidation of chip functions and low power consumption, more considerations in the production efficiency and the microfabrication processes in semiconductor manufacturing must be taken into account. 12-inch fabs are the mainstream size for semiconductor supply. The entry barrier for new competitors has become relatively higher than before. Compounded by global IDM big brands going Fab-lite¹, this transformational trend is increasingly evident, gradually boosting the foundry service orders further. Taiwan's foundry industry is the largest beneficiary in this wave of transformation. The Company possesses ample capacity in advanced 12-inch wafer processes and focuses on niche production, attracting many international IDM businesses and fabless design companies to our foundry services.

1. Fab-lite: Fab-lite model denotes minimal internal manufacturing, outsourcing more manufacturing tasks to foundries.

As the AI and 5G industries are maturing, in the future, the requirement for high speed and low power consumption for terminal devices will increase. In response to this trend, the Company actively develops specific logic and memory processes to better fulfill customers' requirements, thus providing foundry services with more competitive advantages to customers.



◆ Promoting “Open Foundry” operation model – innovative services mindset

In addition to providing a full line foundry technology platform, PSMC uses its wafer manufacturing technology and experience accumulated over the years to develop a new collaborative mechanism, “Open Foundry”, in the industry. Through diversified collaboration in products, facilities, production management, and design services, the Company provides customers with product planning that transitions seamlessly from 8-inch to 12-inch wafers. The Company collaboratively develops its process technology and technology platform, and assists in chip designing and product improvement with customers according to their requirements, thus increasing cost competitiveness and strengthening working relationships.

▲ foundry ● custome ◎ cooperation

	Product design	Process develop	Equipment	Operation Mgt.
Generic Foundry	●	▲	▲	▲
Open Foundry	▲ / ●	▲ / ● / ◎	▲ / ●	▲

Current Open Foundry Technologies and Products

• Power Management IC (PMIC)	• LCD Driver IC
• CMOS Image Sensor (CIS)	• SLC NAND Flash
• Integrated Memory Chip (IMC)	• Low Power DRAM
• Discrete Devices for IGBT and Power MOS	

◆ Markets served

The 12-inch plants of the Company have excellent yield, which is on par with international brands and possess a competitive advantage in advanced process costing. The Company collaborates with strategic alliance partners to build a shared designing platform and intellectual properties, providing customized foundry services, including logic and specific-application products, niche DRAM and NOR/ NAND flash memory. Collaborations with international brands are also actively sought after, to develop a diversified range of products. With a world-class production technology and standard, and strict quality control, the Company strives to satisfy customers with excellent foundry services.

The Company provides 12-inch foundry services with advanced technology. The Company not only provides an advanced niche memory process for domestic and overseas customers, it is also the only 12-inch foundry that provides a comprehensive memory product line. In the meantime, the Company also provides a customized logic and specific-application foundry service and therefore is the best collaborative partner for many international brands.

The development of IoT and AI has created a variety of demand for semiconductor, from cloud to edge¹ computing, providing a new long-term growth momentum for the semiconductor industry amid a maturing global smartphone market. In addition to a comprehensive memory designing service and manufacturing capability, the Company also possesses the production platform for DRAM/ NAND Flash and NOR Flash that can satisfy a wide range of customer requirements in memory products. The Company will continue to develop new generation memory production processes to maintain its competitive advantage in cost, while collaborating with OEM customers to provide diversified and high-quality memory products.

The compatible logic and memory production processes and capacity in foundry services of the Company are advantageous in the flexible allocation of production capacity amid a tumultuous economy, and conducive for increasing capacity utilization, allowing the Company to maintain better and stable profitability as opposed to our counterparts in the industry.

1. Edge computing is a distributed computing paradigm, as opposed to cloud computing, whereby “data computation” occurs at the location closest to the user.

◆ Company's current product (service) items

Item	Main products (services) item
Semiconductor wafer foundry services	1. Logic and specific-application foundry service: providing IC designing companies with foundry service for display driver IC, power management IC, discrete devices, CMOS image sensor, and embedded nonvolatile memory. 2. Memory products foundry service: providing IC designing companies with foundry service for DRAM and flash memory.
Packaging components	Memory chip products
Other designing services	Photomask service, intellectual property core service, design package service, yield enhancement service, and Shuttlez chip project.

The foundry services provided by the Company for terminal electronics applications can be divided into computers, communication, consumer, and automotive products; developing medical electronic application IC is also currently in process. The ubiquity of smartphones and the launching of AI-related products fuel the formation of the IoT industrial chain gradually and the upstream and downstream demand for components. To foundries, it has become ever more important to provide customized processes and development to customers to meet the requirement of “light, thin, durable and effective” for consumer end products.

The 12-inch and 8-inch wafer foundry services include logic and specific-application, and memory wafer foundry services:

(1) Logic and specific-application foundry service

After Moore's law in 28 nm nodes, the advancement of transistors has slowed down, proving advanced logic process is not the only direction in the market. The Company forgoes cash-burning advanced processes and turns to a more profitable market for specific-application products. With excellent logic process and technology, the Company provides more diversified and customized specific-application products (display driver IC, power management IC, discrete devices, CMOS image sensor, and embedded nonvolatile memory) and a diverse foundry collaborative model. Effectively shortening the customers' production process to increase their competitive advantage is the Company's competitive strategy. The 28 nm process still has a substantial mature market, including IoT, manufacturing, and automotive.

As opposed to the 12-inch standard logic foundries in the market which mainly use copper in the process, the Company can provide a low-cost 12-inch aluminum process platform. Under the same process, the cost for the usual 8-inch wafer may be lowered by 30%, which will substantially increase the product competitiveness of customers.

The Company provides professional foundry services with advanced technology for customized logic and specific-application products, which mainly include TFT-LCD driver IC, power management IC, discrete devices, flash, image sensor IC, integrated memory chip, RF chip, and biotech chips.

The crucial functions of main logic and specific-application products made with foundry service are as follows:

- ◆ Display driver IC is mainly used on small, medium, and large size faceplates and monitor drivers of ePaper, which can be used in televisions, displays, smartphones, tablets, e-books, and electronic shelf labels (ESL).
- ◆ Power management IC and discrete devices produced by the foundry services of the Company are mainly applied in various computers and their peripheral products, hand-held mobile installations, telecommunication application products, and consumer and automotive electronics.
- ◆ Image sensor IC is mainly used in CMOS image sensors installed in security devices, mobile phones, computer cameras.
- ◆ Memory IC is mainly used in microcontroller unit (MCU), domestic appliances, remote controls, and smartcard products.

Short-term sales targets

The 55 nm high-voltage LCD driver IC has been successfully mass-produced. Further, the Company is striving to develop an active-matrix organic light-emitting diode (AMOLED) faceplate driver IC to cater to the smartphone market demand. Power semiconductor components are developing toward introducing high-efficiency power field application into competitive processes. In other production lines, the Company actively seeks collaborations with international brands to develop a wider range of products.



Long-term sales targets

In addition to continuously developing advanced processes for logic and specific-application foundry service, the Company will establish a logic professional foundry platform and develop intellectual property core to provide professional foundry services. In the meantime, using its excellent manufacturing capability, the Company seeks to introduce proprietary technologies in its production for international brands.

At the same time, to cater to the ever-changing industry and maintain the flexibility of the Company, apart from providing commissioned services including production capacity, manufacturing and design, the Company will also provide the concept of diverse foundry mode (Open Foundry) as operation management, creating a win-win with customers in the future. Currently, the 12-inch plants business is consolidating with 8-inch fabs. In the future, the Company will provide customers with product planning that transitions seamlessly from 8-inch to 12-inch wafers for better service quality and more competitive foundry products with better CP value.

(2) Memory Wafer Foundry Services

◆ Process technology for DRAM

Considering the requirements of terminal consumer electronics are moving toward function enhancement, smaller size and power conservation, the design of chips incorporates function integration, low power consumption, increase in efficiency, and other requirements. Currently, a 25 nm process has been used for the making of niche DRAM. Among other things, the development of AIM chips needed for AI that mirrors neural network computing system (In-Memory Computing (IMC)) or new memory such as Wafer On Wafer (WOW) will heighten the position of the Company in the industry as the only memory product foundry that satisfies customers with customized memory requirements. The Company is working closely with customers or other major vendors to venture into the fast-growing semiconductor market for AI.

◆ Process technology for NOR and NAND Flash

The Company targets mobile devices, consumer electronics, and industrial application markets for its Flash products which are low-power, energy-saving, and highly reliable. Due to a growing variety of functions in smartphones, low data storage NAND Flash coupled with low-power DRAM has become the main memory planning for entry wireless telecommunication products. Further, low data storage NAND Flash is often found in consumer electronics, telecommunication products, IoT, and industrial applications. Currently, the 28 nm NAND Flash process is used in the mass production stage.

In recent years, many new applications have created more demand for NOR Flash memory, such as True Wireless Stereo (TWS), AMOLED faceplate, or 5G base stations. All these applications and facilities require the use of NOR Flash memory. New demand in product applications has brought the NOR Flash memory market from rock bottom back to life, to over US\$2 billion in sales globally. The Company is actively developing the new generation 48 nm NOR Flash process, which is estimated to be used in mass production at the end of 2020. The process will provide customers with high data storage, more competitiveness in cost while maintaining the quality requirement of flash products in terms of reliability.

With excellent and advanced memory technology, the Company provides 12-inch niche memory and flash product foundry services.

The crucial functions of memory products made with foundry service are as follows:

- ◆ The application of DRAM products is mainly in computers, telecommunication, and consumer electronics or automobiles, such as PCs, notebooks, printers, mobile phones, digital cameras, digital TV and wireless network products.
- ◆ NAND Flash is mainly used in hand-held mobile devices, consumer electronics and industrial-use electronics, or smart home appliances and smart electronic watches.



Short-term sales targets

For niche DRAM foundry service, since the 30 nm process has matured and been used in mass production, considering the requirements of terminal electronics are moving toward function enhancement, smaller size and power conservation, the design of chips hence incorporates function integration, low power consumption, increase in efficiency, and other complex requirements. The Company has assisted customers in using a 25 nm process in test production. Currently, there are more than fifteen 25 nm foundry products in development. The Company will continue to improve its process technology to maintain its competitive advance in niche DRAM foundry service.

For flash memory products, the Company possesses advanced process technology and product design capability in NAND Flash. The main products are SLC flash memory products ranging from 1Gb to 4Gb. The application includes consumer electronics, wireless telecommunication, and industrial-grade products, or smart home appliances, smart electronic watches, and wireless connections. As these application markets are growing steadily, it is expected that the market of SLC flash memory products will also grow steadily in the coming years. In the meantime, the Company has developed 28 nm NAND Flash which has gone into mass production. Because of the future global competition in the new memory product market, the Company will be able to maintain its competitive advantage.



Long-term sales targets

For DRAM foundry service, apart from continuing to provide advanced processes to strengthen competitiveness, the Company will collaborate with customers to produce customized products, to increase the product life, and in turn seek a long-term steady growth. For NOR/NAND Flash, the Company shall develop the next-generation advanced process technology to increase the competitive advantage of products. Currently, the Company is striving to develop new markets and customers in Greater China to establish a long-term steady export.

2.2 Innovation and R&D

In the global foundry service industry, PSMC is the only foundry with DRAM, NAND/NOR flash, and logic process technologies. To actively boost its R&D momentum, PSMC has established three Business Unit General Managers, in hopes of leading the Company in developing integrated technology for memory and system-on chip (SOC) and collaborate with OEM customers in effectively developing new product technology platform, and hence opening new application areas in the memory business for PSMC.

◆ Future direction of R&D

Advanced and Green Electronics with Energy Efficiency

Usually, for semiconductor process technology to boost a new generation, the line width of IC must be shrunk by a certain percentage (70%), so that the chip surface area of products will grow smaller (0.5 times) and the power consumption of the electronics will also be lower.

PSMC provides a wide variety of comprehensive specific processes. With an excellent capability in integrating the early and later stages of the processes, the Company possesses competitive advantages in terms of optimum power consumption, efficiency and chip size, producing more advanced, energy-saving and eco-friendly products for customers and lowering the impact on the environment caused by technological advancement.

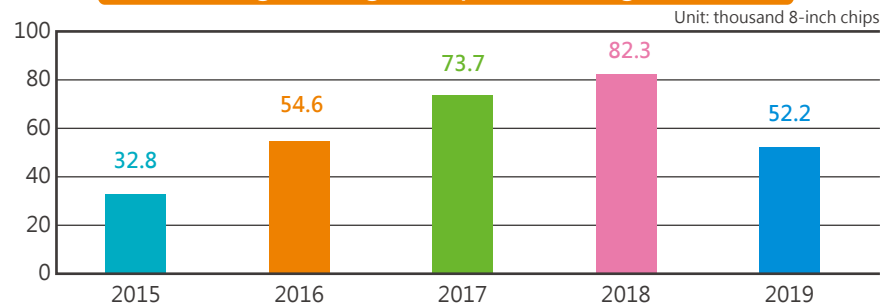


Environmental Contributions of PSMC's Professional IC Manufacturing Services

- PSMC products with notable environmental and social contributions are as follows:
 - ◆ DRAM
 - ◆ FLASH
 - ◆ Small/large panel display driver IC
 - ◆ Low power consumption LED driver IC
 - ◆ LED driver IC for indoor and outdoor solid-state lighting
 - ◆ MOSFET is applied in battery protection, AC-DC transformers, battery chargers, machine tool batteries, servers, step motors, and 5G base stations.
- Continuous development in new process technology to lower power consumption of chips and increase resource conservation.
 - ◆ PSMC continues to develop semiconductor advanced process technology to manufacture advanced, energy-saving and eco-friendly products for customers and contribute to the sustainability of the planet. For example, the number of electronic components that the 80 nm chip can fit in is twice the amount of 110 nm. The power consumption of products with 80 nm IC in use or sleep mode is 70% of products with 110 nm IC. In other words, the efficiency of the unit surface has increased by 2.8 times. The goal of PSMC is to increase the development of 80 nm or more advanced process technology (e.g. 55 nm, 40 nm, 25 nm process technologies), and increase the percentage in sales revenue of 80 nm or more energy-saving processes, contributing to the growth of the Company and the sustainability of the planet.
 - ◆ It is estimated that the optimization of the 2X nm DRAM process will be completed in 2020. Every wafer will have a 30% increase in DDR4¹ chip number.
 1. Dual Data Rate 4 (DDR4) is the fourth generation double data rate synchronous dynamic random-access memory.
 - ◆ For energy-saving products, the Company strives to increase process technology. In 2018, the Company managed to develop NAND Flash 40 nm foundry technology platform to provide customers with a 22% increase in production. In 2019, the Company managed to develop NAND Flash 28 nm foundry technology platform, to further provide customers with a 29% increase in production of 40 nm foundry technology platform, effectively lowering the production energy consumption.

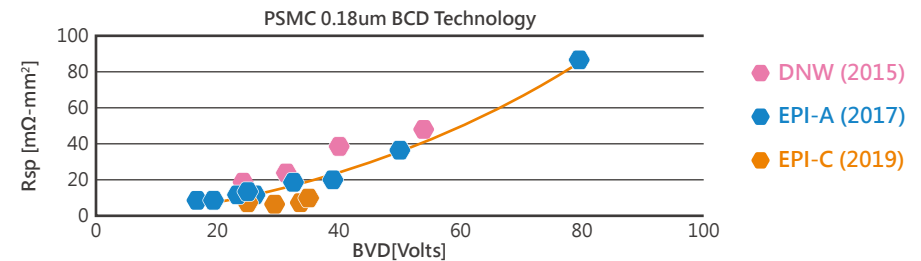
- Providing power management IC technology with the best power management efficiency
 - ◆ PSMC successfully assists customers in designing and manufacturing green products. For example, the power management IC is the most iconic green product; it is the core component in the power consumption of all electronics. PSMC provides customers a design platform with high energy efficiency. Customers can develop various energy-saving products via this platform.
 - ◆ Currently, the R&D team of 8-inch and 12-inch foundries have developed process technologies of MOSFET, Bipolar-CMOS-DMOS (BCD), and ultra-high-voltage (UHV).
 - ◆ Enabling customers to produce high-quality power management ICs that can obtain a stable energy supply and reduce power consumption. The IC has since become ubiquitous in consumer electronics, telecommunication products, and computers. The BCD process of PSMC with a high CP value is the best process option for power management IC, LED driver IC, and LED driver IC for indoor and outdoor solid-state lighting.
 - ◆ Further, the 700-volt UHV process that PSMC provides is the best choice for producing high conversion rate AC-DC transformers, indoor and outdoor solid-state LED lighting, high-efficiency BLDC motor and other green product applications.
 - ◆ The sales revenue made by power management IC makes up a high percentage in the industrial application products of PSMC. From 2015 to 2019, PSMC sold 295 thousand high-voltage and power management ICs.

Sales of high-voltage and power management ICs



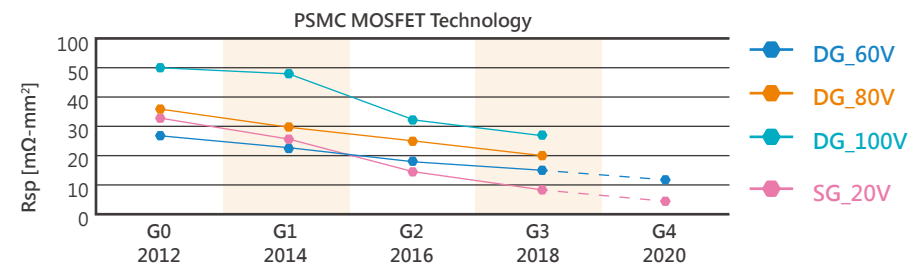
0.18 micron BCD technology of PSMC

- ◆ BIPOLAR, CMOS and DMOS field-effect transistor (FET)
- ◆ Rsp denotes the spreading resistance. It is measured in $\text{m}\Omega\text{-mm}^2$. Usually, the lower the Rsp, the better the voltage conversion efficiency.
- ◆ In 2017, the first generation was made by the technology known as the Epi-A platform which used a silicon atomic layer of silicon substrate epi as a base. As opposed to Deep N-type Well (DNW) technology in 2015, it was able to provide more high voltage options.
- ◆ In 2019, the Company managed to develop the third generation Epi-C technology platform, in which the drain voltage (VD) of high voltage components working under 24 volt could further improve Rsp (approximately by 50%).



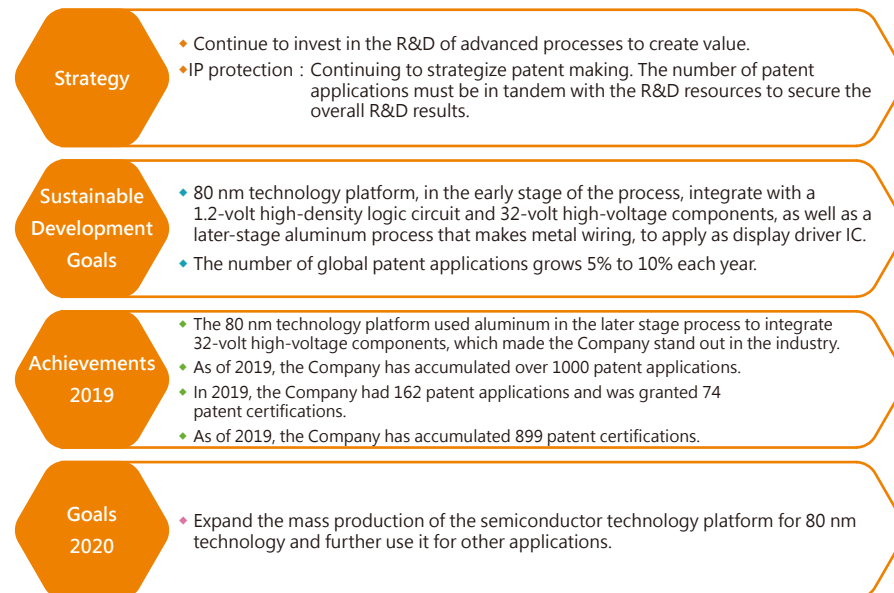
PSMC Discrete MOSFET

- ◆ The lower the Rsp [$\text{m}\Omega\text{-mm}^2$], the better the voltage conversion efficiency.
- ◆ G1 represents the first generation process component, so on and so forth.
- ◆ SG = Single Poly Trench Gate MOSFET
- ◆ DG = Double Poly Trench Gate MOSFET



Note: MOSFET is an electronic component made with numerous MOSFET components of the same type and serves as the switch of the circuit. The BCD process uses IC to make various types of MOSFET components to form logic circuits to control the voltage or current of the power supply.

◆ Technology innovation

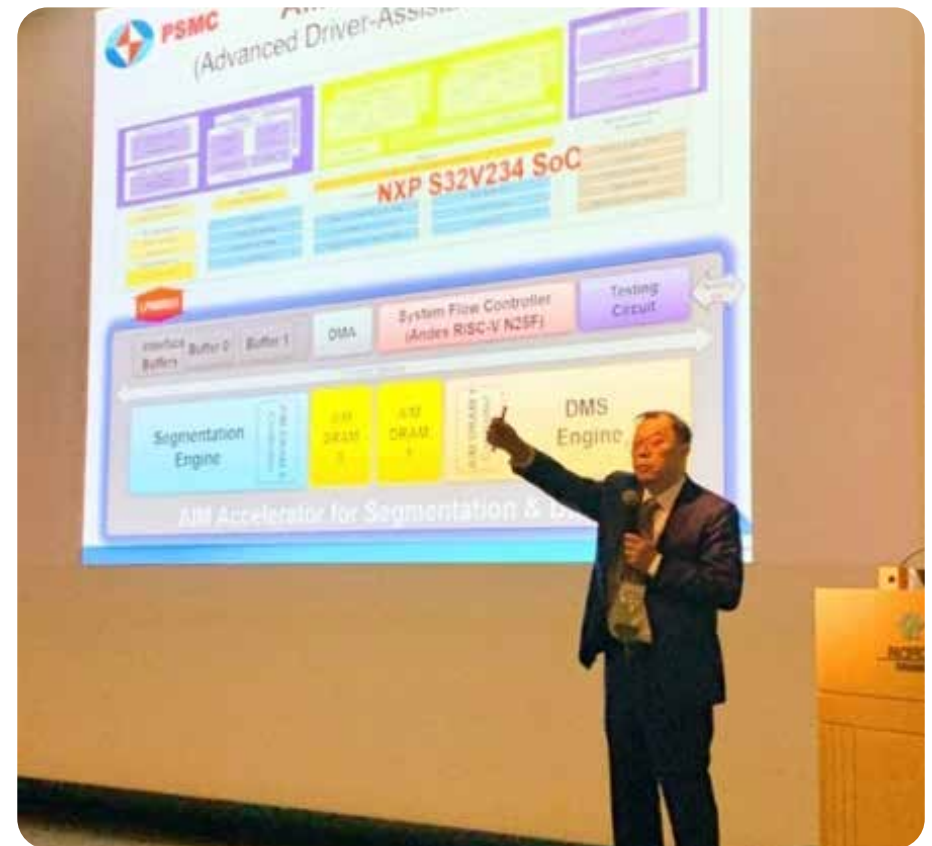


Making use of the R&D and production experience in memory products, PSMC will strive to develop a variety of logic and memory chip integration, to become the foundry service provider with the most competitive advantages and stand out from its counterparts in the industry. The focus of future technological R&D will be based on the existing foundation. The Company will continue to develop different logic and memory foundry process technology platforms in order to provide customers with world-class foundry services in hopes of becoming one of the best manufacturers in logic foundry and memory foundry process technology globally.

In response to the continuous increase in AI edge computing in the age of 5G, how to increase the efficiency of AI computation in IoT chips while maintaining the same level of power consumption has become a conundrum for the IC designing industry. PSMC had managed to develop AI in Memory (AIM) chip technology in 2019, which placed the relevant IP of CPU and DRAM in a single chip. As such, the data transmission from MCU to DRAM could increase substantially from the usual 32-bit to 4,096-bit, which not only increased the bandwidth of data transmission but also gave rise to low latency and low power consumption, so much so that it could also incorporate the Wi-Fi chip function, allowing a single chip to acquire all needed functions that were equal to a SOC computer, while lowering the power consumption of the chip.

Further, under the Von Neumann architecture, the bottleneck of the traditional AI computation was such that data required sequential processing, but the actual AI computation required non-sequential processing. However, PSMC's AIM technology was able to assist IC designers in developing a post-Von Neumann architecture memory processing method. Apart from increasing the data transmission bandwidth from CPU to DRAM substantially, it could even incorporate circuit control in the storage and retrieval of data in memory, and use non-sequential processes to read DRAM data at high speed, thus increasing the execution efficiency of the AI computation.

ET & IoT Technology 2019, keynote speech by Chairman Frank Huang




Specific Logic Foundry Technological Column	
Specific process technology	Application
Complementary metal-oxide-semiconductor image sensor (CIS)	New generation micrometer pixel fingerprint-on-display (FOD) sensory application in mobile devices and information security.
Power management IC/BCD technology	An exclusive 80 nm BCD technology, in the early stage process, front end process integrates 1.2-volt high density 80 nm logic circuit and 9 to 100-volt power supply components; back end involves an aluminum process for metal wiring. It is a process with very competitive costing and can cater to the next generation demand for power management IC (PMIC) solutions in the industry.
LED driver IC	The advanced UHV process can produce AC-DC transformers with high conversion rates; energy-saving and low cost, providing various indoor and outdoor lighting options.

Advanced BCD IC making technological services and new innovative processes.


2015

- With an innovative component framework, PSMC managed to develop 0.18-micron high-voltage BCD technology that was leading in efficiency, producing highly efficient and low power consuming LED driver chips.




2016

- With an innovative component framework, PSMC managed to develop 0.18-micron high-voltage BCD technology that was leading in efficiency, catering to the demand for highly efficient and low energy consuming power management IC.




2017

- Second generation 0.18 micron UHV BCD technology produced LED driver chips with an even more efficient conversion rate and lower power consumption.




2018

- Second generation 0.18 micron UHV BCD technology catered to the demand for more efficient and lower energy consuming power management IC.



2019

- PSMC planned for a brand new component framework of 90 nm BCD technology, which integrated 1.2-volt high density 90 nm logic circuit and 9 to 100-volt power supply components, paired with a back-end aluminum process for metal wiring. This process technology had a higher competitive advantage, which could provide more efficient and low energy consuming mobile PMIC solutions.

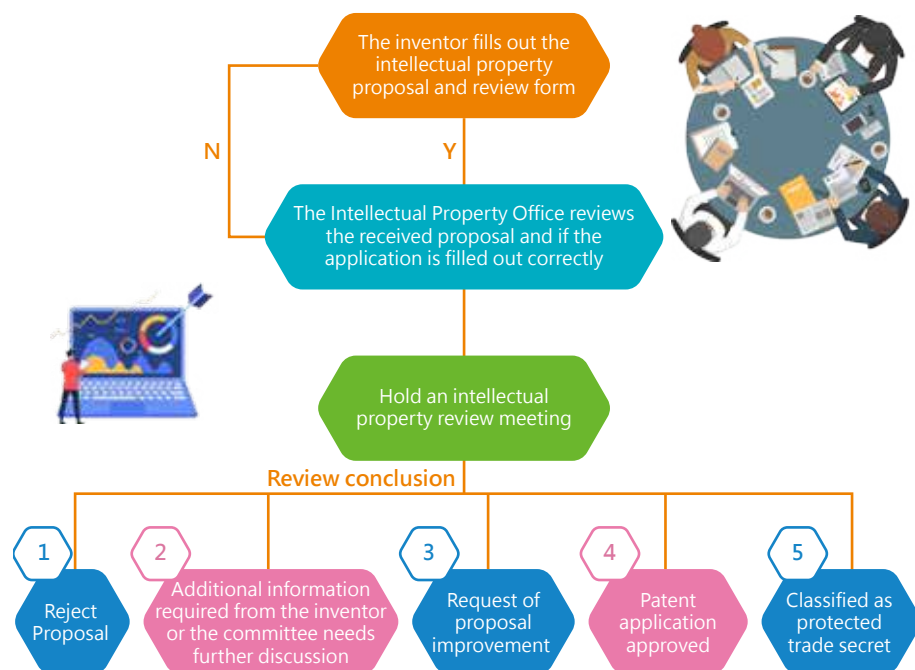


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◆ Intellectual Property Management

PSMC operates in a high-tech industry that requires proprietary technologies to achieve operational freedom. As such, the Company secures its overall R&D results and strengthens its competitive advantage via patent applications. The Company has established an Intellectual Property Office to oversee matters regarding intellectual properties. The Office formulates strategic plans for managing the intellectual property capital based on the patent layout and combines the Company's strategy considerations and operation goals. The Office also continues to improve the intellectual property management system, optimize intellectual property portfolios, and carefully maintain costing to implement the output, management and application of intellectual properties to ensure the leading technological position of the Company. The intranet of the Company has established a section for "PSMC IP." The employees can submit a patent proposal, conduct training and share knowledge via this section.

To strengthen the management of intellectual property rights, the Company has specifically formulated the "Procedures for Intellectual Property Management" to encourage employees to contribute their ideas and make new invention proposals for relevant technologies in R&D, production and operations. Certain internal procedures will determine the patents, trademarks, trade secrets, or other intellectual property rights to be processed, to expand the Company's intellectual properties. Procedure chart of intellectual property proposals:



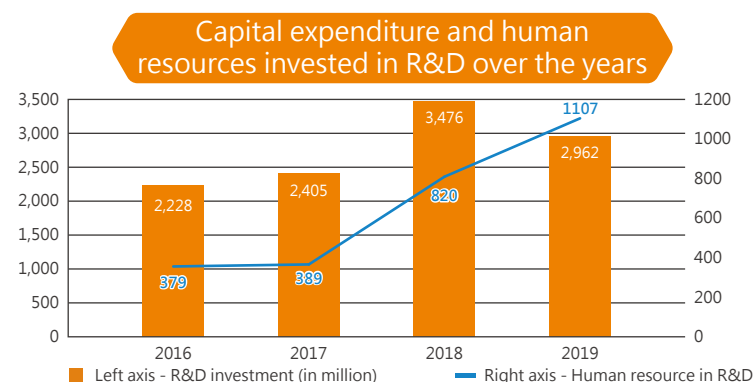
The Company continues to invest in innovative R&D and patents, strengthening the powerful capital of knowledge. Recorded e-learning courses can increase the employees' regulatory knowledge of intellectual properties. The Company also encourages proposals on new technologies and new ideas from employees. The inventor will be given a bonus after the proposal has been approved and will be granted a reward after the patent is obtained. These measures will foster a culture that encourages internal innovation and R&D.

The Company also makes use of the Derwent Innovation patent database. The database includes the search platform for IP. Employees can make use of the product function provided by the database to do a smart search and analyze the global patent development trend for a particular technology, the level of innovation in patents, past cases of patents, and patent information of competitors.

In terms of the incentive and reward system, the Intellectual Property Management Measures stipulate the reward system clearly. For applicants making external patent applications, after obtaining an official application number, a reward of NT\$10,000 will be given; after obtaining the patent certification, a certification reward will be given according to the country granting the certification. For certifications granted by the US, Japan and the EU, a reward of NT\$40,000 will be given; for certifications granted by Taiwan, Mainland China and other countries, a reward of NT\$20,000 will be given per country.

Further, to increase the dynamics of patents, apart from various incentives and activities, researchers will form R&D teams to establish yearly targets for internal proposals and external applications to stimulate new ideas from one another and gather momentum for innovation. New technologies and ideas can then be used for making proposals. After approval, rewards will be granted.

The Intellectual Property Office uses the "Enterprise Patent System" to manage and control internal proposals and external application processes. A strict examination will be conducted by a technological panel to ensure optimal patent quality.



For internal patent proposals made in 2019, after a review by the Intellectual Property Review Committee, of all innovative proposals with potential for industrial use, 162 patent applications were made to increase the patent quality of PSMC and external competitiveness; further, the Company makes use of patent application systems of different countries to strategize its patent planning to provide the best protection for its new technologies. In 2019, the Company acquired 74 patent certifications. As of the end of 2019, a total of 899 patent certifications remained in effect.

AI technology

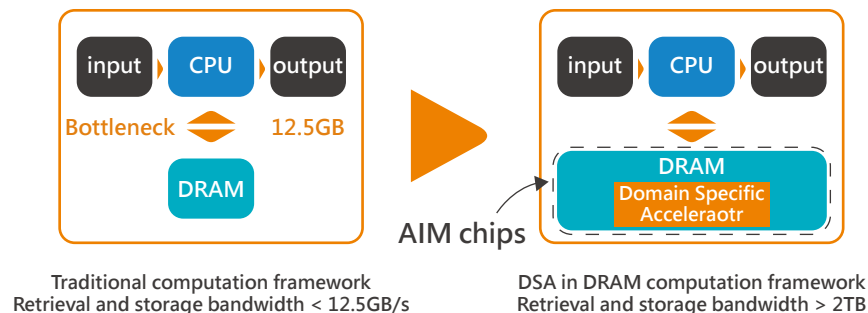
Breaking through the bottlenecks in power consumption and transmission, and applying it in edge computing

The launching of the Computing in Memory technology platform has gathered the contributions of four companies in the Group, namely PSMC who is responsible for foundry services; AP Memory Technology who is responsible for re-designing and re-integration of memory products; Syntronix who is responsible for wireless telecommunication and MCU; and AI Memory Corporation who is responsible for software and systems. PSMC uses 25 nm to 38 nm process technology to complete the core AIM SOC of Computing in a Memory technology platform, which is applicable to high-speed edge computing for 5G and AI specific-applications. AIM chips will bring ultra-high CP value advantage for relevant installations and systems.

AIM SOC possesses many characteristics, including eliminating the input/output (I/O) of data and hence substantially lowering the data transfer workload between memory and CPU, increasing data transmission bandwidth by 10 to 100 times. The data is transmitted within a chip the size of one's thumbnail, and therefore the chip is very suitable for data-centric computation which is a new application concept- "Computing efficiency increases by 20 times while energy-saving efficiency increases by 10 times, truly a world-leading green chip."

Properties of AIM chips:

1. Integrating logic and DRAM in a single chip, and breaking through the memory limit of retrieval and storage.
2. Take into consideration the computational speed and power consumption combination, and thus possessing the best C/P value design.



Contribution of AIM platform escalating technological advancement

The AIM platform has been received and the chips have been procured by the French company, Upmem. Upmem was founded in 2015 to provide processing in memory (PIM) solutions. Its solutions have since become part of the supply chain of the largest server company in the world. Upmem is the first company in the world to use the AIM platform. Upmem uses an accelerator model to make the AIM platform compatible with the existing servers. Apart from French companies, customers from the US, Mainland China, and Taiwan are in negotiation with the Company. It is estimated that mass production and sales will be made in the first quarter of next year.



The founder of Powerchip Group, Frank Huang giving a speech in person at the "Computing in Memory Integrated Technology Platform Launch."

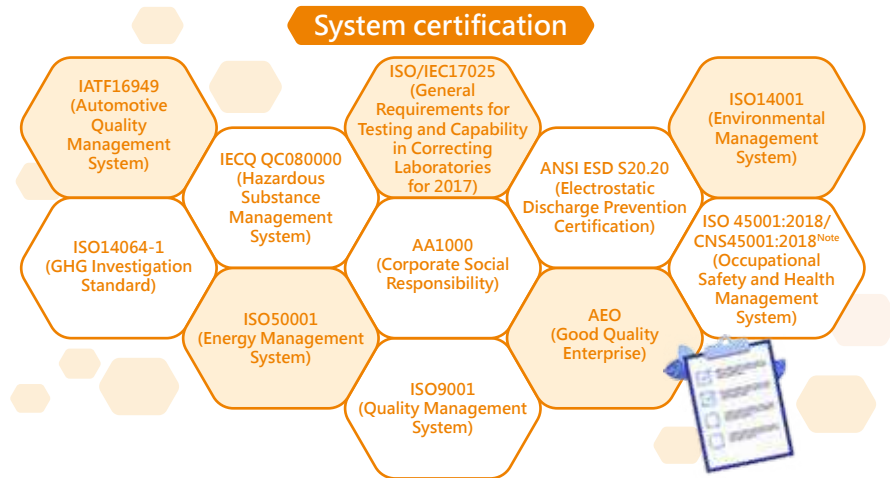
The launching of the AIM platform can accelerate the development of ADAS, edge computing, medical technology, genome research, robotics, IoT, 5G telecommunication, and cryptocurrency, to the effect, as our founder, Frank Huang puts it, "Hopefully through our promotion, more people will get to know and use this technology, kick starting more innovations. This is our initial development goal."

PSMC is the only foundry in the world that possesses the process technologies for DRAM, NAND/NOR Flash and logic products. It strives to promote memory and logic wafer foundry technologies, and develop a platform for system integrated chips to cater to the demand of 5G and IoT system applications in the future.

With the new application trend in AI and IoT driven by 5G telecommunication, via the process technology that integrates memory and computational SOC, the AIM technology platform launched by the Company will gradually develop the integration of storage and computation, and a brand new technological direction in memory and logic chip stacking. In addition to relying on its R&D, the Company will also actively collaborate with other foundries in the industry, and domestic and foreign IC designing companies, to provide customers with new foundry services that manufacture more efficient, lower power consuming products. As of July 2020, pertaining to the technical patent of the AIM chip, the Company had submitted a total of 22 multinational patent applications. One patent certification was granted.

2.3 Customer service

With our advanced technologies, we offer foundry services to our customers. In addition to the continuous improvement of manufacturing processes, we also strictly monitor our quality of production. Through implementing various management systems, we control each production with detail. Not only do we comply with international regulations, but we also ensure that the products and services meet customer needs.



Note: On August 6, 2020, ISO 45001:2018/CNS45001:2018 certification was completed.

◆ On-site 6S quality management

PSMC makes a concerted effort to cultivate the workplace of employees. To implement the relevant policies, the Company raises the awareness of employees via numerous competitions and activities, encouraging employees to discover possible problems in the production processes during their daily operations, and hence improving the cleanliness of the fab environment and the safety of the staff, making the workplace more comfortable and secure.

Manufacturing service

- Excellent manufacturing service
PSMC provides professional and excellent process technology and strict quality control procedures. Through collaborations with international brands from Japan, etc., we strive to enhance our product quality, creating a win-win with customers. Currently, the process technology and products provided by PSMC include memory products, LCD driver IC, integrated memory chip, CMOS image sensor, discrete devices, and power management IC.

Best efficiency

- Effective improvement in yield
Effectively shortening the learning curve to increase yield is an important factor for PSMC when assisting customers in shortening their product launching schedule.
- Optimal and flexible production scheduling management
We strive to keep improving our production management efficiency and optimizing the production procedures, in hopes of servicing customers effectively and within the shortest time. The Company also caters to urgent customer orders with a flexible production scheduling.
- Timely delivery
The Company has a fully automated production and a strict online monitoring system to supervise the input and output of product scheduling, effectively completing production.

PRODUCTION MANAGEMENT



To effectively manage the product quality and production environment, the Company has established a 6S management promoting team to implement on-site 6S management according to 6S management procedures and execution instructions. The Company has also established 6S competition procedures to increase the momentum of employee participation, as well as provide rewards as encouragement. The relevant content and performance of the execution are presented every quarter in the management review meeting, which is held along with the Environmental, Health and Safety unit, disclosing improvement results of various 6S participating departments.

Among other things, pertaining to various location points during the wafer transferring process, to increase the transferring quality and lower the risk of exterior damage, an anti-collision design has been added to the transporting equipment. Not only does it have a visible effect in protecting employee safety, the protection of adjacent equipment also sees a notable difference. This has since deepened the safety awareness of the operators while taking into consideration the environmental maintenance using 6S.

In 2019, all competing departments had met their targets. Further, customers found no material weakness in the FAB audit.

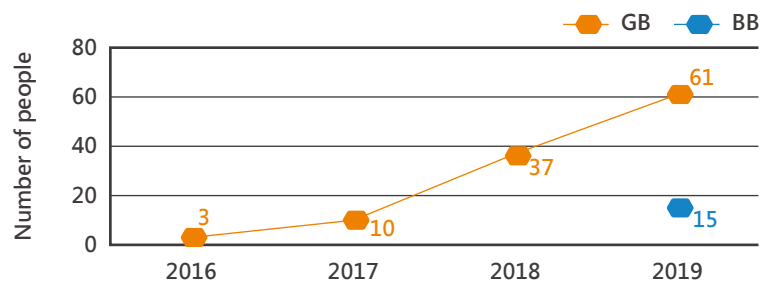
◆ Continuous improvement process (CIP)

To strengthen the focus-on-quality culture of the Company, the Quality Engineering Division has been actively promoting the continuous improvement process (CIP). Through a series of training courses on quality control, these empower employees with problem-solving capabilities; establish case-based management and experience-sharing platform to facilitate knowledge sharing; also hold CIP competition and grants awards to incentivize the employees.

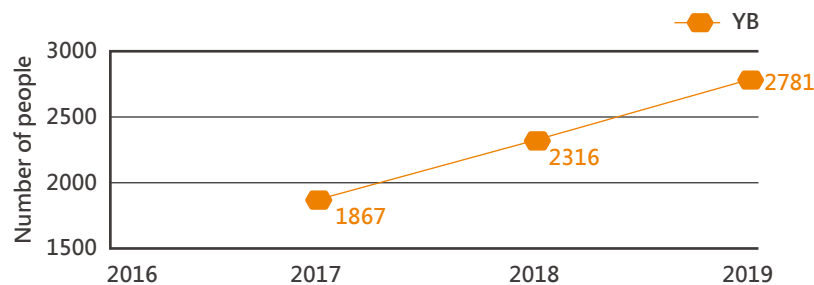
• Increase employees' problem-solving capabilities (quality control courses)

The Quality Engineering Division organizes a series of Six Sigma courses to lead the Company in pursuing excellence. As of 2019, a total of 2,857 people have received the training certification.

Number of people receiving Six Sigma GB/BB Certification



Number of people receiving Six Sigma YB Certification

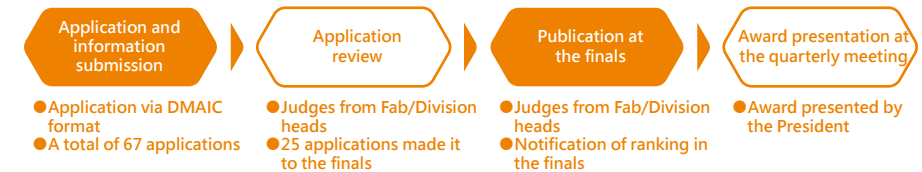


Note: Cultivating problem-solving experts - black belts (BB) and green belts (GB); establishing a common language for problem-solving - yellow belts (YB).

• Encouraging employee participation (CIP competition)

To cultivate the habit and culture of the Company in making continuous improvements, the Quality Engineering Division had organized the CIP competition for 2019 and provided large cash prizes to encourage employee participation. The competition could strengthen the quality control awareness among the employees, foster teamwork spirit, and hence heightening competitiveness and customer satisfaction.

CIP competition process

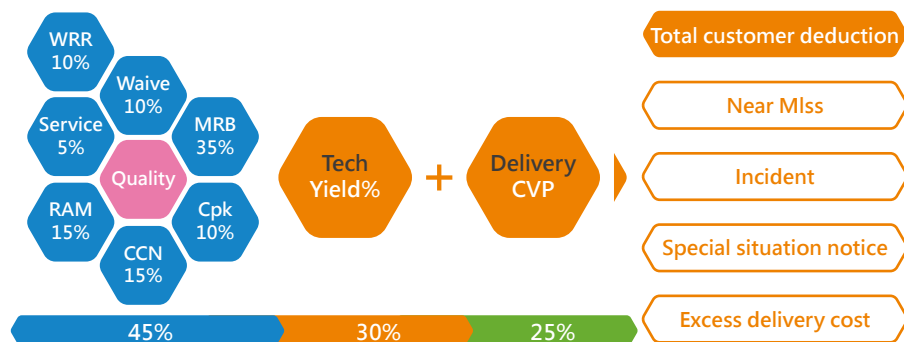


◆ Customer Recognition

PSMC values the input from customers and is willing to collaborate with them in problem-solving. In addition to the designated department (designated personnel/hotline) keeping in contact with customers at all times, it will also hold meetings with customers regularly for a face-to-face discussion (due to the COVID-19 outbreak, the weekly and monthly face-to-face discussions in the past, including the audits by customers, have been conducted via teleconferencing to avoid crowding; the change in such practice allows the Company to maintain communication with customers, and have thus gained their approval.); meanwhile, questionnaires are distributed to facilitate the collection of customer feedback and to detect the problems they face in a timely manner to resolve the problems collaboratively within the shortest time possible. Relevant records will be forwarded to the performance review meeting to the Management as feedback. The content and results of the customer satisfaction survey for 2019 are as follows:

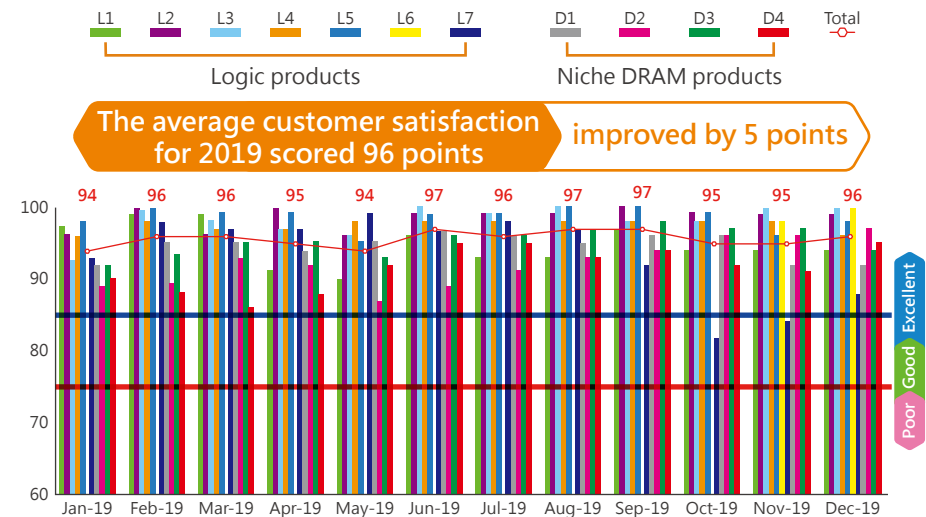
1. Target/product category/scoring item: Production for 11 main customers (monthly average of production >2000 pieces); product category covered niche/standard DRAM and logic foundry products like Driver IC/Power/CIS. Ratings were given for quality, technology, and delivery.
2. Survey method: monthly self-evaluation; feedback from customers every six months.
3. The survey results and explanation for 2019: the overall average customer satisfaction was 96 points (increased by 5 points as compared to last year), which was in the "Excellent" category.
 - (1) There were a total of 6 Material Review Board (MRB) cases, **down by 9 cases as compared to last year.**
 - (2) **Order fill rate increased by 7 points as compared to last year.**
 - (3) **Overall yield increased by 2 points as compared to last year.**
 - (4) In the second quarter of 2019, the GP survey was added to meet the requirements of QC080000

Scoring method:



◆ Customer satisfaction

As compared to last year, the customer satisfaction for 2019 increased by 5 points, mainly due to a decrease in MRB cases resulting from quality control improvement.





Smart Fab

Smart Fab

PSMC actively applies the concept of Industry 4.0 to build a "Smart FAB," to develop automation, intellectualization, and information automation. Currently, the factory area of P3 is operating on the "Smart FAB" model. In the future, the "Smart FAB" model/installation will be introduced in new factory areas, increasing the production execution efficiency fully.

Smart FAB

Can increase production efficiency and simplify operating processes, mainly:

1. Full Automation (FA)
An automated handling system increases production efficiency and quality, while reducing production cost.
2. Manufacturing Execution System (MES)
The system is automated, simplifying the manual operating process, reducing human errors and irregularities from data copying.
3. Real-Time Dispatch (RTD)
An automated dispatching process that effectively increases production efficiency and simplifies operating processes.
4. Live EQ Management System (LEMS)
A real-time control and monitoring system for on-site machinery.

Production Intellectualization

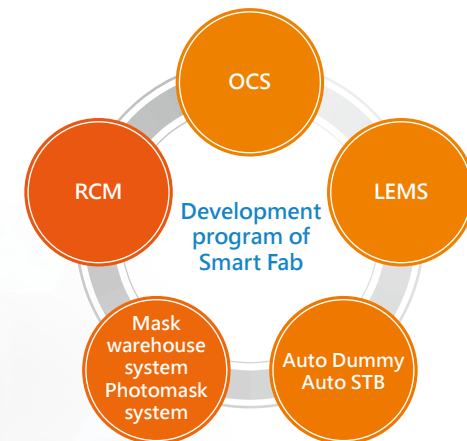
Can improve production, enhance product quality, mainly:

1. Off route control system (OCS)
Automatically measures and maintains machinery and production quality in a timely manner.
2. Auto Dummy/Auto STB
An automated adjustment of conversion processes that reduces manual operation and masters conversion aging.
3. Smart pi-run/Mask inventory system
Shortens conversion processes and photomask conversion aging.
4. Remote Control and Monitoring System (RCM)
Control remotely, shorten the operating time by the staff. The production automated real-time monitoring technology allows the operation of the fab to have zero time lag.

Information automation

Can increase management efficiency, mainly in:

1. Smart Digital Management
Develop big data technology, increasing production efficiency and quality of services.
2. Smart Meeting
Develop long-distance meetings. Staff can work from home and hence increase production efficiency.



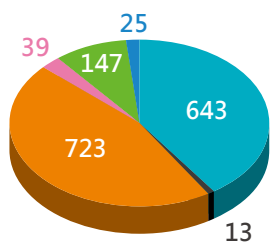
System Framework of Smart Fab

2.4 Suppliers

The Company's procurement is divided into three categories: labor, property, and engineering. Suppliers are mainly domestic manufacturers, and local procurement accounts for 89.48% of the total procurements (according to GRI standards, no overseas payment is involved for local suppliers).

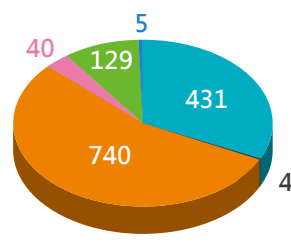
Fab	Type of contract	Domestic/ Overseas	Number of suppliers	Percentage (%)
12 inches	Labor (contracting and services)	Domestic	643	7.05%
		Overseas	13	0.04%
	Property (new and raw materials)	Domestic	723	53.00%
		Overseas	39	2.48%
	Construction (buildings and equipment)	Domestic	147	13.18%
		Overseas	25	6.72%
8 inches	Labor (contracting and services)	Domestic	431	1.05%
		Overseas	4	0.01%
	Property (new and raw materials)	Domestic	740	14.30%
		Overseas	40	1.26%
	Construction (buildings and equipment)	Domestic	129	0.89%
		Overseas	5	0.02%

Number of suppliers
for 12-inch plants



- Labor (contracting and services) - domestic
- Property (new and raw materials) - domestic
- Construction (buildings and equipment) - domestic

Number of suppliers
of 8-inch plants



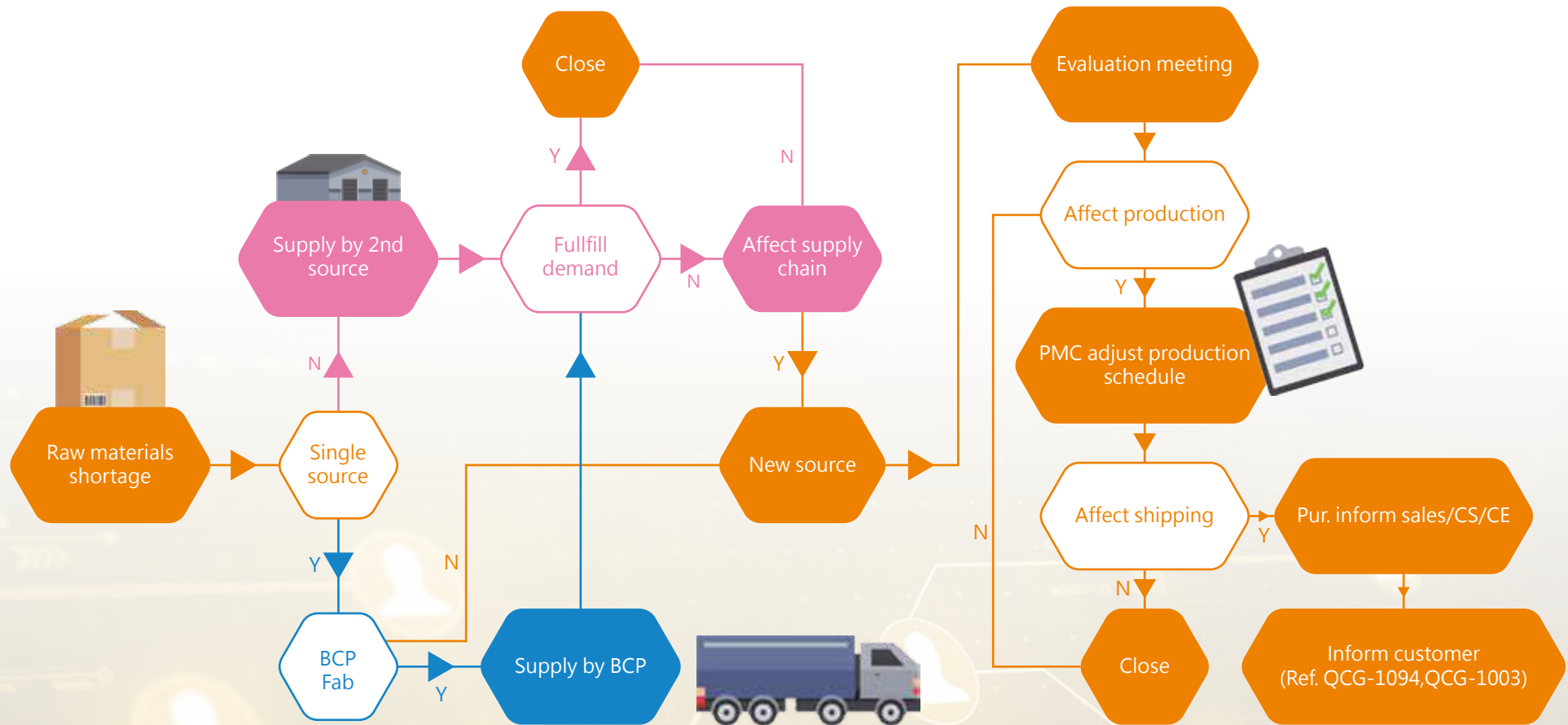
- Labor (contracting and services) - overseas
- Property (new and raw materials) - overseas
- Construction (buildings and equipment) - overseas

◆ Supply of main raw materials

Main raw material	Suppliers	Procurement strategy
Silicon wafer	Company A Company B Company C Company D Company E	<ol style="list-style-type: none"> 1. The Company strictly controls and selects the suppliers for crystal silicon wafers. The quality of the materials from the suppliers must go through the sampling evaluation procedures of the Company. After passing the evaluation of different departments in the Company, the suppliers will then be deemed qualified. 2. The Company sources wafers from different regions in Asia and Europe to mitigate risk. 3. The Company maintains a strong relationship with the suppliers and hence is offered competitive pricing and good wafer quality in the procurement process. 4. The Company regularly evaluates the pricing, quality, timely delivery, and relevant technology consulting services provided by the suppliers, to determine the size of its orders with different suppliers. 5. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.
Photoresist	Company E Company F Company G Company H Company I Company J	<ol style="list-style-type: none"> 1. The Company provides the photoresist quantity to the suppliers at the beginning of every month to allow the suppliers to prepare the inventory beforehand. 2. The Company monitors its inventory every month to ensure stable supplies. 3. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.
Gases	Company K Company L Company M Company N Company O Company P	<ol style="list-style-type: none"> 1. As the suppliers are competing with each other and have all fostered a supporting relationship with the Company, it is beneficial to the Company in terms of purchasing conditions and providing security in supply when facing a shortage in materials. 2. The Company monitors its inventory every month to ensure stable supplies. 3. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.
Chemicals	Company Q Company R Company S Company T Company U Company V	<ol style="list-style-type: none"> 1. All suppliers have plants and inventory storage in Taiwan. As such, supply is stable and it is beneficial to the Company in lowering our own inventory and ensuring quality. 2. The Company conducts a performance review on the suppliers every six months to ensure the relevant management measures are properly implemented.

Procurement - Emergency response for raw material

The Company has established the "Procedures for Emergency Response to Raw Material Shortage." If there is a shortage of raw material, the procurement unit will, according to the procedures, hold cross-department evaluation meetings to initiate the subsequent emergency response.



◆ Supplier audit

According to "Procedures for Raw Material Components/Supplier Management," new suppliers are required to fill in a preliminary survey. In addition to requirements in quality, the disciplinary records from the competent authority in environmental protection, occupational health and safety, fire-prevention, etc., will be included in the assessment. In 2019, the percentage of new suppliers passing the preliminary survey was 100%.

For the existing suppliers, according to "Procedures for Raw Material Supplier Management" and "Procedures for Contractor Management," the Company makes selections in accordance with transaction frequency and value. The raw material suppliers are evaluated every six months; contractors every year. If the supplier is involved in a major social incident or violates the environmental protection, health and safety regulations, the Company will terminate the contract and remove the supplier from the vendor list.

In 2019, a total of 187 suppliers and 55 contractors were evaluated. The passing percentage amounted to 99.17%. Contracts with two suppliers were terminated and they were removed from the vendor list due to violations.

A. The evaluation and selection method of contractors

1. For contractors with yearly transaction value over NT\$20 million with a yearly repair/maintenance of over 36 times, select all;
2. For contractors with yearly transaction value between NT\$15 million and NT\$20 million with a yearly repair/maintenance of over 36 times, select two;
3. For contractors with yearly transaction value between NT\$10 million and NT\$15 million, with a yearly repair/maintenance of over 36 times, select two.

B. The evaluation and selection method of suppliers

1. Supplier with a risk grade changed to an A Grade;
2. Wafer suppliers:
3. Transaction value in 6 months exceeds NT\$5 million.

To ensure the effectiveness of the supplier's quality system, the Company selects suppliers for audits based on the "Audit Instructions for Suppliers" and "Audit Instructions for Component Suppliers." An audit is carried out on production wafer suppliers at least once a year; an audit is carried out on suppliers on other production raw materials or key spare components at least once every 3 years. The supplier audit plan for the following year is proposed at the end of each year. The contents of the audit use the requirements of the ISO/IATF provisos and the special audit items of individual materials for reference, including properties of materials, abnormal events, the re-examination of previous weaknesses, and horizontal development, which are carried out by trained and qualified auditors. The relevant documentation and records of the entire audit plan and individual audits, including audit reports, improvement for weaknesses, and supporting documents and records, are handled by the Company's eAuditing system, which also serves as a two-way communication channel with the suppliers. Cases may only be closed after confirmation by the audit team.



In accordance with the requirements of ISO 9001 and IATF 16949, PSMC audits the quality control system of the suppliers. Currently, the Company adopts an on-site audit and documentation review model to examine the quality systems.

The number of suppliers audited for quality control in 2019

Audit Type	Suppliers
On-site Audit	26
Paper Assessment	28

Explanatory notes on audit ranking:

Rank	Judgment	Score
A: Satisfactory	Compliant	Over 90 points (inclusive)
B: Normal	Compliant	80 (inclusive) to 90 points
C: Acceptable	Compliant	70 (inclusive) to 80 points
D: Conditional Acceptable	Re-confirm after advises improvement	60 (inclusive) to 70 points
E: Unacceptable	Non-compliant	Below 60 points

The on-site audit and documentation review on suppliers in 2019 showed two suppliers had grades of D due to weaknesses found in their quality control system. After counseling, improvement strengthening, and reconfirming, 54 suppliers met the requirements of ISO 9001 or IATF 16949 for quality systems.

Audit scope checklist for suppliers

<ul style="list-style-type: none"> Context of the Organization Planning for the quality management system Operations Improvement 	<ul style="list-style-type: none"> Leadership Support Performance evaluation
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◆ Conflict minerals

Currently, suppliers who provide target materials and gases to PSMC are 100% committed to not sourcing conflict minerals from their upstream vendors and countries of origin.

Further, the CSR/green product/environmental protection policies section on the Company website clearly discloses, "PSMC and all its staff will work together to meet their responsibility for the environment and observe the environmental codes and regulations imposed by the government, in order to advance the concept of environmental protection and introduce it to providers, build up green supply chains, and reduce the damages by pollutants to the environment. Besides, we object to using any minerals (e.g. tantalum, tin, gold, and tungsten) that are extracted in ways of armed conflicts and human rights infringement, especially those imported from the eastern provinces of the Democratic Republic of Congo. Here we call for all our providers, our partners, who have dealings with PSMC, to join the campaign manifesto launched by the Responsible Business Alliance (RBA) and Electronic Industry Citizenship Coalition (EICC): "Do not accept any metals from the areas of conflict minerals." And we also call for all the raw material suppliers to be subject to the rules below:

- ◆ Fulfill social environmental responsibility.
- ◆ Ensure that no products are made from the minerals extracted in the areas of Congo, or its neighboring countries that are in armed conflicts, or extracted in a terrible working environment.
- ◆ Disclose the source of the minerals such as tantalum, tin, gold, and tungsten; and complete investigation forms.
- ◆ Convey PSMC's policy of "Do not use any conflict minerals." to upstream suppliers and their supply chains.





3

Striving for a sustainable environment

- 3.1 Climate change and carbon management
- 3.2 Risk management for water resources
- 3.3 Green production

3. Striving for a sustainable environment

Energy Resources and Management Policy

In recent years, there have been power and water shortages in Taiwan. If they are not properly managed, they may affect production and even give rise to regulatory risks in the future. By managing greenhouse gas (GHG) emissions effectively, the cost control risk of the Company can be lowered and the product competitiveness in regard to sustainability can be enhanced.

Covered issues

Energy (reducing energy consumption), water, emissions (green gas emissions)

Regulations



- PSMC is a professional foundry service provider. By establishing its energy policy, the Company continues to increase efficiency in the use of energy and water resources, comply with domestic energy regulations, and follow the international energy conservation and carbon reduction trends to maintain the effectiveness of the management system. The concerted effort in reducing energy consumption and decreasing the impact of climate change demonstrates the Company's commitment to fulfilling its corporate social responsibility.
- The Company's environmental health and safety policy stipulates regulations that address issues regarding climate change and the adjustments made, as well as the use of sustainable resources to effectuate energy conservation and carbon reduction measures and thus facilitate resource use.
- The Company adopts ISO 50001, ISO 14001, ISO 14064-1, and other international management systems, and has established "Procedures for GHG Emission Reduction Management" and "Operational Instructions for GHG Emission Inspection and Verification" to implement management.
- According to the proposal for water use and commitment to the Environmental Impact Assessment, the Science Park Bureau requires the recycling rate for water used by foundries to exceed 85% and meet the 1% energy saving requirement for large energy users.

Targets



- To implement management and planning that complied with the energy-saving target for large energy users and continued the management goal of 1% energy saving, as well as conforming to the energy-saving targets and execution plans stipulated in the Energy Administration Act, Article 9.
- In response to the slowdown and adjustments due to climate change, the Company set a GHG reduction of 1% as the company-wide carbon reduction target.
- The Company strived to manage water saving so that it can meet its goal in producing the optimal benefit with the least water usage, allowing the Company to continue production under limited water resources. The Company also conformed to the public policy in ensuring a water reuse rate of at least 85%.
- All plant areas passing ISO 50001 Energy Management System certification.

Execution



- An energy management team was established to report on the energy consumption status of the plant to the plant manager regularly. It also makes a yearly submission on its energy consumption to the Bureau of Energy.
- Personnel designated to manage plant affairs monitor and control energy and water consumption, and make a monthly submission on water use to the Park Bureau.
- GHG inspection and the reduction management team had been established to monitor the GHG emission status.

Management



- According to the internal management review procedures of ISO 14001, ISO 14064-1, and ISO 50001, the Company conducts effective evaluation using PDCA procedures.

Performance



- In 2019, PSMC met the yearly target on energy conservation of 1%.
- Paper use was reduced by 19% in 2019.
- The process water recovery rate of PSMC exceeded 85% in 2019.
- The total greenhouse gas emission of PSMC in 2019 dropped by 2.4% as compared to 2018.

Pollution prevention and Management Policy

The Company sees environmental protection, green production, and CSR fulfillment as its management's duty. We believe that the risk level of the environment, health, and safety of the plant is deemed appropriate and compliant with the relevant regulations. We are committed to promoting improvement, pollution prevention, and environmental protection.

The Company fulfills its responsibility in air pollution management, wastewater discharge, and waste management; avoiding possible violations and fines to mitigate the external risks of the Company, and the cost and risk to the environment. The Company also increases its product competitiveness pertaining to sustainability to maintain a good image and customer trust, and achieve the ultimate goal of sustainable operation.

Covered issues

Emissions (air pollutant emission management), wastewater, waste, compliance of relevant environmental protection regulations

Regulations



- The Company adopts ISO 14001 and other international management systems and established "Procedures for Environment, Safety and Health, and Fire Regulations Collection and Identification Management" and "Procedures for Prevention for Environmental Pollution of Plants" to implement management.
- The Company uses the best practicable control technology to ensure waste reduction at the source and reviews various recycling resources for reuse to ensure all operations comply with the environmental protection standards.
- The Company treats the waste and wastewater at the plants in accordance with the emission standard of the Science Park.

Targets



- Ensured business operations comply with the Environmental Protection Act.
- Ensured the capacity of the VOC treatment facility is better than the best practicable control technology standard.
- Set parameters to reduce chemical use and to monitor wastewater generated from the manufacturing process.
- Enhanced the water recycling treatment and utilization efficiency, and reduce wastewater discharge.
- Ensured the reuse rate of waste reaches 85%.

Execution



- All plants were equipped with air pollution prevention equipment and wastewater treatment systems. Regular maintenance and relevant improvement were conducted to increase efficiency, and personnel were assigned to operate and monitor various pollution prevention measures.
- In response to the trend of demanding ammonia nitrogen reduction in wastewater, the Company selected the highly safe catalyst process, which generated zero waste but had a costly installation fee, as its environmental protection facility to reduce ammonia nitrogen.
- All plant areas had designated personnel, who are assisted by staff from plant affairs, general affairs, and property management units, for managing plant waste.
- The yearly waste treatment and recycling budget for 2019 amounted to NT\$135 million.
- The Company held regular consultation and communication meetings with representatives from the environment, health and safety unit, and relevant training on environmental health and safety, and made training projects for different departments.
- The Company adopted ISO 14001 management system, assessed its processes from time to time to see if they require additional or improvement on prevention equipment, and implemented improvement concerning relevant notable issues.

Management



- The efficiency of volatile organic compounds (VOC) removal facility of various plants exceeded the 90% level stipulated in the regulation, reaching 93.5%.
- According to the internal management review procedures of ISO 14001, the Company conducts an efficient evaluation of PDCA on emissions management every quarter.
- For waste removal/treatment vendor evaluation, at least one visit is performed each year, and the relevant information regarding the visit is documented in the audit system of the plants.

Performance



- In 2019, PSMC did not receive any disciplinary actions imposed by the competent authority of environmental protection.
- The efficiency of volatile organic compounds (VOC) removal of various plants exceeded the 90% stipulated in the regulation, reaching 93.5%.
- The reuse rate of waste in 2019 increased by 1% as compared to 2018.

3.1 Climate change and carbon management

♦ Energy consumption

The statistics of the Company's energy consumption are shown in the table below. Although the consumption increases with the increase in production (in 2019, yearly maintenance conducted using diesel generator caused an increase in diesel use), the Company continues to improve consumption efficiency, striving to reduce the impact on the environment.

Plant	Energy resources	2017	2018	2019
12-inch	Electricity consumption (degrees/year)	860,984,603	867,091,072	862,449,877
	Diesel consumption (L/year)	37,400	27,667	200,779
	Natural gas consumption (m ³ /year)	9,129,190	8,712,301	8,374,129
8-inch	Electricity consumption (degrees/year)	192,339,613	195,401,621	239,923,299
	Diesel consumption (L/year)	25,780	9,632	88,664
	Natural gas consumption (m ³ /year)	2,134,144	2,331,727	3,825,077

Note: 1. For 8-inch fabs, due to the commencement of production of the 8B fab in 2019, the overall energy use for 2019 saw an increase.

2. The reason for the information restatement for 2017 and 2018 is due to the recounting of the GHG emission inspection.

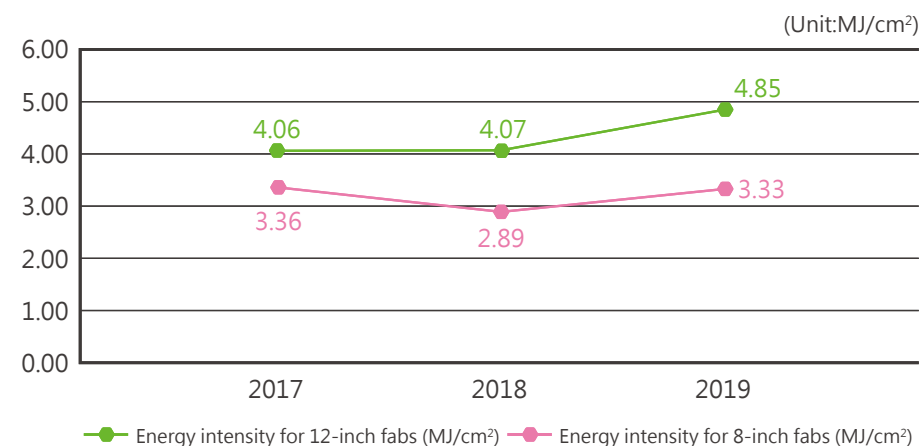
PSMC has adopted energy management into its management system via the adoption of an energy management system (ISO 50001) in the 12-inch fabs since 2015. The system analyzes energy consumption efficiency and seeks effective use of energy, laying the foundation for building green plants. Via regular inspection of the system conducted by a bona fide third party, the verification of the administration system is updated, ensuring its effectiveness and that the performance and culture of energy administration of the Company can gradually grow. In the future, in accordance with the energy policy issued by the President of the Company, the energy administration system (ISO 50001) will be adopted in the 8-inch fabs to strengthen energy management equipment and optimize the effective use of energy, facilitating corporate sustainable management. In 2019, due to a decrease in the production of the 12-inch fabs, the energy intensity increased by 19% as compared to 2018; whereas for the 8-inch fab, due to the commencement of production of the 8B fab, the energy intensity increased by 15% as compared to 2018.

Plants	Year	Energy use (MJ) (electricity + diesel + natural gas)	Production quantity (cm ² /year)	Energy intensity (MJ/cm ²)
12-inch	2017	3,444,627,795	848,534,215	4.06
	2018	3,450,570,639	848,361,400	4.07
	2019	3,427,212,257	706,952,500	4.85
8-inch	2017	773,691,987	229,932,300	3.36
	2018	791,587,866	273,592,800	2.89
	2019	1,010,877,129	303,241,500	3.33

Note: 1. The reason for the information restatement for 2017 and 2018 is due to the recounting of the GHG emission inspection.

2. The heat value of 1L of diesel is 8,400kcal; the heat value of 1m³ of natural gas is 9,000kcal; 1 kWh is equivalent to 3,600 KJ; 1 kcal is equivalent to 4.184 J.

Energy intensity of each plant over the years



◆ Energy Saving

To comply with the “Regulations on Setting Energy Conservation Objectives and Execution Plans for Energy Users” set by the Ministry of Economic Affairs, the Company executes various energy-saving measures such as making plans to renew old equipment and develop renewable energy, reviewing and reducing the electricity usage of production units, and setting the goal of electricity saving of 1% each year. The energy-saving statistics of each plant for 2019 are shown in the table below; all plants have achieved their annual energy-saving targets.

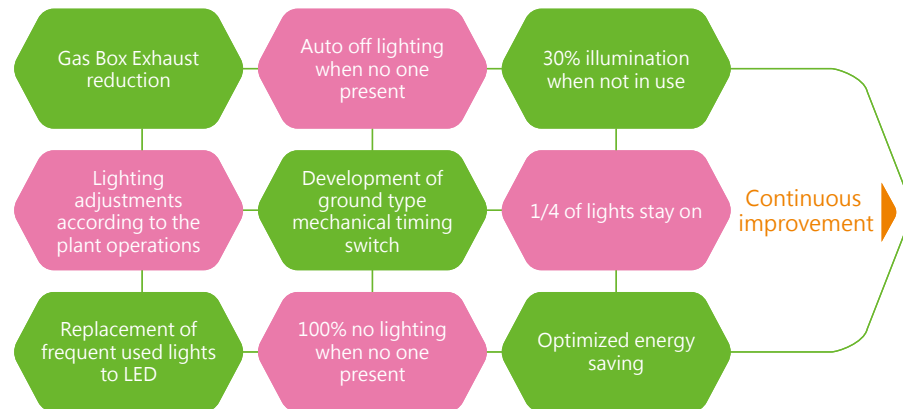
Plants		Reduced energy amount (electricity + diesel + natural gas)		Energy saving rate
P1/2		29,921,479 MJ		1.382 %
Energy saving plans	Upgrade to energy-saving fan blades at the cooling tower of P2 fab	Upgrade boiler hot water pump at P1 fab for frequency control	Upgrade to an energy-saving DI_RO P-119 high-pressure pump at P1 fab	
	Improve the low efficiency of PCDA at P1/2 fabs (upgrade to high-pressure rotor)	Upgrade to LED bulbs for laminated lighting at Block O packing area in P1/2 fabs	Upgrade to an energy-saving P-115(37KW) pure water high-pressure pump at P1 fab	
	Upgrade to an energy-saving DI P-501 pump at P2 fab	Upgrade heating style for CDA AD#5 dryer at P1 fab	Upgrade heating style for CDA AD-05 dryer at P2 fab	
	Upgrade to an energy saving of VP-117(30KW) pure water vacuum pump at P1 fab	Install new lighting switches at maintenance area, SDS: CZM02/CZM08 charge unit/CZM08 supply unit	Upgrade to LED bulbs for internal T8 lighting in PY40_01 machinery	
	Com. PC30 1F.EEL10 Layer Skip	Remove the PTL01 vacuum pump and adopt a vacuum system of the Plant Affairs Department.	Upgrade to an energy-saving pump for DTA machinery	
	Install VAO system for DAM54/57 machinery	Upgrade to an energy-saving pump for IBS07 DI water pump	Reduce WAT TSA34 Chiller CDA and electricity use	
	Replace old CDA air compressor #2 at P1 fab with an energy-saving one			
P3		11,919,747 MJ		1.088 %
Energy saving plans	Lower boiler temperature (93°C to 88°C)	Adjust CDA load	Renew granule for CDA Dryer-5	
	Replace CDA Dryer-1~3 with heating dryers	Replace traditional lighting at the MCC control room and corridor with LED.	Improve heating control of large scale Y steel standby disc	
	Replace TEL trap manual valve with direct piping	Replace 25 nm 1F.CDS10 DEDD framework with DDD framework (Phase II)	Replace IASM1 dry pump AA10N with energy-saving EV-S20N	
	Improve energy conservation of T5335P shutdown	Improve energy conservation of ammonia ventilation system		
8A		7,769,376 MJ		1.155%
Energy saving plans	Replace 250RT cooling pump with a high-efficiency motor	Replace ADP3F office T8 with LED	Shut down RO-102 water circulation, reduce DP-7 frequency	
	Remodel WP NO.C RO low pressure film	Improve energy conservation of equipment-Dry pump.		
8B		2,774,828 MJ		-
Energy saving plans	Lower air compressor to release pressure	Replace T8 lighting with LED energy-saving lighting	Lower the outward air temperature of air handling unit	
	Lower pressure of cooling tower water supply pump (6.0kg/cm ² to 4.8kg/cm ²)	Lower pressure of IPA cooling water supply pump (2.5kg/cm ² to 1.4kg/cm ²)		

Note: 8B fab started test production in 2018. There was no reduction target for energy use.

◆ Continuous improvement of energy management

PSMC continues to develop advanced process technology in the industry to manufacture advanced, energy-saving, and eco-friendly products for customers and contribute to the sustainability of the planet. For example, the number of electronic components that the 80 nm chip can fit in is twice the amount of 110 nm. The power consumption of products with 80 nm IC in use or sleep mode is 70% of products with 110 nm IC. In other words, the efficiency per unit surface has increased by 2.8 times. The goal of PSMC is to endeavor in increasing the development of 80 nm or even more advanced process technology (e.g. 55 nm, 40 nm, 25 nm process technologies), and increase the percentage in sales revenue of 80 nm and other more energy-saving processes, contributing to the growth of the Company and the sustainability of the planet.

◆ Basic energy saving plans



Note: Gas box exhaust reduction.



◆ GHG Investigation and Reduction

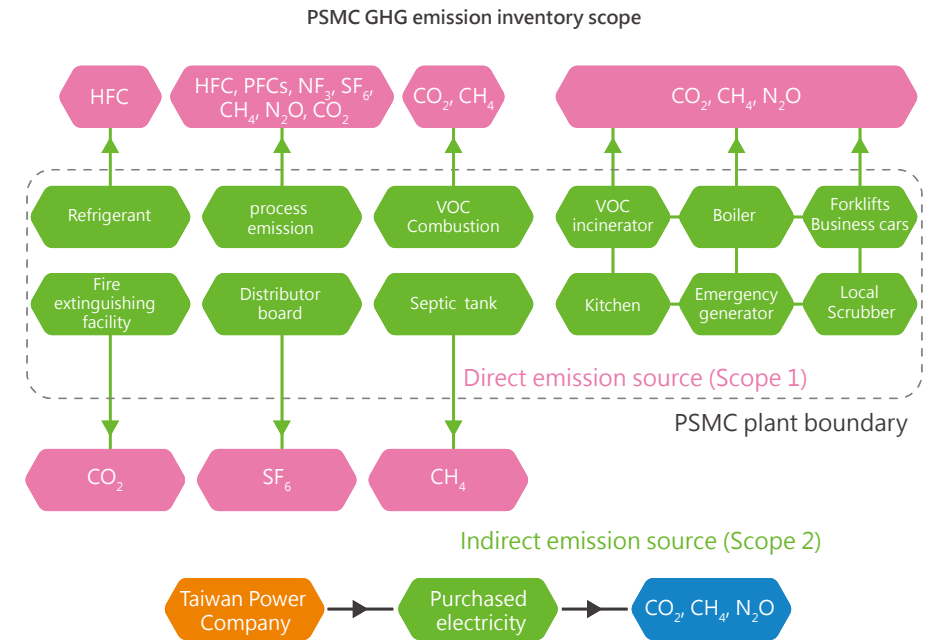
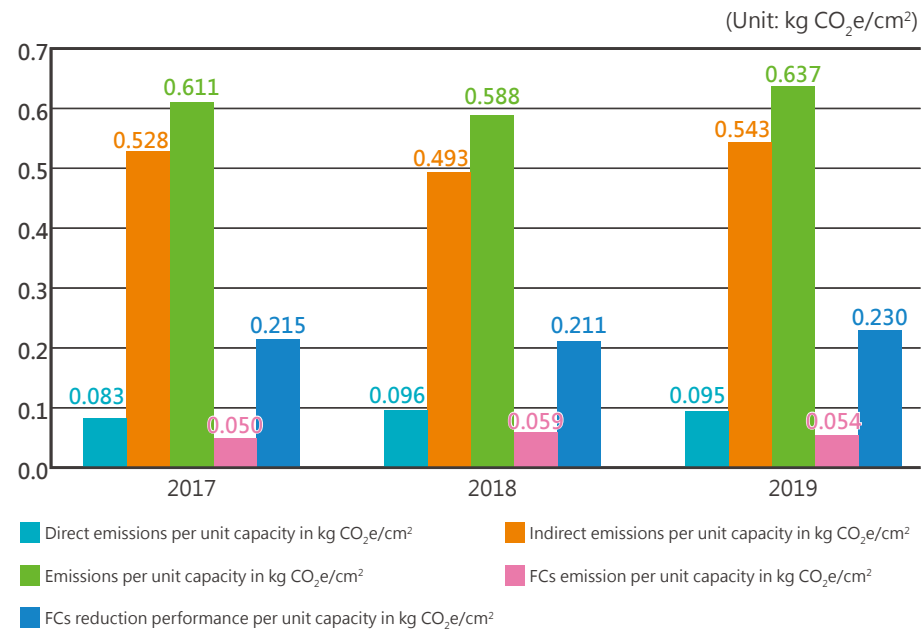
The Company had established a GHG Investigation and Reduction Management Team to gather statistics on GHG emissions and set the yearly carbon reduction target of 1%. According to the statistics for 2019, the total carbon reduction amounted to 2.4%, fulfilling the yearly carbon reduction target; for the scaling comparison for 2019 production value, FCs^{Note} emission per unit capacity reduced by 8.5%, while the FCs reduction performance per unit capacity* increased by 9.2%. It was estimated that the reduction in carbon emission was not on par with the reduction of emission overcapacity, mainly because while the production capacity decreased in the fourth quarter of 2019, the production facilities still required the basic air conditioning and supply system for maintenance. As such, the overall GHG emission intensity in 2019 increased by 8.3%.

Note: FCs include PFCs, SF₆ and HFCs. The FCs reduction measures implemented by the Company include the installation of combustion Local Scrubber for machinery, which can remove the FCs after the processes, and lower the GHG emission.

Activity	2017	2018	2019
Direct emission (Scope 1) (ton CO ₂ e)	89,378	107,183	95,781
Indirect emission (Scope 2) (ton CO ₂ e)	569,192	552,566	548,034
Total emission (Scope 1 + Scope 2) (ton CO ₂ e)	658,570	659,748	643,815
Production quantity (cm ²)	1,085,007,156	1,122,117,228	1,010,194,000
Emissions per unit capacity (Carbon dioxide equivalent in kg/Product surface area per unit (kg CO ₂ e/cm ²))	0.607	0.588	0.637

- Note:
1. In 2019, 8B fab formally commenced production and was included in the statistics.
 2. In the GHG emission inspection of various plants, PSMC conducts the inspection in accordance with procedures stipulated in ISO 14064-1, and a third party certification is required; for the GHG emission factors, PSMC mainly refers to the Management Table for GHG Emission Factors Version 6.0.4 set by the EPA, in which the electricity factor of 0.509kgCO₂e/kWh serves as the scope 2 computation.
 3. The global warming potential (GWP) that the table uses comes from the "IPCC Fourth Assessment Report (2007)".
 4. The greenhouse gases include nitrous oxide (N₂O), methane (CH₄), carbon dioxide (CO₂), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF₆), nitrogen trifluoride (NF₃), etc.
 5. Method of consolidating GHG: Operational control.
 6. Use of standard, methodology, hypothesis, and/or computational tools: the energy consumption data is from measurements in which a fee payment was required. The review table does not contain any estimation values. For the factors used, the Company mainly referred to the latest recommended factors released by the EPA, among which, the uncertainty data of the emission factors. For evaluating the uncertainty of the activity data, the Company used the Regulations Governing Verification and Inspection of Measuring Instruments as its evaluation basis.
 7. The reason for the information restatement for 2017 and 2018 is due to the recounting of the GHG emission inspection.

◆ GHG emissions

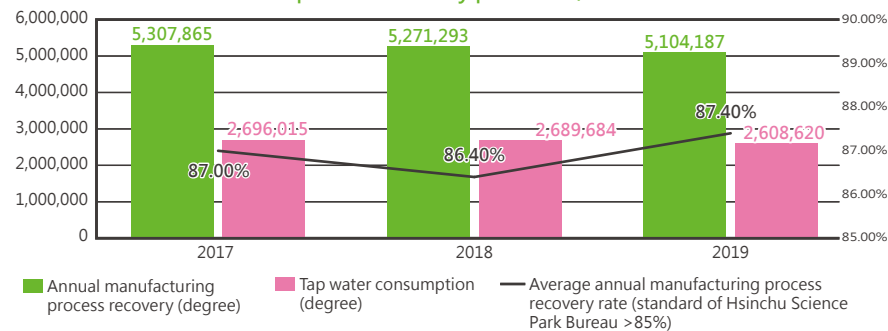


3.2 Risk management for water resources

♦ Water resource management

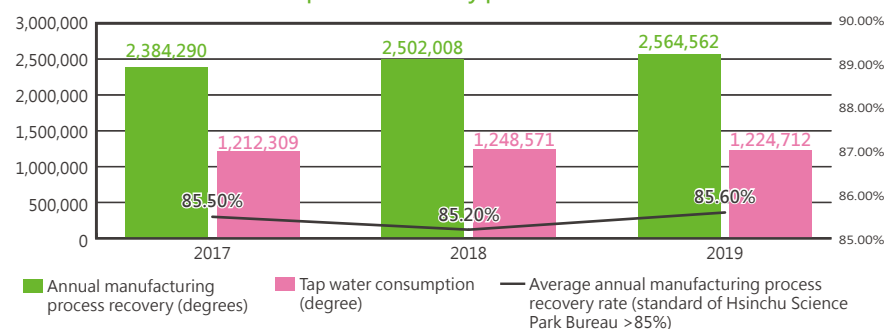
The plant areas of the Company are using tap water, which is mainly supplied by Baoshan Reservoir One and Two in Hsinchu, and Yongheshan Reservoir in Miaoli. Apart from the cleansing process, water is also required for the air conditioning to maintain operation of the cleanroom, and cleansing of the waste gases in the treatment process. The rest is needed for daily use within the plants. In recent years, climate change may have affected the water supply of the plant areas. The Company strives to make technological improvement and invest in facilities to increase water reuse rate and improve water efficiency in the manufacturing process; the company has become the first foundry in the Park that is committed to achieving an 85% water reuse rate. The water reuse rate from the manufacturing process in all plant areas has exceeded 85% (with every drop of water being reused more than three times). Further, the water conservation measure compels the 12-inch plants to control their water use at 95% of the permitted level. Since the commencement of the plants, water conservation has become the Company's good practice. With continuous technological improvement and investment in facilities, saving water has become our mission. In the past three years, for the 8A fab, the use of ultra-pure water for every chip unit has decreased from 0.008 to 0.0071 (m³/cm²wafer).

Summary of the past average annual recovery rate of the manufacturing process recovery plan of P1/2 fab



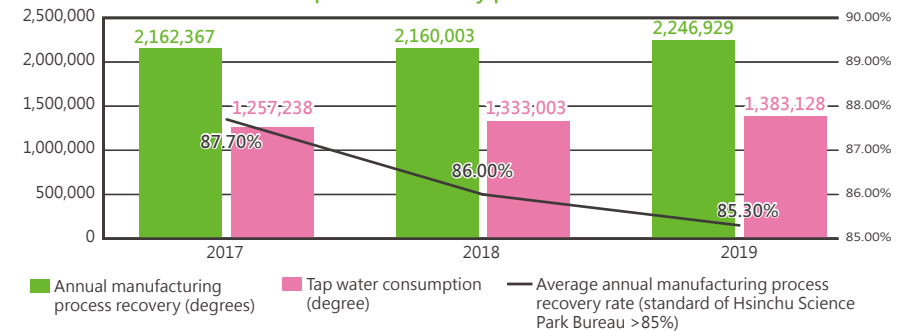
Note: The reason for the information restatement for 2017 and 2018 is due to a change in the calculation method.

Summary of the past average annual recovery rate of the manufacturing process recovery plan of 8A fab



Note: The reason for the information restatement for 2017 and 2018 is due to a change in the calculation method.

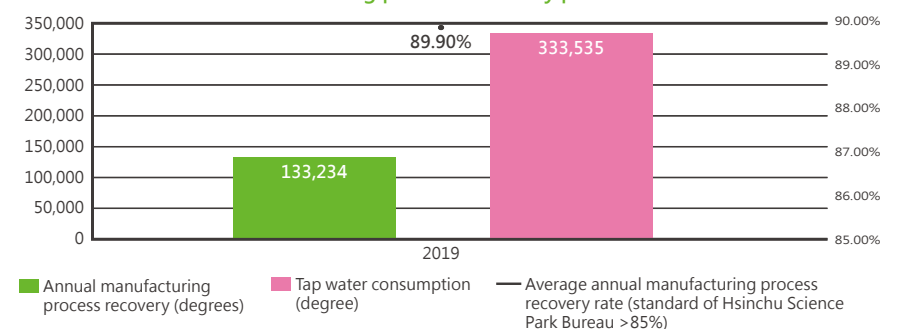
Summary of the past average annual recovery rate of the manufacturing process recovery plan of P3 fab



Note: 1. The reason for the information restatement for 2017 and 2018 is due to a change in the calculation method.

The change in the process caused the reuse rate to fall slightly in 2019 as compared to 2018. The Company will improve the efficiency of the reuse system to increase the reuse rate of the manufacturing process.

Overall summary of the average annual recovery rate of the manufacturing process recovery plan of 8B fab

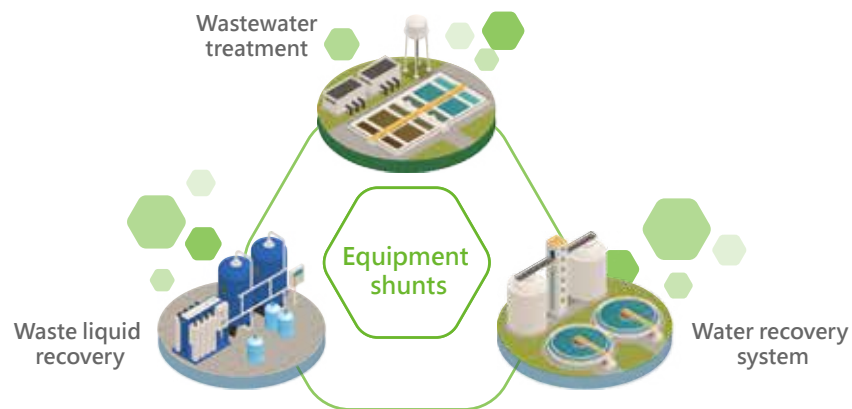


Note: 8B fab commenced production in 2019. As such, only 2019 information was disclosed.

When Hsinchu Science Park Bureau announced a water restriction policy, the Company conducted water rationing in 4 stages according to the directions of the Bureau: 10%, 20%, 50%, and 100% according to the rationing plan. The initial stage was to restrict public and daily use. The next stage was expanded to use of water in the manufacturing process. Lastly, priority was given to maintaining the operation of the cleanroom. Water trucks were contracted for transferring water to the Company at the announced water collection point, to extend the water supply within the plants in case of insufficient water supply during the water restriction period.

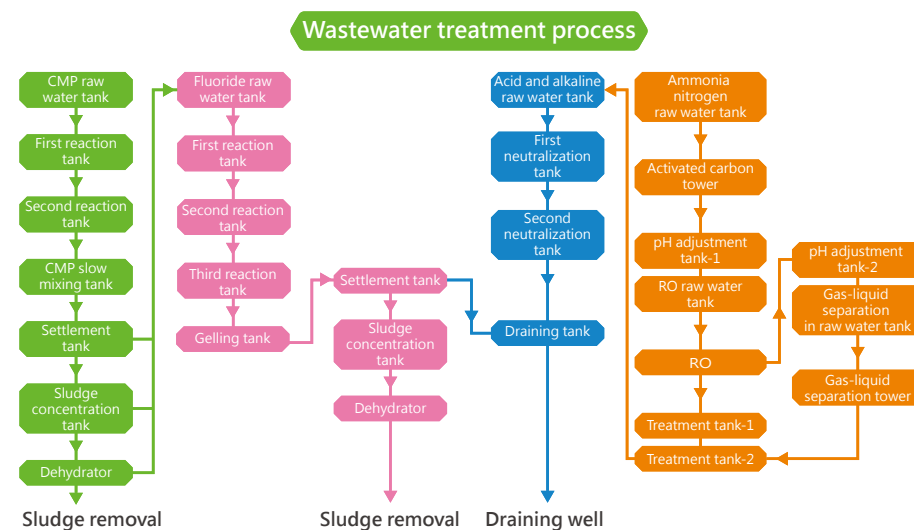
♦ Wastewater treatment

All of the Company's wastewater has to go through the wastewater treatment facilities within the plants, and then flow to the similar facilities at the Park before it is discharged. To monitor the treatment effect for different compositions, the Company distinguishes the wastewater into 20 different types of reusable and non-reusable water treatment based on the type, concentration, and conductivity of the liquid discarded from the processes. In addition to increasing the water reuse rate, recycling some waste liquid acid (phosphoric acid/copper sulfate/sulfuric acid/hydrofluoric acid) and organic waste liquid (IPA/PGMEA/TMAC) has generated economic values. Single split-flow reduces not only the dosage for chemicals treating the wastewater but also the difficulty for treating the wastewater in the subsequent process, hence alleviating the environmental impact.



Reuse and discharge planning of wastewater

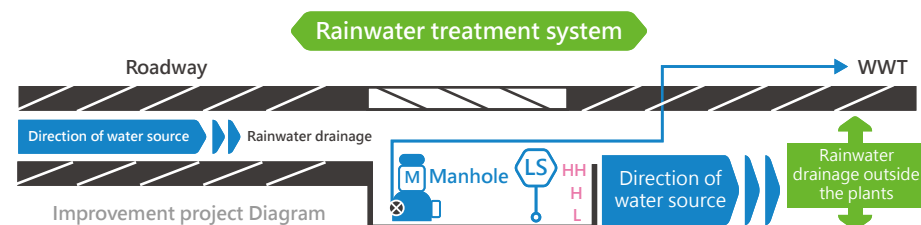
The recycled water generated by manufacturing processes is treated with the appropriate recycling water system treatment before being returned to the pure water system for reuse, which will increase the recovery rate. The unrecyclable and highly concentrated wastewater is discharged to the wastewater treatment systems (including: acid-base/fluoric acid/milling/ammonia nitrogen wastewater treatment system). After treatment, it will be diverted into the Park's sewage treatment plant for subsequent treatment and discharge. There has been no occurrence of serious wastewater leakage over the years and no major fines have been imposed.



The wastewater treatment facilities in the plants are surrounded by jetty and flood pumps. The bottom story of various buildings also have flood pumps installed. In case of an abnormal leakage, heavy rain or flood, the flood pumps will transfer the water to the wastewater treatment facilities before discharging to the sewage of the Park. The relevant process is undertaken according to the treatment protocol for rainwater.

Further, the filling areas of chemical tankers also have been installed with jetties. In case of a leaking accident during a chemical refill, the chemicals can be effectively blocked and collected for subsequent treatment, and an environmental disaster can be avoided.

Because of an incident whereby hydrant water from a fellow plant in Pingzhen District contaminated the adjacent river in 2018, the Company has also installed flood pumps in the rainwater drainage at high-risk areas in case of abnormal incidents. The water can then be diverted back into the wastewater treatment facilities in the plants, avoiding similar contamination by hydrant water flowing into the rainwater sewage.



Plants	Activity	Unit	2017	2018	2019
12-inch (P1/2)	Total water intake	Million liter/year	2,847.779	2,823.707	2,759.324
	Total emission of wastewater	Million liter/year	1,895.595	1,899.268	1,793.100
	Water consumption	Million liter/year	952.184	924.439	966.224
	NH3-N (<50)	mg/L	22.7	20.6	20.9
	Quantity of COD chemicals (<500)	mg/L	89.1	114.6	83.2
	SS suspended solids (<300)	mg/L	33.9	18.7	26.8
12-inch (P3)	Total water intake	Million liter/year	1,387.543	1,453.443	1,494.078
	Total emission of wastewater	Million liter/year	890.930	925.903	962.678
	Water consumption	Million liter/year	496.613	527.540	531.400
	NH3-N (<50)	mg/L	11.0	10.1	6.3
	Quantity of COD chemicals (<500)	mg/L	48.0	45.2	54.7
	SS suspended solids (<300)	mg/L	20.2	21.9	27.7

Note : 1. Total water intake = Tap water + condensed water + rainwater.

2. The wastewater discharge is the actual measurement of effluent in the plant going through the flowmeter.

3. The measurements of various pollution indices are yearly average measurements taken by the Park Bureau twice every month.

4. 8B fab commenced production in 2019. As such, only 2019 information was disclosed.

Since 2015, the Hsinchu Science Park has brought the ammonia nitrogen index under its supervision. The reduction of ammonia nitrogen is an urgent matter for the business sector. Considering the 12-inch fabs are larger in scale, the Company immediately planned for and has since installed the first environmental protection facility in Taiwan that reduces ammonia nitrogen using a catalyst process which does not generate secondary pollutants, and the treated water meets the standard stipulated by the Park Bureau. In addition to reducing the ammonia nitrogen concentration in the water, the treatment also avoids generating sludge, thus lowering secondary harm to the environment; for the wastewater produced from daily use, the Company also installed an MBR biological system, treating the wastewater of the plants comprehensively. The Company also collaborates with the Park Bureau in awareness campaigns; and has shared its perception and performance with its counterparts, the public and organizations in many knowledge sharing sessions held by the Park Bureau concerning treatment technology. The Company was, therefore, conferred a Corporate Excellence Award from the Hsinchu Science Park Bureau.

In 2019, the P1/2 fab took part in the water conservation competition and was conferred the Best Water Saving Company Award. PSMC has also held a yearly exhibition at the competition, sharing its water conservation experience with counterparts. In December 2019, the Company collaborated with National Water Agency, Singapore to hold a water recycling seminar, sharing its split-flowing/treatment/reuse experience in treating wastewater.

Plants	Activity	Unit	2017	2018	2019
8-inch (8A)	Total water intake	Million liter/year	1,264.254	1,295.318	1,266.945
	Total emission of wastewater	Million liter/year	748.960	792.113	813.411
	Water consumption	Million liter/year	515.294	503.205	453.534
	NH3-N (<50)	mg/L	11.9	14.4	12.4
	Quantity of COD chemicals (<500)	mg/L	93.1	90	88.5
	SS suspended solids (<300)	mg/L	26.4	15.4	18.5
8-inch (8B)	Total water intake	Million liter/year	NA	NA	333.535
	Total emission of wastewater	Million liter/year	NA	NA	233.603
	Water consumption	Million liter/year	NA	NA	99.932
	NH3-N (<30)	mg/L	NA	NA	12.2
	Quantity of COD chemicals (<500)	mg/L	NA	NA	42.3
	SS suspended solids (<300)	mg/L	NA	NA	36.2



Corporate Excellence Award in ammonia nitrogen reduction of P1/2 and P3



Best Water Saving Company Award of P1/2 for 2019

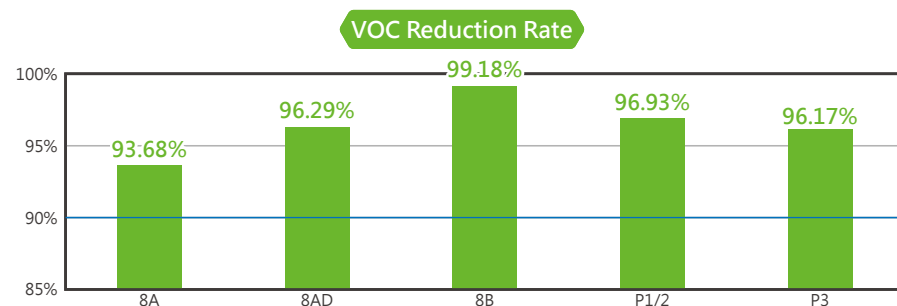
3.3 Green production

The plants of the Company are all located in the jurisdiction of Hsinchu Science Park. All business operations must be reported to and are under the purview of the Park Bureau. Any environment evaluation and environment monitoring will be conducted under the supervision of the Park Bureau, which has not caused a direct impact on the community. The environmental protection, and health and safety aspects have always been prioritized in the operations within the plants, to maintain certain environmental health and safety standards. The Company consistently strengthens its interaction and exchange with the Hsinchu Science Park Bureau, such as participating in seminars regarding environmental protection and health and safety; holding activities in conjunction with the Industrial Safety and Environmental Protection Month, to continuously review the awareness campaign in these regards and establish a comprehensive environmental health and safety system within the plants, thus providing a hygienic, safe and comfortable workplace for the employees. In 2019, the Company did not receive any disciplinary action from the environmental protection authorities. The Company is a part of the Environmental Supervision Team of the Park and regularly communicates with local residents to understand their expectations on the manufacturers operating in the Park in regard to matters concerning environmental protection, and health and safety, and thus strengthening the management mechanism of the manufacturers in the environment, health and safety aspects.

♦ Air pollutant emissions

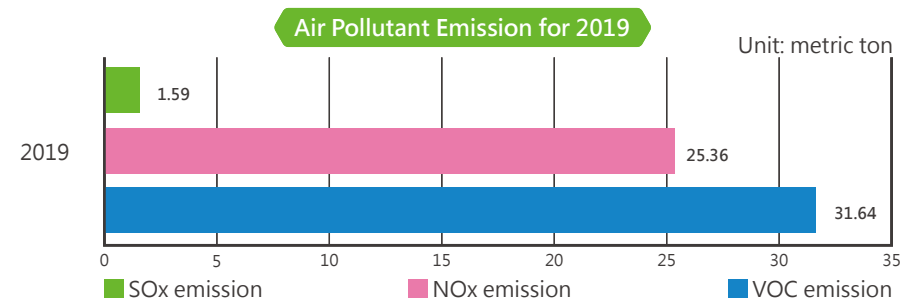
To maintain the quality of the environment, the Company strictly controls its pollutant emission. The emission of the Company over the years has been compliant with the regulations, in which, the acidic and alkaline waste gases produced by the Company's manufacturing process are only discharged after being treated by a scrubbing tower; organic waste gases are absorbed by a zeolite absorbent wheel, and then desorbed with hot air which will then be incinerated in a burner before emission. In 2019, the VOC removal efficiency in all plants was far better than the stipulated 90% in the "Air Pollution Control and Emissions Standards for the Semiconductor Industry" – the removal efficiency of all the plants exceeds 93.5%!

VOC Reduction Rate					
2019	8A	8AD	8B	P1/2	P3
Removal rate (%)	93.68%	96.29%	99.18%	96.93%	96.17%
Standard value	90%				








Note: X-axis represents the plant areas, y-axis represents the VOC reduction rate, blue line denotes the target value (90%)


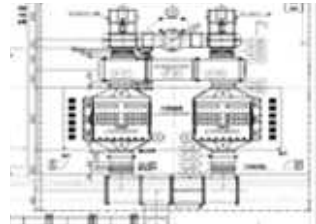
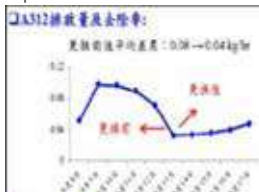
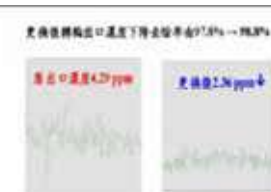
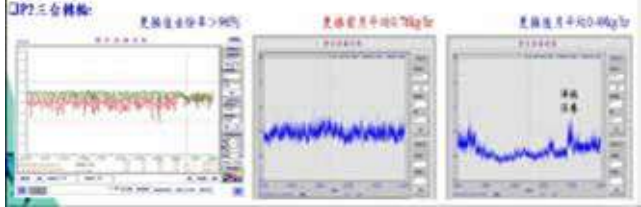
With increasing production capacity, while new manufacturing processes would progress, the total emission would also increase correspondingly. The Company, therefore, opts for source recycling, and the most advanced and suitable pollution reduction technology. As such, the air pollution prevention equipment, treatment facilities, and monitoring equipment are all compliant with the relevant regulations. Further, the continuous R&D on the best practicable technology has enhanced the effectiveness of existing control facilities. According to the actual test results over the years, the concentration of air pollutants emitted is lower than the emission standards stipulated by the competent authority.

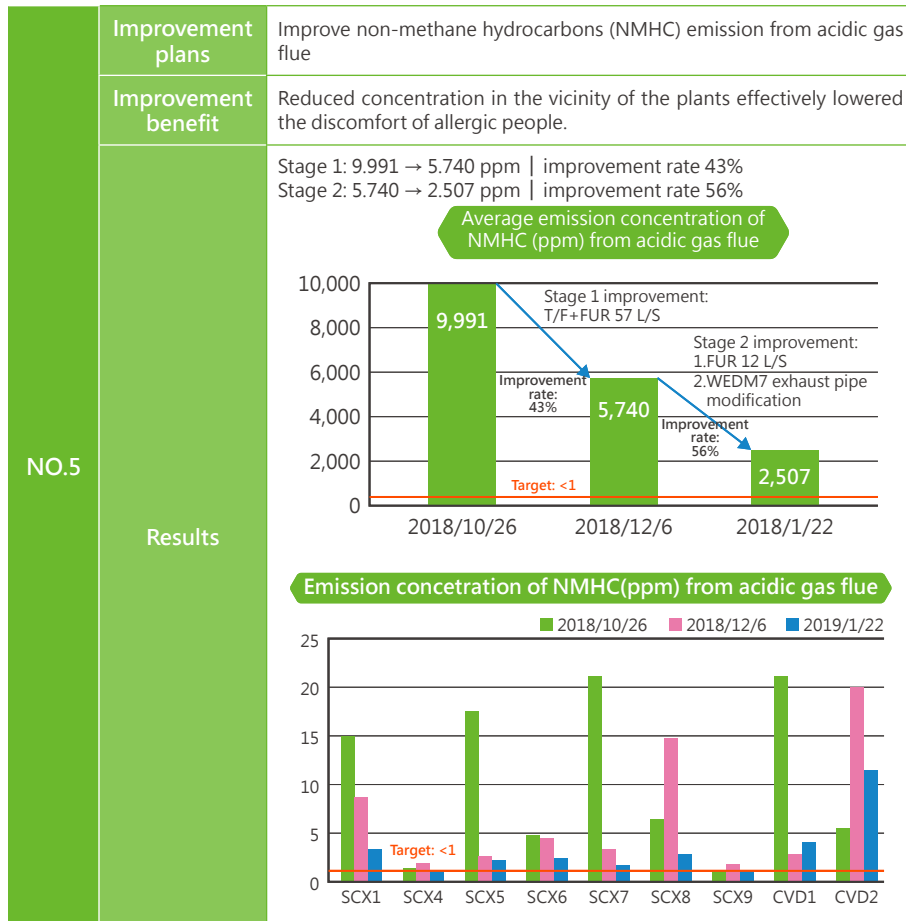


To effectively manage the emission of air pollutants, the Company has adopted the ISO 14001 management system and strives to meet its goals in reducing the emission of pollutants and improving the best practicable technologies. In addition to strengthening measures in treating the possible pollutants within the plants, the Company collaborates with other companies within the Park to work on notable pollution issues. From time to time, the Company will evaluate whether to add and improve prevention facilities pertaining to the manufacturing processes and make improvements to tackle notable pollution issues, such as improving odor and white smoke emissions. The following improvements are made according to schedule: optimization of L/S, verification of the efficiency of L/S, verification of the efficiency of M/S and C/S, increase in the efficiency of C/S, addition or replacement of prevention facilities and improvement on white smoke emission.

◆ Main results of improvement:

NO.1	Improvement plans	Improvement project on acidic white smoke and odor emissions																	
	Improvement benefit	Addition of water film in M/S																	
	Results	<p>Improved the efficiency of treatment facilities and lowered emission concentration. Testing results showed the efficiency of TSP treatment increased by 65.2%.</p> <div></div>																	
NO.2	Improvement plans	Replace the packing layer of the scrubbing tower for acidic gas emissions to increase the effective removal surface area of the packing layer, and lower the emission concentration.																	
	Improvement benefit	Raschig rings were replaced with the ones with high-performance which increased the specific surface area to 242m ² /m ³ .																	
	Results	<p>In 2019, P1/2 replaced two scrubbing towers for acidic gas emissions. The replacements were completed on April 2 and June 27 respectively.</p> <div><div>Before replacement</div><div>After replacement</div><div>Efficiency test</div><table><tr><th colspan="2">Results of sampling inspection</th><th>HF</th><th>HCl</th><th>HNO₃</th><th>H₂SO₄</th></tr><tr><td>Before replacement</td><td>Removal rate %</td><td>71%</td><td>68%</td><td>69%</td><td>69%</td></tr><tr><td>After replacement</td><td>Removal rate %</td><td>87%</td><td>94%</td><td>92%</td><td>93%</td></tr></table></div>	Results of sampling inspection		HF	HCl	HNO ₃	H ₂ SO ₄	Before replacement	Removal rate %	71%	68%	69%	69%	After replacement	Removal rate %	87%	94%	92%
Results of sampling inspection		HF	HCl	HNO ₃	H ₂ SO ₄														
Before replacement	Removal rate %	71%	68%	69%	69%														
After replacement	Removal rate %	87%	94%	92%	93%														

NO.3	Improvement plans	Increase the water sprinkling of the scrubbing tower for acidic emissions and thus improve the white smoke problem at the outlet.
	Improvement benefit	<p>1. Modified sprinkler piping before the scrubbing tower improved the circulating-water pump and sprinklers, increasing cleansing efficiency.</p> <p>2. Replaced de-hazing type lowered water vapor emission.</p>
	Results	<p>In 2019, the planned replacement of one A506 scrubbing tower for acidic emissions was completed on October 30.</p>  
NO.4	Improvement plans	Replace the zeolite turning wheel.
	Improvement benefit	Increased rotating efficiency of the zeolite turning wheel enhanced the VOC removal rate and reduces emissions.
	Results	<p>The replacement for A511 was completed on March 29th, while A513 was on April 12th, and A312 on September 12th. Further, the actual removal rate and emission have seen a significant improvement after the replacements.</p>   



◆ Waste treatment

Designated personnel in different plants have been assigned to take charge of the waste management and will be assisted by personnel from plant affairs, general affairs, and property management units. The Company's yearly budget for waste removal amounts to approximately NT\$135 million. The Company adopts a life cycle circulation of waste management to continuously promote these goals: (1) Reduction from source (2) Improving the reuse value of waste (3) Proper treatment of waste and waste tracking.

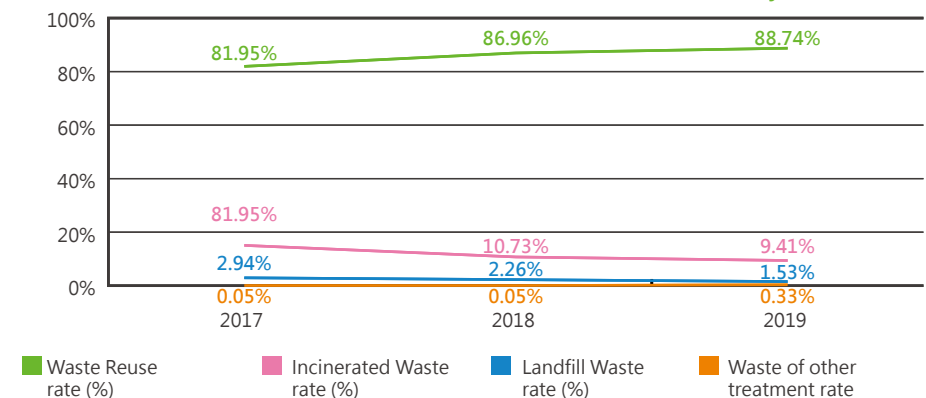
Through the improvement of process technology, reduction of raw materials, an inspection of waste solvents and other management measures at the source, as well as the monitoring, examination and replacement of machinery, and circuit and pump components to reduce waste, the overall reduction of waste was achieved. In 2019, due to a decrease in total production, the overall waste output increased slightly as compared to 2018.

- In 2019, the total waste output amounted to 14,994 metric tons, in which the reuse treatment amounted to 88%, incineration treatment amounted to 9.41%, and landfill treatment amounted to 1.53%. The hazardous waste output amounted to 4,888.03 metric tons (approximately 33% of total waste), in which the reuse treatment amounted to 83%, incineration treatment amounted to 15%, and off-shore treatment amounted to 0.0106%.
- In 2019, the waste output of the 8-inch fabs amounted to 3,793 metric tons, higher than in 2018 (2,962 metric tons), mainly due to the addition of 8B fab.

	2017	2018	2019
Total waste (ton)	15,010.14	14,800.34	14,994.18
Unit waste output (kg/cm ²)	0.0139	0.0132	0.01484

Note: The total waste output of 2018 was restated to incorporate the output from the 8B fab into the statistics.

Evaluation of various waste treatment methods over the years



Activity	Treatment method	Weight (tons) for 2017	Weight (tons) for 2018	Weight (tons) for 2019
General business waste	General – re-use (tons)	8,758	9,199	9,218
	General – incineration (tons)	1,623	863	686
	General – landfill (tons)	441	306	154
	General – other (tons)	8	8	48
Harmful business waste	Harmful – re-use (tons)	3,543	3,671	4,087
	Harmful – incineration (tons)	638	725	725
	Harmful – landfill (tons)	0	29	74
	Harmful – other (tons)	0	0	2
Production value	Wafer (cm ²)	1,078,466,515	1,121,954,200	1,010,194,000

Note:1.Reuse:Adopted the reuse option set by the EPA or the reuse method among the common treatment options.

2.Incineration:Waste treated with incineration (Z05) does not include organic waste liquid with low heat value.

3.Landfill:Waste (X01) sent to landfill.

4.Others:Waste that was not treated by the aforementioned methods. Such as solidification treatment, off-shore treatment, or intermediary treatment which had not changed the form of the waste.

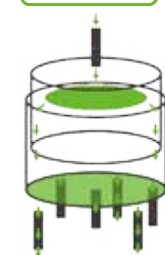
◆ Source Reduction

Implementation of effective sorting and water conservation:

For non-reusable waste solvents, a machine using a split-flowing design is installed; selector pumps are put in place on the discharging piping for switching discharge pipelines, effectively reducing the emission of waste solvents. The remaining wastewater can be diverted to the wastewater treatment or the recovery facilities for recycled water processing.

The correct selector recycling settings will divert the machinery DI rinse time to the wastewater treatment system, which can relatively reduce the waste solvents requiring treatment and increase water resources.

DIW rinse



IPA concentration reuse:

To reduce the treatment costs for waste solvents and the usage of raw material, the Company has installed an isopropyl alcohol (IPA) inline recycling equipment, and waste liquid sorting and collection equipment at 8A fab, which will sort and select waste IPA of a higher concentration, before diverting to the inline recycling system for re-purification and the IPA supply system at the manufacturing process for reuse. In 2019, the yearly saving of IPA usage amounted to 321,016 liters; therefore, the use of raw IPA and the waste solvent for IPA dropped correspondingly.

◆ Improve the reuse value of waste

The waste produced by the Company is mainly solvents, acids, and sludge. By strengthening sorting at the front end and consistently improving the values of waste, the Company works with vendors to evaluate the feasibility of reusing the waste to ensure the final waste is properly handled. In 2019, the Company set to increase waste recycling and reuse rate by 1% as its target, while the actual reuse rate has increased to 88% (an increase of 1% compared to 87% in 2018), proving the Company had achieved its short-term goal. In 2018, as shown in the following table, each plant had evaluated the appropriate methods for recycling and reusing based on the characteristics of its production process. Following the corporate restructuring in 2019, part of the waste from the 8-inch fabs has been diverted to recycling treatment. The Company expects that the overall recycling and reuse rate will continue to increase.

Types of waste	Recovery rate	Plants	Re-use method
Waste barrels	100%	P1/2、P3、8A、8B、8AD	After cleaning/breaking, the manufacturer will make plastic and glass raw materials
Waste sulfuric acid	100%	P1/2、P3	Recovered by the manufacturer in the plant will be supplied to the AC and water treatment with acid.
Waste cooper sulfate	100%	P1/2	The manufacturer refines it into copper sulfate powder or copper recovery in acid solution
Activated carbon	100%	P1/2、P3、8A、8AD	After desorption regeneration for secondary use by the manufacturer
Inorganic sludge	100%	P1/2	Recovered by the manufacturer then it makes it into artificial granulated stones, cement raw materials and artificial fluorite
Waste phosphoric acid recovery	100%	P1/2、P3	Recovered by the manufacturer and it makes it into potassium phosphate, water glass, and semi-finished products of water glass
Waste TMAC recovery	100%	P1/2、P3	Recovered by the manufacturer then it makes it into HMAH for panel manufacturers
Waste organic solvents	100%	P1/2、P3、8A、8B、8AD	Purified by the manufacturer and makes it into photoelectric grade EBR/ raw materials of paints
Ammonium sulphate waste	100%	8A、8B、8AD	The vendor purifies it to reproduce solid ammonium sulphate.

◆ Successful examples of the reuse of resources in 2019:

Off-site reuse – photoresist:

Since photoresists (PGMEA and PGME) contain high-value organic solvents, they are collected using special tubes at the front end to reduce other impurities. In addition to increasing the vendors' willingness in recycling them and hence increasing their reuse opportunity, the average reuse rate of photoresists in 2019 reached 100%.

◆ Proper treatment and tracking of waste

PSMC takes environmental issues very seriously. The waste the Company generates is meticulously classified and disposed of for reuse by qualified waste treatment vendors. The Company strictly demands the waste disposal process to comply with the "Waste Disposal Act" and other international regulations. Of all the waste, the production process gives rise to a minimal amount of nickel-cadmium batteries (accounted for 0.0106% of the total waste). Complying with the Basel Convention, the waste is being transported by sea to advanced countries for recycling.

Waste input and output of PSMC	
Hazardous waste transported out	0
Hazardous waste input	0
Hazardous waste output ¹	1.59(ton)
Hazardous waste treated	0
Percentage of hazardous waste transported overseas ²	0.0106%

Note: 1. Basel Convention - A1170 hybrid battery waste - there are no treatment facility for nickel-cadmium batteries locally. Therefore, they are processed overseas.

2. The weight of waste transported overseas/total waste = 1.59/ 14,994.1831= 0.000105707



Bearing in mind that the earth is shared by all beings, the Company sets reducing, recycling, and re-using waste as its core ideology. The Company always monitors its waste output closely and evaluates the appropriateness of the waste disposal market. The Safety, Health and Environmental Committee of the plants compares the reasonableness of the waste output (the comparison between raw materials and waste) that is produced every quarter. According to the internal management review procedures of ISO 14001, the Company conducts a PDCA evaluation on the effectiveness of emission management every quarter.

To ensure the relevant audits are truly effective, a complete audit proposal for waste treatment vendors is prepared each year. Collaborating with the associations/unions and the plants on the inspection schedules, the Company visits the waste removal business unit/treatment vendors regularly. The conformity to regulations and the legality and appropriateness of waste treatment serves as the main auditing targets. In 2019, PSMC conducted audits on a total of 37 waste treatment vendors (including the common-interest association) and noted 45 weaknesses that required improvements. Via the electronic auditing system of the Company, E-Auditing, the reports were generated and improvement tracing was undertaken. The Company also demanded vendors to strengthen their management in the environment, safety and health, and firefighting aspects, to ensure the collaborating vendors did not violate any regulation.

- ✓ Sustainable operation
- ✓ Prevention of pollution
- ✓ Continuous improvement
- ✓ Self-management
- ✓ Gradually improved
- ✓ Do one's best to self-manage



● In accordance with the "Waste Disposal Act, Article 30, Paragraph 1" and the "Regulations Governing Determination of Reasonable Due Care Obligations of Enterprises Commissioning Waste Clearance", **the owners must fulfill their management responsibilities**. The law requires conducting at least one audit (including ASIP/TSIA audits) for waste disposal/reuse manufacturers, which is also in line with the company's specifications.

In addition to conducting regular audits and yearly evaluation on waste treatment vendors at the end of 2019, the scoring covers five management areas: (1) the audit on PSMC internal waste removal operation within the plants; (2) the audit on tracing of removal/treatment; (3) the audit conducted by the competent authority; (4) the operational status of the management system; (5) addition and deduction of the vendors' score. After a scoring analysis, in 2019, excellent vendors amounted to 72% (more than 85 points); passing vendors amounted to 28% (between 70 to 85 points). There were no vendors that requiring improvements or had failed (less than 70 points). The yearly evaluation results will be taken into consideration for vendor distribution of procurement in the coming year.

PSMC facilitates the waste treatment and the overall reuse process and makes proper documentation for the destination of the waste so that they can be subjected to effective review to ensure no occurrence of violation or pollution. PSMC also signed on to the "Convention on Waste Treatment and Self-Control in the High-Tech Industry" initiated by Taiwan Semiconductor Industry Association (TSIA). In 2019, PSMC collaborated with TSIA to execute the "Guidance and Evaluation Promotion Project for Waste Treatment Vendors," where a third party (Industrial Technology Research Institute) was appointed to conduct audits on waste treatment vendors to ensure their operational management met the requirements of the convention. The Company has been conforming to the environmental protection regulations faithfully and set reducing pollutant emissions for improving the environmental protection operation of all plants as its primary goal. In recent years, the Company has not received any penalty or been fined for any pollution incident. Further, since incorporation, the Company has never been involved in any dispute regarding a pollution incident.

◆ Green Products

Becoming a green enterprise is one of PSMC's goals. The Company conforms to the hazardous substance management policy, from obeying the law to mitigating risks, in hope of improving its Hazardous Substance Process Management (HSPM) and satisfying the needs and expectations of its stakeholders. As such, the Company has attained the certification of IECQ QC080000 and on the existing basis of ISO9001, constructed the technological management process of QC080000 to control hazardous substances. These measures ensure legal compliance and satisfy its customers, proving its priority and commitment to the systematic management of hazardous substances. In the second quarter of 2020, all five plants of the Company passed the IECQ QC080000 certification.

[PSMC is committed in its social responsibility in environmental protection, thus pledges that its manufacturing facility and process has complied with international standards and regulations on environmental protection issues, which means it meets customer requirements on environmental protection specifications for products without the expense on the environment.] Since 2003, PSMC has been actively promoting green design, green procurement, green manufacturing, and green packaging. Also, the Company has been approved by all customers and has obtained the certification of SONY to become a Green Partner. In March 2020, the certification was renewed.



8A



8AD



8B



P1/2



P3



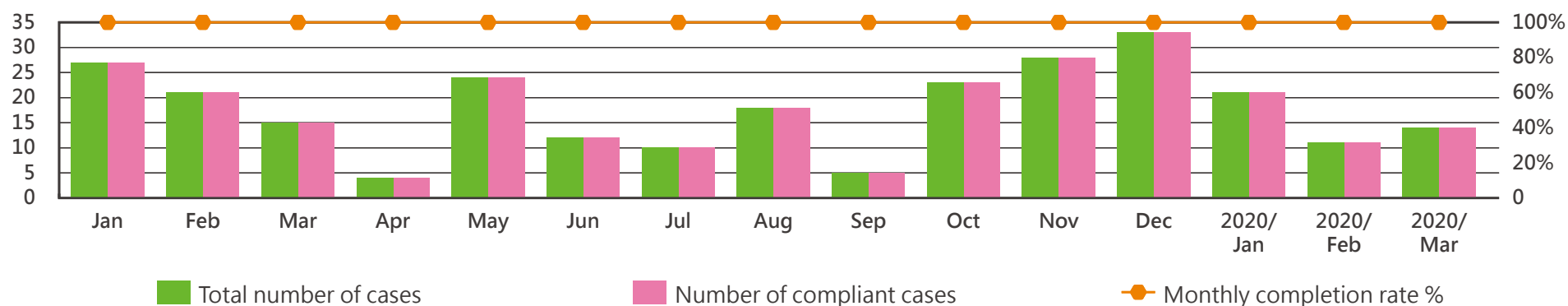
SONY Green Partner

◆ Management evaluation of suppliers

The Company adopts the management mechanism on hazardous substance control of its vendors mainly to generate letters of commitment and testing reports on non-use of hazardous substances, in hopes of distinguishing the hazardous substances that are currently in use. 100% of our vendors have signed the letter of commitment not to use hazardous substances and submitted test reports on the green material they provide.

As of the first quarter of 2020, a total of 266 evaluations and reviews were conducted, achieving the goal of hazardous substance management, "Green Product." The yearly test reports/letters of commitment submitted reached 100%.

Item	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2020/ Jan	2020/ Feb	2020/ Mar	Total
Total number of cases	27	21	15	4	24	12	10	18	5	23	28	33	21	11	14	266
Number of compliant cases	27	21	15	4	24	12	10	18	5	23	28	33	21	11	14	266
Monthly completion rate %	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%



In accordance with the control of the QC080000 system on the input of materials, the Company has constructed the raw material ICP test report/declaration database in its e-Supplier system. When the IQC review is conducted on the input of materials, the Company will check if the materials are compliant with the requirements of the hazardous substance management (HSF), and if the test report and declaration provided by the vendors are valid. Such measures will strengthen the automated checking function on the input of materials.

◆ The improvement results were:

1. Automated raw material management HSF IQC ensures compliance.
2. Report and statement of effective management and review reduce the misusing risk of hazardous substances.

Meanwhile, the international regulation (Reach) demands the PFOA reduction planning (PFOA will be banned from July 2020 onward). The replacing material has been evaluated by all the plants and is in use.

The background of the slide features a photograph of several business professionals in suits shaking hands in a celebratory gesture. Overlaid on this image are various digital and network-themed graphics. On the left, there are blue hexagonal patterns and glowing circular light effects. On the right, there are red circuit-like lines and hexagonal shapes. A large, semi-transparent pink arrow points from the left towards the right, containing the main section header.

4

PSMC as a happy enterprise

4.1 Human resources

4.2 Employee welfare

4.3 Occupational competency development

4.4 Occupational health and safety

4. PSMC as a happy enterprise

Friendly Workplace and Management Policy

Employees are regarded as the Company's most important assets. A good interaction between the labor and management can enhance the corporate culture and organizational atmosphere, and facilitate the harmony between the labor and management. The Company and employees can thus strive for a stable growth together.

Via building the employee occupational competency system to develop the training program, the Company imparts the knowledge, skills and work ethics that employees require to perform their assignments, thus improving the performance level of the employees and the efficiency of the Company's operations.

Covered issues

Employer-employee relations, labor-management relations, training and education, employee occupational competency management

Norms



- The Company has established "Code of Practice" and "Regulations for Establishing Measures of Prevention, Correction, Complaint and Punishment of Sexual Harassment at Workplace" to provide a comprehensive communication channel.
- According to the "Regulations for Implementing Labor-Management Meeting" set by the Ministry of Labor, the Company holds regular labor-management meetings with labor representatives from all fabs, where the attendees of the meetings can voice their opinion.
- The Company makes yearly training planning in accordance with "Procedures for Education and Training" and "SOP for Employee Education and Training."

Targets



- Reach an achievement rate of 80% for the training programs
- Reach a response rate of 90% for "Feedback Corner," the employee communication platform.

Execution



Offering diverse communication platforms:

- Feedback Corner; 2. Employee Wellness Site; 3. 885 e-mail address and 4. Employee counseling.
- A total of 18 labor-management meetings and elections for labor representative were held in different fabs.
- Labor-management meetings and elections for labor representative have been held and conducted in accordance with the "Regulations for Implementing Labor-Management Meeting" on a regular basis.
- The prevention and treatment for unlawful workplace conducts have been handled in accordance with the following management procedures: "Administrative Measures of the Prevention of Unlawful Conducts when Performing Duties," "Regulations for Establishing Measures of Prevention, Correction, Complaint and Punishment of Sexual Harassment at the Workplace" and "Procedures for Reporting Unlawful Conducts when Performing Duties."
- The departmental supervisors listed the job scope for different positions. The training courses that the employees needed according to the job scopes were identified. Training programs have been tailored to the needs of the employees.

Management



- "Feedback Corner," the employee communication platform response rate is reviewed regularly by the Quality Management Review Committee.
- The Company regularly held labor-management meetings to discuss work hours, leave and welfare.
- The Training Development Department and the departmental supervisors listed the job scope for different positions. The supervisors then selected the professional courses that their subordinates should take accordingly. The Training Development Department would devise the courses according to the training needs of the employees.
- The Quality Control and Review Committee would review the execution status of the training and education every six months.

Performance



- In 2019, the response rate of the communication platform, "Feedback Corner" amounted to 100%.
- In 2019, the overall employee turnover rate of PSMC decreased by 1.6% as compared to that in 2018.
- In 2019, all employees accepted regular performance evaluation.
- In 2019, 1,108 employees received human rights protection training.
- The retention rate in 2019 was 1.9% higher than that in 2018.
- In 2019, with the collaboration of various units, the achievement rate of training and education (including E-Learning systems) amounted to 94.6%.
- In 2019, a total of 18 artistic and cultural events were hosted or organized.

Safe Environment and Management Policy

We firmly believe that a comprehensive implementation of the environmental, health and safety management system, and good communication channels with our employees, customers, contractors, suppliers, contract manufacturers, the public and other stakeholders will enable PSMC to achieve the ultimate goal of becoming a sustainable enterprise.

Covered issues

Occupational health and safety – occupational disaster and disease prevention

Norms



- PSMC constructs its occupational health and safety management system in accordance with ISO 45001 and CNS 45001 regulations to promote environmental protection and the physical and mental health of its employees and prevent foreseeable risks and losses.

Targets



- The total injury index of the Company is to be less than one-third of the industry standard.
- No pain at work, leading to healthy lifestyles.

Execution



- The deputy general manager of administration serves as the representative of the environmental, health and safety unit. The representative is responsible for reviewing and promoting environmental, health and safety management.
- The Company has established health promotion plans, occupational disease prevention and management measures; conducted regular operating environment monitoring as required by the law; provided individual protective gears; and ran risk assessments for work hazards. By analyzing the causes of occupational injury in a timely manner, safety awareness and training can be properly enhanced.
- The Company has established Safety, Health and Environmental Protection Committees at the headquarters and at the fab levels. Regular meetings are held to discuss matters regarding safety, health and the environment. Also, labor representatives are elected in accordance with the law, allowing the employees to comprehend the health, safety and environmental operational model and serve as a formal communication channel.
- Promotion of prevention and control of infectious diseases, epidemic control, materials provision and support, follow-ups and crisis response were undertaken in accordance with the Employee Health Management Measures.
- The Company has established “Procedures for Consultation and Communication of Environmental, Health and Safety Management” to maintain the communication channel between the Company's internal and external occupational health and safety management system, conveying the occupational health and safety policies, legal obligations and relevant information.

Management



- Internal audits on environmental health and safety are conducted every six months to perform checks on the execution status and make necessary corrections on the overall system operations.
- The Company has established “Procedures for Supervision and Measurement of Environmental, Health and Safety Management” to conduct regular performance measurement and directional adjustment of goals.
- Environmental health and safety meetings are held to review and make corrections, achieving the goal of continuous improvement.
- All supervisors of all levels are committed to providing necessary resources and implementing daily environmental health and safety management. They also continue to review and improve the system to ensure its suitability, adequacy and effectiveness.

Performance



- The Company had completed the verification preparations for ISO 45001 and CNS 45001 on occupational health and safety management system.
- In 2019, the Frequency-Severity Indicator (FSI) of the Company (0.01) was lower than one-third of the industry average (0.09), achieving the goal of zero significant incident in industrial safety and environmental protection.

4.1 Human resources

PSMC conforms to the law to protect the human rights and personal privacy of employees. Discrimination is strictly forbidden. For recruitment, the Company adopts the principles of fairness, justice and honesty. Recruitment, selection and employment are all in compliance with government regulations. There will be no difference in treatment in terms of race, skin color, gender, sexual orientation, religion, marital status, age, nationality or physical and mental disabilities. Moreover, the Company is also dedicated to having preventive measures on sexual harassment. In addition to orientation training for new recruits, a hotline has been established to handle any sexual harassment complaints. If a complaint is received, privacy protection for the complainant is the ultimate governing principle, so that a workplace free of sexual harassment can be created for all.

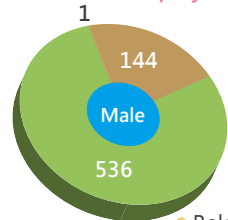
The security personnel of the Company are required to attend human rights training each year. The content of the course includes the relevant law and regulations such as personal rights, labor freedom, wages, holidays, working hours, prohibition of discrimination, freedom of assembly and related cases to ensure that the security personnel are also compliant with the social convention.

◆ Employee Information

For the percentage of Taiwanese employees in the Company in 2019, Taiwanese employees accounted for 95.93% while foreign employees accounted for 4.07%; For 25 supervisors above the assistant manager rank, Taiwanese supervisors accounted for 96% (There were 24 Taiwanese supervisors and 1 foreign supervisor). In 2019, employees with disabilities had exceeded the stipulated 1%. The operating activities within the fabs are mainly undertaken by company employees. The employee statistics of this report are actual figures provided by the HR Division.

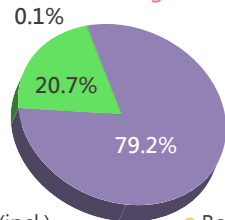
Manager Age

Number of employees



● Below 30 (incl.)
● 31-50
● Above 51 (incl.)
Total: 681

Percentage



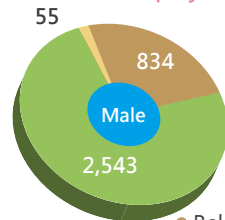
● Below 30 (incl.)
● 31-50
● Above 51 (incl.)
Total: 100.0%



● Below 30 (incl.)
● 31-50
● Above 51 (incl.)
Total: 113

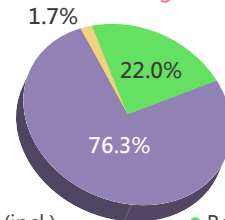
Employee Age

Number of employees



● Below 30 (incl.)
● 31-50
● Above 51 (incl.)
Total: 3,432

Percentage



● Below 30 (incl.)
● 31-50
● Above 51 (incl.)
Total: 100.0%



● Below 30 (incl.)
● 31-50
● Above 51 (incl.)
Total: 2,652

Employment status

	Male	Female	Percentage
Full-time	4,113	2,765	100.0%
Part-time	0	0	0%

Total: 6,878 Average seniority: 9.62 years



Note 1: Managers refer to personnel above section managers.
Note 2: Excluding 31 contract staff (male: 14; female: 7).

◆ Diversity of employees

By maintaining good interaction between labor and management, corporate culture and organizational atmosphere are naturally reinforced and the harmony between labor-management relations is facilitated. In addition to offering diverse communication platforms, we also organize labor-management meetings on a regular basis. Through the communication between the labor and management, relevant matters regarding work hours, leave and welfare issues can be discussed to protect employee rights.

Labor-management meetings were held regularly. In 2019, the meeting schedule of different fabs was as follows:

Fab/ meeting date	P1/2 fab	P3 fab	8A fab	8B fab	8AD fab
First quarter	* * *	* * *	March 19	March 19	March 19
Second quarter	June 26	June 26	June 13	June 13	June 13
Third quarter	September 25	September 25	September 26	September 26	September 26
Fourth quarter	December 13	December 13	December 19	December 19	December 19

Description: On May 1, 2019, PSMC completed corporate restructuring. On June 26, P1/2 and P3 fabs held the first labor-management meeting since corporate restructuring.

※Summary of major issues of the year:

1. After the corporate restructuring of PSMC, the election of the overall labor representatives was conducted.
2. (Negotiations on the yearly scheduling.
3. Discussion on the welfare facilities and other issues.
4. Explanation of labor trend, production plans and business overview.
5. Voting of labor representative election procedures and term period of Occupational Health and safety Committee.
6. Explanation of matters related to the hiring of overseas workers (type II foreign workers).



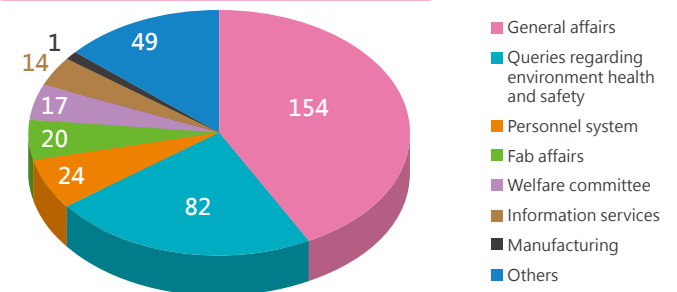
The human resources division has an Employee Relations Department that offers assistance and a referral service for counseling to the employees to relieve their stress and improve work performance. Apart from the communication platform "Feedback Corner," the Employee Relations Department has also set up complaint channels including the "Employee Wellness Site" and "Unlawful Conducts at Workplace" to address various types of complaints via communication and responses, providing employees with a fair working environment that is free from discrimination.

Since the establishment of the Company, the labor-management relationship has been harmonious. There has been no union established and no occurrence of labor-management disputes that could give rise to losses. The shortest notice regarding operational changes is processed in accordance with Article 16 of the Labor Standards Act. The Company offers various communication channels including making a direct report regarding the issues in question to the manager. If one was treated unreasonably, the employee could file a correction or complaint via a complaint channel.

In 2019, there was no occurrence of child or forced labor incident. As such, there was no penalty imposed by the competent authority. The Company complies with laws and regulations, and protects the rights of its employees. Therefore, the Company has established labor and human rights policies to protect the mental and physical development of children and does not employ child workers under the age of 16. The employment of foreign workers also has to conform to the age requirement of the exporting country. No laborer under the age of 18 (young workers) engages in any work that may endanger the health and safety or violates the moral standard, including overtime or night shifts. Work conditions do not differ in terms of race, religion, gender, age, marital status or political preference. The Company does not recruit workers by force, threat, imprisonment, debt settlement, human trafficking or other illegal activities, including but not limited to forced labor or related coercive actions, corporal punishment, intimidation or other verbal abuse, withholding workers' finances, identity documents, etc.

2019 "Feedback Corner" Statistics

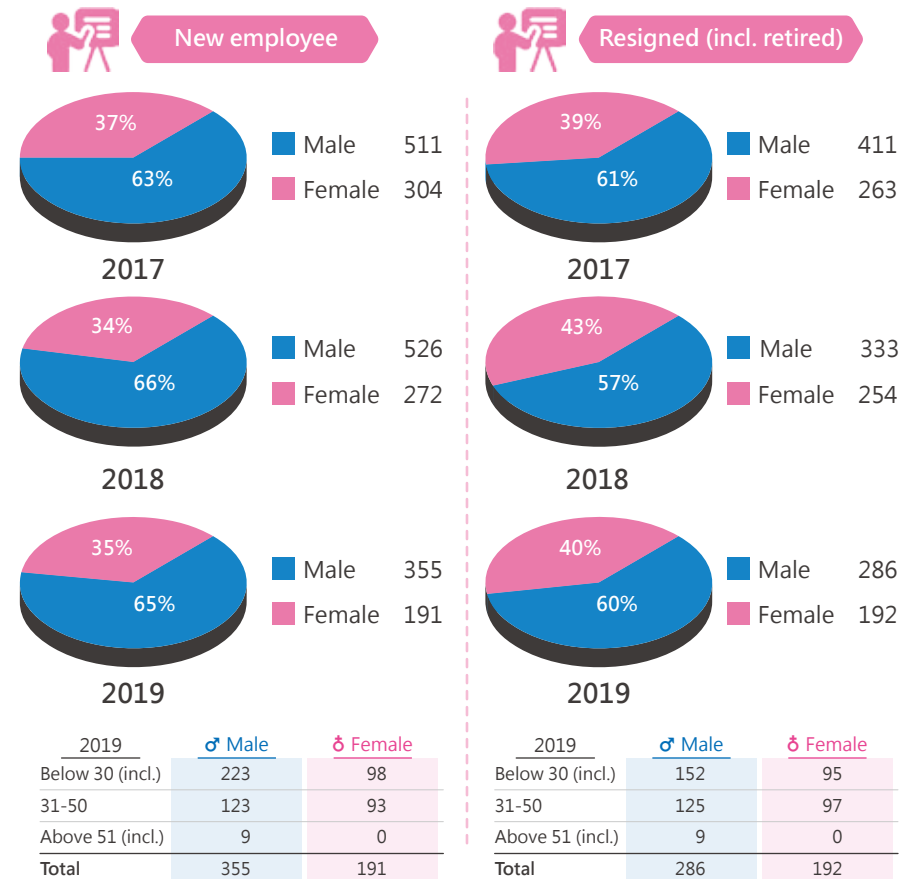
Category	Cases
General affairs	154
Queries regarding environment health and safety	82
Personnel system	24
Fab affairs	20
Welfare committee	17
Information services	14
Manufacturing	4
Others	49
Total	364



★ Response rate of 2019: 100 % ★
Performance indicators are reviewed by the Quality Management Review Committee

◆ Employee turnover

In 2019, the turnover rate of the Company decreased by 1.6% compared to that in 2018, proving the employee turnover rate was stable and the operating status was steady.



4.2 Employee welfare

◆ Employee welfare and rights

To look after the employees and secure their standard of living, we offer excellent wages and benefits. The starting wage of personnel holding entry-level position does not differ base on gender. An Employee Welfare Committee has been established to provide or sponsor various welfare programs. In addition to providing labor insurance and National Health Insurance to employees, we also offer free or self-paying group insurance, which not only insures the employee, but also their spouses and children, shielding both our employees and their families.

◆ Salary system

The Company has a fair and reasonable salary system and incentive plan which are drawn based on the performance of employees. Wages and incentives do not differ base on gender. In 2019, all employees accepted regular performance evaluation.

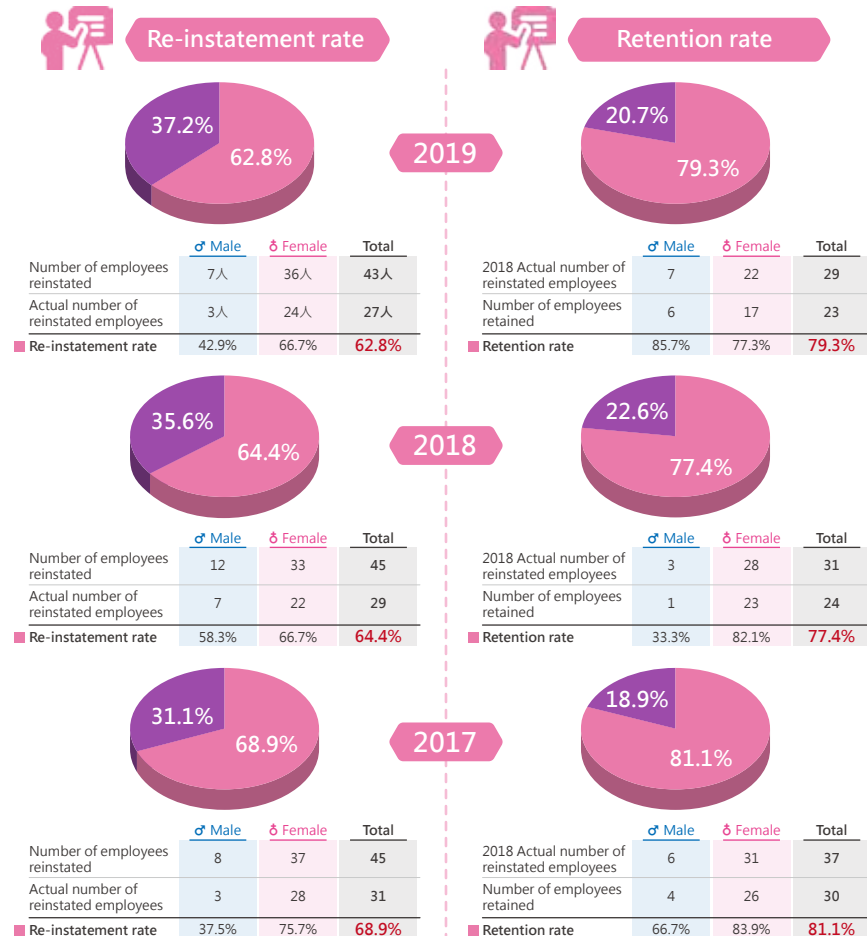
The Company has established retirement procedures for all formal employees. In accordance with the Labor Standards Act, monthly retirement funds are paid for employees to their special individual pension account of Bureau of Labor Insurance. The retirement funds of the Company are paid in full in accordance with the law. The retirement funds of the personnel under the old system are supervised and managed by the Supervision Committee. For personnel under the new system, the Company pays 6% of their retirement funds as stipulated by the law.

Item	Content	Employees who are a part of the retirement plans
Retirement funds of the old system by Labor Standards Act	Employer: based on the monthly salary, 2% is reserved for labor retirement funds.	100%
Retirement funds of the new system of the retirement regulations	Employer: 6% of the labor's monthly salary Labor: 0-6% of the monthly salary	100%



◆ Unpaid parental leave for raising children

The Company has established "Procedures for Unpaid Parental Leave Application." For employees who have served in the Company for more than 6 months and have a child below the age of 3, they may apply for unpaid parental leave for raising the children. The retention rate in 2019 increased by 1.9% as compared to 2018.



Formula:

Number of employees re-instated = Number of expected re-instated employees in the current year due to unpaid parental leave

Re-instatement rate = Actual number of reinstated employees / expected number of re-instated employees

Number of employees retained in 2019 = actual number of re-instated employees in 2018 and still in service as of December 31, 2019

Retention rate in 2019 = number of employees retained in 2019/actual number of re-instated employees in 2018

Note: Number of qualified employees: Males = Number of male employees under parental leave between January 1, 2017 and December 31, 2019

Female = Number of female employees under maternity leave between January 1, 2017 and December 31, 2019

◆ Basic amenities for employees

The Company has convenience stores, cafes and employee canteens which provide different types of food including buffets, fast food and noodles. Lunches, dinners and suppers are subsidized by the Company. Employees can enjoy good food for a small fee.

Good food



To help technicians who live afar, the Company offers comfortable dormitories with water, electricity and AC.

Accommodation



For employees who live nearby, such as Hsinchu, Zhudong, Zhubei, Hukou, Tofen and Miaoli, the Company offers free transportation.

Convenience



◆ Happy Workplace

Talents are the most important assets of the Company. Happy employees make an enterprise efficient and effective. As such, PSMC strives to provide a happy workplace for its employees. With a free giving, fun and healthy spirit, the Company enables employees to nurture their innovation and energy whilst having a balanced work life through diverse welfare facilities and well-planned activities. The service framework of the Welfare Committee mainly comprises of welfare subsidy, social activities and large scale employee events. In 2019, a total of 21,491 employees participated in various activities.

For basic welfare, in addition to the three-festival and birthday gifts and vouchers, the Company also gives subsidies and allowances of various amounts for marriage, childbirth, hospital admission and scholarships for children of employees. To facilitate work-life balance, the Company has established a variety of clubs that provides a wide range of choices in courses, which encourages employees to expand their social circle, cultivate interests and improve their health while broadening their networking. To help employees alleviate their stress and improve their health, the Company frequently holds numerous all-inclusive activities for the employees such as watching stage plays, hosting cultural and art activities, Family Day and Christmas activities, giving care to the families of the employees and fostering a sense of belonging for PSMC.

◆ Recreational facilities and services

Engaging in sports is good for one's mental and physical health. PSMC cares about the work-life balance of its employees. The ninth floor of the P1/2 fab has a multi-purpose sports hall which includes a basketball court, tennis court, volleyball court, pool tables and table tennis tables; the fifth floor has a gymnasium, dance room and karaoke lounge and media room; at different fabs (P3、8A、8B), there are gym equipment, dance rooms and other facilities as well. These facilities are provided to encourage employees to cultivate a sporting habit. During lunch breaks or after work, many employees have been making use of these facilities.

◆ Social activities and departmental competitions



Gymnasium



Sports hall



Tennis competition



Bowling competition



Table tennis competition



Softball competition

PSMC encourages its employees to establish clubs and societies to organize social activities that foster a common interest among co-workers and expand networking. The inclination and willingness to take part in these clubs and societies are rising every year. At the moment, the established clubs are: badminton club, table tennis club, tennis club, volleyball club, pool club, basketball club, bowling club, softball club, aerobics club, video and music club, cycling club, running club, health club, gardening club and language appreciation club, totaling 15 clubs. The Company encourages its employees to expand their social lives and develop more interests to have an enriched life. The Welfare Committee has provided subsidy to the clubs and societies. Further, when they represent the Company in external competitions and win, they will receive extra allowances.

The clubs arrange a wide variety of social activities regularly to enhance the employees' identification toward the Company, further strengthening a teamwork that is based on mutual help and cooperation. In 2019, the basketball, softball, pool, badminton, volleyball, tennis, table tennis and bowling clubs have held the "PSMC Cup", a series of professional individual and group competitions. A total of 325 teams or 3,280 people had participated in the competitions. The participation allowed co-workers to interact and enhance collaborative spirit, deepening teamwork and self-challenge attitude, energizing the atmosphere of different departments, and bringing people together. In addition to the competitive platform within the Company, the clubs of PSMC have been actively taking part in external competitions. In 2019, the Company won second place in both the Health Group and Happy Group's Softball Competition of Taiwan Cooperative Bank, champion in the Softball Competition of Hsinchu Science Park, third place in the Women's Tennis Competition of Hsinchu Science Park, champion in the Recreational Group's Basketball Competition of CBC, second place in the Men's Basketball Competition of Hsinchu Science Park, second place in the Men's Volleyball Competition of Hsinchu Science Park, and fifth place in the Women's Volleyball Competition of Hsinchu Science Park.

◆ Family Activities

◆ PSMC Family Day

The “Powerchip Family Day” is a special activity for the employees and their families. In October 2019, for the first time, Family Day activities were held in the Company. A total of 2,755 employees took part and they brought over 10,000 people to participate in the activities. The activities not only enhanced the relationship between the employees and their spouses and children, they also facilitated a wider interaction among the participants. They enjoyed gourmet and had a fun experience. The robot exhibition and a series of exciting stage performances made the Family Day immensely enjoyable for all its participants. The employees and their families took part in a social activities held at the Company for the first time. It was an exhilarating experience for them. The Family Day event included an open house for the offices of three fabs. A total of 616 employees brought their families to visit the areas. The children visited their parents' offices for the first time and have come to understand the environment that their parents worked hard in. The experience would help them foster a tighter family bond. The Family Day was a meaningful event. It allowed the families of the employees to join and understand PSMC, and come to give their full support to their employed family members.



◆ Cultural and art appreciation

PSMC organizes a wide variety of cultural and art appreciation activities each year, including parent-child theaters and talks given by celebrities in order to bring art closer to the employees' lives, to cultivate a more humanistic atmosphere, and promote parent-child interaction and optimizing their work-life balance.

In 2019, a total of four plays were organized, including two plays for adults - “Crazy Soap Drama” by the All U People Theatre and “When We Are Together” by the Spring River Performing Art Troupe, and two plays for children - “Puss in Boots” by Theater Company HIKOSEN and “Adventure to the Candy Forest” by Apple Theater. A total of 3,873 audience turned up for these plays. In the enjoyable atmosphere, parents and children alike found them satisfying and had a wonderful time as a family together. Meanwhile, the Welfare Committee also organized ten movie screenings. A total of 866 employees and their families got to watch the latest blockbusters. The screenings were well received.



Apart from plays, many cultural and art talks were held in the Company. In 2019, the Company invited Lee Yi Hugh, Hsu Hai Peng, Nick Wang and Hsieh Che-ching to share their life experience and professional knowledge which covered traveling, health, motivation and art. The Company also invited professional lecturer from the HSBC Bank to analyze wealth management for retirement. These talks expand the knowledge and facilitate sharing among the employees.



• Festival Welfare

During important festivals, empathizing with the hard work of the employees, the Company gave out New Year gift boxes for the Lunar New Year, 12 choices of gift sets for Labor Day, northern and southern flavor rice dumplings, vegetarian rice dumplings and crystal rice dumplings for the Dragon Boat Festival to employees. As for the Mid-Autumn Festival, a gift box was voted for, and another gift set was bought from charity organizations (handmade soaps from the Education and Nursing Institute and cranberry gift sets from the sheltered workshop for 2019), all of which were given out to employees as celebration gifts. For the Lantern and Winter Solstice Festivals, rice balls were distributed to the employees as well.



Labor Day - choosing one out of twelve



Dragon Boat Festival



Festival gifting



Mid-Autumn Festival



Rice Balls for Winter Solstice and Lantern Festivals

• Christmas music concert

Every Christmas is a festival of gratitude. In 2019, at the four fabs, the Company held a Christmas music concert and dining, and Christmas card-hanging event. During lunch break, there were band performances and games that gave the employees a fun and relaxing Christmas lunch concert event. Meanwhile, each employee also received a NT\$50 drink voucher. At the Christmas card-hanging event, employees can put their well wishes for their families or colleagues on the cards and hang the cards at the Company's Christmas trees. In the lucky draw event, 400 employees were chosen for a 7-11 souvenir gift.



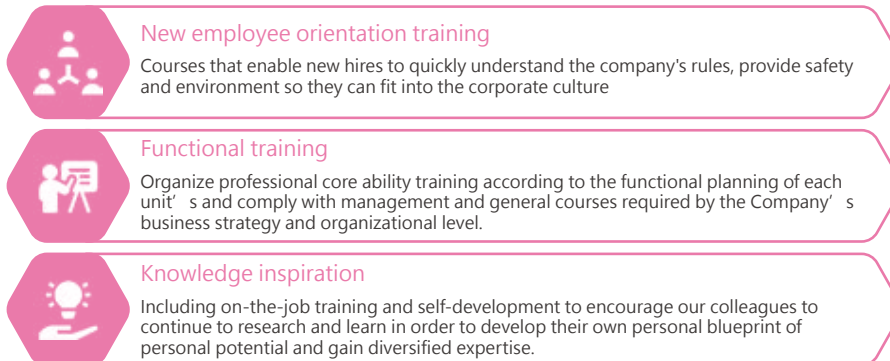
4.3 Occupational competency development

We believe that talents are a crucial key to maintaining long and competitive advantages for a company. Therefore, we are dedicated to creating a healthy learning environment to provide comprehensive education and training courses. We develop the knowledge and skills needed for workplace and systemic training programs, as well as a positive work attitude in order to increase the performances of employees and operation efficiency of the Company, enabling the employees to grow with the Company.



◆ Structure of Educational Training

The structures of educational training include "New Employee Orientation Training", "Functional Training" and "Knowledge Inspiration". These are comprehensive and systemic training courses needed for employees to plan their career development. We build a learning map for our employees to further extend their lifelong experiences as well as self-development.



◆ Career Development Training

Based on the personal background of education and experiences, job types and professional abilities, different further training courses are co-planned between managers and our colleagues, providing colleagues the most up-to-date and suitable training assistance plans.

Category	Course content
Professional	Provides two types of professional courses: operation technology and administrative management to improve the professional skills of our employees.
Management	Provides phased management skills to supervisors/successors of different levels, working their way up to being great managers.
General	Provides diverse, conceptual courses (such as time management, personal interaction) to nurture potentials.

◆ Diverse Learning Channels

By utilizing training resources inside and outside the Company to plan exclusive training WebPages, we provide our colleagues access to the latest information to quickly learn via diverse learning channels.



After hiring new employees, the Company quickly conducts educational training courses regarding human rights such as employee rights, environmental safety, information security and Labor Standards Act. In the process of talent development and nurture, we explore organizational and personnel needs persistently. Gender discrimination is not tolerated. The Company consistently makes reviews and gradually develops various training courses to improve the knowledge and skills that the employees need for their career development. Most of the direct workers in the fabs are female. As such, their training hours were less than their male counterparts. Further, due to the corporate restructuring, some of the courses had been adjusted. Thus, the average training hours for 2019 were less. The achievement rate of the training programs in 2019 (including E-Learning system) was 94.6%, and the satisfaction rate of the actual course scored 95% according to a survey. Due to corporate restructuring, the number of training courses had become less.

YEAR		2018			2019		
Item	Gender	Total	Total training hours	Average training hours	Total	Total Training hours	Average training hours
Management	Male	647	19,805	30.6	681	20,831.2	30.6
	Female	112	3,296	29.4	113	2,330	20.6
Full-time	Male	3,474	180,166	51.9	3,432	166,737.6	48.6
	Female	2,702	79,513	29.4	2,652	61,246	23.1

Note: 1. Managers refer to personnel above section managers.
 2. The total hours of training courses of 2019 include E-Learning.
 3. Computation formula: Average training hours = Total hours of training/total persons.
 4. The restatement of 2018 data is due to an amendment in the statistical computation.

To enable the employees to understand that physical and mental health is the key to a happy life, in addition to providing the relevant information from time to time on counseling, emotion and stress management, improvement of communication to strengthen the employees' awareness on mental health, the Employee Relations Department has also established an employee caring and issue response mechanism to provide the mental support and assistance that the employees need.

Occupational mental health campaign for 2019	
Content of campaign	Number of times
Information from Employee Wellness Site	32 cases
Seed employee training - "Employee care and assistance"	1 session
Promoting on-line learning for "Prevention of Workplace Violence and Sexual Harassment" and training for new recruits (including prevention on workplace bullying).	13 sessions

Employee counseling and referral service for counseling in 2019: Established employee care and counseling mechanism. When employees encounter psychological, social and communication, or response management issues, they can seek out their supervisors and the Employee Relations Department for assistance or a referral service for counseling. Each year, every PSMC employee is entitled to five free counseling sessions. In 2019, a total of 101 employee sought counseling.

In 2019, there was no occurrence whereby the Company violated the rights of indigenous peoples. Training regarding human rights protection was also conducted. A total of 1,108 employees completed the training. We shall continue to monitor human rights issue closely and promote the education and training in this regard to raise awareness in human rights protection.



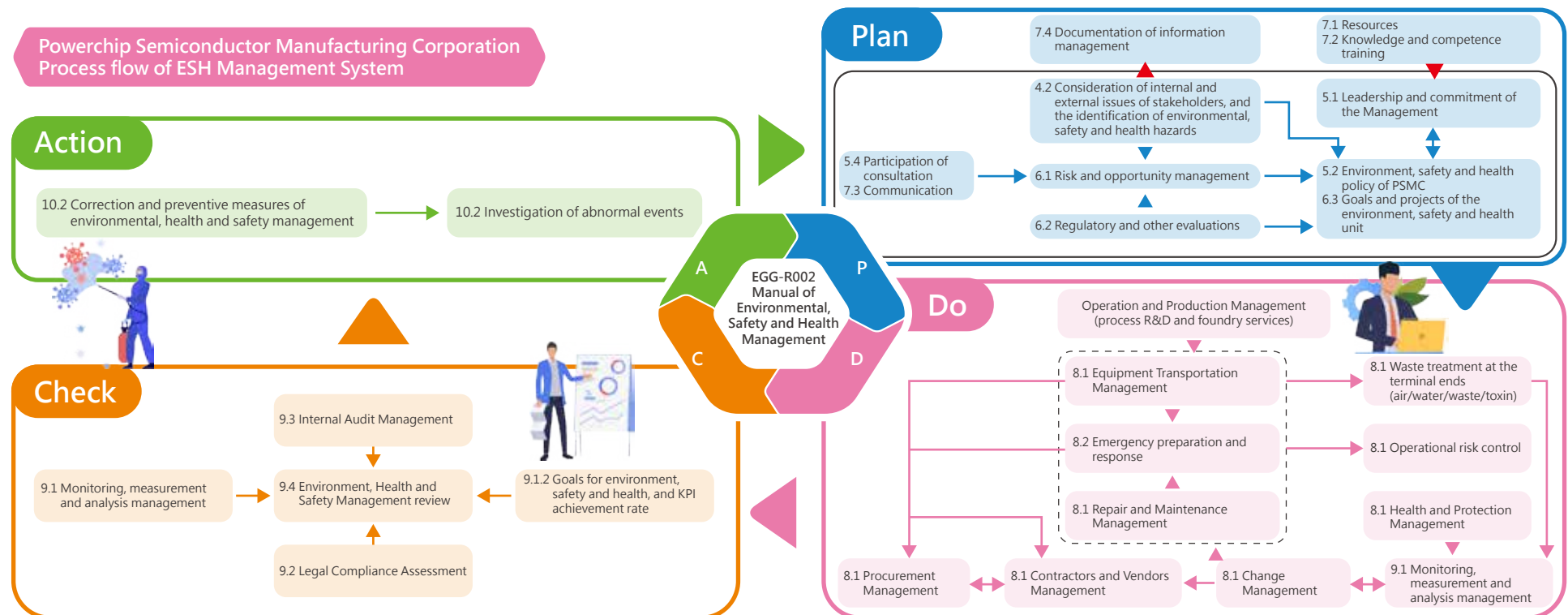
4.4 Occupational health and safety

◆ The operations and management of the environment, health and safety

Since 1998, PSMC has managed to complete the certification of ISO 14001, ISO45001 and CNS45001. Further, since 2003, the management system has been integrated as one internal ESH Management System to promote the environmental management and other relevant management activities for occupational safety and health, hence consistently enhancing and aligning the occupational safety and health level of PSMC with the international standard.

The operations of the ESH Management System of PSMC is run in accordance with the environmental, health and safety policy released by the Vice President. The environmental, health and safety unit is responsible for the planning and execution of the activities, enabling the Company to live up to the motto "Safety and hygiene are not extras but are an important part of everyone's work." Every year, the President will establish the measures for tackling the environmental, health and safety issues for the year, and each department will, according to their risk and opportunity assessment results, prepare for the concrete and practicable working targets.

Every quarter, the achievement rate of the execution of environmental, health and safety targets will be reviewed. Every six months, an internal environmental, health and safety audit will be conducted to review and correct the overall operational status of the ESH Management System. Via the Safety, Health and Environmental Protection Committee meetings, the President and the committee members work together to review and make corrections, thus achieving the goal of making consistent improvements.



◆ List of performance in occupational health and safety management

Item	Performance
Main performance of environmental, health and safety management	Achievement rate for the goals for environment, safety and health in 2019 amounted to 99.5%.
Ministry of Labor launching the selection of "Occupational Safety and Health Excellent Individual Award."	Occupational Safety and Health Excellent Individual Award of Hsinchu Science Park 2019 - Chang Chih-Hao of 8A fab.
Number of people participating in training and activities relating to occupational safety and health	6,393 people took part in the activities relating to occupational safety and health in 2019.
Application for performance verification of occupational safety and health management system	The headquarters and P1/2 fab obtained certification for three years from the Ministry of Labor in 2019.
Health activity	Participation in National Occupational Safety and Health Week 2019



Occupational Safety and Health Excellent Individual Award of Hsinchu Science Park



Participation in National Occupational Safety and Health Week

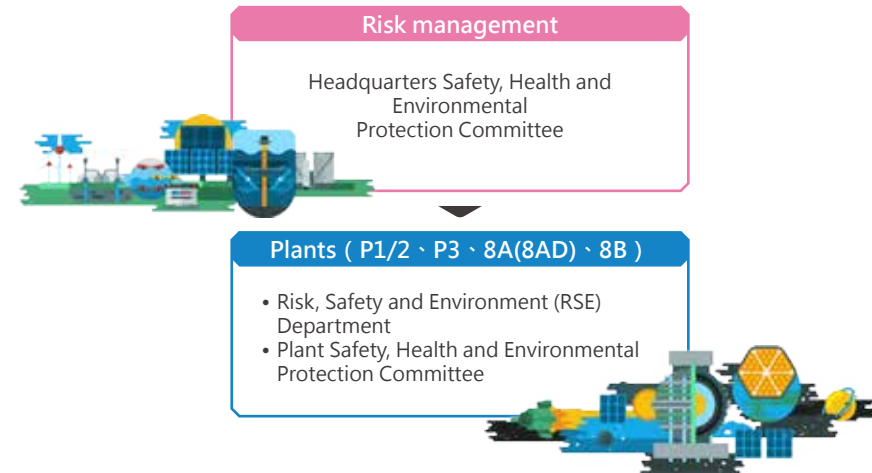
◆ Performance verification of occupational safety and health management system obtained.

Performance approval list

Performance passed list (updated on June 22, 109), the number of current valid companies: 181

Item	Name of institution	Location	Recognition period	Approved date	Validity period	Approval number
1	PSMC Fab P3	No. 16-1, Li-Hsin Rd, Hsinchu Science Park, Hsinchu, Taiwan, 300 R.O.C.	3 year	2017.07.28	2020.07.27	1060204566
2	PSMC (Corporate Headquarters)	No. 12, Li-Hsin Rd. 1, Hsinchu Science Park, Hsinchu, Taiwan, 300 R.O.C.	3 year	2019.01.05	2022.01.04	1080204330
3	PSMC	No. 18, Li-Hsin Rd. 1, Hsinchu Science Park, Hsinchu, Taiwan, 300 R.O.C.	3 year	2018.09.09	2021.09.08	1070205848
4	PSMC Fab P1/2	No. 12, Li-Hsin Rd. 1, Hsinchu Science Park, Hsinchu, Taiwan, 300 R.O.C.	3 year	2019.12.09	2022.12.08	1090201079

Organizational Chart of Safety, Health and Environmental Protection Committee



PSMC has established Safety, Health and Environmental Protection Committees at the headquarters and at the fab levels. Regular meetings are held to discuss matters regarding safety, health and the environmental protection. Also, labor representatives are elected in accordance with the law, allowing the employees to get to know the health, safety and environmental operational model and serve as a formal communication channel.

Proportion of labor representatives to the Company's Plant Safety, Health and Environmental Protection Committee.

Plants	Headquarters	P1/2plant	P3plant	8A plant	8B plant
Number of labor representatives	27	10	8	12	9
Total number of people in the Committee	70	26	21	26	20
Proportion ^{note}	38%	38%	38%	46%	45%

Note: The statistics above is calculated until 2019/07/31. The calculation formula is: Number of labor representatives/ Total number of people in the Committee*100%.

◆ Environmental Safety Risk and Improvement Measures

For various business operations, customer service and products, PSMC takes the environmental, occupational injury and health factors into consideration. PSMC gathers a wide variety of issues that internal and external stakeholders are concerned with; identifies the environmental, health and safety risks and opportunities to prepare for the corresponding measures; and establishes the environmental, health and safety policies and goals for the employees to comply with.

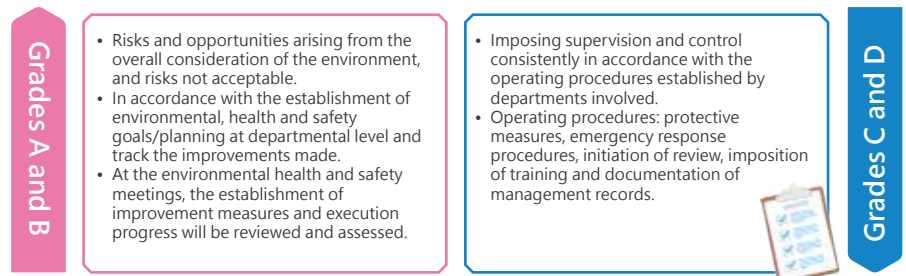
For employees who are exposed to significant environmental, health and safety risks, they are required to obtain the qualification and experience and complete the training so that they are equipped to identify the hazards and avoid severe immediate danger before assuming their positions. In addition to providing a safe, healthy working environment, in accordance with "Administrative Measures of the Prevention of Unlawful Conducts when Performing Duties," PSMC regularly tries to identify internal or external bullying behavior, as it vows to end workplace violence or bullying and mold a conducive work environment for all.

In accordance with "Operating Procedures for HSE Risk Evaluations," "Procedures for Environment, Safety and Health, and Fire Regulations Collection and Identification Management," "Operational Instructions for Investigation of Abnormal Incidents," "Procedures for Internal Audit on Environment, Safety and Health," "Procedures for Consultation and Communication of Environmental, Health and Safety Management" and "Procedures for Environmental, Safety and Health Management Review," PSMC identifies the risks and opportunities in environment, safety and health.

In accordance with "Operating Procedures for HSE Risk Evaluations", PSMC conforms to the regulations of ISO 14001:2015, takes into consideration the product life cycle. PSMC firstly identifies activities that are controllable or can be influenced, environmental factors of products and services, and subsequently conducts environmental risk assessment. For the occupational safety and health aspect, the Company adopts the regulations of ISO 45001:2018. In addition to the general safety, chemical, physical, biological and human factors, hazards that threaten the externality of the Company, workload, working hours, violence, harassment and bullying are also in the purview of our identification.

The results of the environmental, health and safety risk assessment are categorized into four risk levels. If after risk mitigation, the risk level falls to Grade A and B (risks and opportunities arising from the overall consideration of the environment, and risks not acceptable), the authority department should consider processes involving canceling/replacing/controlling by engineering measures/managements by scheduling or providing personal protection equipment to eradicate risks and reduce occupational health and safety risk. After assessing the improvement measures, the Company will make use of the establishment of environmental, health and safety goals/planning at the departmental level and track the improvements made. At the environmental health and safety meetings, the establishment of improvement measures and execution progress will be reviewed and assessed. In 2019, there were three cases of unacceptable risks in which planning for countermeasures had taken place and budgeting for improvement is ongoing.

For other controlled risks at Grade C and D, the departments involved should establish their own operating procedures (including protective measures, emergency response procedures, review initiation, relevant education training that is automatically checked for and completed, and documentation of management records) and impose supervision and control consistently to avoid hazards of high risk level from taking place. Grade 4 risks, with a high probability (F) and severity (S), will be a prioritized supervision item for the departments involved.



When adding new, on-site chemicals, in construction, changing layout, or adding production/supporting equipment that are deemed by Operating Instructions for Management in Change of Environment, Safety and Health as projects with high environmental, health and safety risk, the assessment procedures for the environmental, health and safety risk impact will be initiated to re-identify the hazards and risks involved. Further, in the process of reviewing organizational background, pertaining to the internal and external issues, such as the management systems, compliance obligation, risk management procedures, external communication, operational environment and resources of offices, health management, business operations and operational control, we will also evaluate the risks and opportunities that PSMC is exposed to, and develop the corresponding strategies and actions.

When an incident involving pollution, occupational and health disaster/hazard occurs, in accordance with "Operating Instructions for Investigation of Abnormal Incidents," accident investigators will find out the causes of the accident with the stakeholders, analyze the fundamental reasons of the accident and make recommendations on improvement measures. They will handle and investigate the possible and confirmed non-compliant circumstances to reduce the impact on the environmental, safety and health aspect. Parallel investigations conducted and corrective and preventive measures undertaken by various fabs will also enhance the operational safety and efficiency in environmental, safety and health management of the Company.



◆ Management mechanism on contractors

PSMC has always paid close attention to occupational safety and health, and environmental protection. To conform to governmental regulations, ensure the safety and health of workers, reduce the impact on the environment and energy conservation, the Company not only has established a comprehensive safety and health system and environmental protection organization, along with designated personnel, but also a comprehensive system and regulatory requirements.

The employees of the Company and contractors have to comply with PSMC's procedures. For example, per the Environmental Regulations of Safety and Health for Contractors established, before contracting projects, the procuring department of the Company will forward the "Environmental Regulations of Safety and Health for Contractors" to potential contractors and ask them to sign and stamp on "Letter of Commitment to Comply With Environmental, Safety and Health Regulations for Contractors" and "Notification for Designated Environmental, Safety and Health Personnel," as well as the information needed for the collaborative meetings. Without the proper documentation, the contractors should not be allowed for to bid. The ultimate goal is to enable the employees of the contractors to understand the environmental, safety and health regulations before they start work.

To implement the compliance and collaboration of contractor management, for example, yearly assessment of contractors in the collaborative meetings, confirmation of contractors' qualification by the undertaking department before commencement of projects, fulfillment of qualification requirements, sufficient routine response training and training system are conducted. Further, according to the nature and content of the contracting work, contractors are required to coordinate with the undertaking departments to conduct drills, so that the contractors are equipped with the capabilities in responding to various situations and evacuation.

The Company regularly reports on the operating status at the Safety, Health and Environmental Protection Committee meetings and the quarterly collaborative meetings, so that different undertaking departments are clear about the safety behavior condition of the contractors.



Equipment and Factory Coordination Council Meeting for Contractor Assessment 2019

Meanwhile, to ensure various suppliers, contract manufacturers and contractors fully comprehend the Company operating regulations and the execution requirements for the environmental, safety and health aspect, the Risk, Safety and Environmental Protection Department will, in accordance with the content of the Environmental, Safety and Health Assessment List and matters regarding the environmental, safety and health audit on vendors, request the contractors to make clarifications on issues that have arisen. The department will check on the improvement measures provided by the contractors in the following audit.

Audit information on contractors (suppliers, waste treatment, components, new suppliers and CSR) over the years		
Type	2018	2019
Suppliers/New suppliers	20	2
Waste	26	23
Components	9	8
CSR(Stakeholders)	5	3

Via the contractor management system, the Company has established a uniform contractor assessment. Once the yearly transaction volume and amount of the procurement department reach a certain level, a standard supervision is then warranted. The Risk, Safety and Environmental Protection Department will regularly conduct a fair, transparent and objective evaluation on contractors in charge of plant affair projects, equipment repair and cleaning. Contractors of various areas with outstanding performance will be selected; ensuring the quality of the contractors' service fulfills the requirements of the undertaking department and the regulations in environmental, safety and health aspects. The results of the assessment will also serve as a reference for future contracts.

Audit information on contractors (equipment repair and cleaning) over the years		
Type	2018	2019
Hookup	28	29
Repair and maintenance	7	10

◆ Full Promotion of Occupational Safety

PSMC has established the "Manual on ESH Management" to govern the local activities of the fabs, products and services, and the internal and external environmental, safety and health issues of the fabs. Stakeholders include all employees, customers, contractors, suppliers, contract manufacturers, the competent authority of the environment, safety and health and NGOs.

The President leads and is committed to various environmental, safety and health operations to ensure the ESH Management System can achieve its expected performance. Supervisors of different levels provide sufficient resources and support, and encourage their departments to actively participate, offer improvement measures and training, and take part in discussions. Their initiation is pro-active, prompt, and increases a high level of alert toward personal well-being, the environment, the machinery, products and construction; thus strengthening the attention to the overall environmental, safety and health aspect for themselves, their colleagues, vendors and visitors.

According to "Procedures for Environmental, Safety and Health Management Review" and "Operating Instructions for Investigation of Abnormal Incidents," the designated management and stakeholders are required to review the compliance of the EHS Management System on a quarterly basis and establish the operating procedures for investigation of abnormal incidents (e.g., occupational hazards (including road traffic accidents), abnormal accidents, hazard identification, safety patrol, on-site audit, etc.), to find out the actual causes of the incidents, make corrections and provide preventive strategy for future occurrences,



Activities promoting environment, safety and health

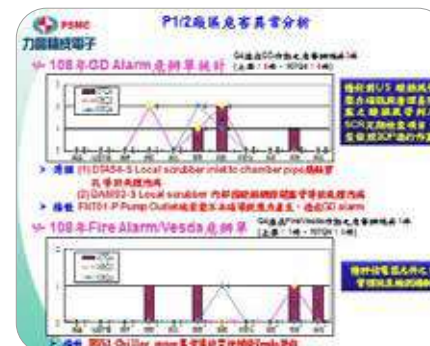


Diagram: case study for statistical analysis of abnormal incidents in the fabs



Diagram: case study for operational analysis of contractor control in the fabs

◆ Work environment monitoring

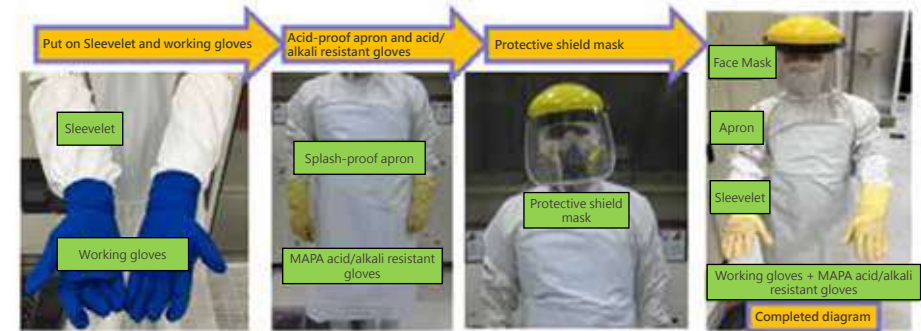
To gain perspective on the actual working environment of employees and assess the exposure to hazard factors, both of which will serve as the basis for working environment improvement measures, in accordance with regulations, PSMC appoints a qualified operating environment monitoring institution to survey the fabs every six months. Over the years, the test results of chemical detection in the work environment obtained by monitoring personnel are lower than the national and international permitted level of exposure. Further, pertaining to the operation type, regular monitoring is also conducted on the laser machinery and central ventilation system. The results show both are compliant with the regulations.

Monitored items and results of external institution in 2019			
Monitoring item	Passing rate for the first half of 2019	Passing rate for the second half of 2019	Remarks and description
Chemical factor	100%	100%	
Physical factor	100%	100%	Wearing earplugs and earmuffs at areas with high-frequency noise
Ventilation air	100%	100%	
Examination of laser machinery	100%		

To ensure the safety and health of employees and reduce their exposure to hazard factors during operation, PSMC requires the employees to wear the appropriate personal protection equipment when they are undertaking hazardous operation to avoid exposure. Further, the protective equipment is distributed according to operation types, the suitable group and the protection areas, along with the instructions and precautions on the basic protective equipment. The user guide for the personal protection equipment of different operation types will be tabulated and distributed to the employees to comply.



Types of personal protection equipment



How to wear protective equipment

Gas detectors are widely installed in the high-tech foundries. Its main function is to detect gas concentration within a short period of time and prevent chemical hazards. To comply with the relevant regulations, the Company has installed a gas detector system at the chemical storage area, equipment supply and manufacturing equipment areas to prevent chemical hazards.

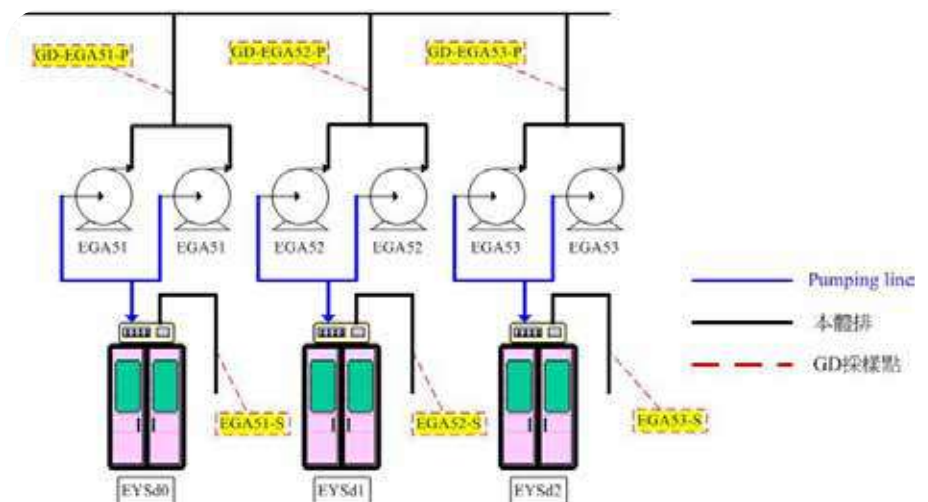


Diagram: equipment pump/scrubber GD

◆ Prevention of occupational diseases

In accordance with the relevant occupational safety and health regulations, employees who engage in special operations including noise operation, ionizing radiation, chromatization treatment, and employees who are exposed to dimethyl formamide, arsenic and indium compounds are subjected to special medical examination every year. Medical professionals and specialists will be arranged on a regular basis to go to the sites and collaborate with supervisors, employees, nurses and safety and health personnel to assess the relevance between the work on-site and health of the employees engaging in special operations; they are required to undertake preventive measures or make assessments regarding the competence of the employees depending on circumstances. In 2019, a total of 569 employees took part in the special medical examination. According to the results, no occurrence of occupational diseases for the year. Via medical examination follow-ups, care for individual health, environmental monitoring and other mechanisms, the Company can effectively prevent occupational diseases.

◆ Environmental, safety and health training

In accordance with "Instructions on Environmental, Safety and Health Training" and "SOP for Employee Education and Training," PSMC imparts the relevant knowledge and skill on ESH Management System to employees. The goal of the environmental, safety and health training is to effectively enhance their professionalism and capability in crisis response.

The environmental, safety and health training can be divided into three categories, namely ESH Management System, regulations and certifications, and operational control. In 2019, the Company held a total of 41 training sessions and a total of 3,740 employees participated. Further, the Company promoted the "Parallel Investigation on Abnormal Accidents Within and Outside the Fabs" activity, with the intention of reviewing the causes of abnormal accidents, strengthening relevant control and finding out the risks and opportunities of improvement measures. For example, in the fourth quarter of 2019, a hydrofluoric acid exposure accident gave rise to chemical injury. As a result, for operations involving special chemicals, the supervisors have established the review process to find out the liable party and strengthened the training on emergency response and first-aid treatment in case of accidents. A total of 1,651 employees received the training. The training was aimed to enhance the effectiveness of control and improve the knowledge and responsiveness of employees. A total of 822 employees are environmental, safety and health personnel and possess certification as required by regulations.

When an emergency occurs, to familiarize the Emergency Response Team (ERT) with the emergency equipment so that they can correctly and effectively use it and avoid injury during the rescue operation, the ERT regularly receives training on how to wear protective equipment and use the emergency equipment. The training includes

orientation training for new recruits and training for ERT. After completing the first-aid certification and professional training at a fire station, the ERT members will receive certification stickers. The certification is promoted to various departments so that they are able to recognize the conception and role of ERT. As of 2019, the Company has 1,071 basic ERT members who passed first-aid training.

Pertaining to the possible impact of environmental, safety and health performance and assessment on the competence of personnel who has an obligation in legal compliance, various departments planned for the training required and prepared the "Environmental, Safety and Health Training Plan for Department." In 2019, a total of 125 training plans were incorporated as departmental targets, and the achievement rate, which was tracked quarterly, amounted to 100%. The environmental, safety and health training system was used for updating and querying the training results of various departments, which made the control and review of the training more effective and efficient. Further, to ensure that the contractors were equipped with professional capability and knowledge, and had received comprehensive training as required by the regulations, verification of their capabilities was conducted before they entered the fabs to protect the safety of personnel involved. A total of 438 contractors completed the verification. Via the establishment of the capability verification system, the Company confirmed the hazard identification capability of the operating personnel and thus reduced occupational hazards.

Team	Color of sticker	Name of training course	Content of training course
Rescue team		ERT preliminary certification	Wearing Personal Protective Equipment SCBA Fire suit Level A Level C
		Training at Minghu Fire Prevention Facility	Turbo nozzle operation training 1. Hose deployment training 2. Breathing apparatus training room 3. Tunnel darkroom search training 4. Fire training room

Diagram: ERT certification stickers

◆ Disabling Injury Analysis

The Company provides excellent and safe working environment and mechanical equipment in accordance with the relevant laws, and heads toward achieving the "zero industrial injury" target. Protection of employee safety and health is the goal that the Company strives to achieve.

The Industry Total Injury Index for the past three year is shown in Table 1. In 2019, the total working hours of PSMC amounted to 14,411,904 hours and there were 24 cases of loss of working hours due to occupational hazard. The incidents were mainly traffic accidents (22 cases, totaling loss of 6,353 working hours, including one fatality) and falling (two cases, total loss of 21 working days). Analysis of the causes of the incidents, and review of operating procedures and preventive measures were carried out in parallel at all the fabs to avoid similar occurrence. In 2019, the Industry Total Injury Index of PSMC amounted to 0.01, which was far lower than the semiconductor industry average of 0.09. The fatality rate of non-employee, severity rate and injury rate were zero.

Industry total injury index (excluding traffic accidents)

Year	Plants	Disabling Injury Frequency Rate (FR)	Disabling Severity Rate (SR)	Industry Total Injury Index (FSI)	Industry-wide Industry Total Injury Index
2019	PSMC's fabs (Total)	0.13	1.0	0.01	0.09
2018	12-inch fabs	0	0	0.00	0.08
	8-inch fabs	0.79	2	0.03	
2017	12-inch fabs	0.10	0	0.00	0.07
	8-inch fabs	0.31	0	0.00	

Note: Due to corporate restructuring, the data for 2019 was consolidated.
The reason of the information restatement for 2017 and 2018 was due to corporate restructuring. The Industry Total Injury Index of the fabs was consolidated.
For the (industry-wide) Industry Total Injury Index in 2019, the Company referred to the average Industry Total Injury Index from 2016 to 2018 of the semiconductor industry, the data published by the Ministry of Labor.

Occupational Safety Performance of PSMC

Type	Item	2017	2018	2019
Total working hours	Total working hours for 8-inch fabs	3,260,232	3,787,380	3,352,224
	Total working hours for 12-inch fabs	9,506,464	10,532,856	11,059,680
	Total working hours	12,766,696	14,320,236	14,411,904
Total fatalities due to occupational hazards	Number of fatalities for 8-inch fabs	0	0	0
	Number of fatalities for 12-inch fabs	0	0	0
	Total number of fatalities	0	0	0
Fatality rate of occupational injury		0	0	0
Number of severe occupational injuries (excluding fatalities)	Number of severe occupational injuries for 8-inch fabs	0	0	0
	Number of severe occupational injuries for 12-inch fabs	0	0	0
	Total number of severe occupational injuries	0	0	0
Severity injury rate		0	0	0
Documentable occupational injuries (including number of fatalities and severe injuries)	Number of occupational injuries for 8-inch fabs	1	3	2
	Number of occupational injuries for 12-inch fabs	1	0	0
	Total number of occupational injuries	2	3	2
Description of injury type (e.g., fracture, laceration, contusion, etc.)	Description of each occupational injury type	One burning case due to contact with harmful substance One contusion case due to falling	Two laceration cases due to pinching or being pulled in One fracture case due to falling	Two injury cases due to falling
Normal injury rate		0.15	0.20	0.13

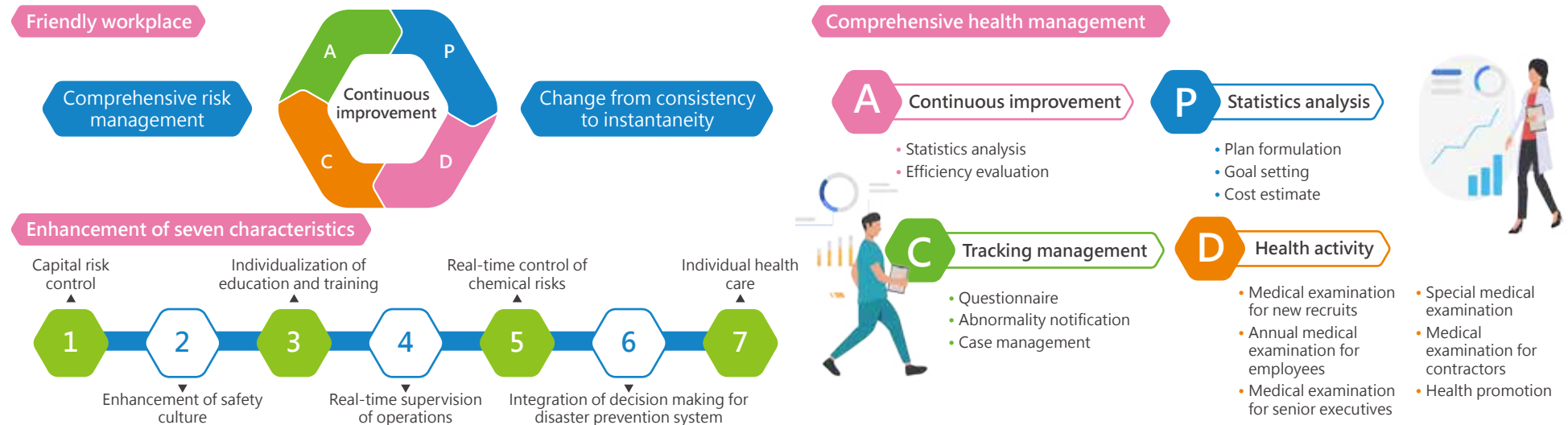
Note: 1. Severe occupational injury refers to loss of working hours of over six months.
2. The aforementioned data do not include traffic accidents.

◆ Friendly workplace

PSMC creates a friendly workplace while holding a comprehensive risk perception. The risk management of the Company is consistently assessed and improved upon in seven major themes. Using a computer system for a comprehensive health management model and multiple resources, the Company looks after its employees' health. Under a three-stage five-level preventive medicine conception, the Company adopts the PDCA execution model (preparing a plan → executing the plan → tracing and managing → continuously improving) to plan for comprehensive medical examinations and health promotion activities, enabling the employees to foster a "healthy body and mind" mentality through participating in these activities and caring for the health of the PSMC family.

In recent years, in addition to actively promoting health within the organization, the Company is always keen to participate in the health promotion activities held by the Ministry of Health and Welfare, Public Health Bureau of Hsinchu City, Ministry of Labor and Hsinchu Science Park Bureau. As such, the Company has received multiple accolades.

Via comprehensive health management procedures, the Company is able to actively facilitate the health of its employees in a consistent manner. There is no finish line in this regard but to persistently push forward. We have made caring for the health of the employees part of our job and are striving to achieve the "Win-win for work and health" target.



◆ Comprehensive care for health

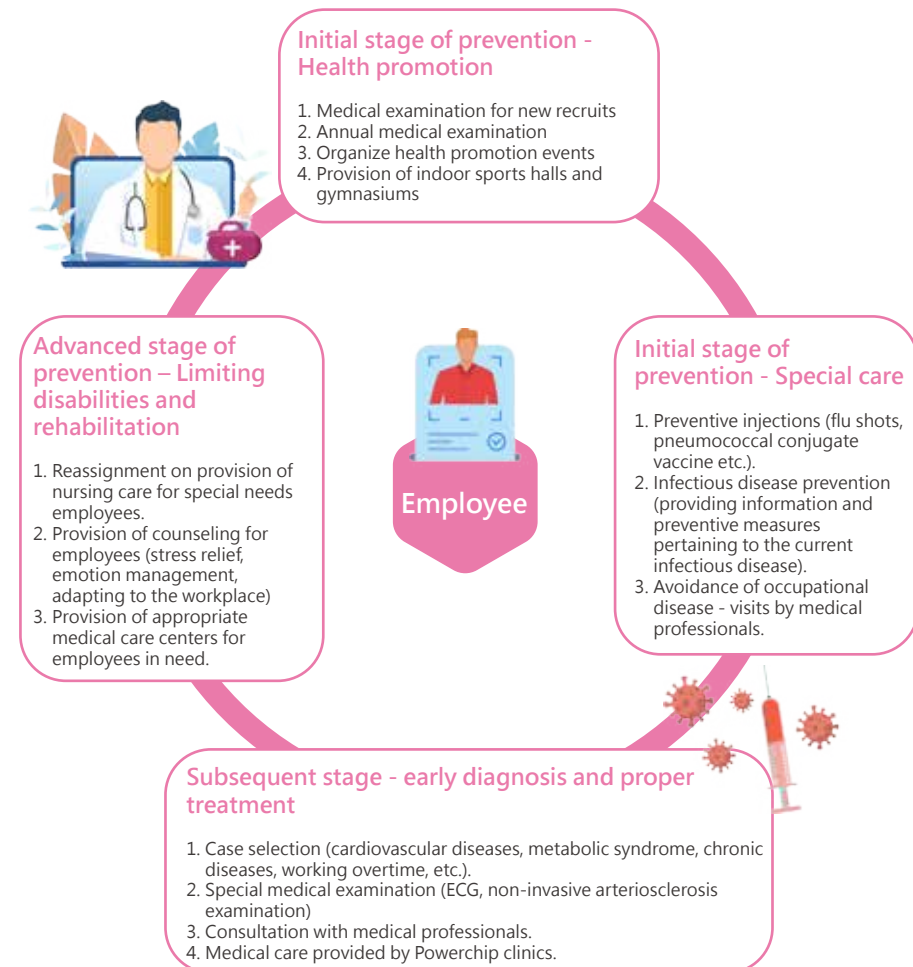
Since the employees are an important asset to the Company, PSMC takes care of their health. From planning comprehensive medical examinations to hosting a series of tailored health promotion activities, the Company has established a complete professional health management organization. Using a three-stage five-level preventive medicine conception as its main management axis, along with an all-inclusive informationalized health management system, the Company proceeds to achieve the comprehensive care target in the workplace. To enhance the welfare for employee health care, the Company has consistently increased its health management budget year after year. Even during a period of operational setbacks, the Company still carried on with the execution despite much hardship, so that everyone in the PSMC family could receive the utmost health care and the competitiveness of the Company could remain strong.

Providing more than what the law stipulates, PSMC sponsors comprehensive medical examinations for its employees every year and will follow-up on various medical abnormal items, so that early treatment can be provided upon early detection. Meanwhile, PSMC also provides the same health care management to long-term contractors and requests them to complete their medical examination regularly as an inclusion into the health care sphere of the Company to develop a healthy workplace.

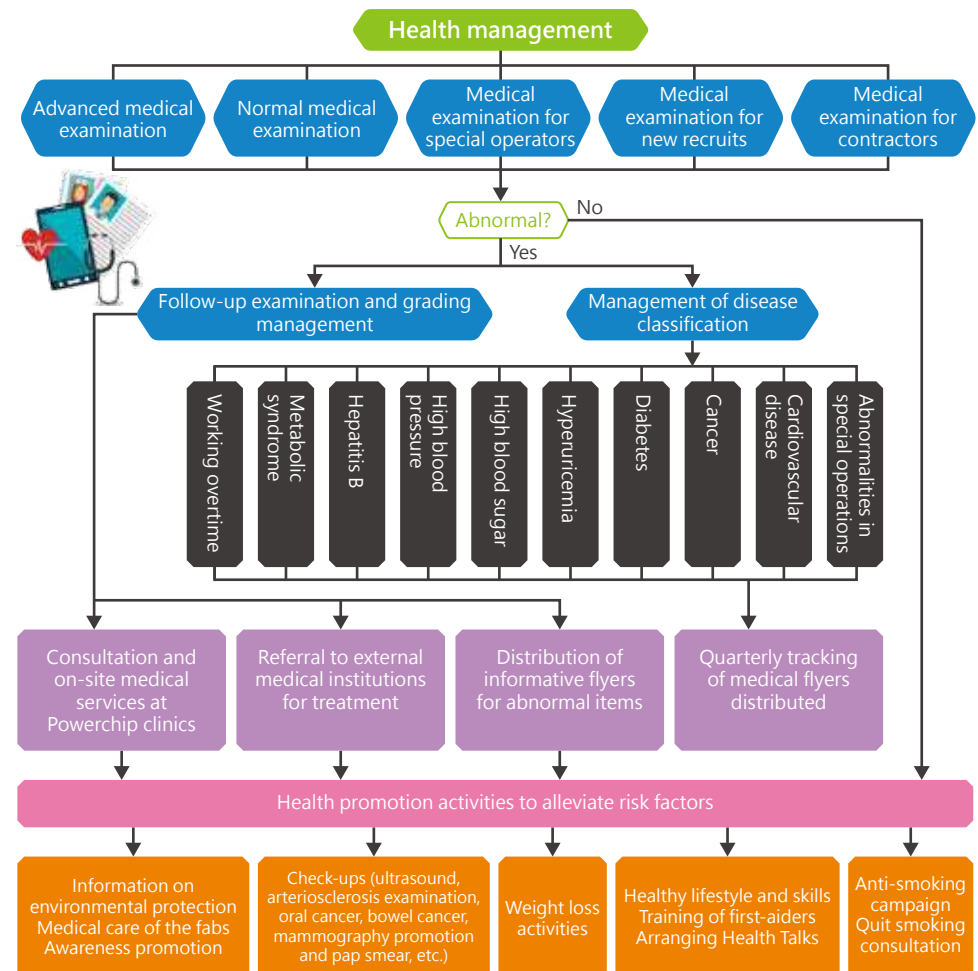
◆ Comprehensive health management

The health management measures comprise a series of medical examination activities to fully grasp the health condition of workers. Via the health management grading and tracking management model for disease categorization, the Company arranges for the high risk group (including those with cardiovascular diseases, in maternal health care, in special operations, and with work overload) to see medical professionals for a comprehensive health service. If circumstances demand it, assistance will be provided to find suitable positions for the employees involved. The Company uses its network to fully implement health promotion, such as distributing informative flyers about health care and putting up posters, so as to raise awareness about the activities in a systematic manner. By gradually instilling health care values, the employees make self-monitoring a part of their daily routine. This is the most important part of fostering PSMC's health culture.

A three-stage five-level preventive medicine conception to achieve total occupational health care



Procedures of a comprehensive health management



Since 2007, after taking into consideration advice from professionals, the Company reviewed the operations of the fabs and undertook consolidation and planning, which ultimately led to the establishment of the Occupational Disease Preventive Measure Management Items. Via (occupational disease) Prevention, Return to Work and Compensation (PRC), the Company strives to achieve its ultimate goal of employee health care—"No Pain at Work, Healthy Life's a Perk." Meanwhile, we also reviewed potential hazardous operations, updated the list of these operations, and incorporated them in the internal supervision management. With a multi-layered preventive method and diverse pro-active management, the Company was conferred a certification of participation and promotion for "National Occupational Safety and Health Week 2019" by the Occupational Safety and Health Administration, Ministry of Labor.



◆ Health promotion activities

According to medical examination results and seasonal changes, the Company arranges for different types of ultrasound check-ups, health promotion activities for weight loss, health care for the group with cardiovascular diseases, vaccination, check-ups for breast and cervical cancer etc. to take care of the physical health of the employees. In addition, the Company also organizes various talks and provides specialist consultation service for enhancing health knowledge and cultivating the correct mental health perception of the employees.

To increase employees' desire to participate in various health promotion activities, the Company integrates the environmental, safety and health KPIs into the health enhancement programs and uses group strength to raise the awareness among its employees to take the self-management of their health seriously. As such, the Company is able to substantially increase the participation rate of the employees in the health promotion activities, from an initial rate of below 30% to over 90%.

2019 weight loss results report

Event Date: 2019.08.19~2019.10.25

Year	2015	2016	2017	2018	2019
Number of participants (persons)	624	520	483	389	277
Total weight loss (kg)	694.8	866.4	620.1	632.1	758.1
Average weight loss (kg/person)	1.12	1.6	1.31	2.86	4.03
Average age (years)	34.52	35.67	35.41	36.88	36.78

Weight loss analysis: Individuals lost an average of 4.03 kg/person (excluding regaining weight), which is 1.17 kg more than last year.

◆ Establishing Powerchip Clinic

To make medical services accessible to the employees, medical centers are provided in the vicinity of the Company. The Powerchip Clinic established not only lowers consultation fees that alleviates the burden of the employees, but also provides house call service, health consultation, vaccination and other health management services. It gives much convenience for following up on abnormal items found in medical examinations of the employees, and subsequent caring service, emergency care, and support. With an integrated health care resource, a wide variety of health promotion activities are held. The receivers of the medical services have extended to include the employees' families, employees of affiliated companies, and contractors. Further, there are medical specialists coming to the fabs and offering health care education, advisement on how to enhance employee health welfare, implementation of health management measures for the employees, and thus achieving the target of disease prevention.

The fabs have full-time nurses on a 24-hour rotation. They give professional services on health protection and care, organize health promotion activities and provide emergency rescue and relief, thus lifting the worries of our employees in terms of health care.



Front door of Powerchip Clinic



Powerchip's clinical service information

◆ Informationalized health promotion platform

To strengthen the employees' capability in self-management for their health care, the Company has established a health management system specially for its employees. Via an electronic health management system, the employees not only can see their medical examination reports over the years to have a full picture of their health condition, they can also find out more about medical common knowledge and disease prevention information, register for health promotion activities, various ultrasound check-ups, vaccination and consultation services. The platform provides diverse and comprehensive informationalized health care services, and sends information on various health promotion activities and health knowledge to the employees via company e-mails. After organizing health promotion activities, surveys on the satisfaction level can also be done via the health management system. Any queries posted via the system will be answered. The health personnel is thus able to understand and resolve any medical related problems promptly. As such, the satisfaction rate of various activities usually exceeds 90%.



Powerchip's health management system information

A person is seen from behind, walking on a rocky, uneven path. They are wearing a brown jacket, dark pants, and bright yellow rubber boots. A light-colored backpack is on their back, and binoculars are hanging from their waist. The background is a blurred natural landscape with trees and a bright sky. On the right side of the image, there is a vertical blue line graphic resembling a circuit board. In the bottom left corner, there is a blue hexagonal pattern.

5

Pursuing a Co-Prosperity Society

5.1 Social Welfare and Environmental Protection

5.2 Caring and Giving Back

5.3 Art and Literature

5. Pursuing a Co-Prosperity Society

5.1 Social Welfare and Environmental Protection

In a bid to make our environment better and to prevent animals from mistakenly eating plastic, our Healthy Club has been promoting the "333 No Plastic" campaign since 2017. On the third Wednesday of each month, colleagues are encouraged to pick up litter at the neighborhood of the Company using their 30-minute lunch break. In 2019, a total of 120 people participated in this rewarding activity. In a period of over two years, through clearing up litter time after time, our satisfaction has been heightened.




In response to "International Coastal Cleanup Day", the Health Club invited the employees of Powerchip Semiconductor Manufacturing Corp. to join forces and participate in cleaning up the coast and protecting the ocean. In the process of cleaning up, the participants were made aware of the plight of the ocean.

At the same time, using scientific data to monitor the cleanup, they could be more aware of the urgency to reduce the number of various types of garbage in their daily lives, equipping them to be environmental protectors and volunteers of the planet. On September 22, 2019, 88 employees and their families cleaned Nanliao. We not only cleaned up the coast but also took the opportunity to reflect on our lifestyle, what it took to build it, and how we could co-exist with the ecosystem.



The PSMC Environmental Foundation was established in May 2006. The Foundation is dedicated to promoting environmental education and environmental applications, domestically and abroad. We engage or sponsor research, discussions, and relevant events on domestic and international environmental issues. We actively promote the results of our effort to individuals, society, and corporations, implementing environmental protection in our daily lives.

Project Name	Project Period (YY/MM)	Content of Implementation	Result of Implementation
1 A Midway Home for Old Trees	2019/1~12	We undertook the project for old tree protection, promoting the missions of our committee, and hiring management consultants to help and offer advice with tree care.	We moved trees that were going to be chopped off for reasons such as constructions, to appropriate sites where proper care and arrangements could be made. We hoped that by doing this, we were able to raise awareness regarding the environmental protection issue in Taiwan, treasure the lives of trees, and educate our future generations.
2 Assisted government agencies, corporations, and associations in promoting environmental activities	2019/4/25~4/30	1. Sponsored the campaign "Planet Protection Warriors" launched by Taiwan Concern Society on the educational and interactive stage play on environmental protection.	San Min Elementary School, Yu Tian Elementary School, Zhong-sing Elementary School, and Syue Jin Elementary School from Yilan County; Si Pu Elementary School, Nanhua Elementary School, Tzuojen Elementary School, and Beiliao Elementary School from Tainan City. A total of 802 people participated or were benefited directly from the activities. The understanding of and appreciation for the environment were enhanced amongst the students. These activities guided them to care about environmental issues since they were young, focusing on how single-use objects could impact the environment, and why it is important to protect the oceanic ecosystems, thus establishing a fine educational environment and a plastic-free campus life for the students.
	2019/4/18~4/19	2. Sponsored the campaign of "Environmental Protection Soldiers" launched by the Cultural Promotion Board of Taiwanese Indigenous People in carbon reduction awareness activities.	Cheng Kung Elementary School and Cigu Elementary School from Tainan City; Nanzih Elementary School and Houjing Elementary School from Kaohsiung City. A total of 662 people participated or were benefited directly from the activities. Through simple plays, the children were taught that carbon reduction could be done in their daily life. This helped them understand concrete conceptions and the importance of energy. In addition to living by example, the children could become the medium to transfer environmental protection values to their families and thus expanded the overall benefits.
	2019/3/27 - 5/8~5/9	3. Sponsored the campaign of "Start Carbon Reduction, End Earth's Problem" launched by Public Welfare Cultural Creativity and Art of ROC on awareness and educational plays regarding environment protection.	Tu Ku Elementary School and Gongcheng Elementary School from Tainan City; Fuxing Elementary School, Huajiang Elementary School, Shuang Yuan Elementary School, and Wanda Elementary School from Taipei City. A total of 1,260 people participated or were benefited directly from the activities. The plays and distribution of printed brochures would hopefully raise the awareness of environmental protection, meet carbon reduction targets, and change consumer and lifestyle behavior, thus reducing the demand for energy and resources.
3 Landscaped the environment by replanting cherry trees.	2019/7~12	Replanting site: No. 68, Sec. 3, Nanjing E. Rd., Zhongshan Dist., Taipei City (behind our foundation) Replanting Dates: November 22, 2017 - Moved the camphor tree (the roots had cracked part of the floor. Further, the tree was not in a good condition). November 30, 2017 - Moved eight cherry trees (four Yoshino cherry trees and four yaezakura trees). November 16, 2018 - Removed four withered cherry trees. November 22, 2018 - Replanted (two yaezakura trees and two Yoshino cherry trees) November 28, 2019 - Removed and replanting two yaezakura trees.	For the purpose of landscaping, a cherry tree replanting project was launched. 

◆ Promotion and Education for Environmental Health and Safety

To increase the awareness of safety protection, energy-saving, carbon reduction, and health promotion among our fellow colleagues, the Department of Risk Management held a series of activities for our Industrial Safety and Environmental Protection Month, in hopes that the participation of all employees may retain relevant values on personal safety, energy conservation, carbon reduction, and self-health management and that these values could be implemented into their daily lives. By working together, the commitment to protect lives and the planet can be fulfilled.

Promotion of Industrial Safety and Environmental Protection

"Industrial Safety and Environmental Protection Month 2019" - Industrial safety treasure hunt at the factory.

October 14 to 27

Our colleagues were treasure hunting for industrial safety content at four sites of the factory. The total participants exceeded a thousand. Those who answer the questions correctly were entered into a lucky draw on a computer, 50 participants were randomly picked. The list of lucky winners was published on October 31, with each receiving a NT200 Hi-Life convenience store voucher.

Powerchip Semiconductor Manufacturing Corp. Beach Adoption - Cleaning up the beach together

October 6

In response to the call of the Environmental Protection Administration on beautifying and cleaning up the coast, we undertook our corporate social responsibility (CSR). During the Industrial Safety and Environmental Protection Month, we collaborated with the Bureau of Environmental Protection Hsin-Chu to clean up the coast. We picked up driftwood, old oyster raft, branches; these were going to be used for edible landscaping by establishing a thorn apple vegetable garden that the Bureau aimed to promote. These litter could be recycled into useful resources.



Environmental awareness activity - Baoshan Second Reservoir

September 21

The objectives of the activity were to enhance the understanding of our colleagues on the water use of the park and the water resource status of the area; eliminate their misconceptions and confusion on the drinking water of Hsinchu, in hopes of passing on the knowledge to their families and friends; and lastly, strengthening environmental protection awareness of our colleagues.



Environmental protection seminars

October 22

We invited academic experts to share their practical experience on circular economy and to stimulate various units of the Company in regards on how to construct a new cradle to cradle (C2C) economic model of the technology industry. A total of 132 employees participated and completed the program.



Promotion of Industrial Safety and Environmental Protection

Flea market

September 23 to October 31

Our colleagues donated items they no longer needed to the charity sale to optimize the use of resources, putting the concept of recycling and reusing in use, and achieve energy saving and carbon reduction. A total of NT157,282 was raised in the sales and donated to charities. The event was both meaningful and eco-friendly.

Beneficiaries:

Hsinchu Baoshan De-Lan Children Center	NT 57,282
Children Are Us Foundation	NT 50,000
Love Children Home	NT 50,000



Occupational safety and health - Exhibition on hazard prevention

September 17



Via the hazard prevention exhibition tour organized by the Ministry of Labor, we disseminated knowledge on occupational health and safety, enabling them to "recognize hazard"; thus achieving the objective of "maintaining the physical and mental health of workers in a healthy and safe workplace."



All exhibitions were held at the [5th floor of Office Building (OB) in P1/2 Factory.]

Promotion of Industrial Safety and Environmental Protection

Awareness Video on Earthquakes and Earthquake Simulation Car Activity

October 28 to 29

Using awareness videos on earthquakes and earthquake simulation cars to recreate earthquake conditions, coupled with "Drop, Cover, and Hold on" practice, our colleagues experienced a more vivid exposure and thus gained a better understanding of disaster prevention and precautionary measures.



Disaster Prevention Slogan Competition

September 9 to 30

Using easy-to-remember slogans to increase disaster prevention awareness was beneficial in practice. It stimulated our colleagues and strengthened their disaster prevention awareness. The total contributions amounted to 73 slogans.



Emergency response

Emergency Response Team's (ERT) Disaster prevention carnival game

September 19

A fun race was held for personnel working inside the plant to familiarize themselves with protective equipment and develop a working rapport with the ERT team, thus implementing the independent training performance spirit of ERT.



Health promotion events

2019 Weight loss events

Duration: 2 months

Colleagues (excluding pregnant women) whose BMI was over 20 were welcomed to take part. There were two categories, namely the personal weight loss and group average weight loss, with rewards ranging between NT1,000 and NT3,000, encouraging employees to exercise and look after their health. A total number of 188 people participated in the event and the total weight loss amounted to 758.1 kg. On average, each person lost 4.03 kg.



5.2 Caring and Giving Back

♦ Community care

Local fruits have high quality; to assist farmers in resolving an oversupply of fruits such as dragon fruits and bananas, a total of 1,500 catties of fruit were provided in the employee restaurant for our colleagues.



Provision of dragon fruit and bananas for colleagues

To look after welfare organizations, the Company adopted the idea of "Technology for Public Welfare, Making the Community a Better Place," and provided venues to welfare organizations for exhibition free of charge.

Welfare Organizations Participated in Exhibition and Sales in 2019

- Syin-Lu Social Welfare Foundation - homemade cookies and soaps.
- Love Nature Workshop - homemade cookies
- Let's connect - crispy spring rolls, jerky
- Hsiang Yuan Memorial Education and Training Center - charity sale
- Down Syndrome Foundation R.O.C.
- Gofe Workshop- egg rolls, nougats
- Genesis Social Welfare Foundation - charity sale
- New Taipei City Autism Association

PSMC is actively involved in maintaining the green space of the park; and has assumed tree maintenance duty of Second Street of the Park (an adopted space of 319 pings), including weed control and replanting before regular maintenance. At stage one, weeds and deadwood were removed, and fertilizer was added for soil cultivation. The subsequent stage involved planting rose periwinkle, common lantana, and cigar flower. The undertaking has improved the environmental quality of the science park and fulfilled the responsibility of the maintaining and managing of the green space.

Before Maintenance



Stage One: Weed and Deadwood Control, and Soil Loosening and Cultivation



Stage Two: Growing Diversified Plants



♦ Charities

In 2019, after restructuring, PSMC took over the original Charity Society that was founded voluntarily, and has been assisting underprivileged groups lovingly and compassionately. The charity undertaking has mainly been made by employees who are compassionate and empathetic, in hopes of comprehending the true meaning of charity work via actual participation and service. The society has also been facilitating the fundraising within the company and inspiring our colleagues to take actions.

Season of Reunion: [Sending mooncakes to Jianshi Township]

Donated mooncakes to Jianshi mountain area:

Jianshi Elementary School (approximately 25 servings), churches (which should in turn be distributed to Jianshi and Xinle tribes...etc.).

Donations:

Approximately 100 servings of mooncakes



Huashan Social Welfare Foundation – 2019 “Love the Elderly” - Donation for New Year dishes.

Our colleagues extended a helping hand to seniors living alone.

Whenever festive seasons were around the corner, we would raise funds for New Year dishes for the seniors living alone at Huashan. Via the Huashan Social Welfare Foundation, one serving of new year dishes would be sent to the seniors' houses before the festival.

Donations:

\$205,800



Anti-Drug Awareness Campaign

Due to the prevalence of drug problems in schools, we hope to impart anti-drug knowledge to our children. So far, PSMC has 11 qualified anti-drug campaigners. In 2018, PSMC went to six elementary schools at Hsinchu County and City to hold anti-drug talks, in hope of bettering the well-being of the society and our colleagues. In 2019, our staff promoted the importance of drug abuse prevention to 28 fourth graders at the Affiliated Experimental Elementary School of National Tsing Hua University.

Donations:

Up until 2019, the participating staff amounted to a total of 98 people; the elementary students who had attended amounted to 1,184 people.



5.3 Art and Literature

Powerchip Foundation was founded in November 2004 with promoting artistic and cultural activities as its goal. Currently, the Foundation organizes or co-organizes cultural activities, performances, and competitions to help promote cultural, artistic developments, and other charitable activities that share the same philosophy as the Foundation.

Powerchip Aesthetics Hall	
Non-profit cultural and artistic activities	Events
"2019 Chicago Symphony Orchestra Taipei concert"	January 19, 2019 One music concert, approximately 2,200 viewers
"Krystian Zimerman Piano Recital" in Taiwan	March 31, 2019 One music concert, approximately 2,000 viewers.
"Boris Giltburg Piano Recital"	June 4, 2019 One music concert, approximately 2,120 viewers
"Taipei Music Academy & Festival 2019"	July 30 to August 18, 2019 A total of seven concerts, five master classes and one seminar, with approximately 9,000 participants
Benefits: <ul style="list-style-type: none"> • People from various fields were invited to appreciate the beauty of arts and culture, to enhance their artistic and cultural passion. • Promoted a series of educational activities including Master Class, public arts, and cultural lectures to maximize the welfare and actively develop classical music talents in Taiwan. 	



Powerchip Aesthetics Hall	
Non-profit cultural and artistic activities	Events
"Mikhail Pletnev Piano Recital"	June 19, 2019 One music concert, approximately 2,000 viewers.
"2019 The Philadelphia Orchestra"	October 31, 2019 One music concert, approximately 2,200 viewers.
"Powerchip 2019 Classical Series- Czech Philharmonic"	October 17, 2019 One music concert, approximately 2,270 viewers.
"2019 Paavo Järvi & Concertgebouworkest"	November 14 to 15, 2019 Two music concerts, approximately 4,800 viewers.
"Yulianna Avdeeva Piano Recital"	November 5, 2019 One music concert, approximately 2,000 viewers.
"Christmas present: Tenor Saimir Pirgu in concert"	December 13, 2019 One music concert, approximately 2,030 viewers.
Benefits: People from various fields were invited to appreciate the beauty of arts and culture, to enhance their artistic and cultural passion.	

Powerchip Aesthetics Hall	
Non-profit cultural and artistic activities	Events
2019 Mariinsky Ballet and Orchestra of Mariinsky Theater	July 18, 2019 One show, approximately 1,500 viewers.
Formosa Ballet 2019 Master class Seminar	July 14 to 15, 2019, July 29, 2019, August 18, 2019 Four shows, approximately 550 viewers.
Formosa Ballet 2019 – "About Tchaikovsky"	August 23 to 25, 2019 Three shows, approximately 3,000 viewers.
"Masterpieces of French Landscape Paintings from The Pushkin State Museum of Fine Arts, Moscow"	November 17, 2018 to February 17, 2019 approximately 150,000 viewers.
"Powerchip 2019 Classical Series-Peking Opera - The Grand Mansion Gate"	May 17 to 19, 2019 approximately 4,500 viewers.
"Farewell Beitou PLUS"	July 19 to October 19, 2019 Nineteen music concert, approximately 33,700 viewers.
Benefits: <ul style="list-style-type: none"> • People from various fields were invited to appreciate the beauty of arts and culture, to enhance their artistic and cultural passion. • We supported the production of Taiwanese drama, dance, music, and multimedia arts creations. 	



6. Appendix

Appendix 1: Statement of Assurance

INDEPENDENT ASSURANCE OPINION STATEMENT

Powerchip Semiconductor Manufacturing Corp. 2019 Corporate Social Responsibility Report

The British Standards Institution is independent to Powerchip Semiconductor Manufacturing Corp. (hereafter referred to as PSMC in this statement) and has no financial interest in the operation of PSMC other than for the assessment and verification of the sustainability statements contained in this report.

This independent assurance opinion statement has been prepared for the stakeholders of PSMC only for the purposes of assuring its statements relating to its corporate social responsibility (CSR), more particularly described in the Scope below. It was not prepared for any other purpose. The British Standards Institution will not, in providing this independent assurance opinion statement, accept or assume responsibility (legal or otherwise) or accept liability for or in connection with any other purpose for which it may be used, or to any person by whom the independent assurance opinion statement may be read.

This independent assurance opinion statement is prepared on the basis of review by the British Standards Institution of information presented to it by PSMC. The review does not extend beyond such information and is solely based on it. In performing such review, the British Standards Institution has assumed that all such information is complete and accurate.

Any queries that may arise by virtue of this independent assurance opinion statement or matters relating to it should be addressed to PSMC only.

Scope

The scope of engagement agreed upon with PSMC includes the followings:

1. The assurance scope is consistent with the description of Powerchip Semiconductor Manufacturing Corp. 2019 Corporate Social Responsibility Report.
2. The evaluation of the nature and extent of the PSMC's adherence to AA1000 AccountAbility Principles (2018) and the reliability of specified sustainability performance information in this report as conducted in accordance with type 2 of AA1000 Assurance Standard (2008) with 2018 Addendum sustainability assurance engagement.

This statement was prepared in English and translated into Chinese for reference only.

Opinion Statement

We conclude that the PSMC 2019 Corporate Social Responsibility Report provides a fair view of the PSMC CSR programmes and performances during 2019. The CSR report subject to assurance is materially correct without voluntary omissions based upon testing within the limitations of the scope of the assurance, the information and data provided by the PSMC and the sample taken. We believe that the 2019 economic, social and environmental performance information are correctly represented. The CSR performance information disclosed in the report demonstrate PSMC's efforts recognized by its stakeholders.

Our work was carried out by a team of (CSR) report assurers in accordance with the AA1000AS (2008) with 2018 Addendum. We planned and performed this part of our work to obtain the necessary information and explanations we considered to provide sufficient evidence that PSMC's description of their approach to AA1000AS (2008) with 2018 Addendum and their self-declaration in accordance with GRI Standards: Core option were fairly stated.

Methodology

Our work was designed to gather evidence on which to base our conclusion. We undertook the following activities:

- a top level review of issues raised by external parties that could be relevant to PSMC's policies to provide a check on the appropriateness of statements made in the report
- discussion with managers on PSMC's approach to stakeholder engagement. Moreover, we had sampled two external stakeholders to conduct interview
- interview with 25 staffs involved in sustainability management, report preparation and provision of report information were carried out
- review of key organizational developments
- review of the extent and maturity of the relevant accounting systems for financial and non-financial reports
- review of the findings of internal audits
- the verification of performance data and claims made in the report through meeting with managers responsible for gathering data
- review of the processes for gathering and ensuring the accuracy of data, followed data trails to initial aggregated source and checked sample data to greater depth during site visits
- the consolidated financial data are based on audited financial data, we checked that this data was consistently reproduced
- review of supporting evidence for claims made in the reports
- an assessment of the organization's reporting and management processes concerning this reporting against the principles of Inclusivity, Materiality, Responsiveness and impact as described in the AA1000AP (2018)

Conclusions

A detailed review against the Inclusivity, Materiality, Responsiveness and impact of AA1000AP (2018) and sustainability performance information as well as GRI Standards is set out below:

Inclusivity

In this report, it reflects that PSMC has continually sought the engagement of its stakeholders and established material sustainability topics, as the participation of stakeholders has been conducted in developing and achieving an accountable and strategic response to sustainability. There are fair reporting and disclosures for economic, social and environmental information in this report, so that appropriate planning and target-setting can be supported. In our professional opinion the report covers the PSMC's inclusivity issues and has demonstrated social responsible conduct supported by top management and implemented in all levels among organization.

Materiality

The PSMC has established relative procedure in organization level, as the issues which were identified by all departments have been prioritized according to the extent of impact and applicable criterion for sustainable development of organization. Therefore, material issues were completely analyzed and the relative information of sustainable development was disclosed to enable its stakeholders to make informed judgments about the organization's management and performance. In our professional opinion the report covers the PSMC's material issues.

Responsiveness

PSMC has implemented the practice to respond to the expectations and perceptions of its stakeholders. An Ethical Policy for the PSMC is developed and continually provides the opportunity to further enhance PSMC's responsiveness to stakeholder concerns. Topics that stakeholder concern about have been responded timely. In our professional opinion the report covers the PSMC's responsiveness issues.

Impact

PSMC has identified and fairly represented impacts that were measured and disclosed in probably balanced and effective way. PSMC has established processes to monitor, measure, evaluate and manage impacts that lead to more effective decision-making and results-based management within an organization. In our professional opinion the report covers the PSMC's impact issues.

Performance information

Based on our work described in this statement, specified sustainability performance information such as GRI Standards disclosures disclosed in this report, PSMC and BSI have agreed upon to include in the scope. In our view, the data and information contained within 2019 PSMC CSR Report are reliable by means of vouching, re-tracking, re-computing and confirmation.

GRI Sustainability Reporting Standards (GRI Standards)

PSMC provided us with their self-declaration of in accordance with GRI Standards: Core option (For each material topic covered by a topic-specific GRI Standard, comply with all reporting requirements for at least one topic-specific disclosure). Based on our review, we confirm that social responsibility and sustainable development disclosures with reference to GRI Standards disclosures are reported, partially reported or omitted. In our professional opinion the self-declaration covers the PSMC's social responsibility and sustainability topics.

Assurance level

The high level assurance provided is in accordance with AA1000AS (2008) with 2018 Addendum in our review, as defined by the scope and methodology described in this statement.

Responsibility

This CSR report is the responsibility of the PSMC's chairman as declared in his responsibility letter. Our responsibility is to provide an independent assurance opinion statement to stakeholders giving our professional opinion based on the scope and methodology described.

Competency and Independence

The assurance team was composed of lead auditors experienced in relevant sectors, and trained in a range of sustainability, environmental and social standards including AA1000AS, ISO 14001, ISO 45001, ISO 14064 and ISO 9001. BSI is a leading global standards and assessment body founded in 1901. The assurance is carried out in line with the BSI Fair Trading Code of Practice.



Statement No: SRA-TW-2019063
2020-09-29

For and on behalf of BSI: 
Peter Pu, Managing Director BSI Taiwan

Taiwan Headquarters: 2nd Floor, No. 37, Ji-Hu Rd., Ni-Hu Dist., Taipei 114, Taiwan, R.O.C.
A Member of the BSI Group of Companies.

Appendix 2: GRI Sustainability Reporting Standards (GRI Standards) Comparison Table

The content below is verified by a third party, the British Standards Institution (BSI). The results of the verification are as per Appendix 1: Statement of Assurance.

* denotes material topics and ● denotes external verification obtained.

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
1. Organization Overview						
GRI102 General Disclosure 2016: Core	102-1	Name of the organization	●	About PSMC	06	
	102-2	Activities, brands, products, and services	●	About PSMC	06	
	102-3	Location of headquarters	●	About PSMC	06	
	102-4	Location of operations	●	About PSMC	06	
	102-5	Ownership and legal form	●	About PSMC	06	
	102-6	Markets served	●	About PSMC	06	
	102-7	Scale of the organization	●	About PSMC	06	
	102-8	Information on employees and other workers	●	About PSMC 4.1 Human resources	06 76	
	102-9	Supply chain	●	2.4 Suppliers	52	
	102-10	Significant changes to the organization and its supply chain	●	Focus on foundry 2.2 Innovation and R&D 2.4 Suppliers	06 42 52	
	102-11	Precautionary Principle or approach	●	1.4 Risk Management	25	
	102-12	External initiatives	●	Sustainable development strategies	08	
	102-13	Membership of associations	●	External participation	07	
2. Strategies						
GRI102 General Disclosure 2016: Core	102-14	Statement from senior decision-maker	●	Message from Manager	02	
GRI 102 General Disclosure 2016: Comprehensive	102-15	Key impacts, risks, and opportunities	●	1.4 Risk Management	25	
3. Ethics and Integrity						
GRI102 General Disclosure 2016: Core	102-16	Values, principles, standards, and norms of behavior	●	1.2 Integrity and conformity to the law	23	
GRI 102 General Disclosure 2016: Comprehensive	102-17	Mechanisms for advice and concerns about ethics	●	1.2 Integrity and conformity to the law	23	
4. Governance						
GRI102 General Disclosure 2016: Core	102-18	Governance structure	●	1.1 Organizational Structure	21	
GRI 102 General Disclosure 2016: Comprehensive	102-19	Delegating authority	●			No comparison.
	102-20	Executive-level responsibility for economic, environmental, and social topics	●			No comparison.
	102-21	Consulting stakeholders on economic, environmental, and social topics	●			No comparison.
	102-22	Composition of the highest governance body and its committees	●			No comparison.

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
GRI 102 General Disclosure 2016: Comprehensive	102-23	Chair of the highest governance body	●			No comparison.
	102-24	Nominating and selecting the highest governance body	●			No comparison.
	102-25	Conflicts of interest	●			No comparison.
	102-26	Role of highest governance body in setting purpose, values, and strategy	●			No comparison.
	102-27	Collective knowledge of highest governance body	●			No comparison.
	102-28	Evaluating the highest governance body's performance	●			No comparison.
	102-29	Identifying and managing economic, environmental, and social impacts	●			No comparison.
	102-30	Effectiveness of risk management processes	●			No comparison.
	102-31	Review of economic, environmental, and social topics	●			No comparison.
	102-32	Highest governance body's role in sustainability reporting	●			Not disclosed.
	102-33	Communicating critical concerns	●			No comparison.
	102-34	Nature and total number of critical concerns	●			No comparison.
	102-35	Remuneration policies	●			No comparison.
	102-36	Process for determining remuneration	●			No comparison.
	102-37	Stakeholders' involvement in remuneration	●			No comparison.
	102-38	Annual total compensation ratio	●			Not disclosed.
	102-39	Percentage increase in annual total compensation ratio	●			Not disclosed.
5. Stakeholder engagement						
GRI102 General Disclosure 2016: Core	102-40	List of stakeholder groups	●	Stakeholder engagement	09	
	102-41	Collective bargaining agreements	●	--		No union.
	102-42	Identifying and selecting stakeholders	●	Stakeholder engagement	09	
	102-43	Approach to stakeholder engagement	●	Stakeholder engagement	09	
	102-44	Key topics and concerns raised	●	Stakeholder engagement	09	
6. Reporting practice						
GRI102 General Disclosure 2016: Core	102-45	Entities included in the consolidated financial statements	●	Focus on foundry	26	
	102-46	Defining report content and topic Boundaries	●	Identifying and managing material issues	29	
	102-47	List of material topics	●	Identifying and managing material issues	29	
	102-48	Restatements of information	●	About this Report	01	
	102-49	Changes in reporting	●	About this Report	01	
	102-50	Reporting period	●	About this Report	01	
	102-51	Date of most recent report	●	About this Report	01	
	102-52	Reporting cycle	●	About this Report	01	
	102-53	Contact point for questions regarding the report	●	About this Report	01	

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
GRI102 General Disclosure 2016: Core	102-54	Claims of reporting in accordance with the GRI Standards	●	About this Report	01	
	102-55	GRI content index	●	About this Report	01	
	102-56	External assurance	●	About this Report	01	
Specific Standards: 200 Series (Economic topics)						
* Economic Performances						
GRI 103 Management policy to economic performances 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	2. Striving for green innovations	36	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	36	
GRI 201 Disclosures of economic performances issues 2016	201-1	Direct economic value generated and distributed	●	1.3 Financial performance	24	
	201-2	Financial implications and other risks and opportunities due to climate change	●	--		Not disclosed.
	201-3	Defined benefit plan obligations and other retirement plans	●	4.2 Employee benefits	78	
	201-4	Financial assistance received from government	●	1.3 Financial performance	24	Not receiving subsidies from government
Market Presence						
GRI 202 Disclosures of market presence issues 2016	202-1	Ratios of standard entry level wage by gender compared to local minimum wage	●	--		No comparison.
	202-2	Proportion of senior management hired from the local community	●	4.1 Human resources	76	
Indirect Economic Impact						
GRI 203 Disclosures of indirect economic impacts issues 2016	203-1	Infrastructure investments and services supported	●	--		Not disclosed.
	203-2	Significant indirect economic impacts	●	--		Not disclosed.
Procurement Practices						
GRI 204 Disclosures of procurement practices issues 2016	204-1	Proportion of spending on local suppliers	●	2.4 Suppliers	52	
*Anti-corruption						
GRI 103 Management policy to anti-corruption 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
GRI 205 Disclosures of anti-corruption issues 2016	205-1	Operations assessed for risks related to corruption	●	--		Not disclosed.
	205-2	Communication and training about anticorruption policies and procedures	●	1.2 Integrity and conformity to the law	23	
	205-3	Confirmed incidents of corruption and actions taken	●	Internal control	23	

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
Anti-competitive Behavior						
GRI 206 Disclosures of anti-competitive behavior issues 2016	206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	●	Internal control	23	
Specific Standards: 300 Series (Environmental topics)						
Raw Materials						
GRI 301 Disclosures of raw materials issues 2016	301-1	Materials used by weight or volume	●	--		Not disclosed.
	301-2	Recycled input materials used	●	--		Not disclosed.
	301-3	Reclaimed products and their packaging materials	●	--		Not disclosed.
*Energy						
GRI 103 Management policy of energy 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	57	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	57	
GRI 302 Disclosures of energy issues 2016	302-1	Energy consumption within the organization	●	Energy consumption	59	
	302-2	Energy consumption outside of the organization	●	--		Not disclosed.
	302-3	Energy intensity	●	Energy consumption	59	
	302-4	Reduction of energy consumption	●	Energy Saving	60	
	302-5	Reductions in energy requirements of products and services	●	--		Not disclosed.
*Water						
GRI 103 Management policy of water 2018	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	57	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	57	
GRI 303 Disclosures of water issues 2018	303-1	Interactions with water as a shared resource	●	Water resource management	63	
	303-2	Management of water discharge-related impacts	●	Water resource management	63	
	303-3	Water withdrawal	●	Water resource management	63	
	303-4	Water discharge	●	Wastewater treatment	64	
	303-5	Water consumption	●	Wastewater treatment	64	
Biodiversity						
GRI 304 Disclosures of biodiversity issues 2016	304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	●	--		Not disclosed.
	304-2	Significant impacts of activities, products, and services on biodiversity	●	--		Not disclosed.
	304-3	Habitats protected or restored	●	--		Not disclosed.
	304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	●	--		Not disclosed.

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
*Emissions						
GRI 103 Management policy of emission 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	57	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	57	
GRI 305 Disclosure of emission issues 2016	305-1	Direct (Scope 1) GHG emissions	●	GHG Investigation and Reduction	61	
	305-2	Energy indirect (Scope 2) GHG emissions	●	GHG Investigation and Reduction	61	
	305-3	Other indirect (Scope 3) GHG emissions	●	--		Not disclosed.
	305-4	GHG emissions intensity	●	GHG Investigation and Reduction	61	
	305-5	Reduction of GHG emissions	●	GHG Investigation and Reduction	61	
	305-6	Emissions of ozone-depleting substances (ODS)	●	--		Not disclosed.
	305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	●	Air pollution emissions	66	
*Effluent and Waste						
GRI 103 Management policy of effluents and waste 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	57	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	57	
GRI 306 Disclosures of effluents and waste issues 2016	306-1	Water discharge by quality and destination	●	Wastewater treatment	64	
	306-2	Waste by type and disposal method	●	Waste treatment	68	
	306-3	Significant spills	●	Wastewater treatment Waste treatment	64 68	
	306-4	Transport of hazardous waste	●	Waste treatment	68	
	306-5	Water bodies affected by water discharges and/or runoff	●	Wastewater treatment	64	
*Legal Compliance for Environmental Protection Law						
GRI 103 The management policy of legal compliance for environmental protection law 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	3. Striving for a sustainable environment	57	
	103-3	Evaluation of the management approach	●	3. Striving for a sustainable environment	57	
GRI 307 Disclosures of legal compliance for environmental protection law 2016	307-1	Non-compliance with environmental laws and regulations	●	3.3 Green production	66	
Environmental Assessment of Supplier						
GRI 308 Disclosures of the environmental assessment of Suppliers 2016	308-1	New suppliers that were screened using environmental criteria	●	Audit on suppliers	54	
	308-2	Negative environmental impacts in the supply chain and actions taken	●	Audit on suppliers	54	

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
Specific Standards: 400 Series (Social topics)						
*Labor Relations						
GRI 103 Management policy of labor relations 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	74	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	74	
GRI 401 Disclosures of labor relations issues 2016	401-1	New employee hires and employee turnover	●	4.1 Human resources	76	
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	●	4.2 Employee benefits	78	
	401-3	Parental leave	●	4.2 Employee benefits	78	
*Labor Relations						
GRI 103 Management policy of labor/management relations 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	74	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	74	
GRI 402 Disclosures of labor relations issues 2016	402-1	Minimum notice periods regarding operational changes	●	4.1 Human resources	76	
*Occupational Health and Safety						
GRI 103 Management policy to occupational health and safety for 2018	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	74	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	74	
GRI 403 Disclosures of occupational health and safety 2018	403-1	Occupational health and safety management system	●	4.4 Occupational health and safety	85	
	403-2	Hazard identification, risk assessment, and incident investigation	●	4.4 Occupational health and safety	85	
	403-3	Occupational health services	●	4.4 Occupational health and safety	85	
	403-4	Worker participation, consultation, and communication on occupational health and safety	●	4.4 Occupational health and safety	85	
	403-5	Worker training on occupational health and safety	●	4.4 Occupational health and safety	85	
	403-6	Promotion of worker health	●	4.4 Occupational health and safety	85	
	403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	●	4.4 Occupational health and safety	85	
	403-8	Workers covered by an occupational health and safety management system	●	4.4 Occupational health and safety	85	
	403-9	Work-related injuries	●	4.4 Occupational health and safety	85	
	403-10	Work-related ill health	●	4.4 Occupational health and safety	85	

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
*Training and Education						
GRI 103 The management policy of training and education 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	74	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	74	
GRI 404 Disclosures of training and education issues 2016	404-1	Average hours of training per year per employee	●	4.3 Occupational competency development	83	
	404-2	Programs for upgrading employee skills and transition assistance programs	●	4.3 Occupational competency development	83	
	404-3	Percentage of employees receiving regular performance and career development reviews	●	4.2 Employee benefits	78	
Employee diversity and fair opportunities						
GRI 405 Employee diversity and fair opportunities Disclosure of Issues 2016	405-1	Diversity of governance bodies and employees	●	1.1 Organizational Structure 4.1 Human resources	21 76	
	405-2	Ratio of basic salary and remuneration of women to men	●	--		Not disclosed.
Non-discrimination						
GRI 406 Disclosures of non-discrimination 2016	406-1	Incidents of discrimination and corrective actions taken	●	--		Not disclosed.
Freedom of Association and Collective Bargaining						
GRI 407 Freedom of Association and Collective Bargaining Disclosure of Issues 2016	407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	●	--		Not disclosed.
Child labor						
GRI 408 Disclosures of child labor issues 2016	408-1	Operations and suppliers at significant risk for incidents of child labor	●	--		Not disclosed.
Forced or Compulsory Labor						
GRI 409 Disclosures of forced or compulsory labor issues 2016	409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	●	--		Not disclosed.
Security Practices						
GRI 410 Disclosures of security practices issues 2016	410-1	Security personnel trained in human rights policies or procedures	●	4.1 Human resources	76	
Rights of Indigenous Peoples						
GRI 411 Disclosures of rights of indigenous peoples issues 2016	411-1	Incidents of violations involving rights of indigenous peoples	●	Internal control	23	

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
Human Rights Assessment						
GRI 412 Disclosures of human rights assessment issues 2016	412-1	Operations that have been subject to human rights reviews or impact assessments	●	--		No comparison.
	412-2	Employee training on human rights policies or procedures	●	--		No comparison.
	412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	●	Sustainable development strategies	08	
Local Communities						
GRI 413 Disclosures of local communities issues 2016	413-1	Operations with local community engagement, impact assessments, and development programs	●	3.3 Green production	66	
	413-2	Operations with significant actual and potential negative impacts on local communities	●	5.2 Caring and Giving Back	103	
Social assessment of suppliers						
GRI 414 Disclosures of supplier social assessment issues 2016	414-1	New suppliers that were screened using social criteria	●	2.4 Suppliers	52	
	414-2	Negative social impacts in the supply chain and actions taken	●	2.4 Suppliers	52	
Public Policy						
GRI 415 Disclosures of public policy issues 2016	415-1	Political contributions	●	Internal control	23	No political contributions during the reporting period
*Customer Health and Safety						
GRI 416 Customer Health and Safety Management policy 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	2. Striving for green innovations	36	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	36	
GRI 416 Customer Health and Safety Disclosure of Issues 2016	416-1	Assessment of the health and safety impacts of product and service categories	●	2.3 Customer service 3.3 Green production	48 66	
	416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	●	Internal control	23	
Marketing and Labeling						
GRI 417 Disclosures of marketing and labeling issues 2016	417-1	Requirements for product and service information and labeling	●	--		Not disclosed.
	417-2	Incidents of non-compliance concerning product and service information and labeling	●	--		Not disclosed.
	417-3	Incidents of non-compliance concerning marketing communications	●	--		Not disclosed.

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
*Customer Privacy						
GRI 103 Management policy of customer privacy 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
GRI 418 Disclosures of customer privacy issues 2016	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	●	1.5 Information security control	34	
*Compliance of Socioeconomic Regulations						
GRI 103 Compliance of Socioeconomic Regulations Management policy 2016	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
GRI 419 Compliance of Socioeconomic Regulations Disclosure of Issues 2016	419-1	Non-compliance with laws and regulations in the social and economic area	●	1. Striving for integrity management	19	
Customized sustainability issues						
*Integrity Governance						
GRI 103 Management policy of integrity governance	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	
*Intellectual Property Rights						
GRI 103 Management policy of intellectual property rights	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	2. Striving for green innovations	36	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	36	
*Products, Services and R&D Innovation						
GRI 103 Products, Services and R&D Innovation Management policy	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	2. Striving for green innovations	36	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	36	
*Information Disclosures						
GRI 103 Management policy of information disclosures	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	1. Striving for integrity management	19	
	103-3	Evaluation of the management approach	●	1. Striving for integrity management	19	

GRI Standards Categories/Topics	Number	Disclosure Content of GRI Standards	External Verification	Corresponding Chapter	Page No.	Omitted/Notes
*Management of product and quality control						
GRI 103 Management of product and quality control Management policy	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	2. Striving for green innovations	36	
	103-3	Evaluation of the management approach	●	2. Striving for green innovations	36	
*Management of Employee Occupational Competency						
GRI 103 Management policy of employee occupational competency	103-1	Explanation of the material topic and its Boundary	●	Description of boundaries of material issues	13	
	103-2	The management approach and its components	●	4. PSMC as a happy enterprise	74	
	103-3	Evaluation of the management approach	●	4. PSMC as a happy enterprise	74	

Appendix 3: United Nation Sustainable Development Goals (SDGs) Comparison Table

Item	Sustainable Development Goals	Corresponding Chapter	Page No.
Goal 3	Ensure healthy lives and promote well-being for all at all ages.	4. PSMC as a happy enterprise	98
Goal 4	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.	4. PSMC as a happy enterprise	98
Goal 6	Ensure availability and sustainable management of water and sanitation for all.	3. Striving for a sustainable environment	74
Goal 7	Ensure access to affordable, reliable, sustainable and modern energy for all.	3. Striving for a sustainable environment	74
Goal 8	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.	2. Striving for green innovations	46
Goal 10	Reduce inequality within and among countries.	1. Striving for integrity management 2. Striving for green innovations	24 46
Goal 12	Ensure sustainable consumption and production patterns.	3. Striving for a sustainable environment 2. Striving for green innovations	74 46
Goal 16	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.	1. Striving for integrity management	24

Appendix 4: ISO26000 Social Responsibility Index Comparison Table

Item	Clauses	Corresponding Chapter	Page No.
1. Organizational Governance			
1.1	The system by which companies are directed and controlled	About PSMC	06
2. Human Rights			
2.1	Due diligence	Internal control	23
2.2	Human rights risk situations	1.4 Risk Management	25
2.3	Avoidance of complicity	1. Striving for integrity management	19
2.4	Resolving grievances	4. PSMC as a happy enterprise	74
2.5	Discrimination and vulnerable groups	4.1 Human resources	76
2.6	Civil and political rights	4.1 Human resources	76
2.7	Economic, social and cultural rights	4.1 Human resources	76
2.8	Fundamental principles and rights at work	4.2 Employee benefits	78
3. Labor Practices			
3.1	Employment and employment relationships	4. PSMC as a happy enterprise	74
3.2	Conditions of work and social protection	4.4 Occupational health and safety	85
3.3	Social dialogue	4. PSMC as a happy enterprise	74
3.4	Health and safety at work	4.4 Occupational health and safety	85
3.5	Human development and training in the workplace	4.3 Occupational competency development	85
4. Environment			
4.1	Prevention of pollution	3. Striving for a sustainable environment	57
4.2	Sustainable resource use	3. Striving for a sustainable environment	57
4.3	Climate change mitigation and adaptation	3. Striving for a sustainable environment	57
4.4	Protection of the environment, biodiversity and restoration of natural habitats	3. Striving for a sustainable environment 5.1. Social Welfare of Environmental Protection	57 58

Item	Clauses	Corresponding Chapter	Page No.
5. Fair Operating Practices			
5.1	Anti-corruption	1. Striving for integrity management	19
5.2	Responsible political involvement	1. Striving for integrity management	19
5.3	Fair competition	1.2 Integrity and conformity to the law	23
5.4	Promoting social responsibility in the value chain	1. Striving for integrity management	19
5.5	Respect for property rights	2.2 Innovation and R&D	42
6. Consumer Issues			
6.1	Fair marketing, factual and unbiased information and fair contractual practices	2.4 Suppliers	52
6.2	Protecting consumers' health and safety	2.3 Customer service	48
6.3	Sustainable consumption	2.3 Customer service	48
6.4	Consumer service, support, and complaint and dispute resolution	2.3 Customer service	48
6.5	Consumer data protection and privacy	1.5 Information security control	34
6.6	Access to essential services	2.3 Customer service	48
6.7	Education and awareness	4.3 Occupational competency development	83
7. Community Involvement and Development			
7.1	Community involvement	IV. Pursuing Co-Prosperity Society	98
7.2	Education and culture	5.3 Art and Literature	105
7.3	Employment creation and skills development	4.3 Occupational competency development	83
7.4	Technology development and access	2. Striving for green innovations	36
7.5	Wealth and income creation	1.3 Financial performance 2.2 Innovation and R&D	24 42
7.6	Health	4.4 Occupational health and safety	85
7.7	Social investment	IV. Pursuing Co-Prosperity Society	98

Appendix 5: The UN Global Compact Comparison Table

Item	Clauses	Corresponding Chapter	Page No.
1. Human Rights			
1	Businesses should support and respect the protection of internationally proclaimed human rights.	About PSMC	
2	Make sure that they are not complicit in human rights abuses.	About PSMC	
2. Labor			
3	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4.1 Human resources 4.2 Employee benefits	
4	The elimination of all forms of forced and compulsory labor.	4.1 Human resources	
5	The effective abolition of child labor.	4.1 Human resources	
6	The elimination of discrimination in respect of employment and occupation.	4.1 Human resources	
3. Environment			
7	Businesses should support a precautionary approach to environmental challenges.	3. Striving for a sustainable environment	
8	Undertake initiatives to promote greater environmental responsibility.	3. Striving for a sustainable environment	
9	Encourage the development and diffusion of environmentally friendly technologies.	3. Striving for a sustainable environment	
4. Anti-corruption			
10	Businesses should work against corruption in all its forms, including extortion and bribery.	1.2 Integrity and conformity to the law	

