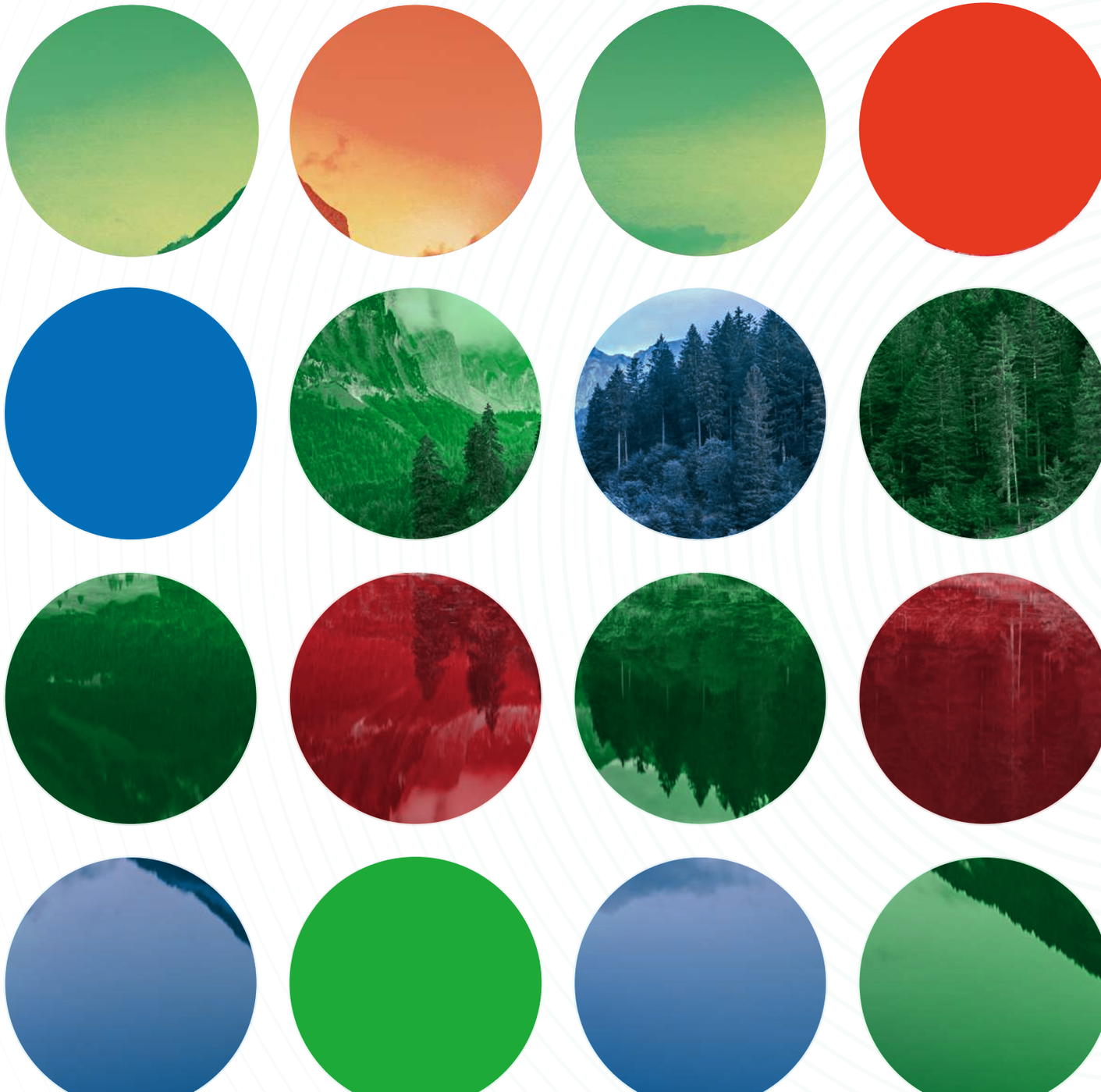
VisEra

2022 ESG Report



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To all stakeholders of VisEra:

2022 has been a challenging year for VisEra with both growth and struggles. Despite challenges such as the Russo-Ukrainian War, Shanghai lockdown, global inflation, interest rate hikes by the US Federal Reserve, and adjustments in semiconductor inventories, VisEra's management team carefully responded and completed numerous tasks. They included IPO application, preparation of the advanced 0.61um manufacturing process for mass production, IEEE Best Conference Paper Award, inauguration of the Longtan Plant, IPO, publication of the 1st ESG report, and winning the silver award in the National Enterprise Environmental Protection Award. Despite the uncertainties in international geopolitics and economy, VisEra has upheld its commitment to achieving breakthroughs in industrial technology and seeking new business opportunities for the Company.

Our achievements in 2022 were as follows:

- Continuous purchase of green electricity
- Supplier ESG/RBA self-evaluation and key supplier ESG/RBA system audit
- Placed the 1st ESG report on the official website and set up the VisEra ESG website
- Nominated for the 2022 National Occupational Safety and Health Award
- Added flexible shifts for day shifts
- Obtained the healthy workplace certification from the Ministry of Health and Welfare
- Participated in the "2022 Talent, In Taiwan" alliance organized by CommonWealth Magazine
- Received the silver award in the National Enterprise Environmental Protection Award

We have set our ESG work plan for 2023:

- Provide the ESG Report in both Chinese and English
- Obtain third-party accreditation for the ESG Report
- Continue to purchase green electricity
- Participate in the 2023 Taiwan Corporate Sustainability Awards (TCSA)
- Increase the number of suppliers with RBA VAP
- Complete replacement of photoresist with hazardous substances (PFHxA)
- Continue to expand energy conservation, water conservation, and waste reduction

The 2022 ESG Report focuses more on:

- Complete extension of medium to long-term objectives for material issues to 2030
- Linkage between the ESG Report and the Task Force on Climate-related Disclosure (TCFD) and UN Sustainable Development Goals (SDGs)
- Carbon inventory for employees' commutes

VisEra published its first ESG report in July 2022. We are committed to achieving VisEra's commitment to sustainability by working together on the organization, products, manufacturing, and supply chain in sustainability management activities, including human resources development and retention, green production, AI occupational safety, sustainable supply chain, and social engagement. We are also committed to our role as the customers' most-trusted business partner to create profits and ensure compliance and information transparency. Our sound corporate governance is the basis of our sustainable development. After years of hard work and operations, we have achieved results and we hope that the ESG activities can be expanded in the coming year. VisEra upholds the motto of "brightening the environment, support the society, science-based governance, and technological innovation" for its commitment to ESG.

Chairman and CEO

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1.1 Company Profile

1.1.1 Ownership

VisEra Technologies Company Ltd. (hereinafter referred to as "VisEra" or "the Company") was established on December 1, 2003 as a joint venture of Taiwan Semiconductor Manufacturing Company Limited (hereinafter referred to as "TSMC") and a foreign partner. TSMC purchased the partner's shares in 2016 and VisEra is now a subsidiary of TSMC. VisEra aims to be one of the best and largest professional semiconductor optical component and manufacturing service provider in the world. In June 2022, the Company's shares were listed on the Taiwan Stock Exchange.

- Head office address: No. 12, Dusing 1st Rd., East Dist., Hsinchu City, Taiwan (R.O.C.)
- Stock Code: 6789
- Capital: NT$3.155 billion (as of December 31, 2022)
- Number of employees: 1,445
- Locations of operations:

Location of operation	Address	Building area (unit: m ^{2})	Products
Hsinchu Plant	No. 12, Dusing 1st Rd., East Dist., Hsinchu City, Taiwan (R.O.C.)	64,652	Image sensors and micro optical components
Zhongli Plant	3F and 6F, No. 188, Zhongyuan Rd., Yongfu Village, Zhongli Dist., Taoyuan City, Taiwan (R.O.C.)	1,282	Micro optical components
Longtan Plant	No. 89, Longyuan 1st Rd., Longtan Dist., Taoyuan City, Taiwan (R.O.C.)	63,783	Image sensors and micro optical components

Year	Milestones
2003	· VisEra Technologies Company Ltd. was founded to supply color filters · The paid-in capital was NT$204,000 thousand
2005	· VisEra obtained approval from the Hsinchu Science Park Administration to set up a wafer-level color filter foundry in Hsinchu Science Park · Purchased color filter production equipment from TSMC and rented TSMC plants and plant facilities for the production of color filters and micro-lenses
2006	· Mass production of the color filters and micro-lens plant · Obtained ISO quality certification for the use of color filter and micro-lens applications in vehicle image sensors
2008	· Inauguration of VisEra's own plant in Hsinchu
2009	· Mass production of 8" backside illumination (BSI) color filters and micro-lenses
2012	· Mass production of first RGBC sensor of 12" color filters and micro-lenses
2015	· Investment and development of on-chip multi-film technology
2017	· Mass production of on-chip multi-film (OCMF)
2018	· Mass production of optical fingerprint sensors (OFP) · Mass production of proximity light sensors
2019	· Completed the development of optical biochips and obtained the ISO 13485 medical supply chain certification
2020	· Mass production of 12" 0.7μm color filters and mass production of 64-megapixel image sensors · Set a production record for the year to 1.5 million pieces of equivalent 8" wafers · Taipei Exchange authorized the public offering of the Company's shares
2021	· The Company's shares were traded on the Emerging Stock Market · Pioneered the launch of the 12" 0.61μm image sensors with a specially optical-structured color filter · Winner of the 6th Taiwan Mittelstand Award presented
2022	· Mass production of 12" 0.61μm color filters and 100-million-pixel image sensors · Mass production of micro-OLED displays · The Company owned plant in Longtan was officially put into operation. · The Company was listed on the Taiwan Stock Exchange

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1.1.2 Description of Main Products

VisEra focuses on the OEM of image sensors and wafer-level optical components and mainly engages in the image sensor production and services for back-end processes, including color filter manufacturing, wafer-level test services, and on-chip multi-film manufacturing. It is one of the few professional OEM manufacturers in the world that provides color filter process, micro lens process, and multi-film process and integrates technologies for use in product manufacturing.

Product Type	Technology Services	Main Product Markets
Image sensors	On-chip color filter and micro-lens technology Metasurface lens technology	Optical image sensors mainly used in mobile phones, automotive, surveillance, medical, ARVR, and other consumer electronics
Micro optical components	On-chip multi-film technology	3D sensors, multi-channel ambient light sensing components, proximity light sensors
	Integrated on-chip color filters and multi-film technology Metasurface lens technology	Under-display optical fingerprint sensors, 3D sensors, light sensors, optical bio-sensor components
Others	Other services Micro displays	Low-temperature color filter and micro-lens, image sensor engineering and testing service, wafer-level quantum efficiency testing, wafer-level oblique incident light measurement system, optical simulation and design, photomask design service, process integration, and spectral conversion efficiency analysis

Image sensor product foundry business

In terms of the color filter process technologies, the 8-inch production line is mainly used for automotive sensors and surveillance cameras. In addition to improving pixel processing capabilities, the black filter process has also been developed and commenced mass production. The resolution of automotive sensors and surveillance cameras has been enhanced. Customers have successfully entered the market with this process. The 12-inch plant continues to develop the micron pixel size and high-resolution processes to improve the resolution and film speed of color sensors. In terms of the R&D of miniaturized production process, the production process for 0.7μm pixel was launched in the middle of 2020; the production process for 0.61μm pixel was launched in the second quarter of 2021; and the production process for 0.56μm pixel is under development. In terms of the R&D to increase the resolution of sensors, the mass production of sensors with more than 60 million pixels has started in the second quarter of 2020, and the R&D of sensors with more than 100 million pixels used for 4K video recording is in progress. In the future, the Company will continue to develop the small pixel size color filter process and serve customers with high-yield and high-performance foundry quality.

Regarding micro-lens technology, in addition to conventional reflow type micro-lens technology, the Company has also introduced etching type micro-lens technology. Etching type micro-lens technology will significantly improve the spherical accuracy of micro-lenses and the continuity between the micro-lenses, enhancing the light-gathering effect. Meanwhile, in order to improve the focusing speed of sensors, the Company has developed Phase Detection Auto Focus (PDAF) technology micro-lenses, which have been successfully introduced into the market by customers.

Wafer-level optical components foundry business

In terms of the optical finger print sensor technology, the ultra-thin under-display collimator type optical finger print sensor technology developed by the Company has entered mass production. The Company is the main supplier on the market with the ability to provide such foundry services. This process technology has been adopted by major manufacturers around the world and shipments continue to hit new highs. As for 3D sensing components, the high-quality coating technology has been verified and certified by the world's major manufacturers and has been applied to products of all generations. Shipments currently remain stable.

In terms of other multi-film products, the newly developed multiple channel light sensor coating technology has been verified successfully. Trial production has started in the second quarter of 2020 and mass production has started in 2021.

In the future, in addition to continuing to improve color filter and multi-film technologies, the R&D of new technologies will focus on metasurface technology and bio-sensing chips in preparation of the next stage of the market. The Company will keep developing various optical process technologies to enhance the benefits of integration and provide customers with excellent optical component foundry services through wafer-level semiconductor processes.

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Output and self-sufficiency rate of main products in the last four years

Unit: equivalent 8" wafers; NT$ thousand

Year / Output volume and Value / Main Products	2019			2020			2021			2022		
	Production Capacity	Output Volume	Output Value	Production Capacity	Output Volume	Output Value	Production Capacity	Output Volume	Output Value	Production Capacity	Output Volume	Output Value
Image sensors	1,125	626	1,760,649	1,301	1,231	2,338,067	1,662	1,390	2,953,010	1,907	1,154	3,018,855
Micro optical components	365	138	420,876	517	343	1,414,258	599	297	2,400,418	498	228	2,654,502
Others (Note 1)	-	-	66,857	-	-	83,126	-	-	106,778	-	-	76,551
Total	1,490	764	2,248,382	1,818	1,574	3,835,451	2,261	1,687	5,460,206	2,405	1,382	5,749,908
Self-sufficiency rate (%)		99.1			97.3			99.1			100.0	

Note 1: Others refer to income for engineering projects and testing services
Note 2: The production capacity increased in 2021 due to the expansion of production lines. The output volume and value increased due to continuous growth in market demand.

1.1.3 Main Markets

On-chip color filter and micro-lens market

The main products in the on-chip color filter and micro-lens market are image sensors used for smart phones, automobiles, and surveillance cameras. The Company' s image sensor technology mainly provides the sensors required in the mobile device, automobile, and surveillance camera markets. In particular, mobile devices occupy the largest share among them, accounting for 65% of the Company's revenue in 2021. Overall shipments account for about 21.5% of the image sensor market, a substantial increase compared to the previous year. This is mainly due to the growth of high-end image sensors (above 48 million pixels) and the contribution from 2 million pixels and 13 million pixels in the mainstream market. Although facing headwinds in the mobile phone market and CIS inventory adjustments in 2022, overall shipments slightly declined. However, the shipment of high-end image sensors increased to 64 million pixels, and mainstream market sensors continued to rise to 8 million pixels, indicating that the overall market is still moving towards higher pixel densities. In 2022, it is estimated that the Company will still maintain a leading position in the fabless foundry market in terms of high-resolution and small-pixel (<0.7μm) technology. In the future, we will continue to cooperate with the top customers in the market, and continue to expand our presence in the mobile phone and automotive markets.

Integrated on-chip multi-film market

The Company's integrated on-chip multi-film technology consists mainly of under-display optical fingerprint sensor products and 3D optical sensing components. The mainstream technologies of 3D optical sensing components include stereo systems, structured light and ToF sensors. Because the structured light technology and patent layout are held by certain manufacturers, all the mobile phone manufacturers have put their effort into the development of ToF sensor technology. The Company is one of the suppliers of biometric sensing components. At the same time, the Company also continues to collaborate with international manufacturers for the development and mass production of ToF sensor technology.

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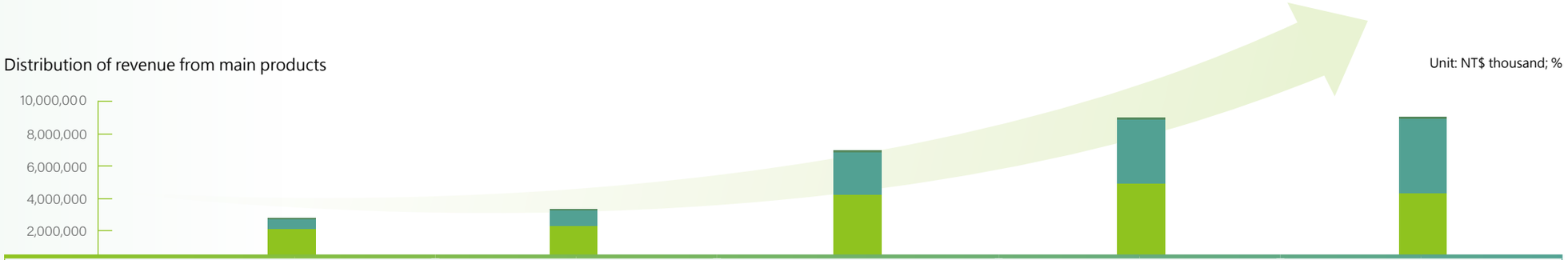
Distribution of revenue from main products

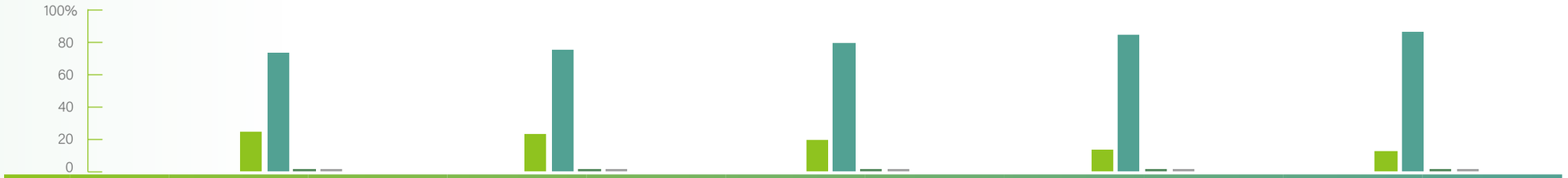
Unit: NT$ thousand; %



Year / Product Type	2018		2019		2020		2021		2022	
	Amount	Percentage	Amount	Percentage	Amount	Percentage	Amount	Percentage	Amount	Percentage
Image sensors	2,089,178	76.01	2,290,652	67.46	4,226,717	60.85	4,947,328	54.79	4,320,594	47.60
Micro optical components	590,697	21.49	1,014,695	29.88	2,602,900	37.47	3,936,619	43.60	4,600,796	50.69
Others	68,545	2.50	90,377	2.66	116,732	1.68	145,231	1.61	155,758	1.71
Total	2,748,420	100.00	3,395,724	100.00	6,946,349	100.00	9,029,178	100.00	9,077,148	100.00

Areas where the main products (services) are sold (provided)

Unit: NT$ thousand; %



Year / Region		2018		2019		2020		2021		2022	
		Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio	Amount	Ratio
Domestic Sales		664,888	24.19	783,307	23.07	1,359,257	19.57	1,252,207	13.87	1,106,615	12.19
Export Sales	Asia	2,024,430	73.66	2,570,952	75.71	5,531,112	79.63	7,695,926	85.23	7,877,133	86.78
	Americas	27,595	1.00	14,792	0.44	15,490	0.22	25,975	0.29	42,209	0.47
	Europe	31,507	1.15	26,673	0.78	40,490	0.58	55,070	0.61	51,191	0.56
	Subtotal	2,083,532	75.81	2,612,417	76.93	5,587,092	80.43	7,776,971	86.13	7,970,533	87.81
Total		2,748,420	100.00	3,395,724	100.00	6,946,349	100.00	9,029,178	100.00	9,077,148	100.00

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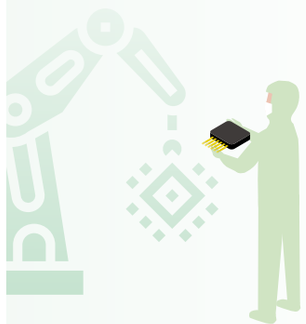
1.2 Participation in External Initiatives, Organizations, and Associations

VisEra actively participates in activities of associations and industry organizations (e.g., seminars and conferences) to obtain information on the latest policies and developments in the industry and promote the exchange of ideas and development of the industry. In addition to related external initiatives, the Company also obtained silver-level certification in the Validated Assessment Program (VAP) of the Responsible Business Alliance (RBA) in 2021. The RBA-approved independent third-party audit company provides on-site audits of VisEra's facilities, with assurance for risk identification and implementation of improvements as well as a strong management system for worker management, integrity, health, safety, and environmental conditions to improve business operations.



01 Member

The Allied Association for Science Park Industries

The Company joined the Allied Association for Science Park Industries to promote the exchange of ideas in Taiwan's semiconductor industry, provide recommendations for the government's industrial development policies, and jointly enhance the competitiveness and sustainable development of the industry.

02 Member

Taoyuan City Industrial Association

Taoyuan City Industrial Association was established by Taoyuan City Government to strengthen the relationships between industries and promote the common interests of industries. By joining the Association, the Company promotes cross-industry communication, obtains new information, and helps increase the competitiveness of local industries.

03 Member

Computer Audit Association

The Company joined the Computer Audit Association to enhance the implementation of corporate IT governance, obtain the latest information about computer audits, and obtain relevant professional information.

04 Member

Institute of Internal Auditors, ROC

The Company joined the Institute of Internal Auditors, ROC to improve the business management system, maintain effective internal controls, and jointly promote the healthy development of the internal audit system in Taiwan.

05 Member

College of Electrical Engineering and Computer Science - Industrial Affiliates Program (EECS-IAP)

The College of Electrical Engineering and Computer Science (EECS) established the Industrial Affiliates Program (IAP) in 1998 with the aim of establishing close cooperation and interactions with the university, and turning academic research results into real applications through industry-academia cooperation. It is also one of the channels for enterprises to recruit talents, which can effectively improve the quality of industrial technologies and academic research.

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1.3 Sustainability Performance

Product innovation

More than 500
accumulated patents

7%
2022 R&D expenditures as a percentage of revenue

Responsible procurement

100%
signing rate of the Supplier Code of Conduct for suppliers with a transaction volume of more than NT$1 million in new transactions in the current year and the previous year

67%
Percentage of local procurement of raw materials

72%
Percentage of local procurement of components

3 consecutive years
of commendation from Hsinchu City Government for outstanding performance in green procurement

Green production

26.16 million kWh
externally purchased renewable energy

1.67 million kWh
Electricity saved

100%
2050 renewable energy utilization rate

88%
Process water recycling rate

93%
Waste recycling rate (including Alternative Energy)

Employee relations

67%
internal hire rate

78%
highest internal promotion rate in five years

100%
retention rate after parental leave

21 hours
average training hours per employee

0 cases
Number of occupational injuries

Corporate citizenship

1,148 hours
accumulated service hours since 2018

798 people
accumulated received services since 2018

583
donated shoe boxes as Christmas presents since 2018

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1.4 Recognition and Honors

Industrial Development Bureau	Clean production certification — GREEN FACTORY
Ministry of Health and Welfare	Healthy Workplace Certification
IEEE-NEMS 2022 Seminar	Best Conference Paper Award
Hsinchu Science Park Bureau	• Occupational Safety and Health Unit Outstanding Performance Award • Occupational Safety and Health Excellent Employee Award
Hsinchu City Environmental Protection Bureau	"Hsinchu Science Park Promotes Corporate Social Responsibility Environmental Performance Incentive Program" - Special Excellence Award.
Hsinchu Science Park Bureau	Award of Excellence in the Science Park Green Plant Initiative
Hsinchu City Government	Excellence Award in the Enterprise and Organization Green Procurement Evaluation
Environmental Protection Administration, Executive Yuan	• Promotion of Outstanding Units for Green Procurement by Private Enterprises and Organizations • Silver award in the 4th National Enterprise Environmental Protection Award

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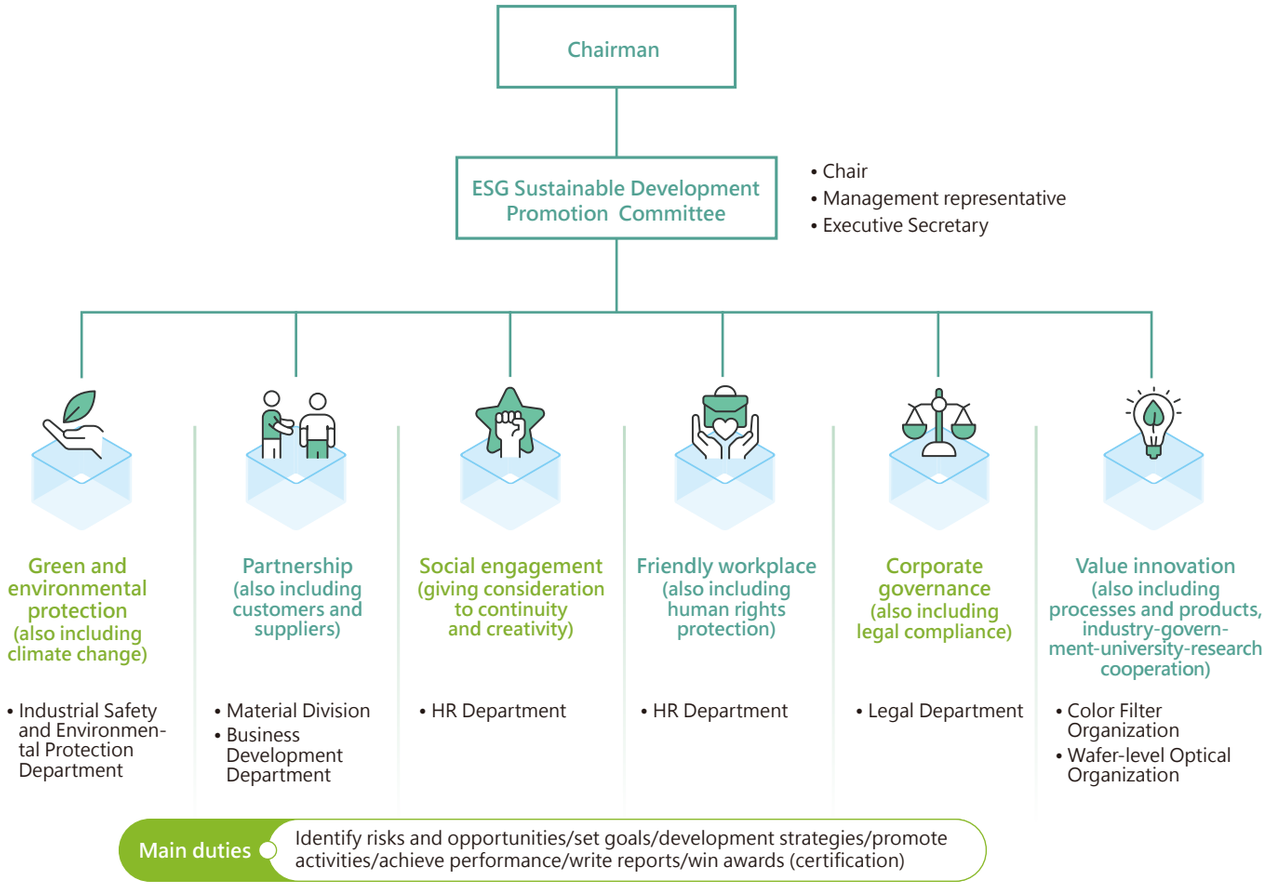
2.1 ESG Management Framework

VisEra established the "ESG (Environmental, Social, and Governance) Sustainable Development Promotion Committee" in December 2021 as the Company's highest decision-making body for sustainable development. The President serves as the chair and the Committee appoints a management representative to jointly review the Company's core business capabilities with senior managers of different fields and establish medium to long-term sustainable development plans. The ESG Sustainable Development Promotion Committee convenes quarterly reports to track the target implementation status, formulate ESG action plans, and continuous improvement measures, and reports the results and work plans to the Board of Directors each year. The Board of Directors considers the Company's future business strategies and proposes recommendations for implementation. In May 2022, the Committee reported the results of the Company's ESG operations in the previous year, the 2022 work plan, and the identification of potential significant ESG issues to the Board of Directors.

ESG Sustainable Development Promotion Committee



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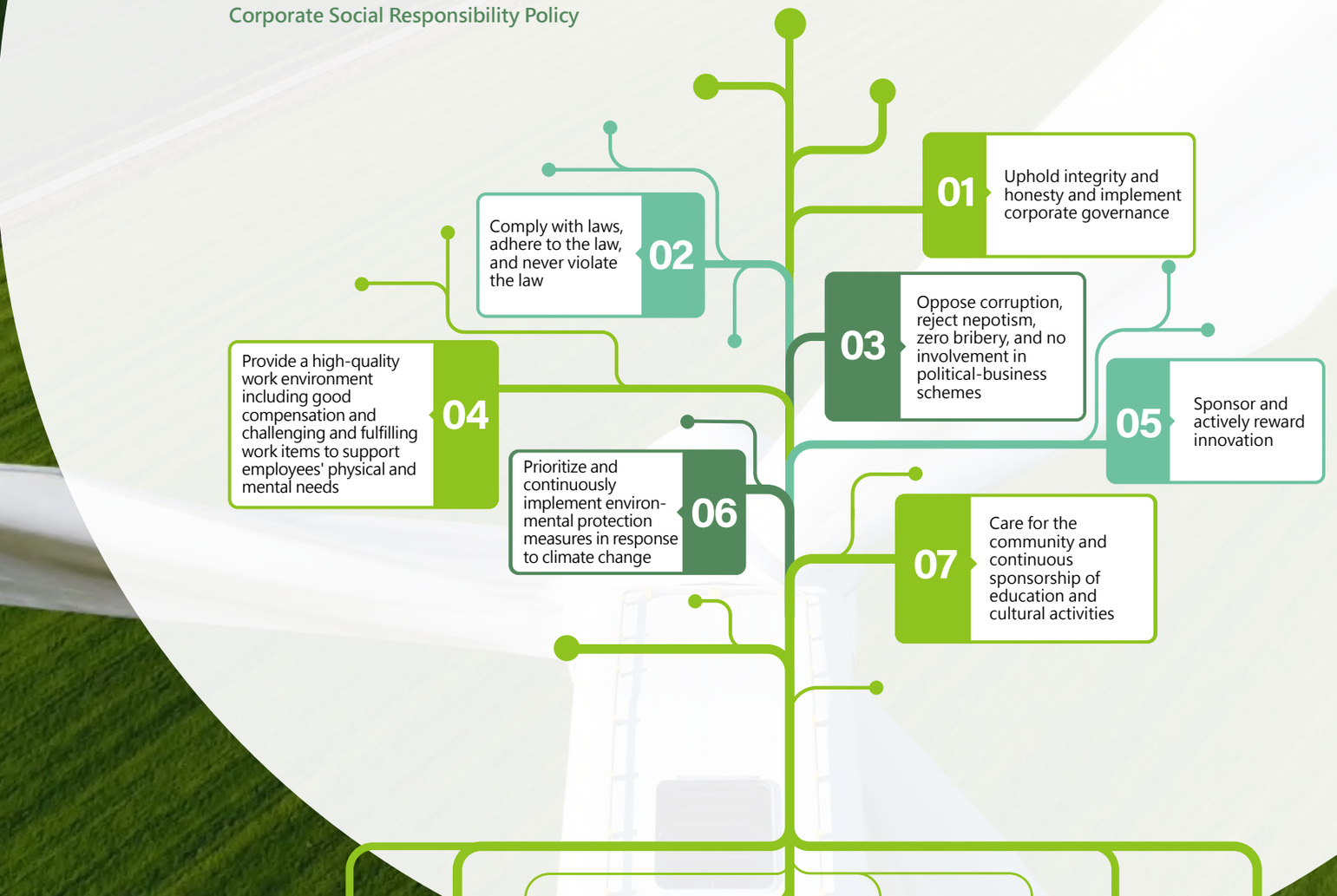
The ESG Sustainable Development Promotion Committee is primarily responsible for the establishment of the Company's long-term ESG development strategies. It also delegates responsibilities in environmental, social, and economic governance to six task forces including environmental protection, partnership relations, social engagement, friendly workplace, corporate governance, and value innovation, which identify relevant risks and opportunities, set goals, and develop strategies. Each task force holds regular monthly meetings and confirms the target achievement status and important work plans in the quarterly meetings of the ESG Sustainable Development Promotion Committee. The Committee also reached a consensus on the results in 2022 and the 2023 work plan. It formulated the plan for implementation.

Corporate Social Responsibility Policy



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2.2 Materiality Analysis and Stakeholder Communication

2.2.1 Materiality Analysis Procedures

According to GRI 3: Material Topics 2021 of the GRI Universal Standards 2021, VisEra adopted the economic, environmental, and human-social (human rights) impact assessment methodologies developed by the Value Balancing Alliance (VBA), Harvard Business School's Impact-Weighted Accounts research program, and Business for Societal Impact (B4SI) to establish an impact-based materiality analysis process, identify critical issues for VisEra, and determine the boundaries and scope of sustainable information disclosure. This process also serves as the basis for setting long-term corporate sustainability objectives. In the process of drafting the 2022 Corporate Sustainability Report, we gathered feedback from 455 external stakeholders to learn about their concerns for VisEra's sustainability issues. When measuring the impact of sustainability issues on operations, 48 executives and employees participated in determining the significance of each sustainability issue to operations. We identified 12 material sustainability issues from the 24 sustainability issues and set medium and long-term sustainability management objectives.

Phase 1: Inclusiveness

We compiled a list of 24 sustainability issues of concern to VisEra and accounted for international standards and regulations, sustainability investment ratings, and communication with stakeholders in the global semiconductor industry.

Phase 2: Materiality

VisEra uses the information in the stakeholder viewpoints, impact on VisEra operations, and impact sustainable development for the materiality analysis in the 2022 Sustainability Report. To obtain the opinions of different stakeholders, we used a questionnaire for the materiality survey and focused on influential stakeholders that have frequent interactions with VisEra. In terms of materiality, VisEra followed the requirements in the GRI Standards and determines the significance of issues based on the level of stakeholders' concern and impact on company operations. We also encouraged employees to identify the impact of each issue on the Company's operations and determine the significance of the issue.

Step1 : Verify communication targets

7 types of stakeholders

The parent company (TSMC), investors, employees, customers, suppliers/contractors, government and society (community, media, academic institutions, accountants) are VisEra's main communication targets.

Step2 : Compile sustainability issues

24 issues

Sources of sustainable development topics:
- International standards and regulations: GRI Standards, Sustainability Accounting Standards Board (SASB), United Nations Sustainable Development Goals (SDGs), Responsible Business Alliance (RBA)
- Peers in the global semiconductor industry: Collect information and practices on sustainability information disclosure of global semiconductor benchmark companies
- Stakeholder communication: Communicate with stakeholders on a regular basis or when necessary to obtain stakeholder feedback on sustainability issues

Step3 : Survey the level of concern

455 surveys

We used the survey to measure the level of stakeholder interest in sustainability issues. A total of 455 stakeholders participated in the survey:
- The parent company(TSMC) (4)
- Employees (405)
- Investors (2)
- Customers (6)
- Suppliers/contractors (29)
- The society (9).

Step4 : Impact on operations

48 employees

We invited senior executives, the task forces of the ESG Sustainable Development Promotion Committee, and junior employees totaling 48 people to participate in the materiality analysis to measure the impact of each sustainability issue on business growth, customer trust, talent retention, and risk response. We ranked the impact of each sustainability issue on the Company's operations to determine the significance of the issue.

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Phase 3: Responsiveness

We expanded to the needs and expectations for disclosure of sustainability information of different stakeholders based on materiality analysis results and the themes and indicators in the GRI Standards. VisEra enhances the transparency of sustainability issues on different communication platforms including sustainability reports and company websites. The disclosure includes policies, organizations, methodology, effectiveness, and objectives.

Phase 4: Impact

We considered VisEra's business strategy, potential opportunities, and risks in future operations, and the sustainability goals of the parent company (TSMC), and define 12 key issues as VisEra's priorities for promoting corporate sustainability. We set sustainability management goals for 2025, and regularly track and review the achievement of these goals in meetings.

Step5 : Impact on sustainability

5 significant impacts

We determine the significance of sustainability issues in terms of economic, environmental and human (human rights) impact. VisEra's 19 executives and employees helped identify significant impacts and sustainability issues based on a sustainability impact evaluation methodology that focused on positive and negative impact, actual and potential impact, irreparability, and value chains.

Step6 : Material topics

12 material issues

We produced VisEra's materiality matrix based on an analysis of the level of stakeholder concern and the impact of the issues on the Company's operations. We selected 12 sustainability issues from the results to form the basis of VisEra's 2022 Sustainability Report.

Step7 : Determine disclosure boundaries

4 value chain tiers

VisEra's four value chain phases include procurement, optical design and semiconductor component production, testing, and customer use. They also determine the boundaries of sustainability disclosure to measure the impact of sustainability issues on the upstream and downstream phases.

Step8 : Review disclosure contents

14 specific topics

We identified 12 key issues that correspond to 14 specific topics in the GRI Standards for the collection and disclosure of information based on the reporting requirements and management guidelines for each topic.

Step9 : Formulate long-term goals

12 sustainability goals

Senior executives discussed the goals and the feedback from the Directors before selecting 12 of the 24 sustainability issues for the formulation of the 2025 sustainability management goals. They included enterprise risk and business continuity management, innovation management, customer services and management, sustainable supply chain management, information security, climate strategy, energy management, water management, waste management, talent recruitment and retention, talent development, and occupational safety and health.

Step10 : Review the impact

4 meetings

Each task force holds regular monthly meetings and confirms the target achievement status and important work plans in the quarterly meetings of the ESG Sustainable Development Promotion Committee.

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Sustainability impact review procedures

Sustainable Impact Assessment Process of Visera Technologies

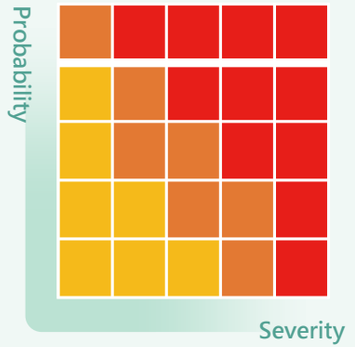
Define shock

Impacts	Positive	Negative
Economy	4	
Environment	1	3
People/ human rights	4	2

Source of impact:

① VBA value balance alliance
② Harvard Business School Impact Weighted Accounting
③ London Benchmark Group (LBG)
④ Visera

Impact matrix



Severity = ①+②+③

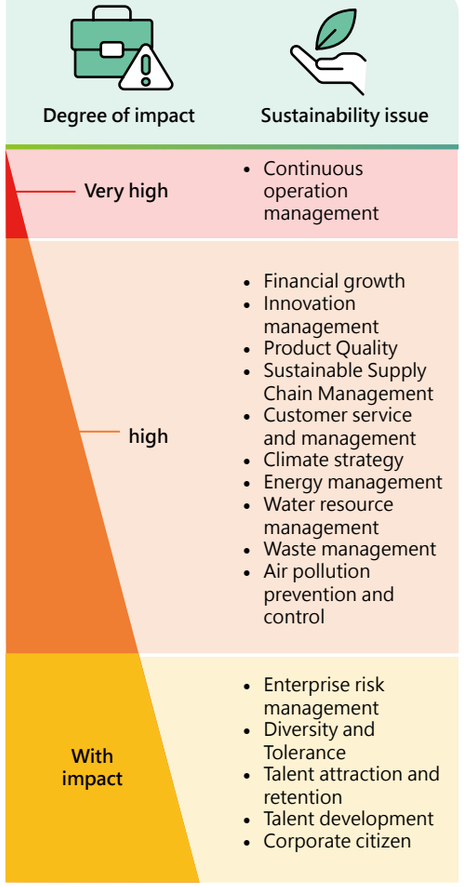
① Degree
② Scope
③ No way of remedy

5 significant impacts

+ Industrial technology development
+ Create upstream output value
+ Environmental benefits of products
-Consumption of resources
+Improve the quality of life of employees

Economy Impacts
Environment Impacts
People/human rights Impacts

+Positive
-Negative



Define positive and negative impacts

Significant impact analysis

Sustainability issue affecting significant impacts

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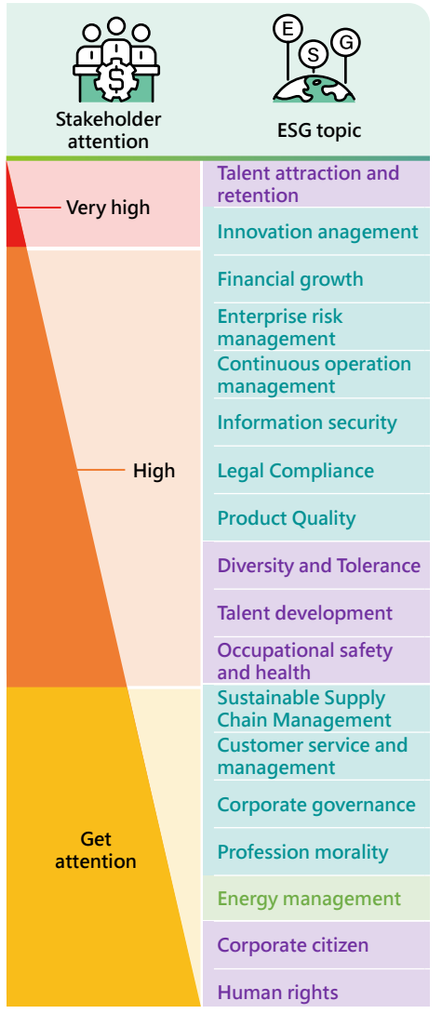
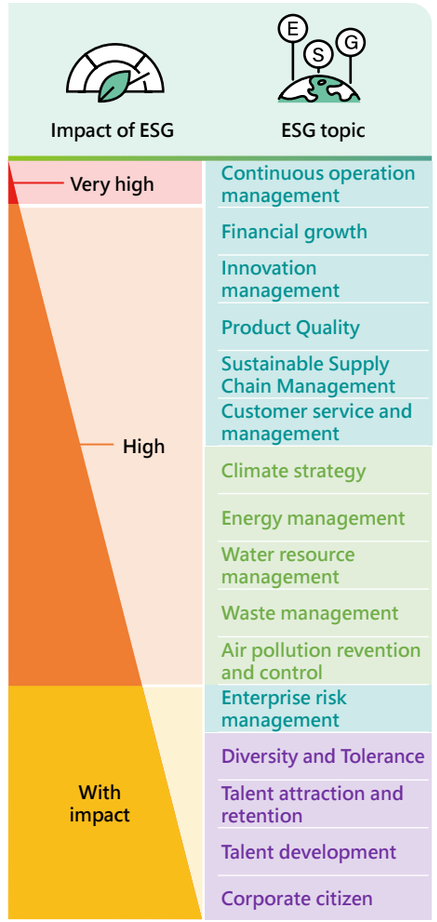
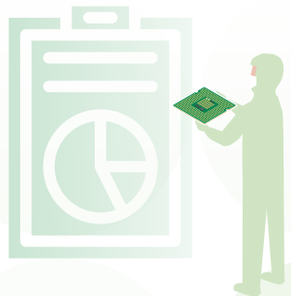
Material topics ranked by VisEra





ESG-related major issues	Sort
Innovation management	1
Talent attraction and retention	2
Enterprise risk and business continuity management	3
Customer service and management	4
Energy management	5
Talent development	6
Information security	7
Sustainable Supply Chain Management	8
Climate strategy	9
Water resource management	10
Waste management	11
Occupational safety and health	12



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Relationship between material topics and VisEra's value chain (I)

Aspect	Material topic	Impact on VisEra operations				Impact on sustainability				Impact of the issues on the value chain				
		Business growth	Customer trust	Talent retention	Corresponding risks	Industrial technology development	Create upstream revenue	Environmental benefits of products	Resource consumption	Procurement phase	Procurement phase	Production	Product test	Customer use
Economic	Company risk and business continuity management	○			○	○	○			○		●	●	
	Information security		○		○							●	●	
	Innovation management	○				○	○					●	●	
	Sustainable supply chain management					○	○				◎	●	●	
	Customer service and management	○	○			○	○					●	●	◎
Environmental	Climate strategy				○			○	○		◎	●	●	
	Energy management				○			○	○		◎	●	●	
	Water resource management				○			○	○		◎	●	●	
	Waste management				○			○	○		◎	●	●	
Social	Talent recruitment and retention			○						○		●	●	
	Talent development			○						○		●	●	
	Occupational safety and health			○								●	●	

* ○: The issue has impact on operations or sustainable development; ** ● : direct impact; ○ : indirect impact; ◎ : direct relationship

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Relationship between material topics and VisEra's value chain (II)

Aspect	Material topic	Corresponding United Nations' Sustainable Development Goal	GRI Standard	SASB Index	Chapter / page of the Sustainability Report
Economic	Company risk and business continuity management	6 CLEAN WATER AND SANITATION	Risk Management*		8.5 Risk Management / 149
	Information security		Information security*		8.6 Information Security Management / 153
	Innovation management	7 AFFORDABLE AND CLEAN ENERGY	Innovation management*		3.1 Innovation management / 35
	Sustainable supply chain management		Procurement Practices 204 Supplier Environmental Assessment 308 Forced or Compulsory Labor 409 and Supplier Social Assessment 414	TC-SC-440a.1	4.1 Sustainable Supply Chain / 56
	Customer service and management	8 DECENT WORK AND ECONOMIC GROWTH	Customer Privacy 418		3.3 Customer Service and Management / 52
Environmental	Climate strategy		Emissions 305 Economic Performance 201	TC-SC-110a.1, TC-SC-110a.2	5.2 Climate Strategy / 66
	Energy management	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Energy 302	TC-SC-130a.1, TC-SC-410a.2	5.3 Energy Management / 74
	Water resource management		Water and Effluents 303	TC-SC-140a.1	5.4 Water Resource Management / 81
	Waste management	13 CLIMATE ACTION	Waste 306	TC-SC-150a.1	5.5 Waste Management / 86
Social	Talent recruitment and retention		Employment 401 Market Presence 202 Economic Performance 201	TC-SC-330a.1	6.1 Talent Recruitment and Retention / 95
	Talent development	17 PARTNERSHIPS FOR THE GOALS	Training and Education 404		6.2 Talent development / 105
	Occupational safety and health		Occupational Safety and Health 403		6.4 Occupational Safety and Health / 112

* Sustainability issues that are material for VisEra but not included in the specific topics of the GRI Standard

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2.2.2 Stakeholder Communication

VisEra defines stakeholders as groups or organizations that affect or are affected by the Company. We identified seven major categories of stakeholders through the five principles of the AA1000 Stakeholder Engagement Standard (SES) (dependency, responsibility, influence, diverse perspectives, and tension.). We separate stakeholders into two major groups based on the manner of influence (direct or indirect). Direct stakeholders include the parent company, shareholders, employees, customers, and suppliers/contractors; indirect stakeholders include communities and governments. VisEra chooses different ways of stakeholder engagement based on the nature of the stakeholders, the issues of concern, and the purpose of the engagement.

Stakeholders	Communication mechanisms [1]	Issues of concern in 2022
Parent company (TSMC)	• Board of Directors • Regular or ad hoc information communication • Subsidiary supervision	• Innovation management • Product quality • Corporate governance • Professional ethics • Company risk and business continuity management • Legal compliance • Sustainable supply chain management • Energy management
Investors	• Annual financial report • Annual shareholders' meeting • IR meeting	• Innovation management • Product quality • Corporate governance • Professional ethics • Company risk and business continuity management • Legal compliance • Sustainable supply chain management • Energy management
Employees	• Communication and work meetings of units • Manager communication meetings • Labor-management meetings • Employee grievance channels • Employee opinion email • Professional ethics and training	• Talent recruitment and retention • Talent development • Human rights • Financial growth • Diversity and tolerance
Customer	• Telephone • Company mailbox • Official company website	• Innovation management • Product quality • Customer service and management • Talent recruitment and retention • Occupational safety and health
Suppliers Contractors	• Hold regular supplier meetings to facilitate more harmonious and smooth cooperation between VisEra and suppliers • Contractor agreement organization meetings • Quality management meetings • Supply chain management and communication	• Company risk and business continuity management • Innovation management • Financial growth • Information security • Legal compliance • Talent recruitment and retention
Government	• Communication meetings/forums/seminars or public hearings held by government agencies • Active communication with government agencies • Reports to government portal websites	• Occupational safety and health • Information security • Diversity and tolerance • Talent recruitment and retention • Talent development • Corporate citizenship
Social	• Survey of opinions of the community and assessment of requirements • Communication meetings/forums/seminars with NGOs • Volunteer activities with in collaboration with NGOs • Company website	• Occupational safety and health • Information security • Diversity and tolerance • Talent recruitment and retention • Talent development • Corporate citizenship

[1] Except for items with special explanation, the Company communicates with stakeholders on all other topics on an ad hoc basis

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2.3 Material Topic Management Strategies

Innovation management

Responsible unit: R&D Unit

Significance

Innovative management is used to establish a good corporate brand image, create company advantages, follow the market economy development environment, enhance corporate competitiveness, and serve as the foundation for sustainable development.

Commitments

- Continue to enhance R&D momentum and retain technological lead.
- Help customers, the industry, and academia implement cross-sector innovation.

Strategy

- Strengthen industry/government/academia cooperation and actively create a culture of innovation and an innovative work environment.
- Establish mechanisms to encourage employees to innovate in their work and continuously strengthen the capacity for innovation in the organization.

Goal

Short-term (2023):
Number of (trade secrets + patents) 46 /year

Mid-term (2025):
Number of (trade secrets + patents) +20% 56/year

Long-term (2030):
Number of (trade secrets + patents) 56/year

Goal tracking

- VisEra's internal (trade secrets + patents) review mechanisms.
- Assign dedicated personnel to track the number of patent applications and number of cases in different countries.

Action Plan

Increase positive benefits	• The management and R&D departments meet regularly to review the R&D strategies based on the Company's business development strategy and continuously increase the R&D capacity. • Continuously develop industry-academia collaboration to increase recruitment channels and diversity, and develop talents to continuously increase R&D capacity.
Reduce negative impact	• Organize training (mandatory courses) to communicate the importance of trade secret protection and its impact on the Company and individuals. • Strengthen the PIP mechanisms to protect confidential information with systematic management.

Communication mechanisms

Stakeholder categories	R&D personnel, process personnel, process integration personnel, equipment personnel, quality engineering personnel, production planning personnel, sales personnel
Communication Channel	Communication through regular/ad hoc internal meetings

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Customer service and management

Responsible unit: Customer Project Management Unit

Significance

Gain a comprehensive understanding of the customers' review of VisEra and focus on the improvement of the project from the root so that customers are satisfied with the services provided by the VisEra and are more willing to intensify collaboration.

Commitments

- Provide high quality products and services to meet customer demand
- Implement strict controls to prevent the leak of customers' confidential information

Strategy

- Actively respond to customer needs and feedback and report progress whenever necessary.
- Obtain information and understand customers' requirements and feelings through meetings, phone calls or emails, and respond to them in a timely manner.
- Implement email control mechanisms and strict PIP control to ensure zero leaks of customer information.

Action Plan

Increase positive benefits

- Learn about the potential needs and opinions of customers through regular meetings.
- Implement effective tracking and management of customer feedback through the VOC system.
- Use the NRTO (New/Re Tape out System) product modeling system to effectively assign plant resources and meet customer needs.

Reduce negative impact

Track and report problems to customers through RMA system, VOC system, and CCN system to reduce customer losses, prevent customer losses, or ensure timely repairs of damages.

Goal

Short-term (2023):
- 80 points or more in customer satisfaction
- Zero "substantiated complaints concerning breaches of"

Mid-term (2025):
- 85 points or more in customer satisfaction
- Zero "substantiated complaints concerning breaches of customer privacy and losses of customer data"

Long-term (2030):
- 90 points or more in customer satisfaction
- Zero "substantiated complaints concerning breaches of customer privacy and losses of customer data"

Goal tracking

- Annual survey on customer satisfaction rate
- Regular review on whether there are customer complaints

Communication mechanisms

Stakeholder categories: Process integration personnel, R&D personnel, quality engineering personnel, production planning personnel, sales personnel

Communication Channel: Communication through regular/ad hoc internal meetings

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Supply Chain Management

Responsible unit: Materials and Resources Department

Significance

As the international community pays closer attention to product safety and environmental health issues, any disruption in the supply chain may affect the ultimate supply of services/products. It thus demonstrates the importance of supply chain management for ensuring the stability of the supply chain and the long-term interests of companies and shareholders.

Commitments

We are committed to establishing a comprehensive code of conduct for business and integrity which embodies the core values of integrity and honesty of VisEra. We aim to strengthen and enhance the sustainability performance of suppliers, create a positive cycle, and expand the sustainable influence of suppliers.

Strategy

- Strengthen supply chain resilience: Introduce ISO 22301 BCM to increase supply chain resilience to reduce the risk of supply chain disruptions.
- Increase sustainable supply chain capabilities: Require suppliers to uphold the "VisEra Supplier Code of Conduct" as the basis for taking action to improve labor human rights, safety and health, environmental protection, business ethics, and management system performance to continuously reduce the risks of business interruptions.

Action Plan

Increase positive benefits

- Key suppliers fill out the "sustainability self-evaluation questionnaire" and sustainability evaluation mechanisms
- Implement audits of suppliers of concern
- Increase the percentage of local procurement of raw materials and components

Reduce negative impact

- Continue to disperse production sites and evaluate new suppliers to reduce supply chain interruption risks.
- Maintain close communication with suppliers regarding market supply and demand and inform them of procurement requirements in advance.
- Annual simulation of possible scenarios based on current events and execution of drills
- Conduct annual evaluations of suppliers based on supplier sustainability assessment mechanisms

Goal

Short-term (2023):
- Every year Tier 1 suppliers 100% signed off of the VisEra Supplier Code of Conduct.
- Require suppliers to conduct responsible mineral due diligence, achieving a 100% compliance rate for mineral usage.
- Decentralized procurement, increasing the local procurement ratio of raw materials to 60%.

Mid-term (2025):
- Every year Tier 1 suppliers 100% signed off of the VisEra Supplier Code of Conduct.
- Require suppliers to conduct responsible mineral due diligence, achieving a 100% compliance rate for mineral usage.
- Decentralized procurement, increasing the local procurement ratio of raw materials to 63%.

Long-term (2030):
- Every year Tier 1 suppliers 100% signed off of the VisEra Supplier Code of Conduct.
- Require suppliers to conduct responsible mineral due diligence, achieving a 100% compliance rate for mineral usage.
- Decentralized procurement, increasing the local procurement ratio of raw materials to 65%.

Goal tracking

- Monthly review of raw material requirements and supply plans based on results of production and sales meetings to ensure that supplies are on schedule and in the correct quantities.
- Monitor market supply and demand changes and forecasts in advance to ensure the supply of equipment and machinery.

Communication mechanisms

Stakeholder categories: Suppliers, contractors

Communication Channel
- Key suppliers fill out the sustainability self-evaluation questionnaire each year
- Ad hoc meetings with suppliers
- Audit, assistance, improvement, and follow-up

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Climate strategy

Responsible unit: Resource Planning Organization: Industrial Safety and Environmental Protection Department, Plant Affairs Unit

Significance

The impact of climate change is closely related to business operations and the order in the human, environmental and ecological system. Mitigating the impact of climate change and avoiding the impact of climate factors on operations is a critical and pressing issue.

Commitments

- We will establish Enterprise Risk Management (ERM) mechanisms based on the standards in ISO 22301 Business Continuity Management System.

Pursuant to the "Environmental Protection and Hazardous Substances Free Policy", we will focus on global climate change trends, assess their risks and opportunities, and allocate resources to implement effective energy conservation, water conservation, and other management measures.

Strategy

- Strategy: Evaluate the frequency of climate-related risk events and the severity of their impact on the Company's operations with a Risk Map. Define the priority and risk level for risk management and adopt corresponding risk management strategies based on the risk rating.
- Plan: We plan to adopt the Task Force on Climate-Related Financial Disclosures (TCFD) framework in 2023 for identifying climate risks and opportunities to address and support the Company's management of climate objectives.

Action Plan

Increase positive benefits

Observe the Company's operations and developments of domestic and international climate and environmental issues with the ERM Committee and the methodology in ISO 22301. Review the Company's climate risk management status and estimate the risk trends for the next quarter.

Reduce negative impact

Establish contingency and recovery procedures for identified climate risks such as floods, droughts, and earthquakes. Familiarize employees with contingency and recovery procedures for anomalies through training and drills.

Goal

Short-term (2023):
0 days of interruption in production due to climate factors

Mid-term (2025):
0 days of interruption in production due to climate factors

Long-term (2030):
0 days of interruption in production due to climate factors

Goal tracking

- The ERM team regularly compiles and submits ISO 22301 work forms to their units for implementation.
- Convene quarterly ERM Implementation Committee meetings to review the attainment of goals and response measures.
- Report the status of ERM implementation, including climate strategy and risk management, to the Board of Directors in the third quarter each year.

Communication mechanisms

Stakeholder categories

Parent company, competent authority of environmental protection, NGO environmental protection groups

Communication Channel

- Parent company: 1. Regularly provide environmental management indicators, including climate impact. 2. Distribute questionnaires to stakeholders to consult them on issues
- Competent authority of environmental protection: Distribute questionnaires to stakeholders to consult them on issues
- NGO environmental protection groups: 1. View information on the Company's official website 2. The Company does not consult them directly but responds to their inquiries

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Energy management

Responsible unit: Resource Planning Organization: Industrial Safety and Environmental Protection Department, Plant Affairs Unit

Significance

VisEra's main businesses include the manufacturing and process services for color filters for image sensor and tests of IC components. Externally purchased electricity accounts for the largest share of energy use in the production process with 87.90% while natural gas accounts for 11.7% and diesel accounts for 0.4%. Therefore, the main target for energy conservation is to reduce the use of electricity and natural gas. In routine operation and management, we must comply with requirements in energy regulations and set standards based on international norms. VisEra has always been committed to maintaining a high level of corporate social responsibility and fulfills its corporate citizenship obligations. To establish a sound energy management system, the Company aims to improve energy efficiency and reduce greenhouse gas emissions to attain sustainable management and development.

Commitments

We will obtain ISO 50001 energy management system certification and aim to improve energy efficiency and reduce greenhouse gas emissions to attain sustainable management and development.

Strategy

- It is the responsibility of all employees to continuously improve energy efficiency and reduce energy costs.
- We shall participate in external energy conservation organizations or activities to obtain new knowledge for improving management efficiency.
- We shall comply with domestic energy laws and regulations and commit ourselves to meeting advanced international energy standards and regulations.
- We shall support the use of energy-efficient products and services and the procurement of energy-efficient designs for energy services, products and equipment that may have a significant impact on VisEra's energy use.
- We shall provide relevant training programs and resources to increase employees' awareness of energy conservation and carbon reduction. We will actively communicate with employees of all levels and seek out partners.
- We shall engage and communicate with suppliers and contractors on energy issues to encourage them to improve energy efficiency.

Action Plan

Increase positive benefits	• Review energy conservation technologies and optimization solutions for operation management. • Actively purchase green electricity and reduce the use of gray power.
Reduce negative impact	Implement real-time monitoring for energy-related indicators and use automatic control system for immediate response to ensure that the operational efficiency complies with regulations.

Goal

Short-term (2023):
Plant electricity conservation rate >1%

Mid-term (2025):
Plant electricity conservation rate >10%

Long-term (2030):
Achieve a 40% utilization of renewable energy.and attain RE100 by 2050

Goal tracking

- Track and review energy performance indicators every month
- Submit the energy report, energy efficiency indicator report, and renewable energy obligation report every year

Communication mechanisms

Stakeholder categories	Parent company, competent authority of energy, energy suppliers (Taipower, CPC Corporation, and renewable energy companies)
Communication Channel	• Parent company: Regularly provide environmental management indicators, including energy management. • Competent authority of energy: Regular reporting of related data • Energy supply company: 1. Apply for supply and sign signature. 2. Actively propose requirements and apply for Renewable Energy Certificates

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Water resource management

Responsible unit: Resource Planning Organization: Occupational Safety and Environmental Protection Unit, Plant Affairs Unit

Significance

Water resources are critical for the semiconductor production process. VisEra has adopted water risk assessment tools of the World Resources Institute (WRI) to identify the water risks in the area where the plant is located, using water availability, environmental discharge quality, and regulatory and reputational risk as key indicators. The results of the assessment for the Company's plant sites are all medium to low risk. VisEra actively implements water resource risk management by implementing the three main strategies of implementing water use plans, seeking opportunities to conserve water, and controlling pollution sources.

Commitments

- We will establish Enterprise Risk Management (ERM) mechanisms based on the standards in ISO 22301 Business Continuity Management System.
- Pursuant to the "Environmental Protection and Hazardous Substances Free Policy", we will focus on global climate change trends, assess their risks and opportunities, and allocate resources to implement effective energy conservation, water conservation, and other management measures.

Strategy

Implementation of water conservation programs and seeking opportunities to save water and control pollution pathways.

Action Plan

Increase positive benefits	Review optimization solutions for water conservation and waste water treatment
Reduce negative impact	Implement real-time monitoring for environmental protection indicators and use automatic control system for immediate response to ensure that the wastewater: discharge complies with regulations.

Goal

Short-term (2023):
Process wastewater recycling rate ≧ 89%

Mid-term (2025):
Process wastewater recycling rate ≧ 90%

Long-term (2030):
Process wastewater recycling rate ≧ 91%

Goal tracking

- Obtain data from water balance meters every day
- Review and report process recovery rate every month

Communication mechanisms

Stakeholder categories	Parent company, competent authority of environmental protection, NGO environmental protection groups
Communication Channel	• Parent company: 1. Regularly provide environmental management indicators, including water resource management. • Competent authority of environmental protection: Regular reporting of related data • NGO environmental protection groups: 1. View information on the Company's official website 2. The Company does not consult them directly but responds to their inquiries

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Waste management

Responsible unit: Materials and Resources Department

Significance

VisEra is a subsidiary of the critical foundry supply chain of the parent company (TSMC). The hazardous industrial waste derived from materials used in the production process account for approximately 60% of the total waste. Any failure in management or disposal will directly cause significant pollution to the environment, indirectly damage the interests of customers and the Company's corporate image, and lead to negative perception of the Company in the society.

Commitments

We will implement ESG target management to strengthen the capabilities of our contracted waste disposal companies and jointly support environmental protection and the society.

Strategy

1. The internal environmental protection units, procurement units, and waste management units select new eligible suppliers based on the six major criteria for the selection of waste disposal suppliers.
2. Use high-quality suppliers approved by the parent company (TSMC).
3. Work with the parent company (TSMC) to implement the annual inspections and assistance of the external waste disposal suppliers.
4. Encourage waste disposal suppliers to obtain ISO14001 and other environmental, safety, and health certifications.
5. Establish legal constraints in contracts.
6. Implement fairness in the procurement process.

Action Plan

Increase positive benefits

1. Once qualified new suppliers are selected, the Company conducts onsite audits and visits prior to transactions to ensure that the actual onsite environment matches the evaluation information.
2. Conduct annual visits, audits, and assistance activities for waste disposal suppliers in accordance with the annual inspection and audit regulations established by the parent company (TSMC).

Reduce negative impact

1. Share management systems and methodologies, and follow up on recommendations to enhance corrections.
2. Implement adequate response and tracking for the removal/disposal of waste by contractors

Goal

Short-term (2023):
- Target number of cases in which the waste disposal company fails to comply with regulations: 0
- Target total number of deficiencies for waste disposal in audits, inspections, and visits of outsourced waste disposal service providers: < 3 cases
- Annual overall waste recycling rate (including alternative energy) target: 90%

Mid-term (2025):
- Target number of cases in which the waste disposal company fails to comply with regulations: 0
- Target total number of deficiencies for waste disposal in audits, inspections, and visits of outsourced waste disposal service providers: < 2 cases
- Annual overall waste recycling rate (including alternative energy) target: 93%

Long-term (2030):
- Target number of cases in which the waste disposal company fails to comply with regulations: 0
- Target total number of deficiencies for waste disposal in audits, inspections, and visits of outsourced waste disposal service providers: < 1 cases
- Annual overall waste recycling rate (including alternative energy) target: 95%

Goal tracking

Implement audits, inspections, and visits of waste disposal service providers each year and maintain records

Communication mechanisms

Stakeholder categories

Waste disposal companies appointed by suppliers, parent company (TSMC), competent authority of environmental protection

Communication Channel

1. Parent company: Provide results of visits and audits
2. Contracted waste disposal suppliers: Onsite audit and visits of waste disposal suppliers, onsite verification and communication with suppliers in accordance with the auditing standards, and tracking of improvements for any deficiencies/recommendations.
3. Competent authority of environmental protection: Regular reporting of related data

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Talent recruitment and retention

Responsible unit: Human Resource Department

Significance

Talents are the most important partners for VisEra. We implement diverse recruitment innovation channels and provide competitive and fair salaries as well as systematic training systems with diverse benefits to attract talents to the VisEra team and empower the Company's sustainable development.

Commitments

We shall provide diverse recruitment and retention strategies for the types of talent needed by the Company. We shall continue to monitor industry compensation levels and develop competitive compensation strategies and retirement benefits that meet regulatory requirements. We shall provide a diverse range of welfare measures and develop welfare and assistance programs to create a healthy and friendly workplace environment for sustainable development.

Strategy

1. Improve the retention rate of key/ outstanding talents
2. Implement the internal hiring system
3. Create a friendly workplace with diversity and integration

Action Plan

Increase positive benefits

Improve the retention rate of key/ outstanding talents
- Define the standards for keyl/ outstanding talents
- Development and training for key /outstanding talents
- Retention Incentive Plan for Key talents

Implement the internal hiring system
- Establish an internal opening announcement and application platform
- Optimize the internal hiring system
- For internal rotations, the OJT (on-the-job training) for the new position must be completed within three months after the transfer.

Create a friendly workplace with diversity and integration
- Plans for the for technical foreign employee promotion system
- The maternal health operations start from the beginning of pregnancy to one year after delivery. The Health Center works with the employee's units, onsite physicians, and industrial safety units to track employees' workplace adaptation, physical and mental health, and health education before and after pregnancy.

Goal

Short-term (2023):
- Retention rate of key talents is ≧ 80%, and the retention rate of outstanding talents is ≧ 72%."
- Internal employee substitution rate for job openings ≧65%
- Internal promotion rate for management roles ≧70%
- 100% IDP completion rate for new roles after transfer
- Reinstatement rate after unpaid leave ≧50%
- Promotion rate for technical foreign employees ≧2%

Mid-term (2025):
- Retention rate of key talents is ≧ 80%, and the retention rate of outstanding talents is ≧ 75%."
- Internal employee substitution rate for job openings ≧65%
- Internal promotion rate for management roles ≧70%
- 100% IDP completion rate for new roles after transfer
- Reinstatement rate after unpaid leave ≧60%
- Promotion rate for technical foreign employees ≧4%

Long-term (2030):
- Retention rate of key talents is ≧ 85%, and the retention rate of outstanding talents is ≧ 85%."
- Internal employee substitution rate for job openings ≧65%
- Internal promotion rate for management roles ≧70%
- 100% IDP completion rate for new roles after transfer
- Reinstatement rate after unpaid leave ≧80%
- Promotion rate for technical foreign employees ≧4%

Goal tracking

Regular and ad hoc reports

Action Plan

Reduce negative impact: Regular/ad hoc HR reports

Communication mechanisms

Stakeholder categories: Senior managers, employees

Communication Channel: Communication through regular/ad hoc internal meetings

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Occupational Safety and Health

Responsible unit: Resource Planning Organization: Industrial Safety and Environmental Protection Department; Human Resource Department: Employee Relations Unit

Significance

Employees are the Company's most important capital. Building a safe and healthy workplace environment and implementing occupational disease prevention to protect the health of employees are the most important management tasks for upholding humanistic values.

Commitments

- We shall introduce the ISO 45001 Safety and Health Management System and TOSHMS Taiwan Occupational Safety and Health Management System to operate and maintain the occupational safety and health of the Company.
- Safety and Health Policy

  Our vision: We are committed to achieving zero safety incidents, building the best healthy workplace, and becoming a world-class company for ensuring safety and health.

  Our implementation strategy
  - Comply with or surpass domestic and overseas safety and health regulations and standards.
  - Focus on global safety and health issues, assess risks and opportunities, and invite employees or representatives in the Company to participate and provide opinions for building a good workplace environment.
  - Strengthen inherent safety designs and adopt strict safety and health management measures to prevent occupational hazards and enhance employee safety and physical and mental health.
  - Actively communicate and cooperate with customers and suppliers to jointly improve the safety and health performance of the supply chain.
  - Intensify the awareness, responsibility, and bearing of safety and health measures by all employees.
  - Share safety and health knowledge and experience with external parties and build partnerships with business partners, industries, governments, academia, and the entire society to build a safe and healthy workplace environment together.

Strategy

- Strategy: We evaluate and prepare effective hazard prevention measures to prevent occupational hazards with preliminary review of chemicals and occupational safety and health risk identification and assessment methods before operations. The Safety and Health Committee also reviews the occupational safety and health management conditions.
- Plan: We will gradually set up a company-level Safety and Health Committee with the expansion of plant and increase in production capacity.

Goal

Short-term (2023):
0 occupational disease caused by exposure to chemicals

Mid-term (2025):
0 occupational disease caused by exposure to chemicals

Long-term (2030):
0 occupational disease caused by exposure to chemicals

Goal tracking

- Set the safety performance index (SPI) and track the implementation results each month.
- Convene regular meetings of the Safety and Health Committee each month to review the occupational safety and health, occupational disease prevention, and the attainment of safety and health performance indicators.

Action Plan

Increase positive benefits

Implement chemical source management and hazard identification, implement work environment monitoring, chemical exposure, and classification management, and implement chemical management for maternal health protection. Reduce the risks of employee chemical exposure by eliminating, replacing, or using engineering controls and personal protective equipment.

Reduce negative impact

Organize onsite physician services each month to provide hazard assessments, special operation health examination rating management consultation and evaluation, physiological assessment for respiratory protection. Before diseases occur, we improve work methodology and work assignments to prevent occupational diseases caused by chemical exposure.

Communication mechanisms

Stakeholder categories

Parent company, competent authority of occupational safety and health, NGO occupational safety or human rights groups

Communication Channel

- Parent company: 1. Regularly provide occupational safety and health management indicators. 2. Distribute questionnaires to stakeholders to consult them on issues
- Competent authority of environmental protection: Distribute questionnaires to stakeholders to consult them on issues
- NGO occupational safety or human rights groups: 1. View information on the Company's official website 2. The Company does not consult them directly but responds to their inquiries

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Information security

Responsible unit: Information Technology Department Information Security System O&M Unit

Significance

The effectiveness of information security has a key impact on corporate governance, risk management, business continuity, and ensuring business competitiveness.

Commitments

VisEra established an information security management system based on ISO/IEC 27001 standards to ensure the effectiveness, confidentiality, and integrity of information security, maintain the Company's competitiveness, and protect the confidential information of customers.

Strategy

Establish, implement, and continue to improve the ISO/IEC 27001 Information Security Management System and the information security standards required by the parent company.

Goal

Short-term (2023):
Information security incidents each year: 0

Mid-term (2025):
Information security incidents each year: 0

Long-term (2030):
Information security incidents each year: 0

Goal tracking

Implement daily monitoring of IT Security & Anti Hacking KPI and conduct internal and external weakness scans and vulnerability detection.

Action Plan

Increase positive benefits

Establish a dedicated information security supervisor and dedicated information security personnel to promote, coordinate, supervise, and review information security management matters. Establish an information security incident notification and response organization, identify information security risks, and implement information security risk improvement measures.

Reduce negative impact

Incorporate information security into the Company's ERM issues to identify potential risks and establish response and recovery procedures. Organize regular information security training, phishing email exercises, and disaster recovery exercises, and ransomware response exercises.

Communication mechanisms

Stakeholder categories

Board of Directors or management, Information Security Division of the parent company, customers of concern, employees, and CPAs

Communication Channel

Regularly report the implementation status of information security to the Board of Directors or the management to ensure the appropriateness and effectiveness of operations. Regularly communicate with the Information Security Division of the parent company on information security issues and improve deficiencies.

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Company risk and business continuity management

Responsible unit: Resource Planning Organization

Significance

VisEra is a global enterprise. In addition to internal operations and activities, domestic and external conditions and changes in the environment have potential impact on the operations of the Company. It is critical for the Company to identify and respond to risks before they occur to prevent internal and external factors from affecting company operations.

Commitments

- We will establish Enterprise Risk Management (ERM) mechanisms based on the standards in ISO 22301 Business Continuity Management System.
- Business continuity management policy:

  VisEra is a global enterprise and a key player in the semiconductor supply chain. We thus established and committed ourselves to maintaining proactive risk and crisis management mechanisms to protect VisEra and key stakeholders including our customers, for the sustainability of VisEra's operations.

  Our business continuity management plan includes: (1) a corporate culture of continuous improvement; (2) the ability to respond effectively and flexibly to relevant challenges; and (3) dynamic self-examination and regular exercises to ensure effective implementation of plans and continuous improvement.

  VisEra will uphold its commitment for uninterrupted business operations, which is the common responsibility for the management team and all employees.

Action Plan

Increase positive benefits

Observe the Company's operations and domestic and international developments with the Risk Management Committee and the methodology in ISO 22301. Review the Company's risk management status and estimate the risk trends for the next quarter.

Reduce negative impact

Establish contingency and recovery procedures based on strategy, business, and financial requirements as well as hazardous incidents and other risks for identified climate risks. Familiarize employees with contingency and recovery procedures for anomalies through training and drills.

Strategy

Strategy:

- Evaluate the frequency of risk events and the severity of their impact on the Company's operations with a Risk Map. Define the priority and risk level for risk management and adopt corresponding risk management strategies based on the risk rating.

Plan:

- Regularly review the corporate risk and continuity of operations management policies and procedures documents, to keep up with developments, adjust the risk assessment methods based on practical operational requirements, and formulate appropriate improvement strategies.
- Intensify the enterprise risk management culture, enhance employees' collective risk awareness, and integrate risk management into their work.

Goal

Short-term (2023):
0 days of interruption in production due to climate factors, disasters, or labor shortages

Mid-term (2025):
0 days of interruption in production due to climate factors, disasters, or labor shortages

Long-term (2030):
0 days of interruption in production due to climate factors, disasters, or labor shortages

Goal tracking

- The risk management team regularly compiles and submits ISO 22301 work forms to their units for implementation.
- Convene quarterly Risk Management Implementation Committee meetings to review the attainment of goals and response measures.
- Report the status to the Risk Management Steering Committee and the Board of Directors each year.

Communication mechanisms

Stakeholder categories

Parent company, Business Management Committee

Communication Channel

- Parent company: 1. Regularly provide implementation records of risk management 2. Distribute questionnaires to stakeholders to consult them on issues
- Business Management Committee: It discloses the Company's risk management information in accordance with the Risk Management Best Practice Principles for TWSE/TPEx Listed Companies".

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Talent development

Responsible unit: Human Resource Department

Significance

We must pay close attention to talent development as it will ensure support and supply of talents necessary for corresponding functional training and management team for the long-term operational growth of the Company.

Commitments

VisEra pays close attention to the development of professional talents and talent pools. We formulate training plans for of dual-track career development and the establishment of talent pools based on the functions of each organization and personnel level to for the recruitment and development of talents for the Company.

Strategy

- Define the courses for the individual development program (IDP)
- Prepare future talents and create a talent pool
- Provide diverse learning resources and encourage employees to learn on their own

Goal

Short-term (2023)

1. 100% training completion rate of the individual development program (IDP)
2. 80% management course completion rate for first-line managers
3. 90% implementation rate for 8 courses in cross-unit specialized training
4. 25 training hours for employees for the year
5. 70% preparation of the plant and department manager talent pool

Mid-term (2025)

1. 100% training completion rate of the individual development program (IDP)
2. 85% management course completion rate for first-line managers
3. 95% implementation rate for 8 courses in cross-unit specialized training
4. 28 training hours for employees for the year
5. 80% preparation of the plant and department manager talent pool

Long-term (2050)

1. 100% training completion rate of the individual development program (IDP)
2. 90% course completion rate for first-time managers
3. 80% course completion rate for key talents
4. 35 training hours for employees for the year
5. 100% preparation of the plant and department manager talent pool

Goal tracking

Regular (ESG Group Meeting/Committee, Training Committee) and ad hoc reports

Action Plan

Increase positive benefits

- Formulate the training plan for management talents
  1. Define the training plan for management talents
  2. Implement diverse training models for management courses
- Implement IDP courses for professionals
  1. IDP courses shall be set by supervisors and new courses shall be added each year
  2. Track the completion of IDP courses every quarter
  3. For internal rotations, the OJT (on-the-job training) for the new position must be completed within three months after the transfer
- Review and development of the plant and department manager talent pool
  1. Definitions and review of the succession of plant and department managers
  2. Succession training programs

Action Plan

Reduce negative impact: Regular/ad hoc HR reports

Communication mechanisms

Stakeholder categories: Senior managers, employees, members of the Board of Directors

Communication Channel: Communication through regular/ad hoc internal meetings

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3

Role in Sustainability

Product Innovation

- 3.1 Innovation management
- 3.2 Product quality
- 3.3 Customer Service and Management

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3 Role in Sustainability — Product Innovation

3.1 Innovation management

3.1.1 R&D Management

R&D Management Strategy

VisEra established the Value Innovation Task Force under the ESG Sustainable Development Promotion Committee to enhance the strategic development and capacity of innovation management. We continue to invest in advanced process research and development and innovative equipment to maintain our technological lead while taking into account green energy and ergonomic improvements. We will also strengthen the cross-sector cooperation between the industry and academia and actively create a culture of innovation and an innovative work environment to effectively enhance the competitiveness of the Company.

Contributions of Products Designed by VisEra to Human Society ▶▶

01 Image sensors

Micro-lenses can increase imaging sensitivity by 20% and reduce power consumption; color filters can increase sensitivity and enhance nighttime visibility

Smart phones	① High-resolution and small-pixel technologies provide higher image resolution to enhance the perception of the world through human eyes ② Image recognition helps humans gain a deeper understanding of their surroundings (e.g., search, shopping, and translation)
Autonomous vehicles	Enhanced lenses for humans Ensure the safety of pedestrians and drivers
IoT devices	① Smart recognition and timely warning by providing 24-hour secure home monitoring technology support ② AI intelligent image analysis system can provide road safety monitoring and facilitate more rapid vehicle tracking for criminal investigations
Metaverse and wearable devices	Used to capture images for general applications and superimpose virtual information with personal or commercial AR applications such as navigation with increased convenience
Hight-tech medicine	Eye-tracking technology can make life easier for people with motor neurone disease (MND) or other severe illnesses

02 Light sensors

Reduces electricity consumption by approximately 10%

Smart phones	① Adjust the brightness of the screen to increase the comfort for human eyes under different lighting conditions ② Automatic screen shutdown to extend the battery life of the phone and save energy
Autonomous vehicles	① Provide more comfortable and convenient automatic settings for drivers (e.g., automatic activation of the dashboard screen and headlights under low light, rain detection and automatic wipers, airbag activation, and interior temperature adjustments)
IoT devices	① Smart applications improve people's management of pollution ② Low-carbon innovation solutions for sustainable housing (smart energy adjustments)
Metaverse and wearable devices	Adjusting the brightness and color temperature of the AR/VR screens based on the environment helps protect human eyes and adjust the screen display to increase comfort
Hight-tech medicine	After placing light sensors on wearable devices, we direct LED light onto the blood vessels to measure the cyclic changes in the blood vessels (heart rate sensor) or the absorption rate of hemoglobin and oxyhemoglobin in blood with reflected infrared and red light (blood oxygen sensor) to detect changes in the body for early warning and prevention

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03 3D sensing

Optical coating improves the signal to noise ratio by 3db and reduces laser light intensity by 50%
It increases the accuracy of identification and anti-tampering capacity

Smart phones
1. 3D facial recognition and optical fingerprint reader protect user privacy (encryption and unlocking)
2. Basis for authentication in mobile payment

Autonomous vehicles
LiDAR creates 3D images for enhanced perimeter awareness of autonomous vehicles

IoT devices
1. New zero-contact applications (gestures and distance detection) for epidemic prevention
2. 3D sensor and AI analysis for fitness systems with real-time motion comparison to achieve daily monitoring and tracking of physiological conditions and health monitoring data, and proactive healthcare advice

Metaverse and wearable devices
1. Motion sensing devices and gesture control
2. 3D environment modeling Improve general convenience

04 Optical fingerprint recognition

Micro-lenses increases the amount of light by 2 to 3 times and the color filters enhances anti-counterfeiting

Smart phones
1. 3D facial recognition and optical fingerprint reader protect user privacy (encryption and unlocking)
2. Basis for authentication in mobile payment

Autonomous vehicles
Fingerprint unlocking enhances driver identification and personalized interface settings

IoT devices
Miniaturized under-display optical fingerprint recognition devices offer longer standby time and protects user privacy (encryption and unlocking) and mobile payment without affecting the battery layout of the smart watch and the use of the miniaturized screen

05 Micro displays

Improvements in micro OLED/LED performance and brightness increases usage time by up to 50%

Metaverse and wearable devices
We are committed to developing thin, miniature, and high-color displays that resolve user dizziness and provide a superior wearable experience

Hight-tech medicine
Miniaturized display for digital information, myopia applications, medical-grade applications help visually impaired patients regain vision in their retina

06 Biomedicine chips

Miniaturization reduces the cost of chips by 30% and provides 15% of cancer patients across the world with a chance of early detection and effective treatment

Hight-tech medicine
1. VisEra's optical bio-sensing technology focuses the bioluminescence generated in the reaction well and then induces such bioluminescence to an optical filter, where a sensing chip identifies and decodes the signals. It provides solutions for markets such as chromosomal prenatal examination, cancer carrier analysis, or rapid screening of infectious diseases.
2. Miniaturized optical bio-sensing technology offers the possibility of personalized and portable testing devices for precision medicine
3. It improves the efficiency of diagnosis by medical personnel and reduces waiting time for users

Contributions of Products Designed by VisEra to Human Society ▶▶

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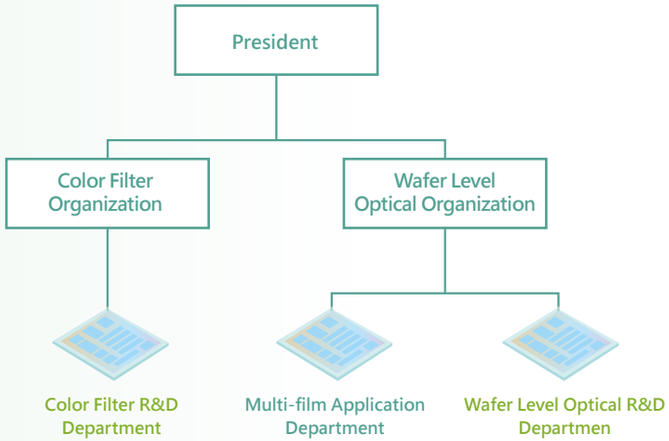
R&D management framework

VisEra has a professional management and R&D team, and abundant experience in product strategy and positioning. We monitor industry developments and changes in the prices of materials, and maintain close communication with customers to monitor industry trends. We also continue to develop new technologies and products to strengthen the competitiveness of the Company.

R&D department organization:



R&D unit	Work Content
Color Filter Organization	• Responsible for the management of color filter process engineering, manufacturing, equipment, integration and R&D departments • Planning, preparation, and coordination of production capacity • Executes total control over production procedures to meet customers' product requirements, and thereby improve customer satisfaction • Maintenance, servicing, and ongoing improvement of production and measuring equipment • Improvement of yields for various production procedures
Wafer Level Optical Organization	• Responsible for the management of process engineering, manufacturing, equipment, integration and R&D departments • Customer management and communication • Yield improvement and control • Introduction and monitoring of new processes • Plant production process management, production quality, and efficiency improvements
Color Filter R&D Department	• Mainstream technology development, technology platform development, and new material development • Optical technology development, optical simulation and pixel development, and new CIS technology development
Multi-film Application Department	• Plan for the development of high-end yellow light and nanoimprint technologies for multi-film coating • Plan for the development of high-end yellow light and nanoimprint technologies for multi-film coating • Plan for the development of multi-film coating and etching process technologies • Development of coating and etching processes for high-end multi-films • Responsible for the development and use of production equipment for the multi-film process • Improvement of automation production equipment for the multi-film process • Development of production equipment for glass substrates • Assist in improving the automation machines in the plant • Evaluation of advanced production and measurement machines • Development of new processes and materials to meet mass production capacity requirements • Establish good interaction with suppliers, learn about future technology requirements and resolve customer problems
Wafer Level Optical R&D Department	• Provide technology and process integration to meet the needs of customers for different products • Monitor the product application and technology development trends of customers and the market and use the information as references for internal technology development • Lead the development of component structure and technology integration applications to meet the requirements for future market applications and maintain the Company's technological advantages in the related fields • The organization is divided into the Optical Integration Section and the Process Integration Section and the Optical Integration Section is responsible for optical and stress design and simulation • Continuous improvement of the overall design and analysis capabilities • Analysis of product defects and the management and improvement of quality and yield • Facilitate communication between the customer and the plant for all engineering matters • Lead internal process simplification or process refinement projects to reduce cost and improve quality • Lead the technology transfer of new processes and new products from the Company to the plants for mass production

nvestments in innovation and R&D

VisEra is committed to technological innovation and independent technology research and development. In 2022, VisEra invested approximately NT$670 million in R&D, which was 7.4% of the revenue. In the past three years, VisEra has progressively increased its R&D expenditures each year to develop key technologies and consolidate its advantages.

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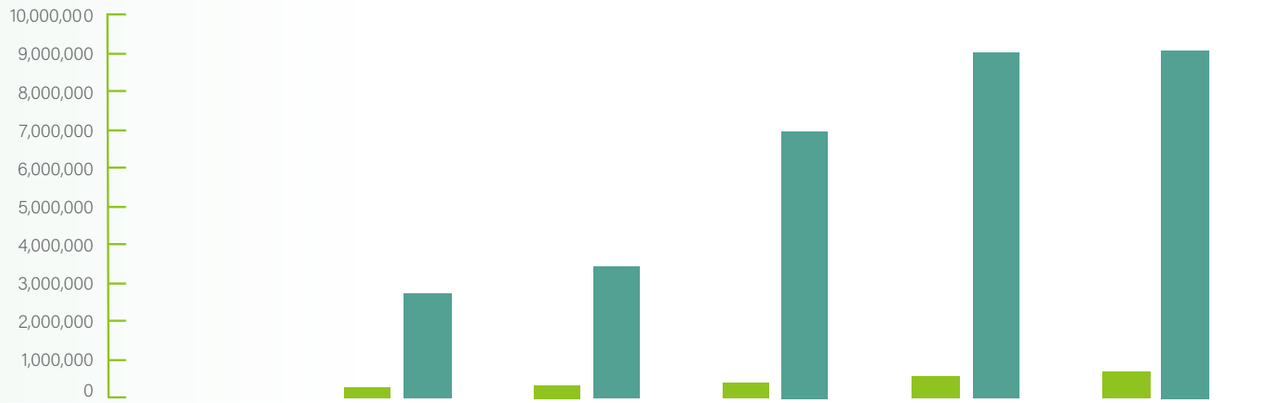

Investments in innovation and R&D	2018	2019	2020	2021	2022
Funds invested in R&D (NT$ thousand)	239,746	346,489	366,794	542,020	671,886
Revenue (NT$ thousand)	2,748,420	3,395,724	6,946,349	9,029,178	9,077,148
R&D funding as percentage of revenue (%)	8.72	10.20	5.28	6.00	7.40
Number of R&D personnel	86	121	157	203	213
Total number of employees	755	931	1,230	1,380	1,445
R&D personnel as a percentage of total employees (%)	11.4	13.0	12.8	14.7	14.7

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Product innovation and applications in past years

Sensors for wearable devices | Automobile sensors | Robotic vision | Safety applications | 3D sensing | Biometric sensor

Product Name	R&D Investment Start Date	Innovation Results	Product applications
Ambient Light Sensor	2014	It provides ambient light measurement to optimize the display and reduce power consumption	Sensors for wearable devices, Automobile sensors, Robotic vision
Proximity Sensor	2014	With minimal power consumption, proximity light sensors can detect whether users are using mobile devices	Sensors for wearable devices, Robotic vision, Safety applications, 3D sensing
IR Gesture Sensor	2014	It provides the device with basic gesture recognition functions and reduces direct contact	Sensors for wearable devices
IR Pass Material	2014	It can be integrated with infrared light sensor chips for proximity light sensors, infrared photography, night vision photography, machine vision, extension of light sensor applications from visible to infrared spectrum, and integration on a single chip	Sensors for wearable devices
Fingerprint sensor	2016	Enhance the sensing capability of fingerprint sensors with optical multi film, color filter technology, and micro lens process	Sensors for wearable devices
Time-of-flight (ToF) range sensor	2016	Enhance the sensing capability of ToF sensors with the Narrow Band Pass Filter (NBPF) and micro lens process	Automobile sensors, Robotic vision, 3D sensing
IR Cut Film	2016	The use of the filter has a significant effect on the consumer experience. The color detected by the sensor must be the same as the color seen by the human eye, and the infrared cutoff filter can provide this function.	Sensors for wearable devices
Anti-reflection (AR) coating	2016	The purpose of the AR coating is to increase the incident light. The increased sensitivity thus reduces the power consumption of the laser.	Sensors for wearable devices
Multi-channel Band Pass Filter	2016	It provides ambient light measurement to optimize the display and reduce power consumption	Sensors for wearable devices, Automobile sensors, Robotic vision
Meta-Lens	2018	It creates the possibility of making the lens thinner to reduce the complexity of the manufacturing process, reduce production costs, and reduce waste.	Sensors for wearable devices, Automobile sensors, Robotic vision
Small pixel image sensor	2018	Minimized pixel size of the image sensor offers higher image resolution.	Sensors for wearable devices
Bio-sensor	2019	Development of wafer-size gene sequencing test chip for rapid and effective genetic sequencing of biomolecules	Biometric sensor
MicroOLED	2020	The low-temperature color filter pixel arrangement allows micro OLEDs to be used for multi-color applications	Sensors for wearable devices, 3D sensing
High n microlens	2021	Development of micro lens materials with high refractive index and its processes for the miniaturization of focused light to increase the quantum efficiency of the pixel.	Sensors for wearable devices, Safety applications
Nano light pillar for CIS	2021	The use of the light guiding property of the nano-light beam generates the color routing effect when different colors of light are guided to enhance the efficiency of the use of light and increase the sensitivity.	Sensors for wearable devices, Automobile sensors, Safety applications
Spectral sensor	2021	The Narrow Band Pass Filter (NBPF) assembly with ultra-thin spectrum sensor for visible to infrared light sensing can be mounted on small devices	Sensors for wearable devices, Automobile sensors, Robotic vision, 3D sensing
SWIR sensor	2022	Short-wave infrared NBPF and short-wave infrared lenses are used to improve human eye safety with nearby sensors or ToF range sensors.	Sensors for wearable devices, Automobile sensors, 3D sensing

Note: The aforementioned information on product innovation research and development investment shows data starting from 2014. We have continued research and development to expand product applications.

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Spotlight

In the past, due to the limitations of manufacturing technologies, a single chip could only provide a few channels with one or two wavelengths for detecting a specific wavelength of light. If multiple channels with different wavelengths are required, several different ICs must be used, and the different ICs were produced with different wafers. In addition, the filter film produced in the past was made on a glass substrate. The wafers and glass substrates are combined with packaging technology and the finished product is packaged. For applications that require multiple channels such as smart phones, optical communication applications, and bio-sensing applications, multiple ICs must be used.

VisEra has developed wafer-level optical components to create the possibility for diversification and multi-channel applications. We provide the option of combining what must be completed with multiple ICs and provide diverse multi-channel spectral wavelengths on a single IC. In the wafer-level process development, we directly produce the multi-layer filter film on the wafer. With multiple channels on a single IC, has a smaller footprint and uses the wafer area more efficiently. As we reduce the use of wafers, we reduce the costs of using and packaging the aforementioned glass substrates, and support environmental protection and energy conservation.

The other technology is the technical advancement for micro lenses. We adjust the size and curvature of the micro lenses to optimized conditions, which helps increase the amount of light entering the sensor. The increase in light creates the two following significant advantages in product applications:

The first improvement is the contribution to nighttime driving safety. The widespread adoption of advanced driver. assistance systems (ADAS) increased the demand for digital imaging assistance. It captures light in nighttime conditions and helps drivers see more clearly. The improvements in the light collection efficiency of the micro lenses directly supports the industry, effectively increases driving safety, and indirectly supports energy consumption reduction and autonomous driving. In addition, 3D-assisted detection often requires direct illumination of the object to be tested (including humans) with infrared light. Micro lenses can be used to detect light sources with lower intensity, which can effectively reduce the intensity of the infrared light used. It makes the mobile phone more power-efficient and provides longer battery time. The human body exposed to the light due to the requirement for auxiliary detection can thus be safely illuminated without additional concerns through the use of this convenient new technology.

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3.1.2 Management of Intellectual Property Rights and Trade Secret

VisEra actively promotes intellectual property right (IPR) management plans, has established regulations governing the application, maintenance, and management of IPR that relates to patents and trade secrets, and prevents the leakage of R&D achievements and critical technologies through a stringent confidential information protection system, so as to comprehensively protect the Company's intellectual properties.

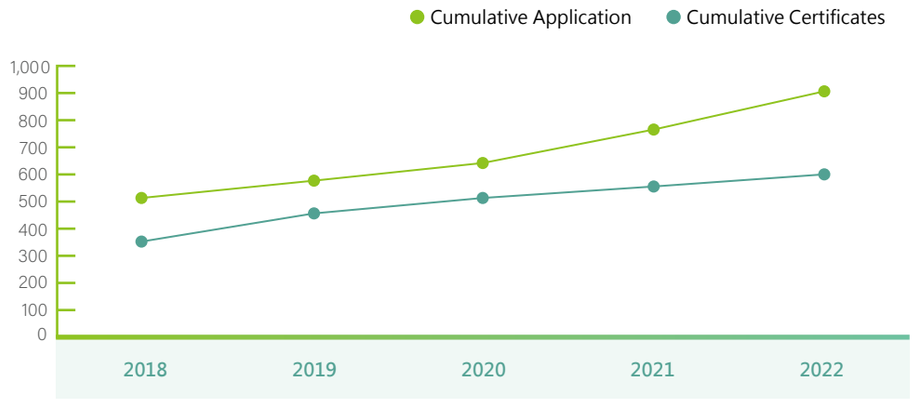
The Company implements strict confidentiality protection in accordance with the Proprietary Information Protection (PIP) Policy for the R&D results in all stages. We established detailed regulations on the use, disclosure, transmission, publication, and copying of related information. We also restrict the entry and exit of computer equipment, video recording and mobile devices to prevent unauthorized disclosure or infringement of intellectual property. If the development of a technology meets the requirements for patent application, it will be submitted to the Invention Review Committee for a technical review. If it is approved, a patent application will be filed immediately to obtain a patent to protect the Company's technology.

VisEra established the Patent Management Regulations for the protection of patents. We set up an incentive system to encourage R&D personnel to actively apply for patents for their R&D results. As of 2022, rewards have been granted in more than 100 cases. We consider R&D results that are not suitable for patent applications as trade secrets. We maintain strict confidentiality and protection measures in accordance with the aforementioned PIP Policy, and we established a trade secret management system in January 2022. We encourage R&D personnel to integrate and present technical information for production processes, technologies, formulas, procedures, or applications for production, sales, or operations that can be used for mass production or production improvement. After they are reviewed and approved by the Invention Review Committee, we award the R&D personnel with incentives based on the level of technology. We also implement a unified storage mechanism and assign dedicated personnel to manage the storage, access, use, and modification of such information to prevent unauthorized disclosure or infringement of such information.

VisEra has set patent strategies in countries including the United States, Taiwan, Mainland China, and Japan. Since the establishment of the Company, we have obtained more than 500 patents and the number continues to increase. At the end of each year, the management team sets appropriate KPIs for intellectual property for the following year based on the R&D status in the R&D units of each organization, future business strategies, and patent strategies for each country. The indicators are used to encourage R&D within the Company, and the performance achievement rate has exceeded 100% in the past three years. At least once a year, the head of R&D or the head of legal affairs also reports on the current R&D progress and future R&D plans at the board meeting for the Directors to learn about the Company's plans for intellectual property rights. The report on the Company's intellectual property management plan will be provided at the board meeting on May 10, 2023. Since 2018, the number of VisEra's patent proposals and applications has exceeded 40 each year. To increase the efficiency of the employees' invention proposals, we completed the establishment of the proposal system in September 2021 and improved the system functions in 2022. We systematically streamlined the process and management of patent application, defense, and certification, and upgraded the system to the intellectual property case management system with the aim of achieving effective management of the Company's intellectual property rights. To help the management team and R&D personnel learn more about the intellectual property systems, future plans, and data acquisition, the Company organized at least 7 sessions of training for intellectual property rights in 2022. We also offer digital training courses to increase the quality and quantity of patents.

Training program topic	Trainees	Number of trainees	Completion rate (%)
Explanation of Technical Trade Secret Application and Management Regulations	Discovery Reviewers	8	100%
Proposal, review, and management process of technical trade secrets	Supervisor assigned senior R&D staff	145	100%
Basic Concepts and Case Studies of Patents	New employees and retrinings	216	100%
Patent search and analysis	Junior R&D personnel	81	100%

Patent Accumulation



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3.1.3 Create an Open and Innovative Corporate Culture

VisEra is committed to technological innovation and we protect our hard-own advanced technologies to strengthen our leading position in the industry. To protect our achievements in technological research and development and to strengthen our competitiveness, we have created a positive cycle and a corporate culture of R&D innovation with incentives to encourage R&D innovation and a patent application strategy for the Company's operational goals. These measures create a solid foundation for the Company's sustainable development.

We maintain our technological lead as we uphold our corporate social responsibility. We work with National Cheng Kung University, National Yang Ming Chiao Tung University, National Central University, and National Tsing Hua University to implement long-term and diverse industry-academia cooperation. We thus leverage the research and development capabilities of the universities and help them nurture outstanding talents for the industry.

List of industry-academia collaboration projects in recent years

University	Professo	Research Project Name	Innovation Results	Applications	Duration Start → End
National Cheng Kung University	Chi-Chen Wu	Research on temperature-based reversible luminescent materials	This technology can be applied in high-resolution thermal imaging cameras	① Biometric sensors ② Safety applications	2021 Q3 → Ongoing
National Yang Ming Chiao Tung University	Chih-Shan Tan	Production of organic/inorganic optoelectronics	This technology can be applied in image sensors to address the weaknesses of conventional image sensors	① Sensors for wearable devices ② Robotic vision ③ 3D sensing	2022 Q2 → 2023 Q1
National Yang Ming Chiao Tung University	Wen-Feng Hsieh	Micro optical component design consultant	Collaboration on the design of micro optical components and supply of CF/ML metasurface structure design	① 3D sensing ② Sensors for wearable devices ③ Robotic vision	2019 Q3 → Ongoing
National Central University	Cheng-Chung Li	Multi-film coating design consultant	Collaboration on the design of wafer-level multi-layer coating and entry into the multi-wavelength filter film industry	① Sensors for wearable devices ② Robotic vision ③ 3D sensing	2015 Q3 → Ongoing
National Tsing Hua University	Burn-Jeng Lin	Meta-surface Design and Lithography tech. consultant	Collaboration on meta-surface design and advance lithography technology	① 3D sensing ② AR / VR ③ Sensors for wearable devices	2021 Q4 → Ongoing

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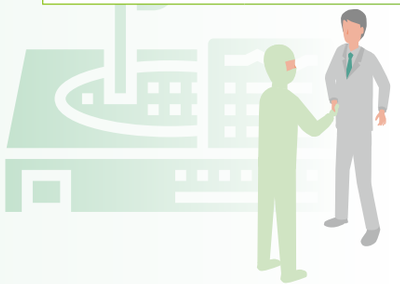
University	Professo	Research Project Name	Innovation Results	Applications	Duration Start → End
National Cheng Kung University	Jen-Sue Chen Chi-Chen Wu Chang-Shu Kuo In-Gann Chen Wen-Hui Cheng	STEM and female R&D talents cultivation program in colleges and universities; project name: Semiconductor Engineering Diversified R & D Talent Cultivation	In this project, NCKU worked with VisEra on the development of new optical attribute measurement techniques for semiconductor materials. We used it as a basis for designs of wafer-level optical components based on photoluminescence mechanisms, which is expected to strengthen and enhance Taiwan's leading position in the future semiconductor industry and develop talents. This project was developed to intensify STEM education and research on cutting-edge materials.	The project actively cultivates diverse and exceptional talents for semiconductor engineering research on applications such as smart electronic products, IoT, and autonomous vehicles. It also supports advanced professional research.	2021 Q3 → Ongoing
National Central University	Sheng-Hui Chen	Wafer-level high-contrast near-infrared optical filter film design and production	Collaboration on the design and development of new materials for near-infrared optical filters	Near-infrared optical filters	2012 Q1 → Ongoing
National Central University	Chih-Ming Wang	Metasurface incident light refractor design consultant	Collaboration on the metasurface micro optical components and structure design	Adjustment of the angle of the CIS wide-angle incident light for improving the brightness at the edge of CIS ICs	2020 Q3 → Ongoing
		Metasurface color splitter / filter (router) design consultant	Collaboration on the metasurface micro optical structure design	Improve the optical usage efficiency of CIS color filters or direct replacement of color filters and micro-lenses	2021 Q3 → Ongoing
		Metasurface IR filter design consultant	Collaboration on the metasurface MIM micro optical components	Replace or improve the light filtering performance of CIS in the IR wavelength	2021 Q2 → Ongoing
		Light field camera design consultant	Collaboration on the layout design of light field camera lenses	Provide light field cameras with depth of field functions	2020 Q3 → Ongoing
		Use of AI to restore images from an off-screen camera	Contracted to evaluate the possibility of restoring images from under-display cameras with AI	Restoration of images from under-display cameras	2021 Q2 → Ongoing



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3.2 Product quality

3.2.1 Product quality

Helping customers with product development and mass production is one of VisEra's top priorities. VisEra's customer service team is committed to providing world-class services to customers, including product design consultation, project development assistance, and professional technical support. We establish good communication channels with customers and provide the highest level of protection for their confidential information. We are committed to serve as the most reliable partner for our customers.

VisEra invests in continuous quality improvement in every part of the Company to ensure complete customer satisfaction. If any defect or inconvenience is found, we communicate with customers immediately and implement all necessary measures to isolate the event. We uphold the following quality policy and invite all employees to cooperate with each other to achieve our goal of zero defects:

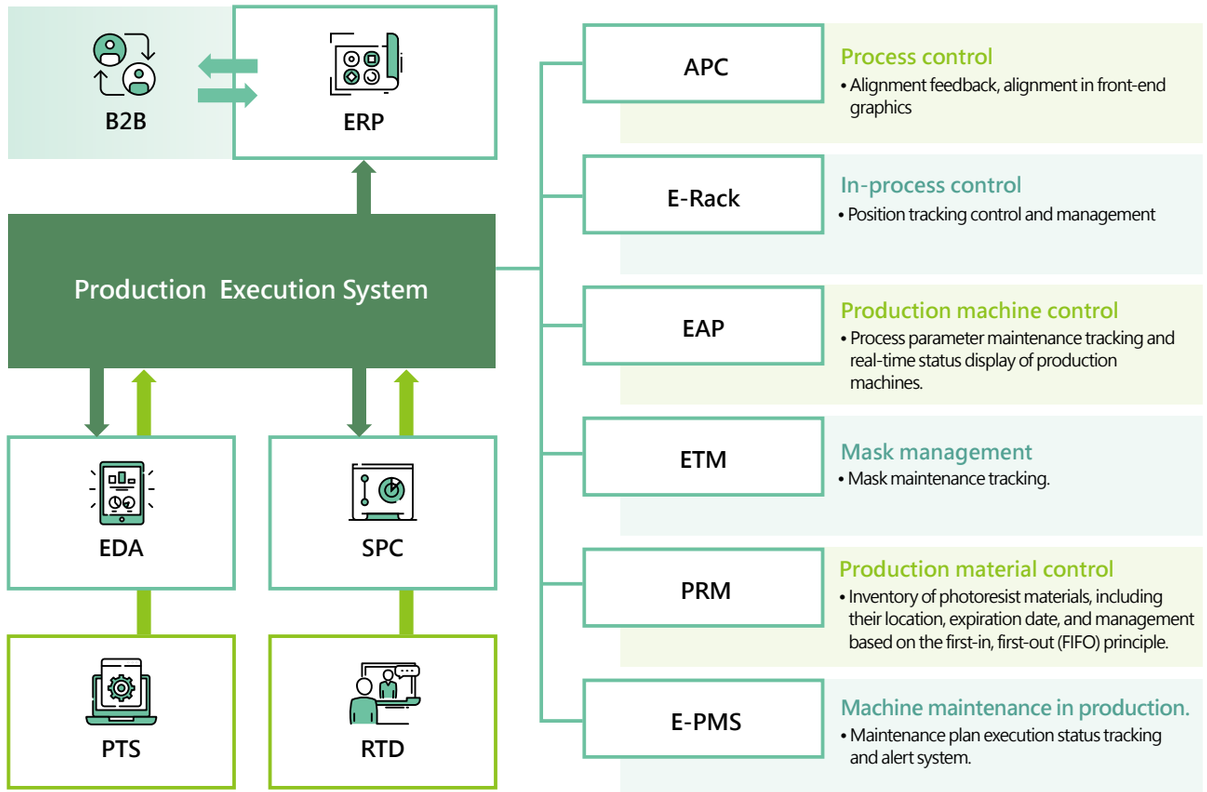
Service
Adopt a customer-centric approach to ensure complete customer satisfaction

Quality
Implement continuous improvements to provide customers with satisfying products

Cost
Improve efficiency and productivity and reduce production costs

Delivery
Implement timely production planning to meet customer needs

We have committed ourselves to the establishment and implementation of the ISO 9001 system to expand the applications of our products. We launched the Enterprise Resource Planning (ERP) system to integrate resource management for processes, batch control, equipment, masks, raw materials, and project control. We also launched the IATF 16949 quality management system for the automotive industry and implemented advance preparation by obtaining the ISO13485 certification for the medical supply chain in 2019. The Company pursues continuous quality improvements to enhance competitiveness and achieve quality improvements across the board.



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To strengthen VisEra's quality culture, the Quality Assurance Department organizes general quality courses for all employees each year and promote the use of the Eight Disciplines Problem Solving as the basic framework for the problem-solving steps of the Company. Our aim is to increase employees' awareness of quality and their use of quality assurance tools. We hope that the use of quality tools can help employees find opportunities for improvement in their work and propose valuable and effective response measures. We offered 55 digital courses and reading courses for quality management in 2022 for 2,762 attendees who passed the courses with 1,305 total training hours.

In addition, VisEra encourages all employees to actively participate in continual improvement programs. We organize the Continual Improvement Team Conference (CIT Conference) each year to provide a platform and rewards for exchanging ideas. We hope to create a corporate culture of high quality and continual improvement based on the spirit and activities for continual improvement.

Results of VisEra's CIT activities in the last five years

VisEra's Continual Improvement Activities	2018	2019	2020	2021	2022
CIT competitions (number of cases)	10	9	7	9	9
Total number of participants	131	81	97	112	108
Total estimated benefits (NT$ million)	42	43	167	213	100

3.2.2 Green Product Design

Green product design focuses on considering and minimizing the product's impact on the environment in the design process of the product while ensuring the quality and functional performance of the product. The core idea is to account for environmental protection requirements first and employ means such as choosing green materials, reducing energy consumption, reducing pollution emissions, and designing for recycling to achieve green and sustainable development of products.

VisEra focuses on green design (Design for Environment) and adopts Life Cycle Thinking (LCT) in the sourcing of production materials/manufacturing process/product transportation/product use/waste disposal process. We implement product design/process management and continual improvement in seven major categories. We have always spared no efforts in developing advanced/efficient and environmentally friendly products. We continue to develop products that have low energy consumption and high performance with customers. We also implement conflict mineral management and hazardous material management with our influence on suppliers. In terms of our continuous efforts to improve the environmental friendliness of our products, we continue to set environmental safety and health performance targets, and promote waste reduction, resource reuse, and greenhouse gas reduction projects to support green design. We aim to reduce production costs, improve product quality, enhance the brand image, meet the needs and expectations of customers and consumers for environmental protection, and achieve sustainable development.

VisEra Green Design Matrix	Procurement	Production	Transportation	Product use	Recycle
Energy efficiency	●	●	●	●	
Greenhouse gas	●	●	●	●	
Material reduction	●	●	●		
Conflict minerals	●				
Hazardous substances	●	●			●
Waste reduction		●			●
Water consumption reduction		●			

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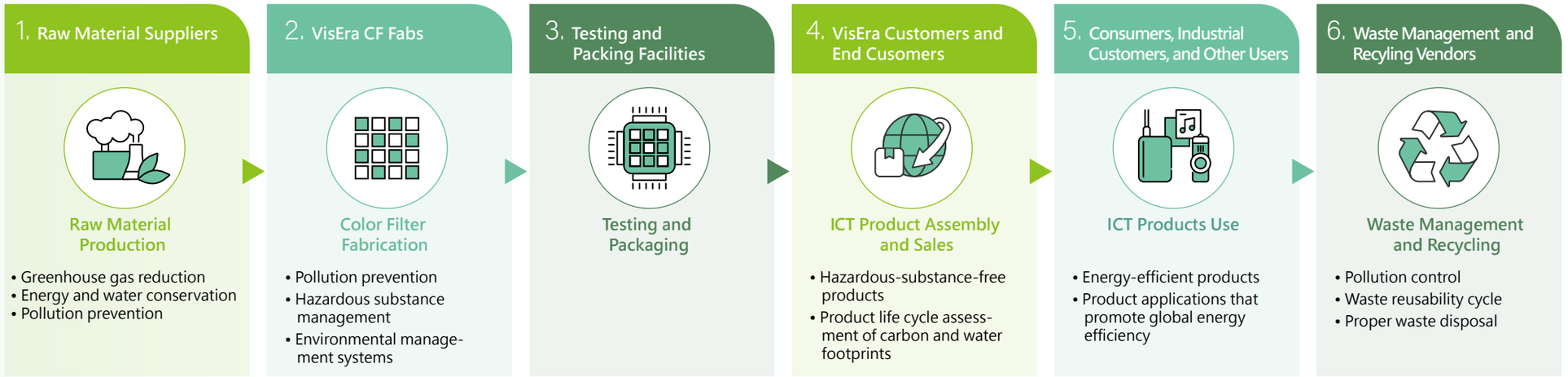
3.2.3 Product Environmental Impact Assessment

VisEra adopts a sustainability approach to reduce the impact of products on the environment in all stages of its life cycle, including the production and transportation of raw materials, product manufacturing, testing, and packaging. We completed the first product life cycle, carbon footprint, and water footprint assessment in 2019 and obtained third-party certification for ISO 14040, ISO 14067, and ISO 14046 compliance. After the assessment, we found that GHG reduction should remain a strategy for VisEra to implement continuous improvements. In addition to increasing the ratio of renewable energy in electricity consumption, we shall also seek other strategies for reduction at the source. In 2022, we implemented 11 programs to reduce emissions at the source on the production lines and reduced water and electricity consumption of machines by adjusting process parameters and save a total of 98,000 kWh of energy and 943 metric tons of water.

VisEra will review the product life cycle environmental footprint every three years to identify the risks and opportunities of hot spots in each phase. The information will be used as the reference or baseline for continual improvements of the environmental management system and provide actual contributions to the Company's business expansion and environmental sustainability.

Two major hot spots of global warming:

	Electricity consumption	Nitrogen trifluoride
Account for of product carbon footprint	67.61%	5.83%
Improvement plan	Implement energy conservation improvement projects	Increase LSC removal rate
2022 implementation results	Completed 6 energy conservation projects and reduced energy consumption by 1.67 million kWh	Replaced 2 LSCs with lower efficiency and increased the removal rate from 25% to 95%.
Subsequent improvements	Continue to implement ISO 50001 energy conservation plans	Increase installation rate in plants



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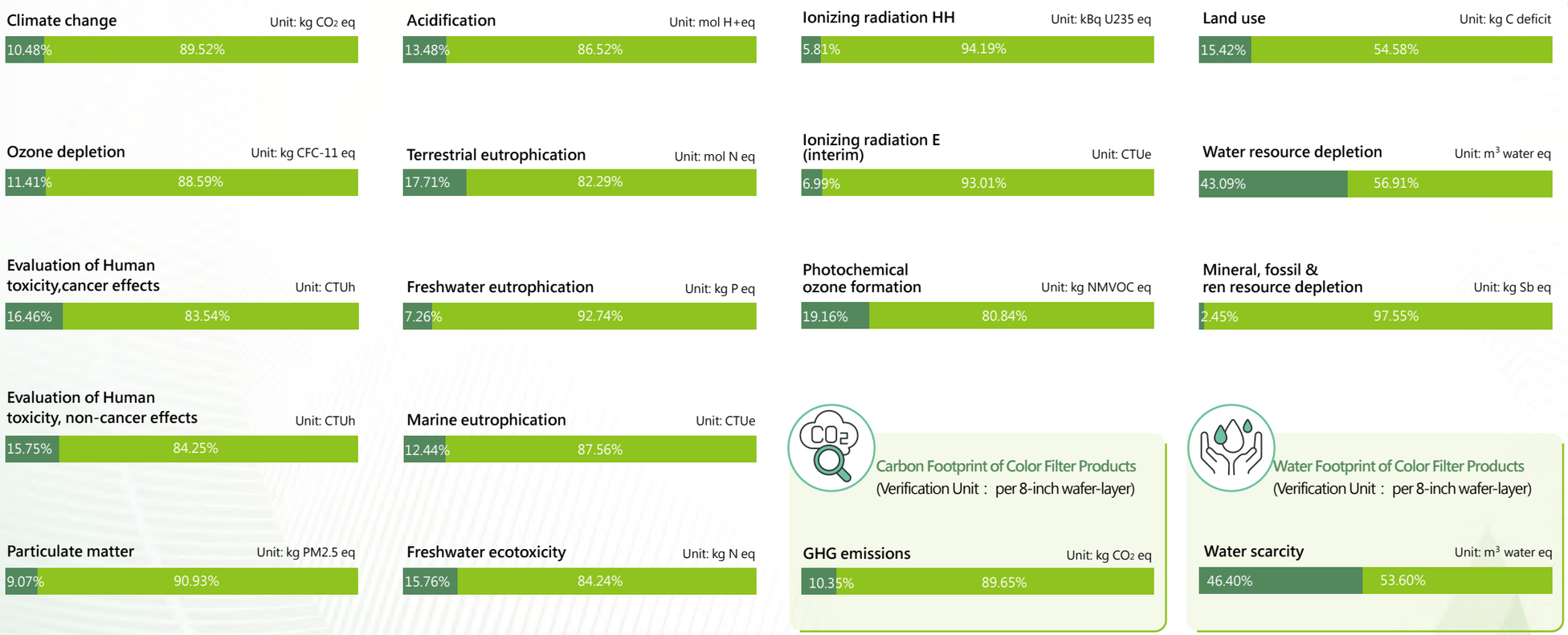
Completed Color Filter Life Cycle Assessment

(Verification Unit: per 8-inch wafer-layer)



Carbon Footprint of Color Filter Products

(Verification Unit： per 8-inch wafer-layer)

Water Footprint of Color Filter Products

(Verification Unit： per 8-inch wafer-layer)

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查證意見編號 TW21/00105

生命週期評估查證意見

查證標的產品
濾光膜

以上產品之計算由

采鈺科技股份有限公司

新竹市篤行一路十二號

本公司以生命週期評估方法為基礎
依據下列標準要求完成查驗確認

ISO 14040:2006 及 ISO 14044:2006

產品生命週期評估範疇
企業對企業

簽署人

黃世忠
資深副總裁

版次:1
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有效日期：2024年05月02日

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ISO 14040 Product Life Cycle Assessment Verification Statement

聲明書編號 TW21/00048CFP

碳足跡查證聲明書

查證標的產品
濾光膜

以上產品之計算由

采鈺科技股份有限公司

新竹市科學園區篤行一路 12 號

本公司確認以生命週期評估數據為基礎
依據 ISO 14064-3:2006 完成查證並符合下列標準要求

ISO 14067:2018

產品的生命週期評估範疇
企業對企業

簽署人

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版次:1
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ISO 14067 Product Carbon Footprint Verification Statement

聲明書編號 TW21/00098WFP

水足跡查證聲明書

查證標的
濾光膜

以上之計算由

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ISO 14046:2014

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3.2.4 Hazardous Substance Management

VisEra established the QC 080000 hazardous substance management system to manage hazardous substances. We adopted the principle of minimizing the use of hazardous substances that are harmful to human health or pollute the environment. All products produced for customers meet international regulations and customers' requirements for the use of hazardous substances in products. VisEra also continues to promote replacement plans for hazardous substances in the production process. We require suppliers of process materials to provide statements to guarantee that their products do not contain substances harmful to the environment that are banned by international organizations and ensure that products meet the requirements of the customers as well as regulations such as the EU RoHS Directive. Materials must be 100% compliant with regulations and customer requirements for zero hazardous substances and may not use perfluorooctanoic acid (PFOA) and its related substance and N-methylpyrrolidone (NMP). We completed the evaluation and introduction of PFOA and NMP alternative materials in 2020, and no PFOA and NMP were used in 2021. We continued to evaluate/execute the PFHxA replacement program starting from 2022 and we plan to complete the introduction of 100% PFHxA replacement materials (42 photoresists) by the end of 2024.

PFHxA alternative material introduction schedule:

Perfluorohexanoic acid (PFHxA) replacement schedule (TTL 42 photoresists)	Samples	Engineering Verification	Test Verification	Introduction
2022/1H (first half)	45%, (19 photoresists)	12%, (5 photoresists)	0%, (0 photoresists)	0%, (0 photoresists)
2022/2H (second half)	69%, (29 photoresists)	38%, (16 photoresists)	0%, (0 photoresists)	0%, (0 photoresists)
2023/1H (first half)	**100** % (42 photoresists)	67%, (28 photoresists)	0%, (0 photoresists)	0%, (0 photoresists)
2023/2H (second half)	-	**100** % (42 photoresists)	43%, (18 photoresists)	36%, (15 photoresists)
2024/1H (first half)	-	-	57%, (24 photoresists)	45%, (19 photoresists)
2024/2H (second half)	-	-	**100** % (42 photoresists)	**100** % (42 photoresists)

The use and management of chemicals is closely related to environmental protection and sustainable development, and has been one of the focuses of various sustainability indicators in the international community. VisEra is committed to green and sustainable management, and we constantly optimize our production processes to reduce the chemical consumption per unit. During this period, we have completed 35 chemical reduction projects (average reduction of ~40%).

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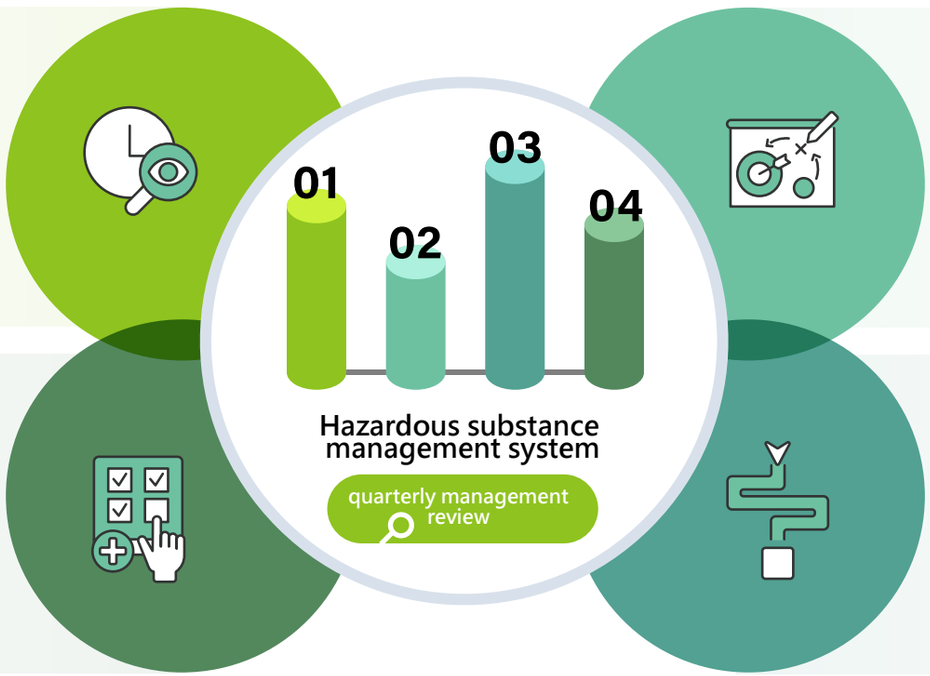
Product hazardous substance management procedures

Audit

- Target achievement status
- Improve preventive measures for non-compliance
- Compliance with laws and regulations and customer requirements
- Continual improvement opportunities - replacement of potential banned/restricted substances

Review

- Internal audit of the hazardous substance management system
- Regulations for green procurement at the source meet regulations for hazardous substance management
- Appoint an impartial external third-party laboratory to inspect products for hazardous substances
- Supplier hazardous substance management audit



Plan

- Regulatory requirements and customer requirements for identification
- Establish VisEra's green procurement regulations and a list of hazardous substances
- Establish hazardous substance management targets and plans
- Identify hazardous substances used in the manufacturing process and establish management plans

Implementation

- Use low-hazard raw materials in R&D
- Green procurement and environmental, safety, and health reviews for new materials and new suppliers
- Hazardous substance management training for relevant plant personnel
- Implement replacement plans for hazardous substances

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Meet or exceed product hazardous substance management requirements in international regulations

International regulations / customer requirements	Summary of requirements and restrictions	Regulatory compliance description
EU RoHS Directive	Product content restrictions include lead, cadmium, mercury, hexavalent chromium, polybrominated biphenyls (PBBs), polybrominated diphenyl ethers (PBDEs), diethylhexyl phthalate, diisooctyl phthalate (DEHP), benzyl butyl phthalate (BBP), dibutyl phthalate (DBP), and diisobutyl phthalate (DIBP). Please refer to the EU website for relevant regulations.	VisEra provides lead-free packaging processes for customers. However, certain customers still require the use of minute amounts of lead in bumps due to product characteristics. They are currently part of the EU RoHS exemptions and other substances banned in the EU RoHS are not used in VisEra's manufacturing process.
(EU RoHS)	• Bromine: 900ppm • Chlorine: 900ppm • Bromine + Chlorine: 1,500ppm	All VisEra products meet requirements
Product halogen-free requirements	• PFOS: 1,000ppm • PFOA: 1,000ppm	VisEra has completely banned the use of materials that contain PFOS and PFOA and no product contains the two substances
We use perfluorooctane sulfonic acid (PFOS) and perfluorooctanoic acid (PFOA) to control the manufacturing process	Please refer to the EU website for relevant substance control regulations and applicable targets	All VisEra products meet requirements
EU Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Annex XVII	Please refer to the EU website for relevant substance control regulations	All VisEra products meet requirements
EU REACH Substances of Very High Concern (SVHC)	Please refer to the EU website for regulations on the waste recycling rate of electronic and electrical equipment and products (e.g., computers and mobile phones)	The products manufactured by VisEra are wafer semiconductors, which form parts of electronic and electrical equipment components and are not directly governed by this regulation.

IEC QUALITY ASSESSMENT SYSTEM (IECQ)
covering Electronic Components, Assemblies, Related Materials and Processes

IECQ Certificate of Conformity
Hazardous Substance Process Management

IECQ Certificate No.: IECQ-H SGSTW 21.0005 Issue No.: 2 Status: Current
Supersedes: IECQ-H SGSTW 21.0005 Issue 1 Issue Date: 2021/12/21 Org Issue: 2012/12/21
CB Reference No.: TW21/10547 Expiration: 2024/12/20

Applicable to:
- European Directive 2011/65/EU ("RoHS – Restriction of the use Of certain Hazardous Substances") in electrical and electronic equipment. Including all published amendments
- Customer specified requirements

VisEra Technologies Company Ltd.
No. 12, Dusing Rd. 1. Hsinchu Science Park, Hsinchu 30078,
Taiwan

The organization has developed and implemented Hazardous Substance Process Management procedures and related processes which have been assessed and found to comply with the applicable requirements for IECQ HSPM organization approval which is in accordance with the Basic Rules IECQ 01 and Rules of Procedure IECQ 03-5 "IECQ Hazardous Substances Process Management" of the IEC Quality Assessment System for Electronic Components (IECQ), and with respect to the IECQ Specification:

- IECQ QC 080000:2017 - Hazardous Substance Process Management System Requirements

This Certificate is applicable to all electronic components, assemblies, related materials and processes for the following scope of activities:
The manufacture of color filter for CIS (CMOS Image Sensor).
The manufacture of multi-film process.

Issued by the Certification Body: SGS Taiwan Limited
No. 136-1, Wu Kung Road,
New Taipei Industrial Park,
Wu Ku District, New Taipei City 24803
Taiwan
Authorized person:
Stephen Pao

SGS

QC080000 Hazardous Substance Management System certification

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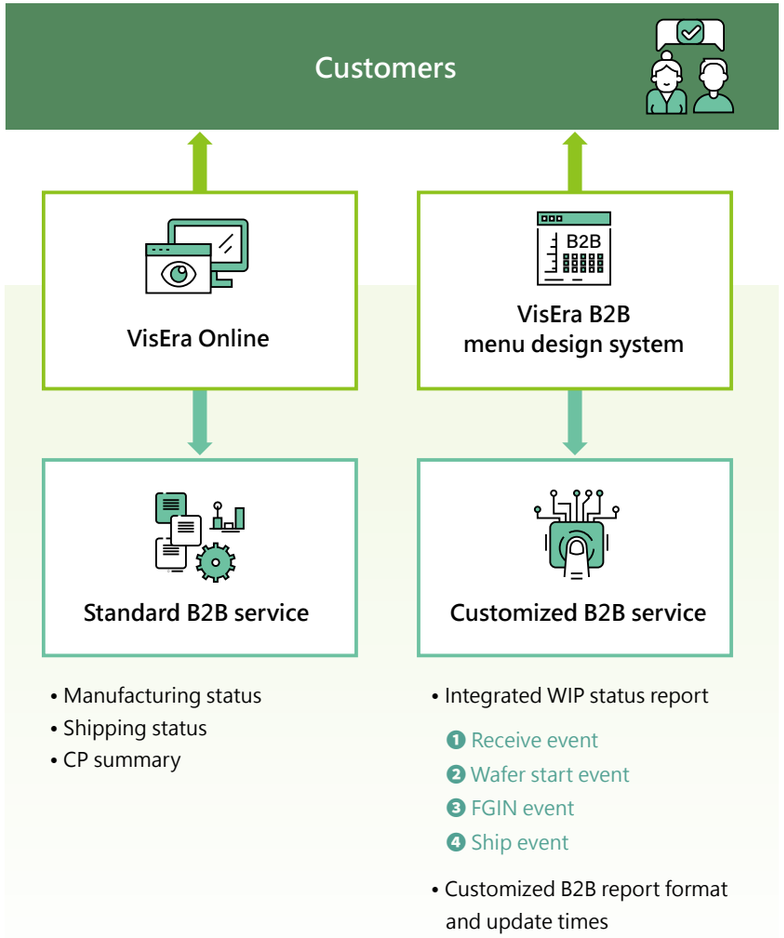
3.3 Customer Service and Management

3.3.1 Customer Relationship Management

As our customer base grows and their B2B customization requirements increase, we are often constrained by limited IT manpower resources, resulting in extended development schedules when many customers issue requests at the same time. To shorten customers' wait time and increase customer satisfaction, the Company's Business Information Technology Section teamed up with the Purchase Order and Production Plan Unit in 2018 to jointly develop the "B2B Menu design system" designed to effectively reduce IT manpower development and time costs while enhancing customer IT services. They launched the "VisEra Online" platform on June 19, 2018 to provide customers' production lines with accurate and updated information for customers to monitor the product manufacturing schedule, expected delivery date, inventory of finished products, and shipments.

With this system, personnel of the Production Planning Unit can create standardized B2B templates in the "B2B Menu design system" based on the customer's customized fields and formats which cover all incoming and outgoing processes of the product. The information includes the basic transaction records such as delivery of materials, production, completion and inventory, and shipment. It can also be customized based on the customer's preferred points in time and transmission method for receiving B2B reports to meet the customer's needs. It helps customers keep track of the production status and reduces system tracking and inquiry time. It also reduces the time required for the internal development of customized B2B requirements and the time spent on waiting for resources from an average of one month to one week to complete customized B2B information delivery.

In addition, VisEra values the development of sustainable, equitable, and mutually beneficial relationships with customers. If customers have any comments or recommendations, they can contact the Company by telephone, email or the company website. The Company established the Customer Engineering Service Unit as the dedicated unit for processing customer complaints. We also formulated control procedures for processing customer complaints to protect the rights and interests of customers and improve the quality of customer services.



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Customer Complain Notice

In terms of the procedures for processing customer complaints, we adopted the Eight Disciplines Problem Solving (8D) (i.e., a team-oriented problem-solving approach) in which a dedicated customer complaint handling unit receives related feedback and immediately registers it in the system for case management and tracking. It is required to take preventive measures within 24 hours, submit the root cause analysis report to the customer within 48 hours, and implement relevant improvement measures. The case must be closed within 7 days for automotive products and within 10 days for non-automotive products by reaching a consensus with the customer. We received 1 customer complaint in 2022. The main cause was a human error that resulted in the use of the non-mass-production program for products and a decrease in product yield rate. VisEra notified the customer immediately when the anomaly was found and returned most of the products for rework to reduce the number of discarded products. We also helped the customer prevent the supply of abnormal products to end customers, and used the system control and comparison function to verify the program used and prevent the same anomaly from recurring.

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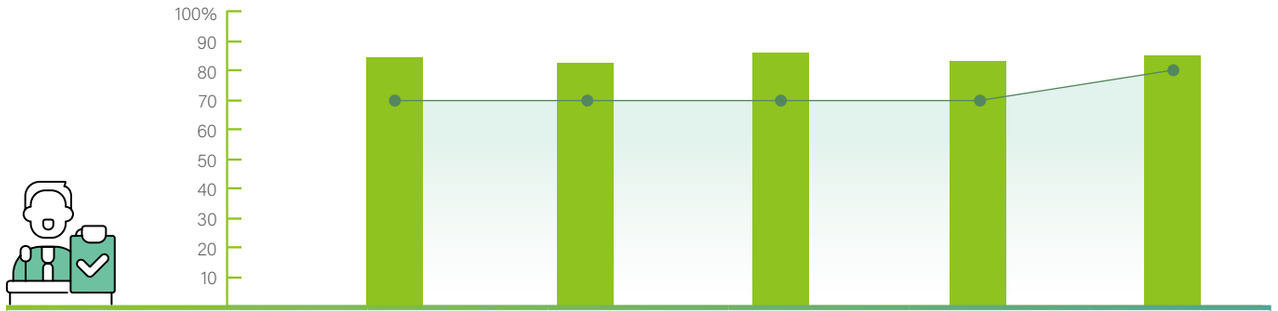
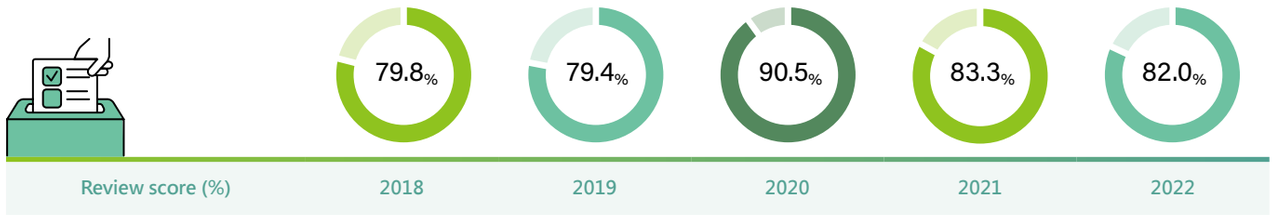
VisEra conducts quarterly business technology review meetings with customers to provide products and services of the highest quality and to ensure that customers' needs are fully understood and provided with support. We also conduct annual customer satisfaction surveys of the top ten customers. As of 2022, the top ten customers account for more than 95% of the Company's revenue. We conduct the survey by email or telephone and the survey covers items such as the price/ performance ratio, service, delivery, technical service, and future development. The specific implementation method is defined in the Company's customer satisfaction evaluation procedures. We use the VOC (Voice of Customer) system and the NRTO (New/Re Tape out) system to effectively learn about customer requirements and provide rapid response to customers to increase customer satisfaction. Customer satisfaction rate reached 84.9% in 2022, which exceeded the target for the year.

Customer satisfaction survey results in the last 5 years



	2018	2019	2020	2021	2022
Number of survey questionnaires	10	10	10	10	10
Number of questionnaires recovered	10	10	10	10	10
Satisfaction rate (%)	84.6	83.0	86.2	83.2	84.9
Target satisfaction rate (%)	70	70	70	70	80

Customer quarterly business review scores in the last 5 years



Review score (%)	2018	2019	2020	2021	2022

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Role in Sustainability

Responsible Procurement

- 4.1 Sustainable Supply Chain

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4 Role in Sustainability — Responsible Procurement

4.1 Sustainable Supply Chain

4.1.1 Supply Chain Management

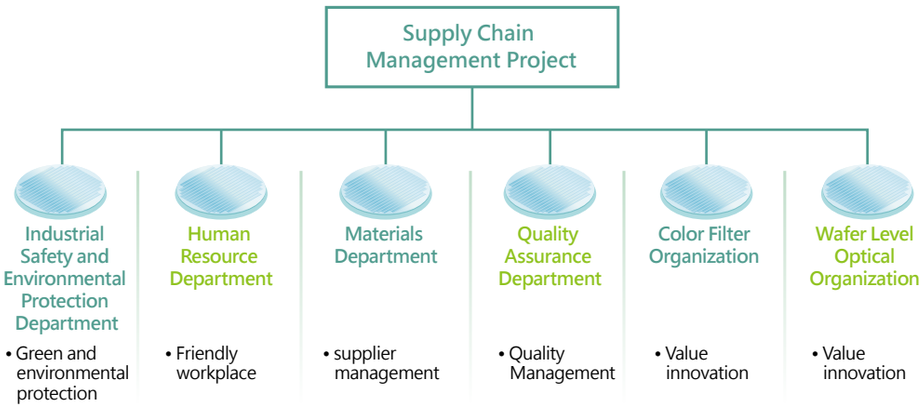
VisEra regards suppliers as the most important strategic partners. In addition to providing products that meet customer expectations, we invite suppliers to jointly fulfill corporate social responsibility while supporting environmental protection and social values. VisEra's suppliers for seven major procurement categories include raw materials, equipment and components, plant operation and engineering, outsourced service providers, waste disposal, service providers, and products. There were 587 suppliers in transactions in 2022. We identify tier 1 suppliers and key suppliers based on the procurement amount and the importance of the products and implement corresponding management measures to reduce supplier risks.

Supplier rating	Definitions	Number of Companies	Management Measures
Tier 1 suppliers	Those with direct transactions that exceed NT$1 million	218	• Signature of the VisEra Supplier Code of Conduct • Encourage tier 1 suppliers to request their upstream suppliers, contractors, and service providers to implement management in accordance with these standards
Critical suppliers	Those that meet criteria for the top 80% of procurement expenditures or recognized by VisEra after evaluating the procurement amount, importance of products supplied, and business partnerships with VisEra	76	• Signature of the VisEra Supplier Code of Conduct • Encourage critical suppliers to request their upstream suppliers, contractors, and service providers to implement management in accordance with these standards • Signature of the CSR Letter (suppliers of direct materials and contractors) • Regular evaluations and audits (suppliers of direct materials and contractors) • Implementation of the sustainability self-evaluation questionnaire • Implement audit and assistance after discussion and decision by related units (suppliers of direct materials and contractors)
Critical suppliers of high concern	Determined based on the prior year purchase order value, importance of products supplied, and results of the sustainability self-evaluation questionnaire	5	• Implement audit and assistance after discussion and decision by related units

Convene two material preparation meetings each week for key materials such as photoresists and target materials, and implement continuous review of the quantity of raw material inventory with related personnel based on the customer demand volume. Photoresist materials generally involved joint development and there is only one supplier. To mitigate the material supply interruption risks, we ensure that the suppliers have backup plants. We maintain at least two main suppliers with backup plants for each target material. There has not been any shortage in supplies or interruptions that impacted production at the Company in the last three years or in the most recent period. Direct materials of VisEra are coated on products and do not need to be recycled. Therefore, there are no investments or plans for technologies for recycling materials. Other raw materials such as tetramethylammonium hydroxide (TMAH), isopropyl alcohol (IPA), and solvents are disposed as waste or recycled according to waste management practices after use.

In terms of the management structure, the Materials and Resources Department is the unit responsible for managing the supply chain. It convenes regular communication meetings every year to coordinate with all units on the implementation of strategies and targets involving suppliers' environmental protection, friendly workplace, supplier management, quality management and value innovation. To enhance improvements and achieve sustainable management in environmental, social and economic aspects, VisEra established the Supplier Review Board (SRB) in the second quarter of 2022. As a principle, it holds supplier review meetings every two weeks to rule on the invalidation of new suppliers or existing suppliers for the purpose of improving supplier management.

In terms of supplier management practices, we work with suppliers to build a sustainable supply chain that supports environmental protection, labor human rights, safety, and social responsibility through the four major strategies including new supplier assessment, supplier evaluation, continuous improvement management, and supplier communication platform.



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Supplier Management Item

New supplier assessment

Implementation Methods

- All new suppliers are required to sign the "Compliance Statement for the Code of Professional Ethics and Supplier Code of Conduct" and we survey the labor, health and safety, environmental protection, ethics and management systems of the suppliers to ensure suppliers fulfill their social responsibility commitments.
- We conduct investigations on new suppliers of direct materials and production machines. The scope of investigation includes company operations, financial status, factory operations, and related certifications. Suppliers can only be registered in the Company's system and become part of VisEra's supply chain after the written review and approval from the procurement, quality assurance, engineering, and EHS units.
- We require suppliers of direct materials and contractors to sign VisEra's CSR Letter to ensure that the metals such as gold, tantalum, tungsten, tin, and cobalt they supply are not conflict minerals and that they follow the guidelines of the Organization for Economic Co-operation and Development (OECD) for responsible supply chains.

Achievements

- In 2022, we acquired 94 new suppliers and 100% of them signed the "Compliance Statement for the Code of Professional Ethics and Supplier Code of Conduct".
- In 2022, we completed the review and approval from the procurement, quality assurance, engineering, and EHS units for 2 new suppliers of production machinery and they joined VisEra's supply chain. The completion rate was 100%.
- In 2022, we reviewed 14 suppliers of key direct materials and contractors and they all signed VisEra's CSR Letter. The completion rate was 100%.

Supplier evaluation

Implementation Methods

- We require the suppliers of direct materials and contractors to attain ISO 9001 certification and encourage them to obtain ISO 14001 and IATF 16949 certification.
- Suppliers of key direct materials (including contractors) are regularly evaluated by the quality assurance, engineering, procurement and material management, and R&D units through the QCDST (quality, cost, delivery, service, and technology) supplier evaluation mechanisms. They also communicate with suppliers regarding the evaluation results.
- In 2022, we issued sustainability self-evaluation questionnaires to 100% of the key suppliers and suppliers of specific products or services. The questionnaire incorporates the five sections of the RBA Code of Conduct including Labor, Health and Safety, Environment, Business Ethics, and Management System and can be used to examine the suppliers' level of participation and achievements in social responsibility. We conducted risk identification based on the results of the questionnaire, and identified suppliers of high concern for the annual supplier audit list. We aim to reduce risk levels through audits, assistance, and improvement programs.

Achievements

- 100% of the suppliers of direct materials and contractors attained ISO 9001 certification; 21% obtained IATF 16949 certification; 86% obtained ISO 14001 certification.
- We completed the QCDST evaluation for suppliers of key direct material (including contractors) in 2022 and distributed the evaluation results to suppliers on the Supply Online Supplier Platform. For positive feedback (e.g., support for delivery ahead of schedule, new technology development, and supply of new products), we expressed our gratitude; for negative feedback (e.g., quality anomaly events or error in shipping information or quantity), unit personnel discussed the issues with suppliers in regular meetings. Improvements have been made for 100% of the cases.
- In the second quarter of 2022, a total of 101 sustainability self-evaluation questionnaires were distributed to suppliers of raw materials, contractors, suppliers of machinery and parts, and plant operation and service providers. The response rate was 100%. We identified 5 suppliers of high concern and included them in the 2022 supplier audit program.

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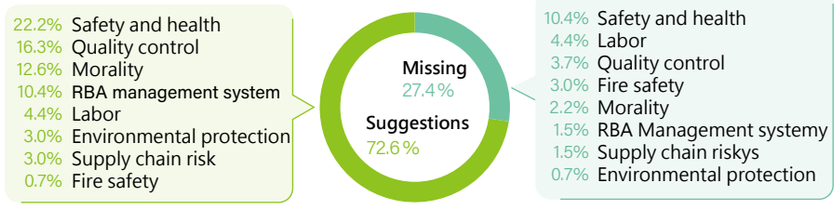
Continuous improvement management

Implementation Methods

- We perform audits of suppliers of direct materials each year. Onsite audits of suppliers are conducted by the quality assurance, procurement, and EHS units. We provide assistance to suppliers to improve the audit results and weaknesses, and continue to follow up.
- For suppliers that cannot attain targets, consider the impact on operations and bearable risks and continue to implement improvements, reduce the transaction volume, or terminate transactions.

Achievements

- In 2022, we conducted onsite or online audits of 11 suppliers of direct/indirect raw materials, outsourced services, plant engineering, and services. We used the opportunity to communicate the Supplier Code of Conduct to suppliers. We used the Supplier Quality System Questionnaire, Supplier Contractor ESH Assessment Table, and Supplier Sustainability Self-Evaluation Questionnaire to conduct audits based on the supplier's category and attributes.
- In the audit process, we classified violations of procedures and regulations as deficiencies. Other items were listed as recommendations. Deficiencies accounted for 27.4% of the results and the reasons for the top 3 deficiencies included:
  1. **Safety and health**: The number of licenses or refresher training for licenses does not fully comply with the regulations. Inadequate spot check mechanisms for first aid kits.
  2. **Labor:** Failure to fully implement labor work hour management and undefined areas in related operating procedures of employees.
  3. **Quality management:** Failure to implement calibration management for certain instruments. We subsequently requested suppliers to submit proof of improvement for the deficiencies and recommendations before the stipulated deadline. We also confirmed the improvement results with relevant personnel and will continue observation.
- Missing supplier audit/Suggested distribution ratio



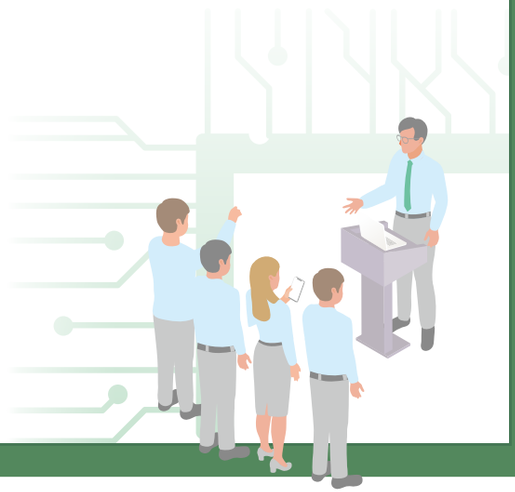
Supplier communication platform

Implementation Methods

- Hold regular supplier meetings to facilitate more harmonious and smooth cooperation between VisEra and suppliers.
- Contractor agreement organization meetings.
- Quality management meetings.
- Supply chain management and communication.

Achievements

- Completed 611 contractor agreement organization pre-construction meetings in 2022.
- Completed the QBR meetings (regular) with 2 direct suppliers of raw materials in 2022. In addition to quality performance and key project reviews, we also focused on ESG issues and RBA audits and shared information between the companies.
- Completed raw material supplier quality meetings (ad hoc) for 2 suppliers.



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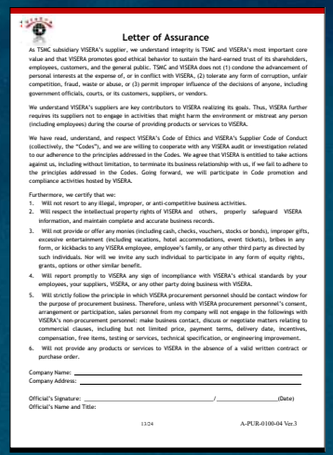
4.1.2 Supply Chain Sustainability Management

To ensure safety in the work environment of the supply chain, ensure that employees and their dignity are respected, and ensure that business operations support environmental protection and ethical practices, VisEra has established the "Compliance Statement for the Code of Professional Ethics and Supplier Code of Conduct" based on the Responsible Business Alliance (RBA) (formerly EICC) Code of Conduct and reference guidelines in the UN Guiding Principles on Business and Human Rights (the UN Guiding Principles) and other internationally recognized human rights regulations including the ILO Declaration on Fundamental Principles and Rights at Work and the UN Universal Declaration of Human Rights. It requires suppliers to meet the stated sustainability standards for labor, health and safety, environmental protection, and integrity. We required the 94 suppliers added in 2022 to sign the Supplier Code of Conduct. The signature rate was 100%.

VisEra Supplier Code of Conduct



Letter of Assurance

As TSMC subsidiary VISERA's supplier, we understand integrity is TSMC and VISERA's most important core value and that VISERA promotes good ethical behavior to sustain the hard-earned trust of its shareholders, employees, customers, and the general public. TSMC and VISERA does not (1) condone the advancement of personal interests at the expense of, or in conflict with VISERA, (2) tolerate any form of corruption, unfair competition, fraud, waste or abuse, or (3) permit improper influence of the decisions of anyone, including government officials, courts, or its customers, suppliers, or vendors.

We understand VISERA's suppliers are key contributors to VISERA realizing its goals. Thus, VISERA further requires its suppliers not to engage in activities that might harm the environment or mistreat any person (including employees) during the course of providing products or services to VISERA.

We have read, understand, and respect VISERA's Code of Ethics and VISERA's Supplier Code of Conduct (collectively, the "Codes"), and we are willing to cooperate with any VISERA audit or investigation related to our adherence to the principles addressed in the Codes. We agree that VISERA is entitled to take actions against us, including without limitation, to terminate its business relationship with us, if we fail to adhere to the principles addressed in the Codes. Going forward, we will participate in Code promotion and compliance activities hosted by VISERA.

Furthermore, we certify that we:

1. Will not resort to any illegal, improper, or anti-competitive business activities.
2. Will respect the intellectual property rights of VISERA and others, properly safeguard VISERA information, and maintain complete and accurate business records.
3. Will not provide or offer any monies (including cash, checks, vouchers, stocks or bonds), improper gifts, excessive entertainment (including vacations, hotel accommodations, event tickets), bribes in any form, or kickbacks to any VISERA employee, employee's family, or any other third party as directed by such individuals. Nor will we invite any such individual to participate in any form of equity rights, grants, options or other similar benefit.
4. Will report promptly to VISERA any sign of incompliance with VISERA's ethical standards by your employees, your suppliers, VISERA, or any other party doing business with VISERA.
5. Will strictly follow the principle in which VISERA procurement personnel should be contact window for the purpose of procurement business. Therefore, unless with VISERA procurement personnel's consent, arrangement or participation, sales personnel from my company will not engage in the followings with VISERA's non-procurement personnel: make business contact, discuss or negotiate matters relating to commercial clauses, including but not limited price, payment terms, delivery date, incentives, compensation, free items, testing or services, technical specification, or engineering improvement.
6. Will not provide any products or services to VISERA in the absence of a valid written contract or purchase order.

Company Name: _____
Company Address: _____

Official's Signature: _____/_____(Date)
Official's Name and Title:

13/24 A-PUR-0100-04 Ver.3

Spotlight

VisEra issued sustainability self-evaluation questionnaires to key suppliers in 2022 to create a responsible supply chain and maximize our sustainability influence. The questionnaire incorporates the five sections of the RBA Code of Conduct including Labor, Health and Safety, Environment, Business Ethics, and Management System. It is used to measure the suppliers' level of participation and implementation of corporate social responsibility. We distributed 101 questionnaires and the response rate was 100%.

Based on the purchase order value, importance of products supplied, and results of the sustainability self-evaluation questionnaire, we identified five suppliers of high concern and included them in the domestic onsite audit and foreign online audit program. The audit team consists of the procurement, occupational safety, quality assurance, and RBA management units. They used the Supplier Quality System Questionnaire, Supplier Contractor ESH Assessment Table, and Supplier Sustainability Self-Evaluation Questionnaire to conduct audits and provide assistance.

From the audit results, we compiled a total of 47 improvement items (including 10 deficiencies and 37 recommendations) in the five main areas of the RBA Code of Conduct. We asked suppliers to provide detailed improvement plans within two weeks after receiving an audit report. The plans must include the case closure date and the person responsible for case closure. VisEra implements follow-ups to track the improvement plans proposed by suppliers to ensure the implementation of the improvement plans. As of the end of 2022, the case closure rate for assistance provided by VisEra to suppliers for deficiencies was 94%.

To reduce supply chain risks, VisEra formulated the following key management actions to help suppliers establish sustainable supply chain capabilities.

Five major sections of RBA	Number of improvement items	Main deficiencies	VisEra's key supplier management action plans
Labor human rights	5	• Employee-related procedures (e.g., sexual harassment prevention, disciplinary management, and unlawful infringement) not clearly defined • Failure to fully implement labor work hour management requirements	• Defined employee-related regulations in the procedures. • Communicate regulatory requirements to employees.
Safety and health	24	• Failure to implement spot checks for first aid kits, facilities, and equipment • Failure to adhere to regulatory requirements in certain operations (e.g., hazard identification and environmental impact) and complete evaluation procedures	• Established related spot check procedures for first aid kits, facilities, and equipment. • Completed evaluation procedures in accordance with regulatory requirements.
Environmental protection	2	Failure to establish audit mechanisms for waste disposal suppliers	Defined management requirements for waste disposal suppliers in the procedures.
Business ethics	11	Failure to clearly define management procedures for conflict minerals	Defined management procedures for conflict minerals in the procedures
Management system	5	Inadequate RBA system setup	We plan to gradually incorporate the requirements in RBA standards, including the development of related procedures, Supplier Code of Conduct, and performance evaluations.

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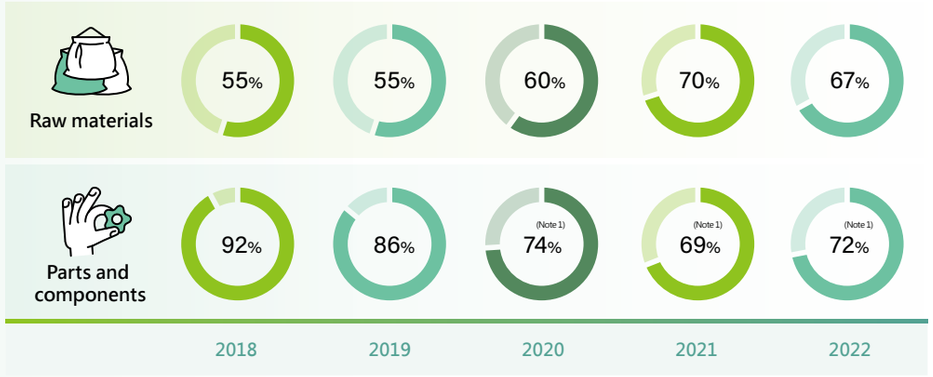
4.1.3 Local Procurement and Green Procurement

The Company continues to promote local procurement to improve production efficiency, reduce carbon emissions in the transportation process, and help enhance the sustainable development of local industries. VisEra's main operations are located in Taiwan, and the proportion of local procurement of raw materials and components in the past five years is as follows:



Note 1: Introduction and monitoring of new processes (sputtering physical vapor deposition in the multi-film process)

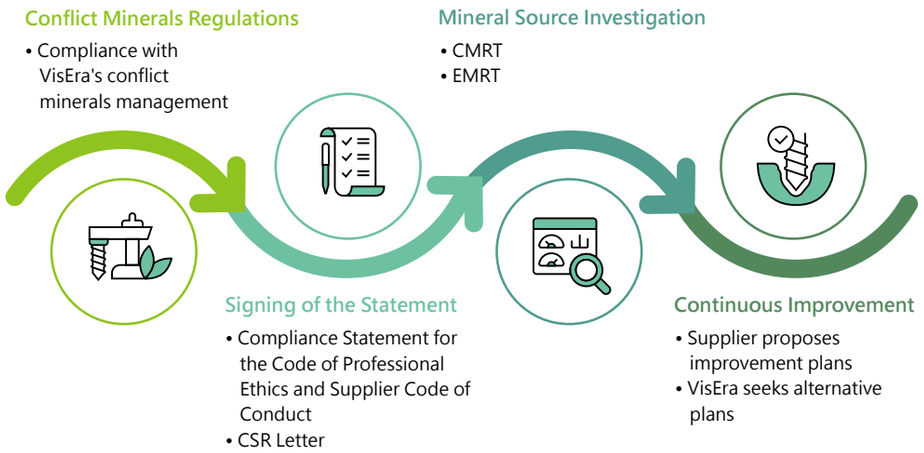
VisEra also actively promotes the green procurement policy and encourages the procurement of products with domestic environmental protection and green label certification, foreign environmental labels and products for which signed mutual recognition agreements have been signed with Taiwan, or products that have the Energy Star, FSC, or PEFC sustainable forestry labels. We have received commendation for excellent green procurement awards from Hsinchu City Government every year since 2019. In 2022, we received the 2021 Excellence Award in the Private Enterprise and Organization Green Procurement Evaluation from the Environmental Protection Administration.

4.1.4 Management of Conflict Minerals

VisEra supports customers and works hard to become a responsible member of the supply chain to the society and the environment. We are committed not to use minerals including associated with armed conflict, forced labor, or child labor abuse, or mined under other illegal and harsh working conditions. The Company requires all suppliers to cooperate with the ban on the use of minerals from conflict areas. Suppliers must disclose the smelter information to pass the new material certification and proceed with transactions. If the disclosed information is incomplete or if the materials are not provided by a qualified smelter, VisEra shall continue to request improvements from suppliers and will not rule out seeking alternative sources.

VisEra requires suppliers to sign the "Compliance Statement for the Code of Professional Ethics and Supplier Code of Conduct" and conduct annual conflict minerals surveys of direct raw material suppliers and contractors. We require direct raw material suppliers and contractors to provide raw materials that meet corporate social responsibility, including current legal requirements. For materials containing gold (Au), tantalum (Ta), tungsten (W) or tin (Sn), or any materials that are considered "conflict minerals" by law in the future, suppliers are required to investigate and disclose their origin, avoid conflict areas, or confirm that they are sourced from smelters certified by the Responsible Minerals Initiative (RMI). If incomplete information is disclosed or if unqualified smelters are used, VisEra will continue to require improvements from suppliers.

VisEra shall update the "RMI Conflict Minerals Reporting Template" at least once every year to mitigate the risks of omitting newly classified minerals and new regulatory requirements. The latest version of the questionnaire was used in 2022. If necessary, we will audit the supplier or the smelter to ensure that the raw materials supplied meet social responsibility requirements. In 2022, we used the Conflict Minerals Reporting Template (CMRT) and the Extended Minerals Reporting Template (EMRT) questionnaires to survey 14 suppliers of direct materials and the questionnaire response rate was 100%. We identified 7 smelters which were all RMI-certified smelters and the disqualification rate was 0%. As neither the direct material suppliers nor the contractors used conflict minerals, there were no acquisition restrictions or difficulties and no follow-up improvements were required. There have been no significant changes or increases in the price of raw materials by suppliers due to the management of conflict minerals.



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5 Role in Sustainability — Green Production

VisEra regards pollution prevention as one of the primary responsibilities in its operations. We aim to become a model company for environmental protection to promote environmental sustainability and green production.

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5.1 Environmental Protection Policies and Commitments

Our vision

Promote environmental sustainability and become a world-class benchmark enterprise for environmental protection and energy conservation.

Our mission

- Establish an environmental management system, set targets and objectives for continuous improvement for environmental protection, and continue to promote green plants, green manufacturing and green supply chains to manage environmental risks and transition to net zero emissions.
- Seek optimal efficiency in the use of energy, water, and other resources, actively invest in waste reduction and pollution prevention, and preserve biodiversity.
- Communicate and collaborate with stakeholders to reduce the environmental impact throughout the life cycle, including research and development, raw materials, transportation and logistics, production, packaging, and products and services.

Our implementation strategy

- Comply with or surpass domestic and foreign regulations and standards for environmental protection and energy efficiency and consumption.
- Comply with international regulations and implement requirements related to the management of hazardous substances reduction and remain committed to producing green products.
- Focus on global climate change trends, assess their risks and opportunities, and allocate resources to implement effective energy conservation, water conservation, and other management measures.
- Take eco-friendly actions and continue to improve the Company's performance in energy consumption, waste management, circular economy, pollution prevention and biodiversity, and actively cooperate with customers and suppliers/contractors to jointly create a green semiconductors supply chain from design and manufacturing to products and services.
- Intensify the awareness, responsibility and commitment of all employees and suppliers/contractors to environmental protection.
- Share environmental protection knowledge and experience with external parties and build partnerships with business partners, industries, governments, academia, and the entire society to work together and respond to the severe challenges of environmental protection and climate change.

5.1.1 Environmental Management Mechanisms

4 major management categories

22 performance indicators

To formulate specific response measures for environmental management and sustainability-related issues, VisEra established an interdepartmental organization called the "Green Team" for the management of environmental (E) issues in ESG for the management, implementation, target setting, and future prospects. We implement climate change and energy management, water management, waste management and air pollution prevention. We strive to reduce the environmental impact of operations and continue to improve environmental sustainability for Company's development and environmental protection to coexist and prosper together.

VisEra established an inter-departmental task force called the "Green Team" with the "ESG Sustainable Development Promotion Committee" as the chief convener. The Resource Planning Organization and its the ESG Unit oversee the environmental protection tasks, and each unit appoints a team member to implement environmental sustainability tasks and expand implementation. To implement effective supervision and management of environmental management, we planned and identified the four major strategies of environmental sustainability management in 2022. They include "Green Value and Marketing", "Environmental Pollution Control", "Communication of Sustainability Ideals" and "Green Production". We then used the four major areas to develop work indicators (the Company's performance for each indicator is specified in the chapters of the report). The Green Team of each unit provides statistics and information on the attainment of the targets. The attainment rate and effectiveness are confirmed in monthly meetings of the Green Team. They determine environmental related issues to continuously improve and enhance the effectiveness of environmental management.

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Category	Item	Detailed items	Unit	2022 performance	2023 targets
Communicating sustainability ideals	Environmental education	Number of annual environmental education programs	Times	5	5
Environmental pollution control	Environmental protection expenditures	Total annual environmental protection expenditures	NTD	83,987,256	≧ 83,987,256
	Legal compliance	Major penalties for environmental pollution this year	Cases	0	0
	Air pollution	VOC removal rate meets requirements for operations	%	96.9	>96
	Wastewater	Volume of recycled process wastewater	%	88	>89.5
	Waste	Resource recycling rate	%	93	90
		Waste used as auxiliary fuel	%	29.43	>30
		Landfill rate	%	0.21	<1
		Total waste quantity	Tons	2,348	<2,039
		Waste volume (outsourced general)	Tons	930	<779
		Waste volume (outsourced) hazardous)	Tons	1,418	<1,259
Green production	Use of renewable energy	Percentage of renewable electricity (green electricity) (Hsinchu plant)	%	36.6	20
	Green procurement	Green procurement amount	NT$ million	105.1	>100
	Water conservation	Annual water consumption	Million tons	0.23	<0.23
		Unit product water consumption	Liters/8" equivalent wafer mask layer	22.66	<16.98
		Number of plant-wide water conservation programs	Cases	2	≧ 3
		Plant-wide water conservation volume (excluding rainwater recovery)	Million tons	0.13-	>0.18
	Energy conservation	Number of plant-wide energy conservation programs	Cases	6	≧ 6
		Total electricity consumption (renewable energy + non-renewable energy)	Million kWh	71.86	<71.86
		Unit product electricity consumption	kWh/8" equivalent wafer mask layer	5.65	<5.65
		Cumulative electricity savings	Million kWh	2.3%	1.5%
	Greenhouse gas	Greenhouse gas emissions	Metric ton of CO_2 equivalent	28,991	<28,991

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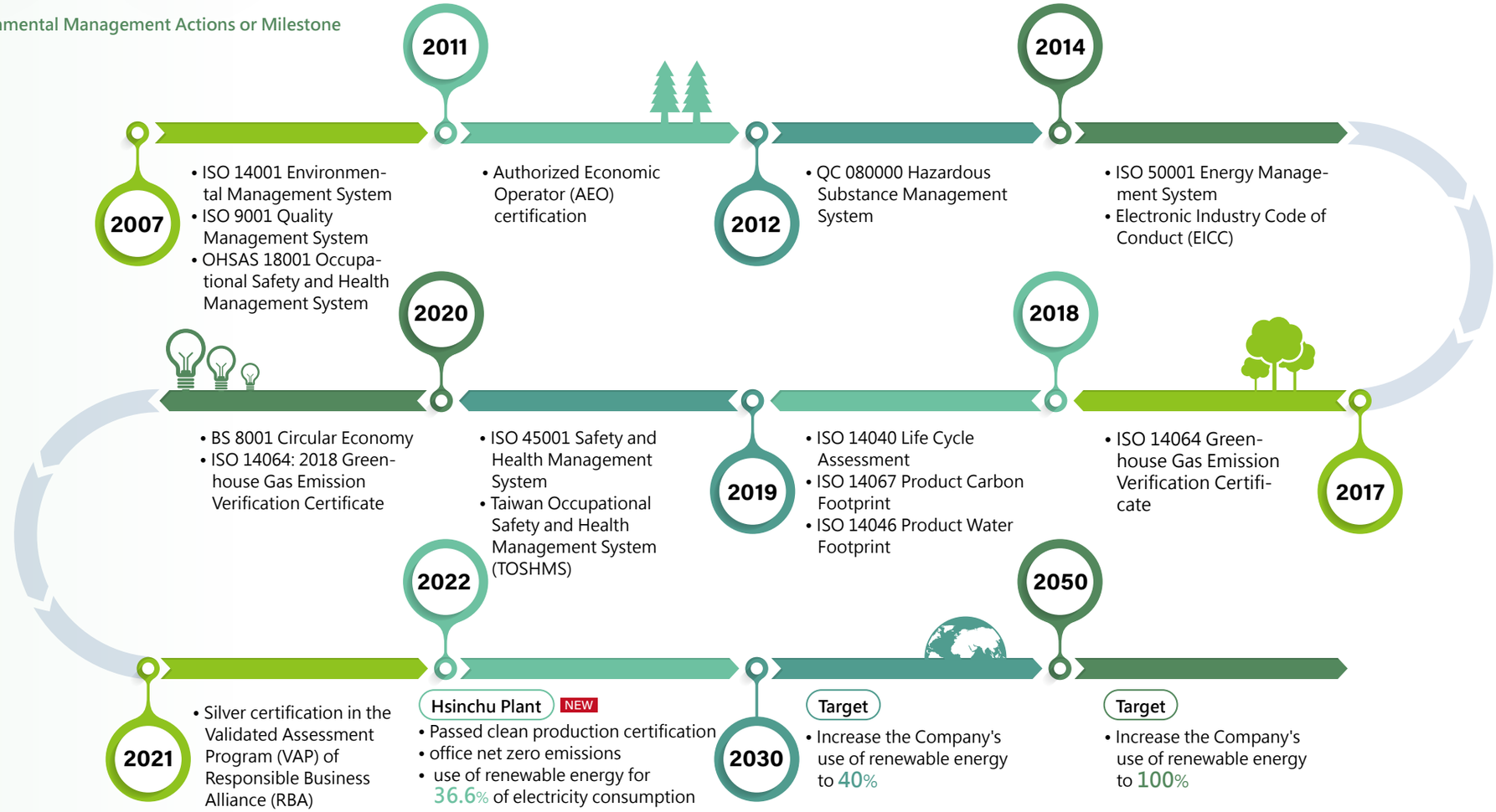
5.1.2 Environmental Management History

VisEra adopted the ISO 14001 environmental management system when the plant was built and adopted the ISO 50001 energy management system in 2014. We continue to identify, verify, comply, and continuously improve the implementation of the system each year based on environmental factors, energy management, and regulatory requirements. The Company implements and manages the management tasks in accordance with the provisions and spirit of the management system, and regularly appoints a third-party verification institution to conduct verification and maintain the effectiveness of the management system.

Environmental Management Actions or Milestone



Environmental management certifications

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DNV

MANAGEMENT SYSTEM CERTIFICATE

Certificate no.: 00001-2020-AN-TWN-TAF | Initial certification date: 2020-01-13 | Valid: 2022-01-13 – 2026-01-12

This is to certify that the management system of

VisEra Technologies Company Ltd.
No. 12, Dusing Rd. 1, Hsinchu Science Park, Hsinchu 30078, Taiwan

has been found to conform to the Energy Management System standard:
ISO 50001:2018

This certificate is valid for the following scope:
The Manufacture of Color Filter for CIS (CMOS Image Sensor).
The Manufacture of Multi-Film Process.

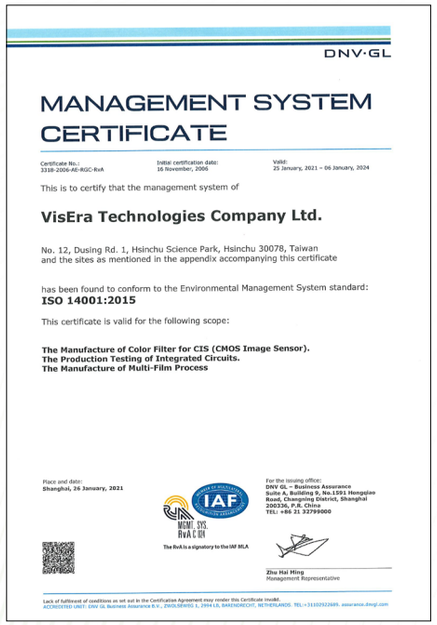
Place and date: Taipei, 2023-02-07

For the issuing office: DNV - Business Assurance 28Fl., No. 293, Sec. 2, Wenhua Rd., Banqiao District, New Taipei City 220, Taiwan

Joseph Chu
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV Business Assurance Co., Ltd. 28Fl., No.293, Sec.2, Wenhua Road, Banqiao Dist., New Taipei City, Taiwan R.O.C - TEL: +886-2 8253 7600.
www.dnv.com/assurance

ISO 50001 Management System Certification



DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

Certificate No.: 3318-2006-AE-RGC-RvA | Initial certification date: 16 November, 2006 | Valid: 25 January, 2021 – 06 January, 2024

This is to certify that the management system of

VisEra Technologies Company Ltd.

No. 12, Dusing Rd. 1, Hsinchu Science Park, Hsinchu 30078, Taiwan
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Environmental Management System standard:
ISO 14001:2015

This certificate is valid for the following scope:

The Manufacture of Color Filter for CIS (CMOS Image Sensor).
The Production Testing of Integrated Circuits.
The Manufacture of Multi-Film Process

Place and date: Shanghai, 26 January, 2021

For the issuing office: DNV GL - Business Assurance Room 1301, No.1591 Hongqiao Road, Changning District, Shanghai 200336, P.R. China TEL: +86 21 32799000

The RvA is a signatory to the IAF MLA

Zhu Hai Ming
Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
ACCREDITED UNIT: DNV GL Business Assurance B.V., ZWOLSEWEG 1, 2994 LB, BARENDRECHT, NETHERLANDS - TEL:+31102922689. assurance.dnvgl.com

ISO 14001 Management System Certification

DNV

Independent Assurance Opinion

Statement No.: CSI19464-2022-AG-TWN-DNV | Issued date: 04 May, 2023 | Page 1 of 2

This is to verify initiate reporting of Greenhouse Gas Inventory Management Report (2022) of

VisEra TECHNOLOGIES COMPANY LTD.

Scope of Verification
DNV Business Assurance (DNV) has been commissioned by VisEra TECHNOLOGIES COMPANY LTD. ('VisEra' or 'the Organization') to perform a verification of the greenhouse gas statements of Greenhouse Gas Inventory Management Report (2022) (hereafter the "Inventory Report") with respect to the site located at No. 12, Dusing Rd. 1, Hsinchu Science Park, 30078, Taiwan , R.O.C.
The Reporting Boundary for the verification including direct GHG emissions and removals, indirect GHG emissions from imported energy, indirect GHG emissions from transportation, indirect GHG emissions from products used by the Organization and indirect GHG emissions associated with the use of products from the Organization. The further descriptions for the Reporting Boundary listed in Appendix A.

Verification Criteria and GHG Programme
The verification was performed on the basis of ISO 14064-1:2018 as well as criteria given to provide for consistent GHG emission identification, calculation, monitoring and reporting.
The verification was conducted in accordance with ISO 14066:2011, ISO 14065:2013 and ISO 14064-3.

Verification Statement
It is DNV's opinion that with reasonable assurance for the site specific data in the Inventory Report, which was published on 21st April 2023, is free from material discrepancies in accordance with the verification criteria identified as stated above.

Heamin Tim Kuo
GHG Verifier

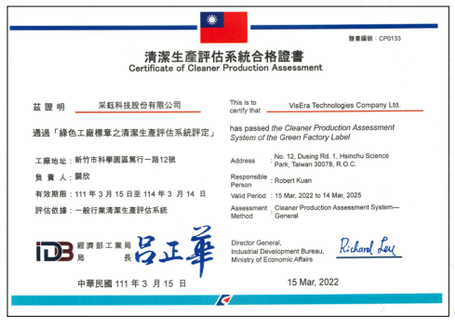
Place and date: Taipei, 04 May, 2023

For the issuing office: DNV Business Assurance Co., Ltd. 28Fl., No. 293, Sec. 2, Wenhua Rd., Banqiao District, New Taipei City 220, Taiwan

Management Representative

Lack of fulfilment of conditions as set out in the Certification Agreement may render this Certificate invalid.
Limited assurance procedures are carried out in a manner designed to obtain a level of assurance as detailed above. Hence, DNV cannot guarantee the accuracy or correctness of the information. DNV cannot be held liable by any party relying or acting upon this Verification Opinion.
DNV 2021-09-01 Rev. 10, 2022-2

ISO 14064-1 Greenhouse Gas Inventory Verification Statement



驗書編號：CP0133

清潔生產評估系統合格證書
Certificate of Cleaner Production Assessment

茲證明 采鈺科技股份有限公司 This is to certify that VisEra Technologies Company Ltd.

通過「綠色工廠標章之清潔生產評估系統評定」 has passed *the Cleaner Production Assessment System of the Green Factory Label*

工廠地址：新竹市科學園區篤行一路12號 Address : No. 12, Dusing Rd. 1, Hsinchu Science Park, Taiwan 30078, R.O.C.
負 責 人：關欣 Responsible Person : Robert Kuan
有效期限：111 年 3 月 15 日至 114 年 3 月 14 日 Valid Period : 15 Mar, 2022 to 14 Mar, 2025
評估依據：一般行業清潔生產評估系統 Assessment Method : Cleaner Production Assessment System—General

經濟部工業局局長 呂正華 Director General, Industrial Development Bureau, Ministry of Economic Affairs Richard Lou

中華民國 111 年 3 月 15 日 15 Mar, 2022

Certificate Clean production

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5.2 Climate Strategy

5.2.1 Climate Risk Management

In response to increasingly severe cases of extreme weather, it is crucial for companies to build up the resilience to respond to climate disasters in their business operations. VisEra established an Enterprise Risk Management (ERM) system with reference to the ISO 22301 Business Continuity Management standards. We evaluated the frequency of risk events and the severity of their impact on the Company's operations with a Risk Map, defined the priority and risk level for risk management, and adopted corresponding risk management strategies based on the risk rating. The assessment results showed that the risks associated with climate change include drought, strong typhoons, heavy rainfall, earthquakes, power and water shortages, and increasingly stringent regulatory requirements. VisEra conducts training and exercises on mitigation measures through scenario simulation, and regularly reviews risk changes and responses every quarter. Refer to the "Corporate Risk Management" section for details.

No.	Risks and opportunities	Scenario simulation	Relief measures
1	**More rigorous environmental protection requirements**	Due to increasingly stringent environmental/ hazardous substance reduction regulations, VisEra may be required change the manufacturing process if such substances are used. The switch may reduce customer satisfaction or cause the existing prevention equipment to fail to meet regulatory requirements.	We comply with international environmental, climate change, safety and health, humanitarian, hazardous substance reduction, and conflict minerals regulations, and take the following measures: 1 Purchase, use and install containment equipment. 2 Implement prevention and control programs, such as climate change mitigation programs. 3 Modify the product design and manufacturing processes.
2	**Disasters**	Fire/ flooding/ smoke damage in plants due to floods, earthquakes, tsunamis, typhoons, and droughts may cause serious losses to factories.	1 Set risk prevention, emergency response drills, crisis management, and continuous operation development response plans for emergencies. 2 Improve the anti-shock and fixture measures for production equipment and incorporate them into the specifications of new plants. 3 Obtain certification for the environmental management system (ISO 14001) and occupational safety and health management system (ISO 45001), and implement ISO 22301 business continuity management standards. 4 Purchase fire and accident insurance policies, organize regular fire system inspections and drills, conduct a company-wide fire risk reduction program, and implement management and hardware improvement.
3	**Shortage of electricity and water resources**	Water shortages caused by droughts	1 Starting from 2020, we have selected companies with legal groundwater rights to sign water truck water supply contracts as response measures for droughts. VisEra reviews the terms of the contract each year and continues to sign such contracts to maintain a stable source of water supply. 2 Monitor the water supply conditions and manage water consumption/conservation in the plants during the dry period. Activate water shortage response mechanisms based on actual conditions. 3 Standardize the response procedures and implement regular training and drills.

Since 2022, VisEra has adopted the framework of the Task Force on Climate-related Financial Disclosures (TCFD) to identify climate risks and opportunities and referenced research reports of international institutions to evaluate climate change risks and response measures and identify potential risks and opportunities. We also established inter-departmental units to rank the risks and opportunities identified in the "Climate Change Risk and Opportunity Workshop" with respect to policies, regulations, markets, technologies, business reputation, and physical risks. We established metrics based on the identification results for target management to effectively monitor the progress and results of the actions taken in response to climate change, and thereby reduce the financial impact of climate risk on operations. To address the top three risks of net zero carbon emissions, regulations - carbon tax, and rapid climate change - drought, we considered internal and external environmental changes and conducted a quantitative impact financial assessment with reference to the methodologies disclosed by domestic and foreign companies. We developed strategies and actions for climate change with a focus on the four aspects including "governance", "strategy", "risk management", and "metrics and targets" to reduce the impact of climate risks and increase the climate resilience of the organization.

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Aspect	Management strategy	VisEra's results in 2022
Governance	1. The Board of Directors regularly reviews the risks and opportunities associated with climate change and the role of the management in the assessment and management of climate-related risks and opportunities • ESG Sustainable Development Promotion Committee: The President serves as the chair and the Committee appoints a management representative to review the climate change strategies and objectives of VisEra on a regular basis and report to the Board of Directors. • Risk Management Steering Committee: The Chairman serves as the chair and the Company appointed a management representative. It focuses on enterprise risk management as well as risk assessment and mitigation. Climate change is one of risks faced by VisEra. The management representative reports the results of the annual corporate risk management, including climate change risk response, to the meetings of the Board of Directors each year.	✓ The Company holds quarterly meetings of the ESG Sustainable Development Promotion Committee to discuss corporate sustainability issues such as corporate governance, social and environmental conservation. It also discusses climate change response and the issues discussed are included in the resolution or to-do list for follow-up and improvement. ✓ The Risk Management Steering Committee held four meetings to review the Company's operational risks, including emerging risks such as carbon fees and renewable energy use. It prepares quarterly energy conservation management plans and reviews their implementation status.
Strategy	1. Regularly identify short, medium, and long-term climate related risks and opportunities with the TCFD framework 2. Consider the impact of climate-related risks and opportunities on the organization's operational, strategic, and financial plans 3. Evaluate the resilience of the organization strategies under different climate scenarios (including 2°C or more severe scenarios)	✓ Use the TCFD approach and inter-departmental discussions to identify short, medium, and long-term climate-related risks and opportunities. 12 risks and 9 opportunities were identified. ✓ Three different scenarios were used to estimate the transition costs required to implement carbon reduction strategies in the future (the government's net-zero pathway, the SSP1-1.9 pathway in the IPCC's sixth assessment report (AR6), and the net-zero carbon reduction pathway by 2050 called for in the Science Based Targets (SBT)) to understand the possible financial impacts of different strategies in different scenarios. ✓ Develop low-carbon products to meet customer needs, improve technologies, and provide information on the carbon footprint of products. 1. Request suppliers to use low-carbon products or equipment and establish partnerships with these suppliers to develop eco-friendly low-carbon materials and production equipment. 2. Implement green procurement 3. Use low-carbon transportation vehicles to transport products and materials. 4. The electric vehicle is currently considered as an eco-friendly product that supports environmental sustainability. We will continue to strengthen innovation and management and gradually align the development of market economy with the environmental causes.
Risk Management	1. Evaluate the significance of risks and opportunities associated with climate change in terms of their impact and frequency of occurrence, and set relevant response plans 2. Incorporate the climate risk identification and assessment results into the Enterprise Risk Management (ERM) program, which must be confirmed by the top executives on a regular basis	✓ Assess the financial qualitative and quantitative impacts of the significant climate-related risks/opportunities discussed by the relevant units in the Climate Change Risk and Opportunity Workshop ✓ The significant risks that are identified, including carbon tax, regulatory and customer demand for renewable energy, and changes in national energy policies, are assessed for their financial impact and reported to the top executives for review at the annual meeting of the Risk Management Committee. ✓ We identified three significant risks and two significant opportunities. They included such as carbon taxes and the improved energy efficiency of plants.
Metrics and targets	1. Set management metrics and targets for measuring climate risks and opportunities • Set targets for greenhouse gas management and energy and resource recycling and reuse • Conduct a 100% product environmental footprint inventory and implemented analysis and improvements for areas with high carbon footprint. • Complete compliance with renewable energy regulations for major energy users and set medium and long-term targets for renewable energy. • Launch supply chain improvement projects 2. Conduct annual inventory and verification of Scope 1/2/3 greenhouse gas emissions, identify sources of greenhouse gases, and implement targeted management.	✓ We have completed 100% of the product environmental footprint inventory, and will improve the management plans for the three areas with high carbon footprint based on the GHG inventory results in 2022. ✓ According to the Company's plan for purchasing renewable energy, we used 26,157,000 kWh of land-based wind power in 2022. We also set a target for increasing the use of renewable energy to 40% of the Company's electricity supply by 2030. Conducted an inventory in accordance with the Greenhouse Gas Protocol and passed the ISO 14064-1: 2018 third-party verification. ✓ The results show that the most significant emissions were in Scope 2 due the indirect use of electricity in the production process, and Scope 3 derived from the supply chain. We will continue to implement relevant management measures. Please refer to "5.2.2 Greenhouse Gas Inventory" for more information.

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Identification of climate change risks and opportunities

12 risks and 9 opportunities

Climate Risks and Opportunities

Opportunities
1 Increase water resource efficiency and diversity water resources
2 Obtain incentives or credits from government agencies
3 Participation in carbon trade / renewable energy markets
4 Improved business reputation
5 Development of low-carbon products and services / enhanced efficiency and performance of customer products
6 Promote low-carbon/green production
7 Issuance of green bonds or access to sustainability-linked loans
8 Improve energy efficiency in plants
9 Increase protection against natural disasters

Transition Risks
1 Total greenhouse gas emissions management and carbon taxes and fees
2 Net zero emissions
3 Environmental impact assessment commitments
4 New sustainability regulations
5 Uncertainties in the development of new technologies
6 Customer requirement for net zero emissions
7 Impact on business reputation

Physical Risks
1 Increase in the cost of materials
2 Floods (company operations)
3 Floods (supply chain)
4 Droughts (company operations)
5 Droughts (supply chain)
6 Increased insurance premiums for natural disasters
7 Rise in temperature

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	Risk factor	Potential financial impact	Response plans
Physical Risks 4	Droughts	Impact on production that reduces revenue	Evaluate the drought risks of manufacturing plants and study and implement risk mitigation measures • Establish comprehensive water monitoring mechanisms and emergency response procedures, and organize regular drills
Transition Risks 1 2	Total greenhouse gas emissions management and carbon taxes and fees	Restrictions on the expansion of production capacity and increased operational costs	Set active carbon reduction targets: Commit to using 100% of renewable energy in all company operations by 2050
	Net zero emissions	• Increased costs due to the installation and operation of carbon reduction equipment • Increased costs due to the purchase of renewable energy and carbon rights	• Continue to take actions to reduce greenhouse gas emissions • Long-term plans for the purchase of carbon rights
	Opportunity factor		
Opportunities 1 8	Improve energy efficiency in plants	Reduce the cost of water and electricity in operations	Build green plants and obtain green building certificates
	Increase water resource efficiency and diversity water resources	Reduce the procurement cost for backup water sources	• Continue to implement water conservation measures • Start the use of reclaimed water

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Financial Impact Analysis for Transition Scenarios

As the transition risks of climate change such as changes in regulations and market demand may have a long-term and significant impact on the Company's operations, VisEra has estimated the cost of transition required for the carbon reduction strategy under three different scenarios, including the government's Pathway to Net Zero Emissions, the SSP1-1.9 pathway in the IPCC's Sixth Assessment Report (AR6), and the net-zero carbon reduction pathway by 2050 advocated by the Science-Based Targets (SBT) initiative. We ultimately compared the risks to the BAU strategy (risks due to any inaction by VisEra) to measure the potential financial impacts of different strategies under different scenarios.

Climate scenario	Financial impact of the BAU strategy	Cost of transition required for the carbon reduction strategy
Government's Pathway to Net Zero Emissions	A greater gap between carbon emissions and the government's net-zero target incurs a higher regulatory risk of carbon penalties. However, as the proportion of renewable energy use increases after 2035, the carbon emission coefficient from purchased electricity will decrease each year. Therefore, the regulatory risk will be gradually reduced.	In order to meet the government's requirements for obtaining carbon credits under the net-zero target, we will mainly use renewable energy to attain the target. Assume that the renewable energy cost is NT$4.58/kWh, the cost before 2025 will be approximately 0.1% of revenue and total expenditures will eventually reach 0.3% of revenue by 2050.
SSP1-1.9 pathway in IPCC AR6	Due to a higher market demand for low-carbon products, failure to take action to reduce carbon emissions may result in a loss of 40% of the existing demand for low-carbon products. In addition, the carbon tax would increase to nearly 2.6% of revenue by 2050.	The expansion of the purchase of renewable energy in 2025 would result in a rapid reduction in carbon emissions, but the carbon tax would continue to rise each year and peak in around 2030 and then decreasing with the reduction of carbon emissions. Carbon removal technologies will be employed starting from 2040. The total cost will reach approximately 0.8%~0.9% of revenue.
SBT Pathway to Net Zero Emissions	The conditions are similar to that of SSP1-1.9, except for the time for attaining net zero emissions. Therefore, the transition risks for inaction are the same and the potential financial impact is the same.	By 2035, the total cost expenditures will exceed 0.1% of revenue. However, when the target of attaining net zero by 2045 is met, the risks of carbon taxes would drop to zero and the Company could avoid all market risks.

5.2.2 Greenhouse gas inventory

Scope 1 greenhouse gas emissions: 5,728 metric ton-CO_2e

Scope 2 greenhouse gas emissions: 23,263 metric ton-CO_2e

Scope 3 greenhouse gas emissions: 18,448 metric ton-CO_2e

VisEra established a voluntary greenhouse gas inventory system in 2013. We referenced ISO 14064 standards and the WBCSD/WRI Greenhouse Gas Protocol, and regularly inventory greenhouse gas emissions every year to monitor greenhouse gas usage and emissions, verify the effectiveness of reduction actions, and obtain third-party verification. In 2022, VisEra's Scope 1 greenhouse gas emissions totaled 5,728 metric tons - CO_2e. The main sources of emissions were the gases used in the manufacturing process (nitrogen trifluoride, perfluorinated compounds, carbon dioxide, etc.), VOC pollution control equipment, fuels such as natural gas, gasoline, and diesel used in emergency generators and kitchens, and fugitive emission sources such as septic tanks and fire safety equipment. Scope 2 greenhouse gas emissions totaled 23,263 metric tons CO_2e and were primarily from indirect emissions in energy use. We will continue to focus on the low carbon transformation and energy efficiency management with the ISO 50001 energy management system.

VisEra regards renewable energy as an important strategy for attaining net zero emissions. In 2022, VisEra used 100% renewable energy for the Hsinchu office and 36.6% in the entire Hsinchu Plant. We continued to optimize process greenhouse gas usage and maximize exhaust gas reduction as our benchmark actions. 100% of new and existing plants are equipped with onsite high-performance pollution reduction equipment with local scrubbers (LSC) and existing plants continuously replace inefficient LCS. We have taken concrete actions to effectively reduce direct emissions of Scope 1 greenhouse gases by 17,975 tons of CO_2e.

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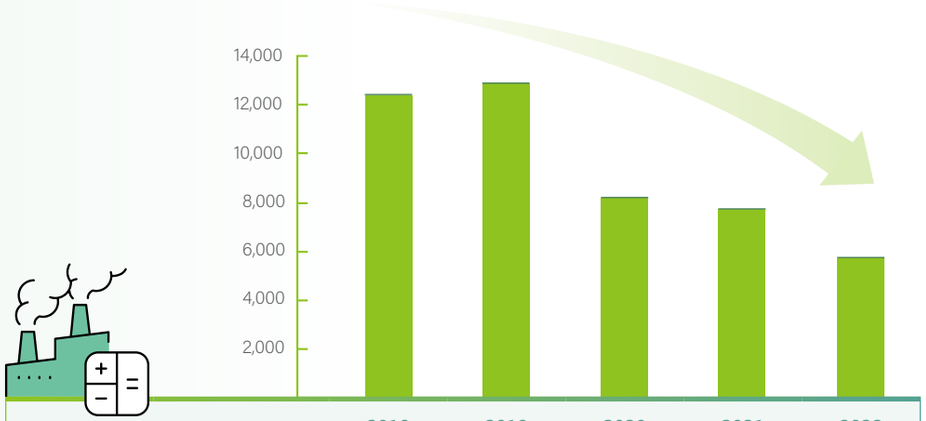
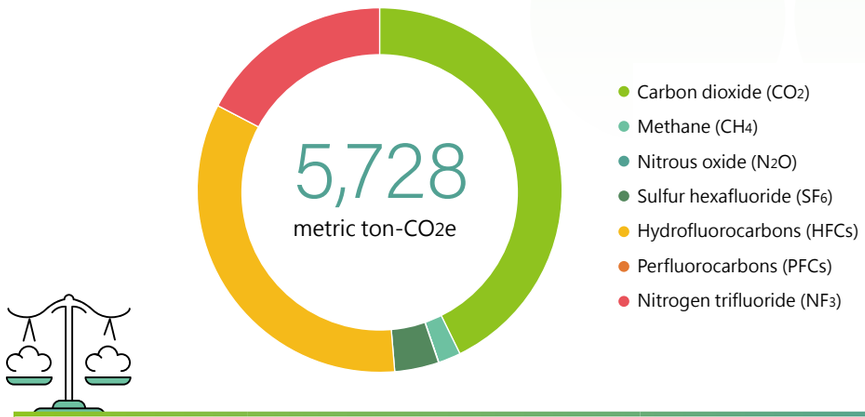
Scope 1: Greenhouse gas emissions



		2018	2019	2020	2021	2022
Scope 1: Greenhouse gas emissions (metric ton-CO_2e)		12,397	12,904	8,167	7,725	5,728
	● Hsinchu Plant	12,394	12,901	8,164	7,722	5,725
	● Zhongli Plant	3	3	3	3	3
Emission intensity (metric ton-CO_2e / 8" equivalent wafer mask layer)	Hsinchu Plant	0.0024	0.0021	0.0006	0.0005	0.0005
	Zhongli Plant	0.00002	0.00002	0.00001	0.00001	0.000004

Note1: In terms of the organizational boundaries, we adopted the 100% operation control methodology and included the Hsinchu Plant and Zhongli Plant of VisEra. Zhongli Plant for independent inspection.
Note2: We used the IPCC's 4th Assessment Report in 2007 as the main reference for determining the GWP value. Greenhouse gas emissions are based on the Greenhouse Gas Emission Factor Management Table Version 6.0.4 of the Environmental Protection Administration.
Note3: We have set up onsite high-performance pollution reduction equipment with local scrubbers (LSC) since 2020. We added one LSC and replace two LSCs with lower scrubbing rates in 2022 to effectively reduce fluorinated gas emissions in the manufacturing process.
Note4: No process gases are used in the Zhongli Plant, and we appointed the lessor to process waste gas treatment. Therefore, the emissions cannot be quantified and we only included the septic tank into the calculation.

Scope 1: Greenhouse gas emission ratios



	2022 emissions (metric ton-CO_2e)	Percentage (%)
Carbon dioxide (CO_2)	2,449	42.75%
Methane (CH_4)	114	1.99%
Nitrous oxide (N_2O)	1.6	0.03%
Sulfur hexafluoride (SF_6)	224	3.91%
Hydrofluorocarbons (HFCs)	1,947	33.99%
Perfluorocarbons (PFCs)	0	0.00%
Nitrogen trifluoride (NF_3)	993	17.33%

Note1: In terms of the organizational boundaries, we adopted the 100% operation control methodology and included the Hsinchu Plant and Zhongli Plant of VisEra. Zhongli Plant for independent inspection.
Note2: We used the IPCC's 4th Assessment Report in 2007 as the main reference for determining the GWP value. Greenhouse gas emissions are based on the Greenhouse Gas Emission Factor Management Table Version 6.0.4 of the Environmental Protection Administration.

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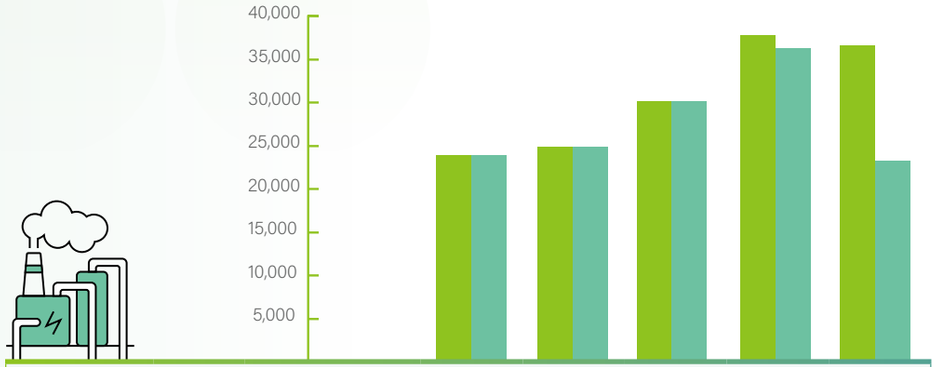
Scope 2: Greenhouse gas emissions

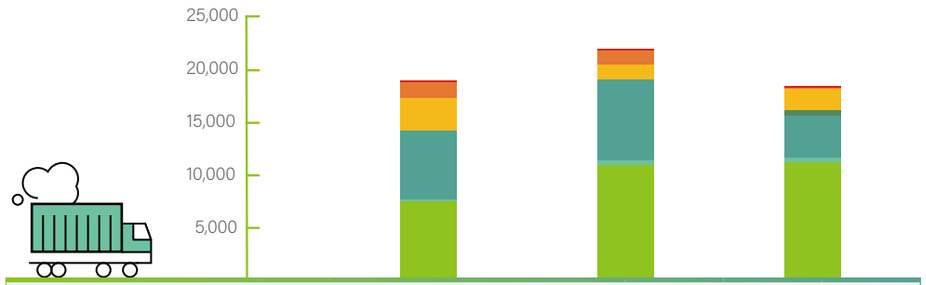


			2018	2019	2020	2021	2022
Scope 2: Greenhouse gas emissions (metric ton-CO_2e)		Location-based method	23,948	24,881	30,148	37,797	36,578
		Market-based method	23,948	24,881	30,148	36,291	23,263
	Hsinchu Plant	Location-based method	23,711	24,636	29,905	37,563	36,343
		Market-based method	23,711	24,636	29,905	36,057	23,029
	Zhongli Plant	Location-based method	237	245	243	234	234
		Market-based method	237	245	243	234	234
Emission intensity (metric ton-CO_2e / 8" equivalent wafer mask layer)	Hsinchu Plant	Location-based method	0.0045	0.0039	0.0022	0.0025	0.0029
		Market-based method	0.0045	0.0039	0.0022	0.0024	0.0018
	Zhongli Plant	Location-based method	0.0016	0.0016	0.0016	0.0016	0.0016
		Market-based method	0.0016	0.0016	0.0016	0.0016	0.0016

Note 1: In terms of the organizational boundaries, we adopted the 100% operation control methodology and included the Hsinchu Plant and Zhongli Plant of VisEra. Zhongli Plant for independent inspection.
Note 2: We used the IPCC's 4th Assessment Report in 2007 as the main reference for determining the GWP value. Greenhouse gas emissions are based on the Greenhouse Gas Emission Factor Management Table Version 6.0.4 of the Environmental Protection Administration.
Note 3: Scope 2 greenhouse gas emissions are calculated based on the electricity carbon emission coefficient announced by the Bureau of Energy, Ministry of Economic Affairs.
Note 4: The intensity of Scope 2 emissions decreased in 2022 due to the implementation of several energy conservation measures in the plants and the increase in the use of renewable energy (detailed in the Energy Management chapter).

To strengthen the integrity of the GHG inventory in the value chain, VisEra has included the quantification of Scope 3 emissions and obtained external verification starting from 2020. VisEra referenced the 15 types of Scope 3 emissions defined in the WBCSD/WRI Greenhouse Gas Protocol Scope 3 Calculation Guidance and estimated the categories of significant indirect emissions, taking into account factors such as ease of obtaining activity data, accuracy of emission coefficients, time required for data collection, and compliance obligations. Emissions from employee commutes have been included in the inventory since 2022. The results show that the areas with significant Scope 3 greenhouse gas emissions were raw material production and energy-related activities. We will actively work with suppliers to implement effective action plans and create a sustainable supply chain.

Scope 3: Greenhouse gas emissions



Scope 3: Greenhouse gas emissions (metric ton-CO_2e)	2020		2021		2022	
Purchases of products and services	7,534	40%	11,014	50%	11,261	61%
Disposal of waste from operations	302	1%	432	2%	432	2%
Fuel and energy-related activities	6,404	34%	7,634	35%	3,991	22%
Employees commutes	–	–	–	–	502	3%
Downstream leased assets	3,138	16%	1,439	6%	2,039	11%
Upstream transportation and distribution	1,511	8%	1,279	6%	57	0%
Downstream transportation and distribution	136	1%	170	1%	166	1%

Note 1: Waste from operations include solid and liquid waste
Note 2: Scople 3 emissions are only calculated for the Hsinchu plant

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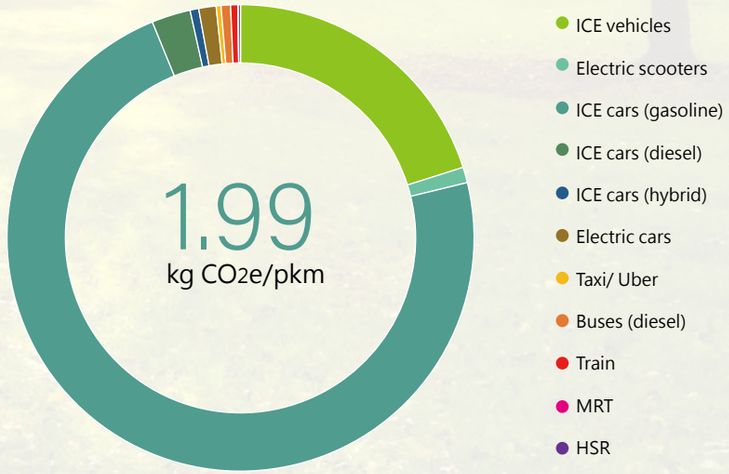
Spotlight

Analysis of carbon emissions from employees' commutes

As the impact of global warming on human life intensifies, the net-zero transformation becomes more than merely a matter of a company's competitiveness in the international market, and it comes a key element for the sustainable development of the company. VisEra has over 1,400 employees. To obtain information on the greenhouse gas emissions associated with employee commutes, we conducted a survey of employees' commute patterns in 2022 with methods provided in the "GHG Protocol Releases Scope 3 Calculation Guidance" created by the World Business Council for Sustainable Development (WBCSD). The results are used as references for the Company's subsequent efforts to promote low-carbon commutes. The results show that the greenhouse gas emissions from commutes of VisEra employees averaged 1.99 kg CO_2e/person-day and the main contribution was from cars and motorcycles powered by fossil fuels. According to Noussan et al. (2022), electric vehicles and mass transit vehicles generate only 15-59% of the greenhouse gas emissions of such vehicles and motorcycles powered by gasoline and diesel. VisEra will encourage employees to use low-carbon transportation, but also evaluate the increase of parking points and coverage of transportation vehicles to build a more complete low-carbon connection network and reduce the environmental impact of employees' commuting process.

Averaged kg CO_2e/person-day ● **Method of commute**



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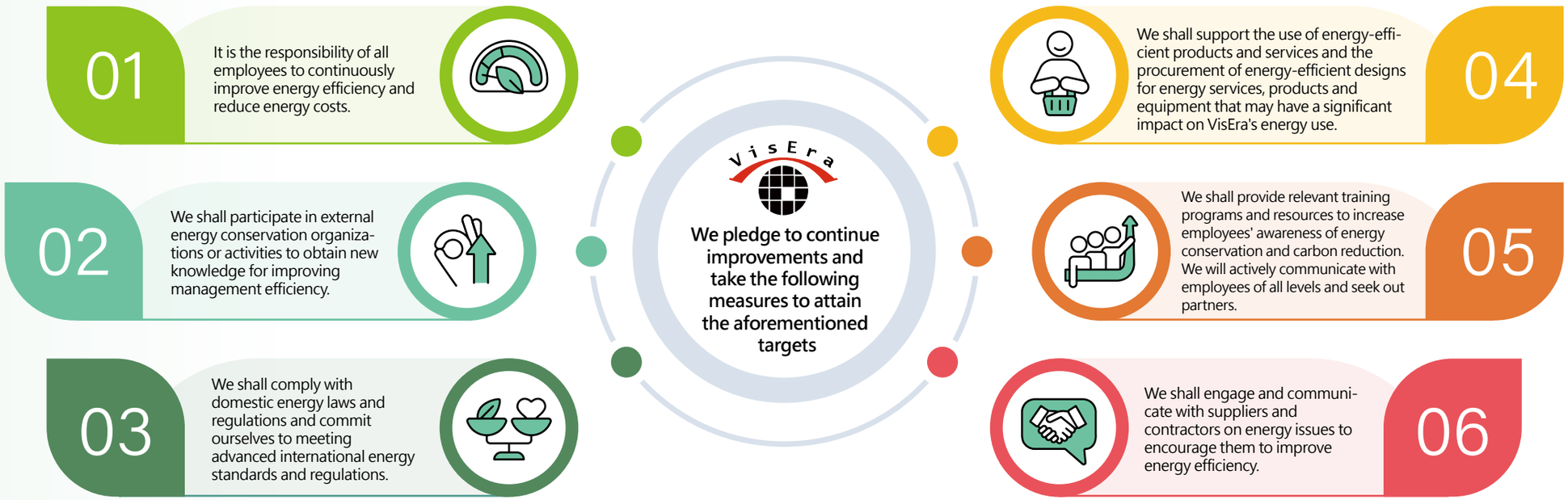
5.3 Energy Management

5.3.1 Energy Management Policy

To establish a sound energy management system, VisEra aims to improve energy efficiency and reduce greenhouse gas emissions to attain sustainable management and development. VisEra's main businesses include the manufacturing and process services for color filters for image sensor and tests of IC components. The use of energy in the manufacturing process under routine operation and management must meet the requirements in energy regulations and standards based on international norms. VisEra is committed to maintaining a high level of corporate social responsibility and fulfills its corporate citizenship obligations.



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5.3.2 Energy Structure

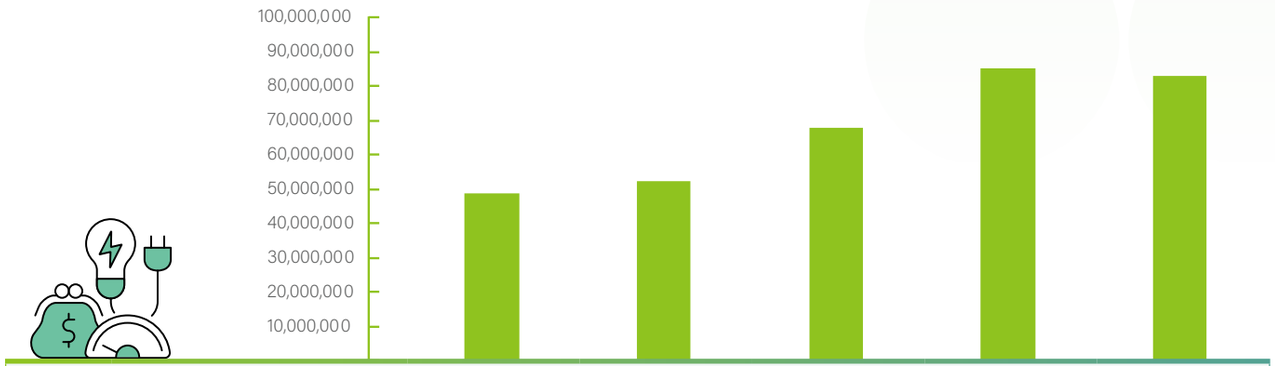
energy
Total consumption 82,993 MWh

Externally purchased
electricity from renewable energy 26,157 MWh

renewable energy
Percentage in total electricity consumption 36.6%

VisEra's externally purchased electricity accounts for the largest share of energy use in the production process with 86.6% while natural gas accounts for 12.9% and diesel accounts for 0.49%. Therefore, the main target for energy conservation is to reduce the use of electricity and natural gas. Due to the increase in production capacity, energy consumption in 2022 reached 82,993,233kWh, which was approximately 2.39% lower than that of 2021. The purchased electricity totaled 45,704,700 kWh; the purchased renewable energy totaled 26,157,000 kWh; natural gas consumption totaled 10,724,948 kWh; the unit electricity consumption per 8" equivalent wafer/mask was 5.6533 kWh/mask; and the unit natural gas consumption per 8" equivalent wafer/mask was 0.844 kWh/mask. The decrease in energy consumption in the past four years demonstrated the continuous improvement in energy management by VisEra. The slightly higher energy consumption per wafer in 2022 compared to 2021 was due to market adjustments & production capacity utilization adjustments.

Total energy consumption



		2018	2019	2020	2021	2022
● Total energy consumption (kWh)		48,645,203	52,433,228	67,992,354	85,031,977	82,993,233
Hsinchu Plant	Electricity from non-renewable energy	42,799,721	46,222,307	58,752,495	71,827,282	45,244,325
	Electricity from renewable energy - external purchase	0	0	0	2,999,000	26,157,000
	Natural gas	5,316,116	5,527,445	8,462,949	9,396,625	10,724,948
	Diesel	85,597	224,692	299,589	343,457	406,585
	Energy intensity (kWh/8" equivalent wafer - layer)	4.04	4.35	5.65	7.08	6.91
Zhongli Plant	Electricity from non-renewable energy	443,769	458,784	477,321	465,613	460,375
	Electricity from renewable energy - external purchase	0	0	0	0	0
	Diesel	0	0	0	0	0
	Energy intensity (kWh/8" equivalent wafer - layer)	0.57	0.59	0.62	0.60	0.60

Note 1: Externally purchased electricity is sourced from wind power and small water power.
Note 2: 1 m3 natural gas = 10.467 kWh; unit conversion coefficient provided for reference only: Bureau of Energy's Energy Statistics Handbook (2021), IEA - Key World Energy Statistics (2020).
Note 3: 1 L diesel = 10.6996 kWh; unit conversion coefficient provided for reference only: Bureau of Energy's Energy Statistics Handbook (2021), IEA - Key World Energy Statistics (2020).
Note 4: 1 kWh= 0.0036 GJ. 2022 total energy consumption was approximately 298,776 GJ. (Renewable Energy =94,165.2 GJ ; Non-renewable Energy =204,610.4 GJ)
Note 5: The Zhongli plant is a shared public facility, and the natural gas usage is included in the lease consolidation process and the non-renewable power is obtained from the meter reading by itself.
Note 6: The information for 2018~2021 has been restated due to changes in the quoted data for total energy consumption.

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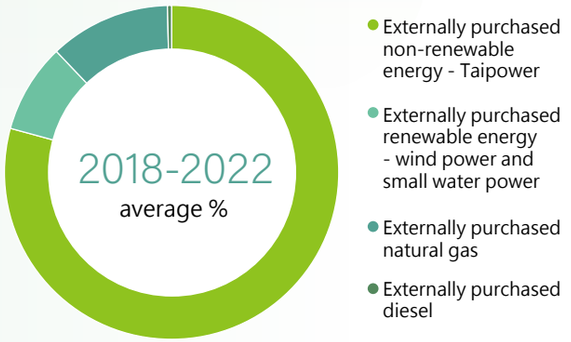
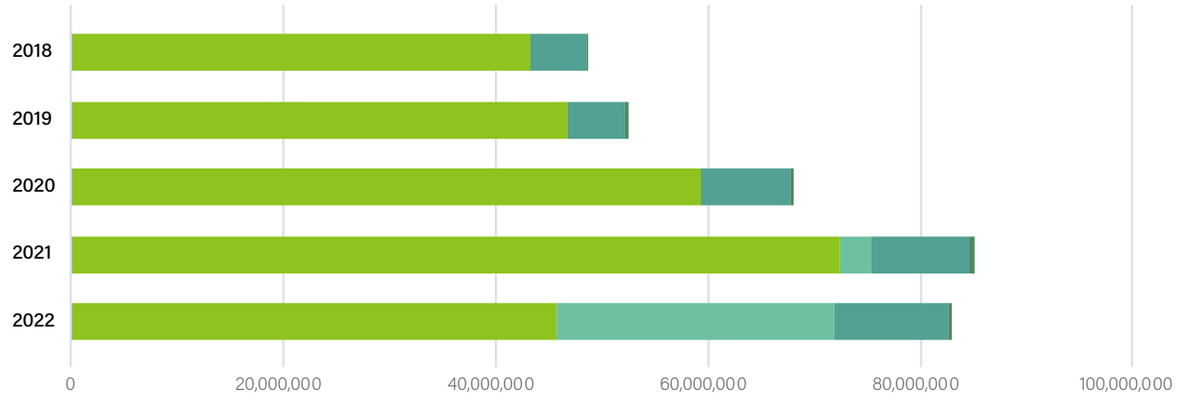
Percentage of equivalent energy consumption



- Externally purchased non-renewable energy - Taipower
- Externally purchased renewable energy - wind power and small water power
- Externally purchased natural gas
- Externally purchased diesel



Percentage of equivalent energy consumption	
Externally purchased non-renewable energy - Taipower	79.25%
Externally purchased renewable energy - wind power and small water power	8.65%
Externally purchased natural gas	11.70%
Externally purchased diesel	0.40%

Hsinchu Plant & Zhongli Plant					
Unit: kWh	2018	2019	2020	2021	2022
Externally purchased non-renewable energy - Taipower (a)	43,243,490	46,681,091	59,229,816	72,292,895	45,704,700
Externally purchased renewable energy - wind power and small water power(b)	0	0	0	2,999,000	26,157,000
Externally purchased natural gas (c)	5,316,116	5,527,445	8,462,949	9,396,625	10,724,948
Externally purchased diesel (d)	85,597	224,692	299,589	343,457	406,585
Total energy consumption (a+b+c+d)	48,645,203	52,433,228	67,992,354	85,031,977	82,993,233

Note 1: The scope of calculation includes VisEra's Hsinchu Plant & Zhongli Plant
2: Externally purchased electricity is sourced from wind power and small water power.
3: The total energy consumption in 2022 was approximately 298,776 GJ; percentage of electricity from the grid > 85%; percentage of renewable energy > 30%

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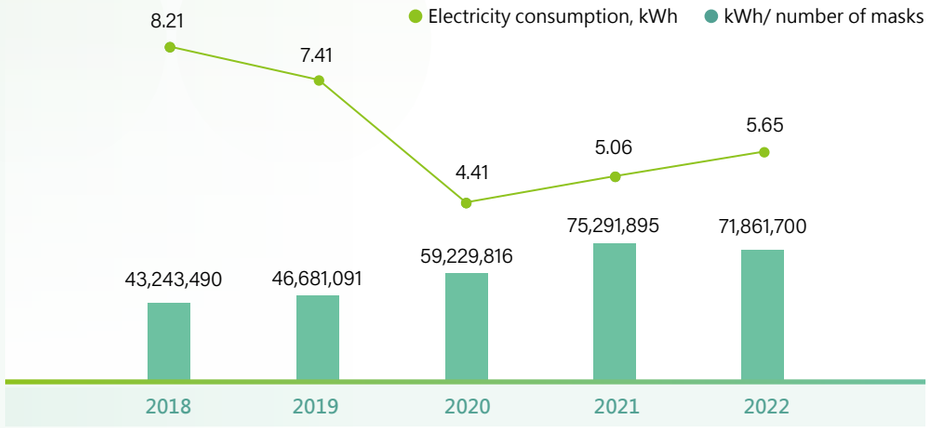
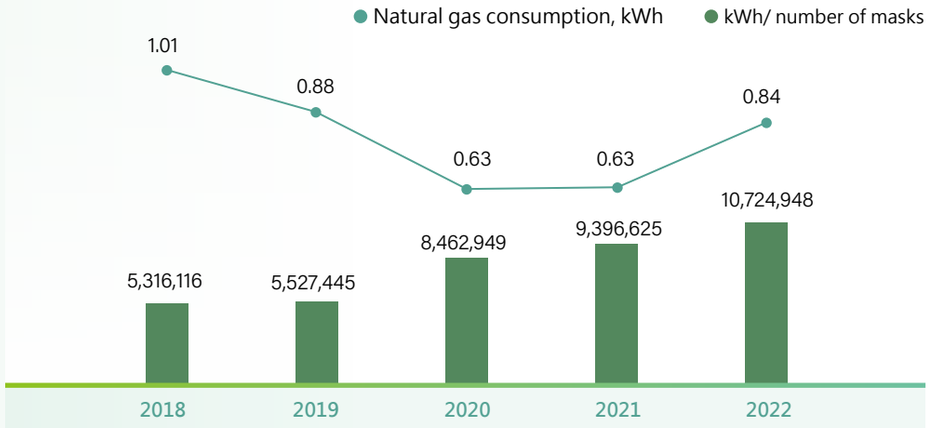
Electricity consumption in past years



Note 1: The scope of calculation includes VisEra's Hsinchu Plant & Zhongli Plant
2: The slight increase in 2022 is primarily due to market changes and a decrease in production capacity utilization.
3: The company's total wafer electricity consumption per mask in 2022 was 5.65 kWh.

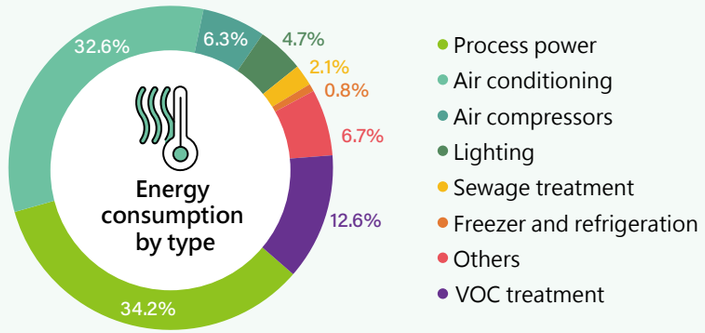
Natural gas consumption in past years



Note 1: The scope of calculation includes VisEra's Hsinchu Plant & Zhongli Plant
2: The slight increase in 2022 is primarily due to market changes, equipment reallocation, and a decrease in production capacity utilization.
3: The company's total wafer natural gas consumption per mask in 2022 was 0.84 kWh.

Energy consumption by type

Plant			2022 consumption (kWh)	Percentage (%)
Hsinchu Plant	Electricity	Process power	28,045,737	33.8%
		Air conditioning	26,757,041	32.2%
		Air compressors	5,253,472	6.3%
		Lighting	3,801,090	4.6%
		Sewage treatment	1,759,457	2.1%
		Dust collection equipment	381,769	0.5%
		Freezer and refrigeration	630,749	0.8%
		Others	4,531,431	5.5%
	Natural gas	VOC treatment	10,479,780	12.6%
	Diesel	Generators	406,585	0.5%
Zhongli Plant	Electricity	Process power	356,871	0.4%
		Air conditioning	331,973	0.4%
		Lighting	74,694	0.1%
		Others	182,585	0.2%



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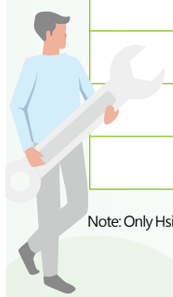
5.3.3 Improve Energy Efficiency

To effectively reduce the environmental impact of the greenhouse effect and reduce energy consumption, VisEra established an energy management organization to set energy conservation and carbon emissions reduction targets and plans. We coordinated and integrated departments to promote energy conservation and carbon reduction strategies and programs, and continuously launch and evaluate energy conservation technologies and implement energy improvement plans for related equipment. In 2022, we replaced the high-efficiency clean room fan filter unit (FFU) and replaced the traditional AC motor FFU in FAB 3F/5F Phase 1 clean room with DC brushless motor FFU. The energy saving target for 2022 is 2%, and the actual annual energy saving is 2.3%. 2023 energy saving target is divided into two aspects: shutdown energy saving and efficiency improvement, and the total annual energy saving target is 1.5%, which is better than the annual energy saving rate according to the energy regulations with the spirit of continuous improvement. In 2022, the high efficiency clean room fan filter unit (FFU) in FAB 3F/5F Phase 1 clean room replacement project will replace the traditional AC motor FFU with DC brushless motor FFU, saving a total of 764,310 kWh, and in accordance with the latest 2021 power emission coefficient (0.509 kg-CO_2e/kWh) announced by the Energy Bureau. The total cumulative savings is 764,310 kWh. In 2022, we replaced the old chiller with the high-efficiency chiller CH-101, which saved 402,804 kWh and reduced CO_2 emissions by 205metric tons. In addition to implementing electricity conservation measures, improving energy efficiency, and installing renewable energy facilities, we also purchased renewable energy and obtained 26,157 renewable energy certificates in 2022, which was equivalent to a reduction of 13,314 metric tons of CO_2 emissions. We also encourage employees to turn off appliances that are not used in offices and public areas to reduce energy consumption. These measures are supported by related awareness campaigns and training programs to enhance employees' awareness and habit of energy conservation and carbon reduction.

Electricity conservation results in past years

Year	Annual electricity consumption (kWh)	Annual electricity conservation (kWh)	Average electricity conservation rate (%)
2018	42,799,721	458,358	1.1
2019	46,222,307	390,889	0.8
2020	58,752,495	647,591	1.1
2021	75,291,895	1,939,714	2.6
2022	71,861,700	1,674,306	2.3

Note: Only Hsinchu Plant data are included: As Zhongli Plant is leased, data from public facilities are not included in energy conservation calculations.



Energy conservation projects and results

Project type/name	Starting year	2022 electricity conservation (kWh)	2022 carbon emissions reduction (metric ton-CO_2e)	Cumulative to 2022 electricity conservation (kWh)	Cumulative to 2022 carbon emissions reduction (metric ton-CO_2e)
Gases					
Expanded two 315 kW inverter type air compressors (AC-404, AC-405) with 95.3% motor efficiency, improving efficiency and capacity.	2021	177,606	90.40	1,065,636	542.41
Air conditioning					
Purchase of high-efficiency chillers (No. CH-104) to increase capacity and efficiency.	2021	288,486	146.84	865,458	440.52
Replaced the FFU in 1,745 units on FAB 3F & 5F phase 1.	2022	764,310	389.03	764,310	389.03
Replaced the CH-101 chiller with a high-efficiency chiller to increase efficiency.	2022	402,804	205.03	402,804	205.03
Process power					
Central UPS Eco Mode: Switched off the inverter of the central UPS and switched the power supply to a static bypass for direct power supply.	2021	36,500	18.58	438,000	222.94
Process emissions					
AAS System: Replaced the Sex-03 airfoil impellers	2021	4,600	2.34	13,800	7.02

Note: The carbon emission coefficient refers to the 2021electricity emission factor announced by the Bureau of Energy in July 2021: Every kWh of electricity emits 0.502 kg-CO_2e/kWh

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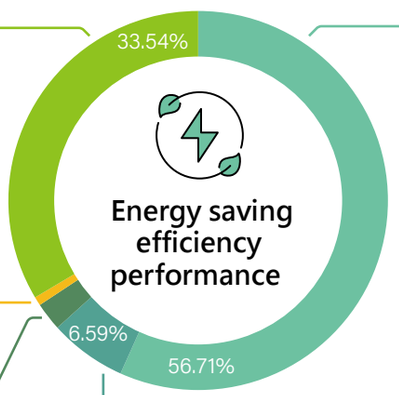
Energy efficiency performance

2018~2022



Gas

2018 CDA cooling water supplied with warm water at 25°C instead of ice water at 7°C and waste heat recovered
Energy saving by 458,358 kWh/year

2019 Newly purchased variable frequency air compressor (AC-103) introduced cooling water heat recovery to reduce the use of ice water

Energy saving by 237,816 kWh/year

supply the recovered hot water to air conditioning temperature control for use
Energy saving by 315,360 kWh/year

2021 Frequency conversion air compressor parallel system operated, load scheduling
Energy saving by 1,065,636 kWh/year

Illumination

2019 Three 8-meter street lamps and three high lamps for guest parking spaces in the road dock area on the north side of the plant area were composite metal lamps, which featured relatively high power consumption, so they were replaced by LED lamps.
Energy saving by 10,196 kWh/year

Process exhaust

2019 Air volume balance of exhaust system reduced pressure loss and optimized fan operation
Energy saving by 131,254 kWh/year

2021 AAS Systm: Replaced Sex-03 impeller with wing section type

Energy saving by 13,800 kWh/year

Air conditioner

2020 Added high-efficiency FFU (Fan Filter Unit) in the upgrading and reconstruction project of FAB 1F clean room
Energy saving by 215,829 kWh/year

DC brushless motor FFU was selected to replace the traditional AC motor FFU
Energy saving by 192,037 kWh/year

2021 Newly purchased high-efficiency ice water main engine (No. CH-104) to improve capacity and efficiency
Energy saving by 865,458 kWh/year

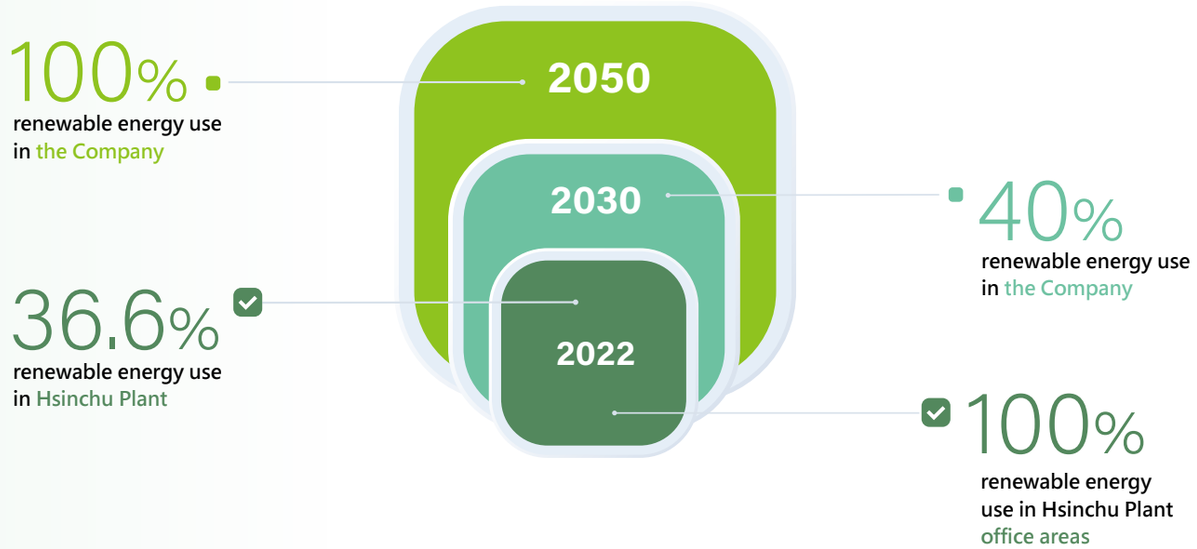
2022 Replaced CH-101 ice water main engine with high efficiency ice water main engine to improve efficiency
Energy saving by 402,804 kWh/year

Replacement of 1st phase FFUs on FAB 3F &5F totaling 1,745 units
Energy saving by 764,310 kWh/year

Process power

2021 Central UPS Eco Mode: Turned off the inverter of Central UPS and switched to direct power supply with static bypass
Energy saving by 438,000 kWh/year

5.3.4 Renewable Energy



VisEra understands our corporate responsibility to the environment. In addition to continuing to improve energy efficiency, we are actively involved in the use and purchase of renewable energy by paying close attention to the Science Based Targets (SBT) initiative and the RE100 Global Renewable Energy Initiative to limit global warming to 2° C. We also actively participate in the use and purchase of renewable energy. We set the target for attaining 100% renewable energy use in office areas by the end 2022 and attaining 36.6% renewable energy use in the Company. We used carbon credits to offset the greenhouse gas emissions of the natural gas used in the kitchen to attain the short-term goal of net zero emissions in the office. Our medium-term goal is to expand the stable supply of renewable energy and attain 40% renewable energy use in the Company by 2030, and our long-term goal is to attain 100% renewable energy use in the Company by 2050.

The Company will purchase land-based wind power and small hydropower in 2021, and will introduce land-based wind power in November 2021, and will start to transfer small hydropower in June 2022, with a total of 29,156,000 units of electricity to be transferred by 2022, and will obtain 29,156 renewable energy certificates.By 2022, VisEra has signed contracts for the purchase of renewable energy including 3,600KW of wind power systems with an estimated annual generation capacity of 9,000 MWh, and a 6,250KW hydroelectric system with an estimated annual generation capacity of 24,375 MWh. We estimate that we can obtain approximately 33,375 renewable energy certificates each year, which is equivalent to a reduction of 0.01699 million metric tons of carbon emissions. VisEra also set up solar energy systems totaling 29.8KW in 2014, which fully demonstrated our commitment to green energy and our steadfast support for clean energy.

Note: Only Hsinchu Plant data are included in the renewable energy statistics.

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5.4 Water Resource Management

5.4.1 Water Resource Risk Management

Water resources are critical for the semiconductor production process. VisEra has adopted water risk assessment tools of the World Resources Institute (WRI) to identify the water risks in the area where the plant is located, using water availability, environmental discharge quality, and regulatory and reputational risk as key indicators. The results of the assessment for the Company's Hsinchu Plant, and new Longtan Plant sites are all medium to low risk. We enforced the three strategies of "implement water use plans, seek opportunities to conserve water, and control pollution channels" and we set up have mechanical or electronic flow meters on all water inlets and key water pipelines. We assign on-duty personnel to record meter readings every day. The engineer in charge of the water system compiles statistics and sets water use plans based on the meter reading records. After evaluating the capacity of the system in 2022, we changed the source of water for the plant-side waste gas scrubber from tap water to reclaimed water to demonstrate our commitment to water conservation. We set up a Water Supply Emergency Response Team with representatives from relevant departments to discuss future water shortages, sources for purchasing water, and ways to replenish sources of purchased water. They divided the work based on the resolution to arrange the water purchase and replenishment schedule and implement water resource risk management.

Relationship between water consumption balance and upstream and downstream environment

		Quantitative data of water resources in 2022 (unit: megaliters)	Percentage (%)
Upstream water supply source - total withdrawal		277.221	100%
	Tap water plant withdrawal	270.583	97.6%
	Rainwater collection volume	6.638	2.4%
Plant regional balance - total water consumption		845.591	100%
	Domestic water consumption	26.281	3.1%
	Pure water system - process water consumption	190.900	22.6%
	Reclaimed water recycling volume	467.549	55.3%
	Cooling tower water consumption	122.715	14.5%
	Waste gas scrubbing water consumption	36.777	4.3%
	Watering system water consumption	1.369	0.2%
Downstream effluent - total water discharge		163.681	100%
	Plant wastewater treatment volume	141.298	86.3%
	Domestic sewage discharge	22.383	13.7%
Total water consumption		113.540	

Note 1: The water resource statistics only included Hsinchu Plant and Zhongli Plant. Zhongli Plant is leased and the tap water withdrawal and wastewater effluent are included in the lessor's water treatment system and cannot be calculated separately.
Note 2: Rainwater collection involves the use of the plant's rooftop rainwater recovery and reuse system that collects rainwater for the rainwater recovery tank. It is filtered and used as a source of water in the reclaimed water system.
Note 3: Reclaimed water recycling refers to treatment of wastewater in the plant with advanced organic reclaim (AOR) and tetramethylammonium hydroxide (TMAH) recycling systems. They treat wastewater that can be reused in the process by filtration, adsorption, and neutralization, and redirect the treated wastewater to other systems.
Note 4: The pure water system directs tap water through adsorption, dosing, filtration, UV sterilization, and filtering processes for use on the production line and produces wastewater in the process.
Note 5: The cooling towers of the air-conditioning system uses the contact of water with air for cooling. Some of the water mist escapes from the cooling tower when the system operates and it causes water consumption.
Note 6: The waste gas scrubbing system mainly uses recycled reclaimed water. If the reclaimed water cannot replenish the water necessary for the scrubbing tower due to its supply of water to the cooling tower, tap water is used to replenish the supply.
Note 7: The wastewater is collected in the pipeline system and discharged into the sewer system of the Science Park after the pH is adjusted by dosing to meet the discharge standards.
Note 8: The Company's wastewater is discharged in accordance with the water quality standards specified for the sewer system of Hsinchu Science Park by Hsinchu Science Park Bureau, Ministry of Science and Technology.
Note 9: Total water consumption = total water withdrawal - total water discharge

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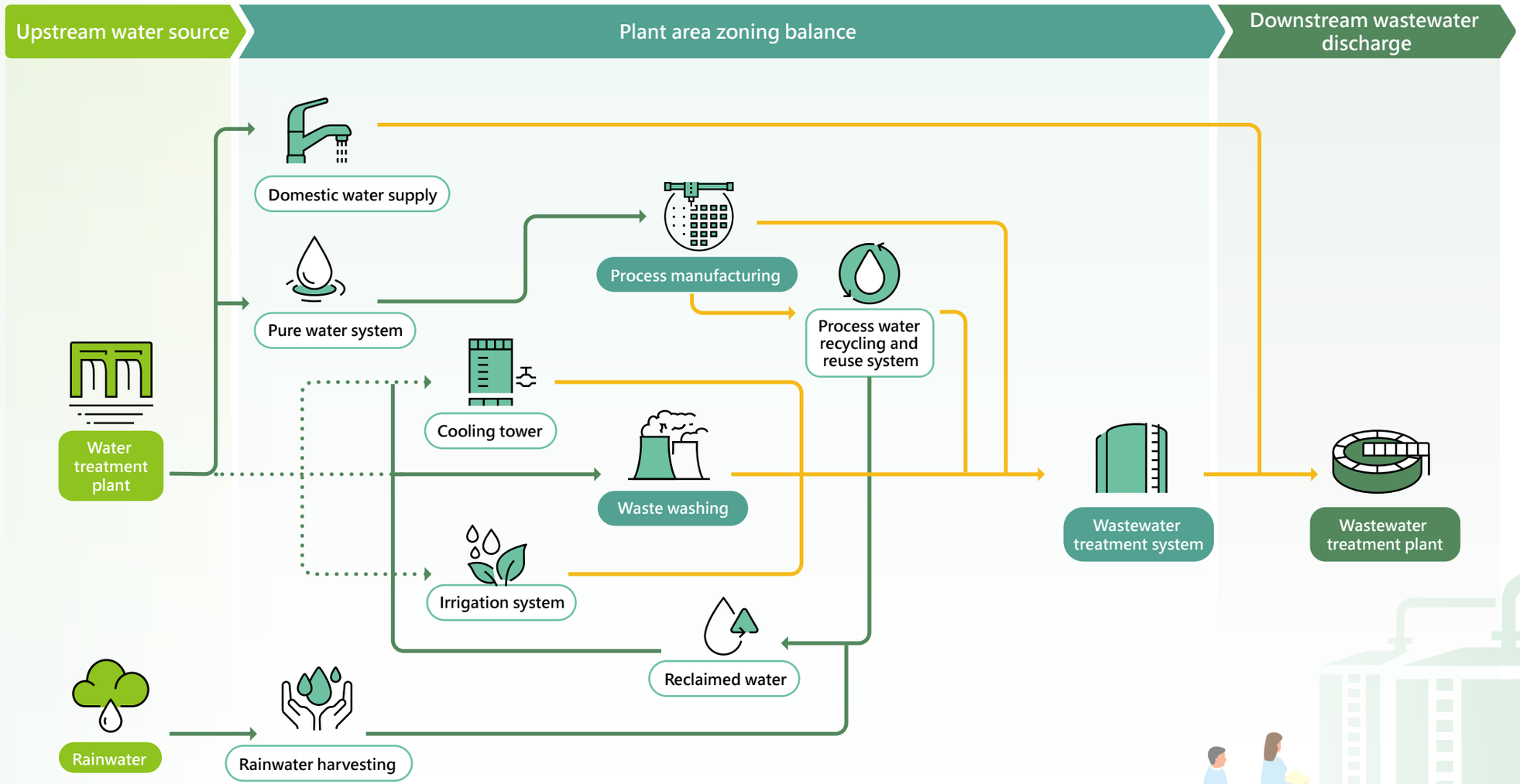

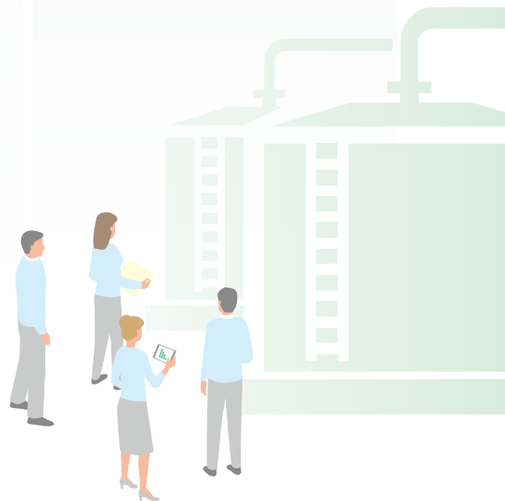

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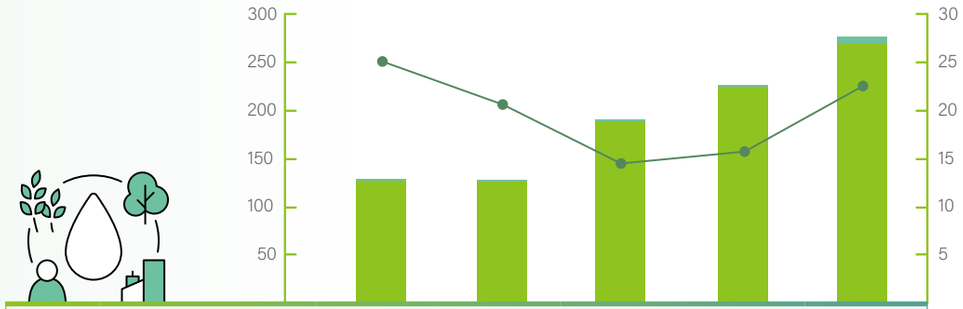
5.4.2 Water Resource Withdrawal

In 2022, VisEra's total water withdrawal totaled 232.637 megaliters and tap water was the main source, accounting for about 97.2%and rainwater recycling accounted for 2.8%.

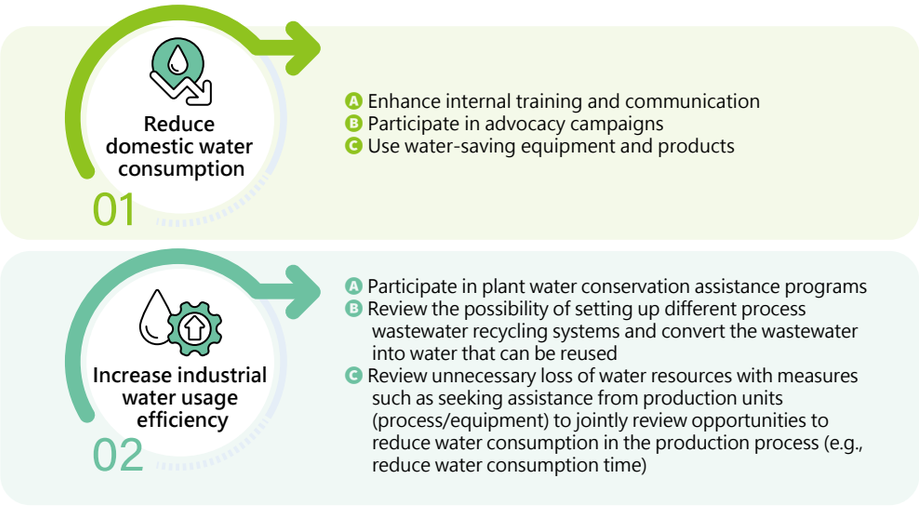
Total water withdrawal



	2018	2019	2020	2021	2022
Total water withdrawal (megaliters)	130.053	128.470	190.490	226.840	277.221
Tap Water	128.139	126.550	189.881	224.696	270.583
Rainwater	1.914	1.920	0.609	2.144	6.638
Water intensity (liter/8" equivalent wafer - layer)	25.05	20.59	14.47	15.77	22.66

Note 1: The statistics only included Hsinchu Plant and Zhongli Plant. Zhongli Plant is leased and the water withdrawal cannot be calculated separately.
Note 2: Due to the water shortage in 2021, the rainwater collection valves were opened around the clock and water is immediately directed into the recycling tank after it reaches a certain level. In addition, the inauguration of the Phase 2 plant increased the density of the rainwater collection pipelines and increased the volume of recycled rainwater.
Note 3: Water intensity increases in 2022 as production of more water-intensive products increases by approximately 33%.
Note 4: The information for 2018~2021 has been restated due to changes in the cited data for water intensity.

5.4.3 Water Conservation Measures and Recycled Water



Water conservation results in past years

Unit: megaliters

	2018	2019	2020	2021	2022
Cumulative water saved	0.290	0.650	1.200	1.245	14.068
Newly added water saved	0.290	0.360	0.550	0.045	12.822

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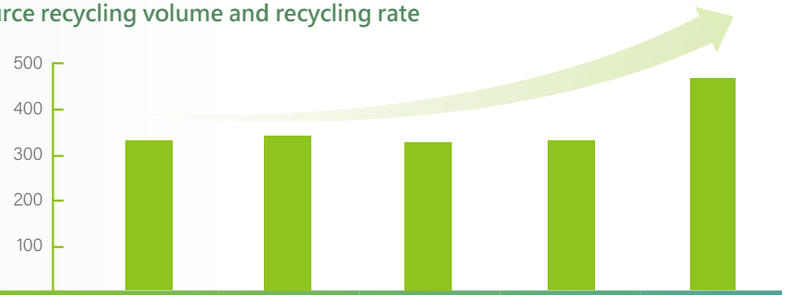
Water conservation measures	Water saved
Case 1 The make-up air unit (MAU) produces condensate during the humidity adjustment process of the air conditioner, and the original system was designed as a part of the wastewater system. We reviewed the system and decided that the water quality was still close to the tap water level, so we changed the condensate collection point from the wastewater collection tank to the reclaimed water collection tank. Based on the on-duty meter reading data, the recovery tank added 30.877 megaliters of water intake in this year. Based on the 7/20 ratio, we calculated that it reduced tap water withdrawal by 10.806 megaliters.	10.806 megaliters
Case 2 The central scrubber used for the process waste gas originally used tap water as the scrubbing liquid. To reduce the tap water withdrawal volume, we switched to using reclaimed water. The on-duty meter reading results showed that the waste gas scrubber used 5.761 megaliters of reclaimed water starting from May 24, 2022. Based on the 7/20 ratio, we calculated that it reduced tap water withdrawal by 2.016 megaliters.	2.016 megaliters

Note: Only Hsinchu Plant data are included
Note: The central scrubber used for the process waste gas originally used tap water as the scrubbing liquid. It switched to using reclaimed in 2022 and the water conservation volume was a significant increase compared to the previous year.

Water resource recycling volume and recycling rate



	2018	2019	2020	2021	2022
Total water recycled (megaliters)	332.760	340.769	328.154	332.478	467.549
Process water recycling rate (%)	88%	88%	88%	88%	88%

Note 1: Only Hsinchu Plant data are included
Note 2: The process gas scrubber (Central scrubber) originally used tap water as the scrubbing liquid. However, starting from 2022, it has been switched to recycled water, resulting in a significantly larger increase in water savings compared to the previous year.

Spotlight

Review the possibility of setting up different process wastewater recycling systems and convert the wastewater into water that can be reused so that water can be used approximately 2.73 times

To attain the goal of recycling process wastewater, the wastewater produced during the production process is first collected through separate pipelines based on the level of water content and whether it can/cannot be treated to avoid cross-contamination that could result in the inability to recycle any wastewater. In the first stage, the wastewater that can be recycled by preliminary filtration is directed into the reclaimed water collection system. In the second stage, the reclaimed water is produced after a special treatment system is installed. At present, due to cost and site restrictions, the wastewater with high water content and photoresist stripping solution is still disposed by contractors of outsourced services. If there is a breakthrough in treatment technology in the future, we will prioritize the recycling of this water source. After the concentrated efforts in the two stages, the water resource usage rate can be calculated as "(tap water consumption + reclaimed water) / tap water consumption = number of times a drop of water is used". It means that the water can be used approximately 2.73 times.

	High water content	Low water content
Treatment possible	• Pure water recycling, organic wastewater advanced recycling (stage 1) • TMAH wastewater, fluorinated wastewater (stage 2)	None
No treatment at the moment	Wastewater with photoresist stripping solution (planning stage)	Photoresist wastewater (outsourced treatment)

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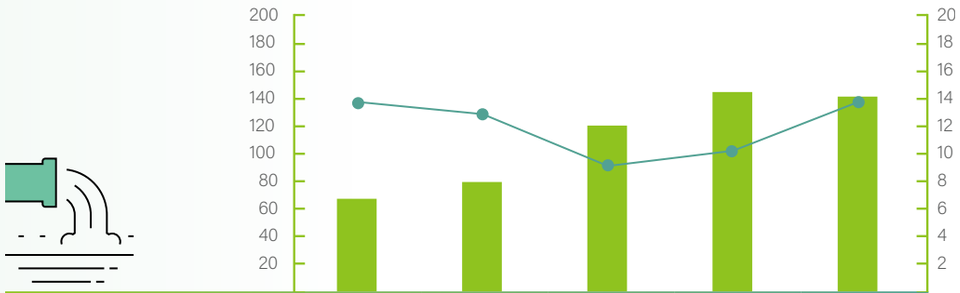
5.4.4 Effluent Management

VisEra actively develops water pollution prevention measures to reduce the potential impact in operations. We implement pollution prevention and treatment of wastewater quality indicators including biological oxygen demand (BOD), chemical oxygen demand (COD), fluoride ion concentration (F-), suspended solids (SS), and tetramethylammonium hydroxide (TMAH) discharge concentration. The indicators were in compliance with the discharge water standards of the Science Park. We also plan to expand the TMAH recovery system and the advanced organic reclaim (AOR) system to reduce the discharge concentration and increase the amount of reclaimed water. The average TMAH concentration of discharged wastewater is about 9.3mg/L in 2022 and the target TMAH concentration of discharged wastewater is <25mg/L in 2023.

Total wastewater discharge



	2018	2019	2020	2021	2022
Total wastewater discharge (megaliters)	67.938	79.204	120.148	145.005	141.298
Wastewater discharge intensity (liter/8" wafer equivalent - layer)	13.71	12.88	9.16	10.17	13.71

Note 1: Only Hsinchu Plant data are included. The process wastewater in Zhongli Plant is collected in the wastewater system of the lessor for treatment and recycling and cannot be verified.
Note 2: The information for 2018~2021 has been restated due to the change in the quoted data for total wastewater discharge.

Wastewater classification and recycling process

	Machine separation	Recycling system	Wastewater treatment	Recycling and reuse
Fluorinated wastewater	• Fluorinated wastewater	• Reclaimed exhaust gas scrubbing wastewater	• Fluoride acidification and mixing treatment	• Calcium fluoride
Acid-alkaline balance and organic wastewater	• Acidic wastewater • Alkaline wastewater • TMAH wastewater • Organic wastewater	• Organic wastewater recycling	• Acid-alkaline wastewater treatment • TMAH waste liquid recycling	• TMAH • Sulfuric acid
High-concentration waste solution	• Photoresist waste • Photoresist stripping solution recycling		• Photoresist solution recycling	• Photoresist

Case description

Tetramethylammonium hydroxide recycling and reuse: The TMAH recycling system uses resin absorption to remove the TMAH in the wastewater. After running for a certain period of time, it requires the use of sulfuric acid (H_2SO_4) for desorption and restoration of the absorption capacity of the resin. After the treatment, the waste solvent that contains sulfuric acid is separated by a contractor to produce TMAH and sulfuric acid to reuse resources and reduce the impact on the environment.

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5.5 Waste Management

5.5.1 Waste Production and Recycling

waste
Total waste quantity 2,348 tons

Resource recycling and reuse
including Alternative Energy 2,182 tons

Waste recycling rate
including Alternative Energy 93%

VisEra implements green manufacturing and upholds the waste management principle of "minimizing waste output and maximizing resource recycling". We prioritize "material recovery" and "energy recovery" instead of incineration and landfill to maximize the use of resources. VisEra's sales, production capacity, and process innovation has risen rapidly since 2020, and the use of chemical materials, consumables, and machine line cleaning and maintenance consumption increased significantly. In addition, our process innovation allowed us to use new materials, and we have thus produced a large amount of general and hazardous waste that are different from those in the past. Due to the technical and environmental constraints of waste disposal, the total annual material recycling rate has dropped from 74% to 55%. In 2021, VisEra began searching for waste disposal companies other than incineration/landfill operators to replace waste processing by incineration. We also worked with the Foundation of Taiwan Industry Service on the separation and purity enhancement of waste materials that would otherwise have no reuse value and converted them for use as auxiliary fuel. The fuel is used in lieu of traditional fuel that causes high pollution such as coal and natural gas. As a result, the recovery rate (including energy recovery) exceeded 90% in 2022. In 2022, the waste recycling volume reached 2,182 tons/year and the landfill rate was 0.21%. The landfill rate has been consistently lower than 1% for 17 consecutive years after the inauguration of the plant.

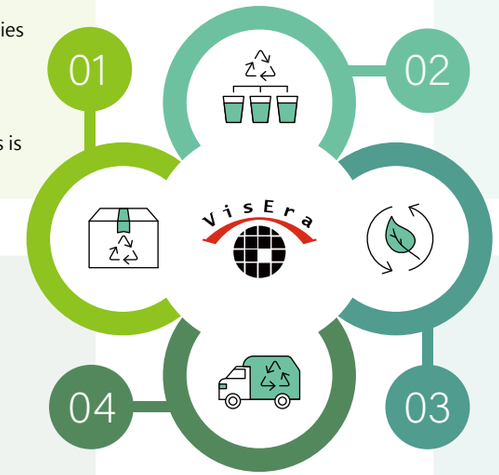
Full-process smart waste management procedures

		Waste generated (tons)	Ratio (%)
Resource output after use by VisEra	Raw materials → in-plant process → waste resources after use in process	2,348	100%
Recycling/reuse/disposal by outsourced service provider (waste resources after use in process)	Incineration	161	6.86%
	Landfill	5	0.21%
	Alternative energy	691	29.43%
	Recycled and reproduced products	1,491	63.5%
Reuse by other industries	Products produced from recycled resources for use in other industries	Industries: Materials for the optoelectronics, semiconductors, and chemical industries	

Note: Statistics include Hsinchu Plant and Zhongli Plant.

Joint reduction with the supply chain

Upstream and downstream companies work together to recycle wafer shipment packaging materials for reuse in product shipments. The percentage of recycled packaging materials used in product shipments is over 80%.



Waste production

- Sorting at the source and collection with separate pipelines
- Output tracking and in-plant reduction projects
- In-plant pre-processing, recycling, and reuse of waste resources

Waste resource recycling and reuse/disposal

- Recycling and reuse 63.5%
- Alternative energy 29.43%
- Incineration 6.86%
- Landfill disposal 0.21%

Process improvement waste reduction

- From 2015 to 2018, all employees continued to apply the CIT approach for waste reduction and reuse initiatives. We also optimized process parameters with the goal of using no harmful substances and reducing the use of chemicals with a 33% reduction in waste output.

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Waste production volume and processing method

Item	Unit	2018	2019	2020	2021	2022
Total outsourced industrial waste quantity	Tons	489	611	1,463	2,054	2,348
Outsourced disposal of general industrial waste	Tons	37	136	370	781	930
Hsinchu Plant	Tons	36	135	369	780	929
Zhongli Plant	Tons	1.2	1.2	1	0.9	0.2
Outsourced disposal of hazardous industrial waste	Tons	451	475	1,093	1,273	1,418
Hsinchu Plant	Tons	438	462	1,079	1,260	1.405
Zhongli Plant	Tons	13	13	14	13	13
Waste recycling volume	Tons	370	455	806	1,087	1,491
Material recycling - general industrial waste	Tons	9	6	18	8	100
Hsinchu Plant	Tons	9	6	18	8	100
Zhongli Plant	Tons	0	0	0	0	0
Material recycling - hazardous industrial waste	Tons	361	449	788	1,079	1,392
Hsinchu Plant	Tons	348	436	774	1,066	1,379
Zhongli Plant	Tons	13	13	14	13	13
Waste recycling rate	%	75.66%	74.45%	55.10%	52.93%	63.5%
Waste used for Alternative energy	Tons	0	0	0	54	691
Alternative energy - general industrial waste	Tons	0	0	0	54	691
Hsinchu Plant	Tons	0	0	0	54	691
Zhongli Plant	Tons	0	0	0	0	0
Alternative energy - hazardous industrial waste	Tons	0	0	0	0	0
Hsinchu Plant	Tons	0	0	0	0	0
Zhongli Plant	Tons	0	0	0	0	0
Alternative energy rate	%	0%	0%	0%	2.64%	29.43%

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Item	Unit	2018	2019	2020	2021	2022
Waste incineration disposal volume	Tons	114	155	654	911	161
Incineration - general industrial waste	Tons	24	129	349	717	134
Hsinchu Plant	Tons	23	128	348	716	133
Zhongli Plant	Tons	1	1	1	1	0.2
Incineration - hazardous industrial waste	Tons	90	26	305	194	26
Hsinchu Plant	Tons	90	26	305	194	26
Zhongli Plant	Tons	0.01	0	0.03	0.00047	0
Waste incineration rate	%	23.37%	25.39%	44.69%	44.34%	6.86%
Waste landfill disposal volume	Tons	3.53	1	3	2	5
Landfill - general industrial waste	Tons	3.53	1	3	2	5
Hsinchu Plant	Tons	3.53	1	3	2	5
Zhongli Plant	Tons	0	0	0	0	0
Landfill - hazardous industrial waste	Tons	0	0	0	0	0
Hsinchu Plant	Tons	0	0	0	0	0
Zhongli Plant	Tons	0	0	0	0	0
Waste landfill rate	%	0.72%	0.16%	0.20%	0.10%	0.21%
Unit product waste disposal volume - Hsinchu Plant + Zhongli Plant	kg/8" equivalent wafer - layer	0.0929	0.0969	0.1089	0.1381	0.1847
Unit product waste disposal volume - Hsinchu Plant	kg/8" equivalent wafer - layer	0.0927	0.0971	0.1103	0.1431	0.1954
Unit product waste disposal volume - Zhongli Plant	kg/8" equivalent wafer - layer	0.0980	0.0917	0.0485	0.0227	0.0171
Unit product general industrial waste disposal volume - Hsinchu Plant + Zhongli Plant	kg/8" equivalent wafer - layer	0.0071	0.0216	0.0275	0.0525	0.0731
Unit product general industrial waste disposal volume - Hsinchu Plant	kg/8" equivalent wafer - layer	0.0070	0.0220	0.0281	0.0547	0.0778
Unit product general industrial waste disposal volume - Zhongli Plant	kg/8" equivalent wafer - layer	0.000008	0.000008	0.000003	0.000001	0.0002588
Unit product hazardous industrial waste disposal volume - Hsinchu Plant + Zhongli Plant	kg/8" equivalent wafer - layer	0.0857	0.0754	0.0814	0.0856	0.1187
Unit product hazardous industrial waste disposal volume - Hsinchu Plant	kg/8" equivalent wafer - layer	0.0856	0.0752	0.0822	0.0884	0.1176
Unit product hazardous industrial waste disposal volume - Zhongli Plant	kg/8" equivalent wafer - layer	0.0899	0.0841	0.0453	0.0213	0.0168

Note 1: Material recovery processing refers to any waste treatment that does not involve incineration or landfill. Waste treatment by physical, heat treatment, reuse, etc. to produce reusable materials or products are considered material recovery.
Note 2: Alternative energy refers to the use of waste materials as fuel to produce heat (generally in the form of steam), which is then used to produce electricity with a steam turbine generator. Alternative energy generates both heat and electricity. The heat in the form of steam and electricity can be supplied to companies in the industrial zone.

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Total waste quantity (unit: tons)

Waste type		2018	2019	2020	2021	2022
General		37	136	370	781	930
	Waste solvent	9	108	317	727	755
	Sludge	7	2	3	3	4
	Waste fabrics	4	3	6	7	9
	Waste paper	5	4	6	7	9
	Waste electronic parts, scraps	1	1	2	1	2
	Mixed waste metal	2	3	5	4	29
	Others	9	15	31	31	122
Hazardous		451	475	1,093	1,273	1,418
	Others	1	1	1	1	21
	Containers	10	11	13	21	36
	Corrosive solids	2	1	3	5	6
	Waste solvent	391	413	918	1,095	1,199
	Waste acid	46	49	158	150	156

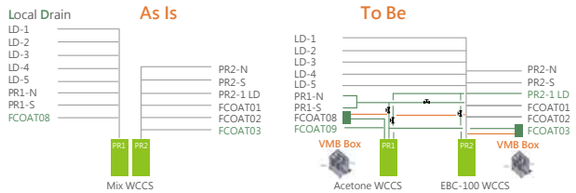
5.5.2 Circular Economy

Case 1

Project Name	Waste solvent reuse
Project targets	Waste photoresist solution, acetone
Improvement method	Separate the waste photoresist solution and acetone which were previously mixed for discharge. The waste solvents are separated and processed into propylene glycol methyl ether (PGME) and propylene glycol methyl ether acetate (PGMEA) by the disposal company Shun Tsang Co., Ltd. for use as coating materials for other industries. The acetone is provided for use by other industries.
Project objectives	Waste photoresist PGME+PGMEA >85% Wastewater acetone concentration >80%
Investment cost	NT$1.6 million

Project benefits

Item	Photoresist	Acetone
Handling method within the plant	Separation (46% → 90%)	Separation (52% → 80%)
Handling method of the disposal company	Distillation (90% → 98%)	Distillation (80% → 95%)
Reuse purpose	Industrial materials (coatings, ink solvents, detergents)	Industrial materials (acetone)
Treatment volume (tons/year)	750	169
Economic benefits (NT$10,000/year)	1,575	296



LD-1~5/PR-1/N & S: PR-2 S CF8 coat tool
PR2-1 LD : FCNDT01
PR2-N : CF12 Tool (CO4,5,6)

(Waste Chemical Collection System)

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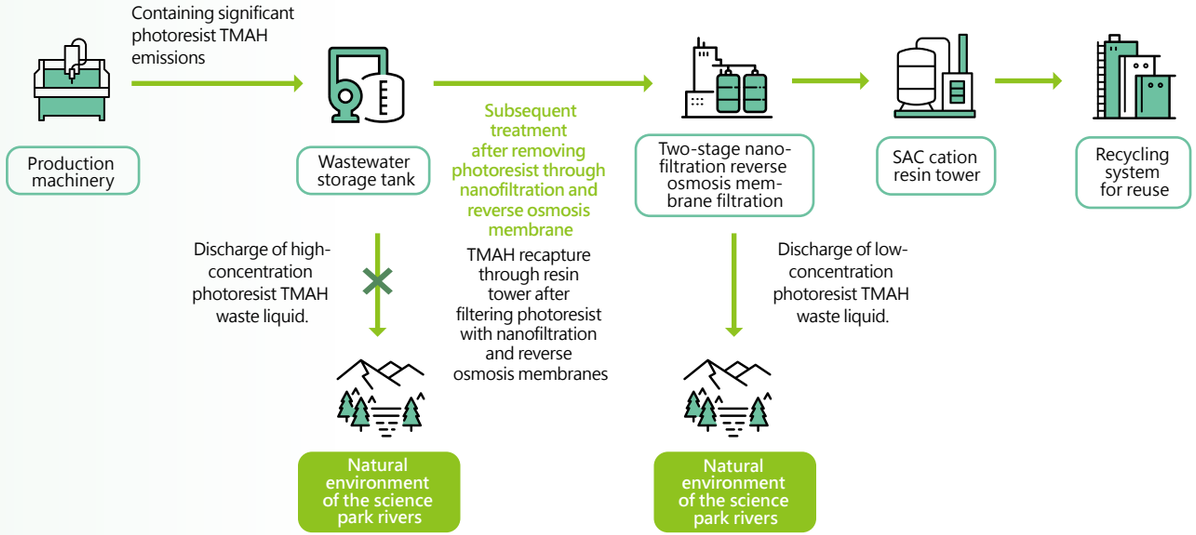
Case 2

Project Name	Waste solvent reuse
Project targets	Waste tetramethylammonium sulfate (TMAX) solvent
Improvement method	The TMAH recycling system of the Plant uses resin absorption to remove the TMAH. After running for a certain period of time, it requires the use of sulfuric acid (H_2SO_4) for desorption and restoration of the absorption capacity of the resin. After the treatment, the waste solvent that contains sulfuric acid is separated by a contractor to produce TMAH and sulfuric acid. It is used to produce industrial-grade materials for use in other industries to reuse resources and reduce the impact on the environment.
Project objectives	TMAX concentration >10%
Investment cost	NT$19.78 million

Project benefits

Item	TMAX
Handling method within the plant	Increase concentration (1% → 10%)
Handling method of the disposal company	Electrolysis (10 → 25%)
Reuse purpose	Industrial materials
Treatment volume (tons/year)	157
Economic benefits (NT$10,000/year)	262



Case 3

Project Name	Material conservation design - reduce waste packaging materials
Project targets	Product packaging materials
Improvement method	Recycling and reuse of product packaging materials
Project objectives	Annual use rate of recycled cartons for domestic shipment > 80%
Investment cost	0
Project benefits	• Cost benefits (2022 as example): NT$3,200,000/year • Calculation method: Procurement unit price for packaging materials of different dimensions * quantity of packaging materials of different dimensions • Waste reduction benefits (2022 as example): 16,000 cardboard boxes/year

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5.5.3 Management Waste Disposal Contractors

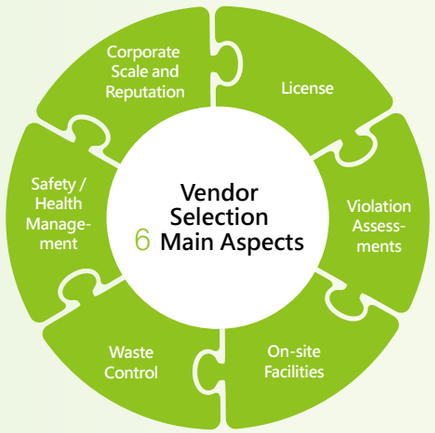
All industrial waste produced by VisEra is processed by contractors approved by the environmental protection authority and selected jointly by the Company's internal environmental protection unit, procurement unit, and waste management unit based on six major criteria (including scale/reputation, approval documents, records of violations, onsite facilities, waste management and control, and safety and health). The contractors are responsible for the disposal, treatment, and tracking of waste.

The selection mechanism involves the selection of high-quality suppliers based on the six major criteria. Personnel of the environmental protection unit and waste management unit conduct onsite visits and rates the contractors (166 inspection items in 8 major categories in onsite audits during the year of use). Contractors must attain a score of at least 60 points set by the parent company (TSMC), obtain the approval of the personnel of the inspection unit, and pass the contract review by legal affairs, approval, and procurement procedures before they may be included as waste disposal contractors of the Company. Lastly, we used the "Annual Evaluation of Waste Treatment Companies" as a benchmark for the contractor replacement evaluation. In 2018, VisEra joined TSMC in the joint audit and assistance program for waste disposal contractors. In response to common auditing deficiencies and penalty items, we shared the Company's internal management methods and experience. We strengthened the management process with face-to-face communication with contractors, and encouraged them to expand this process to other customers so that we can work together for the development of a sustainable environment.

Results of audits and inspections of waste disposal service providers in 2022

Deficiency category	Number of deficiencies		Regulatory compliance correction	Onsite environment/ implementation improvement	Establishment of regulations and procedures
Waste Management	Deficiencies	0	NA	NA	NA
	Recommendations	9	NA	• "Contents" of waste not clearly specified • Enhanced rainwater protection equipment required for waste storage containers • Weighing information not clearly shown on CCTV	• Independent inspection and audit system • Inspection system before vehicle departure
Safety and health management	Deficiencies	0	NA	NA	NA
	Recommendations	1	NA	• Forklift instructions unclear	NA
Air pollution	Deficiencies	0	NA	NA	NA
	Recommendations	0	NA	NA	NA
Wastewater	Deficiencies	0	NA	NA	NA
	Recommendations	0	NA	NA	NA

Manage & Control the Operational Processes of Waste Treatment Vendors through the Waste Treatment Vendor Sustainability Enhancement Project



• Environmental Safety & HealthDepartment
• Purchasing Department • Waste Management Section

• Industrial Safety and Environmental Protection
• Waste Management Section

• Environmental Safety & Health Department • Waste Management Section
• Purchasing Department • Legal Department

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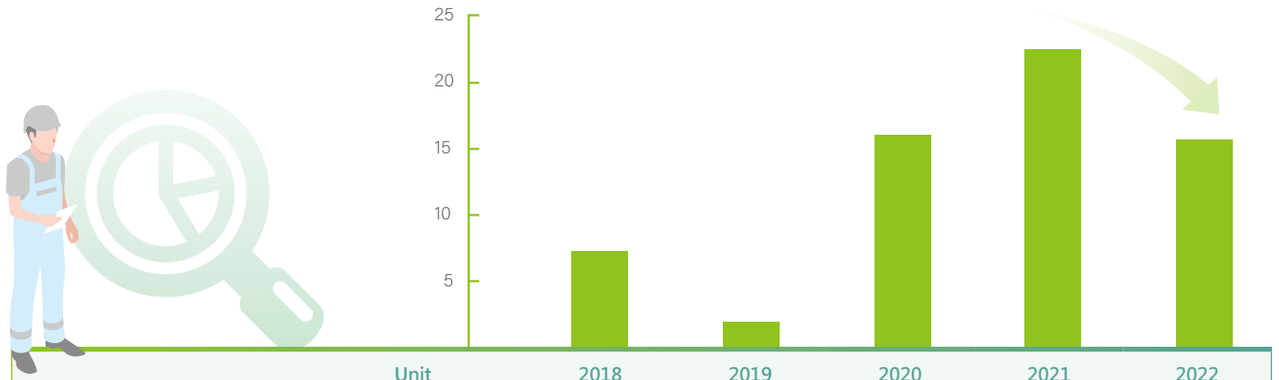
5.6 Air Pollution Prevention

The air pollution prevention capabilities of VisEra meets the regulations in the "Air Pollution Control and Emissions Standards for the Semiconductor Industry" and "Standards for Air Pollutant Emission from Stationary Pollution Sources". To ensure stable 24-hour year-round operations pollution prevention equipment, all air pollution prevention equipment must be equipped with at least one backup system (N+1 design) and a DC backup system to prevent power interruption. The design is implemented to ensure zero failure of the prevention equipment and ensure stable and continuous pollution monitoring. In addition, VisEra also set up automatic monitoring facilities to monitor the effectiveness of waste gas treatment in all systems. Related information is reported to the on-duty office of plant operations and the Occupational Safety and Environmental Protection Emergency Response Center to operate the independent dual-track monitoring system and ensure that the stack emissions meet regulatory requirements.

VisEra's air pollutants can be divided into acidic and alkaline gases and volatile organic gases. We adopted "separation of emissions at the source" and "best available technology for multi-section processing system" as our strategy for air pollution prevention so that the pollutant levels meet (or are superior to) government environmental protection regulations. The first stage for separation of emissions at the source is implemented for acid and alkaline process waste gas that are corrosive, flammable, greenhouse gas, or perfluorinated compounds as determined based on process characteristics. We added high-performance air treatment local scrubbers to effectively treat process emissions. Finally, the inorganic acid and alkaline gases are directed to the central scrubber for the second-stage of water neutralization process in the terminal pollution prevention equipment. For volatile organic gases, we determine whether to install treatment equipment such as local condensers based on their boiling points. We then direct the process emissions to the zeolite rotor concentrator system for treatment. With separation at the source and two-stage treatment, we enhance the efficiency of air emission treatment across the board. As a result, VisEra's air emissions have consistently met (exceeded) the standards for emissions set by the EPA. With our early warning mechanisms and immediate response to issues, there were no anomalies involving pollutant emissions that were reported to the competent authority in 2022.

Total air pollutant emissions

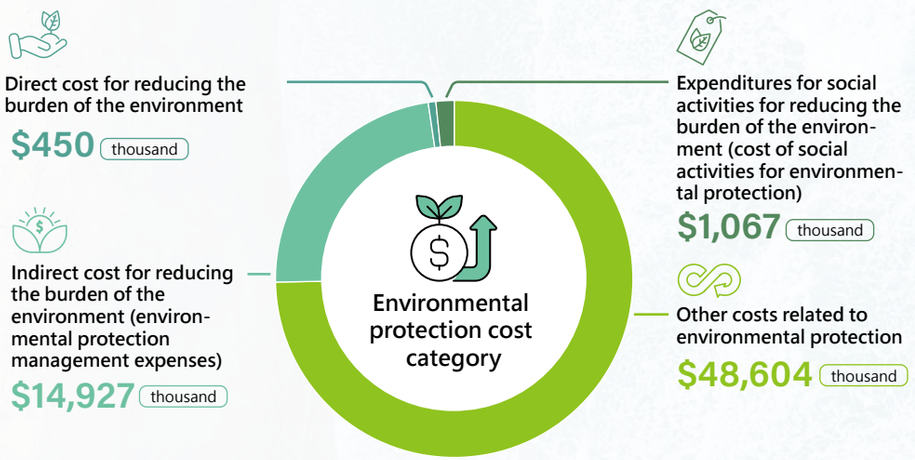


	Unit	2018	2019	2020	2021	2022
● **Total air pollutant emissions**	Tons	7.357	2.014	16.024	22.507	15.751
Nitrogen oxides (NOx)	Tons	1.58	Undetected	5.61	7.56	7.96
Sulfur oxides (SOx)	Tons	1.69	Undetected	6.54	11.26	5.51
Volatile organic compounds (VOCs)	Tons	3.97	1.97	3.83	3.48	2.12
Ammonia (NH_3)	Tons	0.11	0.04	0.56	0.18	0.14
Hydrochloric acid (HCl)	Tons	0.01	0.004	0.004	0.027	0.021
Unit product air pollutant emissions	ton/8" equivalent wafer - layer	1.44E-06	3.94E-07	2.61E-06	1.72E-06	1.11E-06

Note 1: Statistics only include Hsinchu Plant. Zhongli Plant does not have processes with air pollutant emissions and thus does not emit air pollutants
Note 2: Measurements were not conducted in 2019 because they were merged with the test run measurements in 2020
Note 3: Due to the needs of the processes, we used photoresist stripping solutions that contain DMSO and it was the main reason for the increase in Nox and SOx emissions in recent years.
Note 4: The five types of air pollutant emissions included nitrogen oxides (NOx), sulfur oxides (SOx), volatile organic compounds (VOC), ammonia (NH_3), and hydrochloric acid (HCl).
Note 5: Volatile organic compounds (VOC) are continuously monitored by the FAC Dept..

5.7 Environmental Protection Expenditures and Investments

By upholding the philosophy of attaining coexistence and common prosperity in business growth and the ecological environment, VisEra is committed to the full implementation of environmental pollution prevention actions to protect the local environment and increase the value of the Company. The environmental protection(Note 1) investments in 2022 totaled NT$18,939 thousand, which were mostly invested in wastewater and waste gas treatment facilities. The total fees (Note 2) are shown in the figure below:



Note 1: The total investment refers to the actual investments on hardware facilities in the current year
Note 2: The total expenses refer to the expenses for equipment depreciation, research and development, personnel, power, maintenance, monitoring, consumables, contracting, education, donations, and other expenses in the current year.

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- 6.2 Talent development
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6.1 Talent Recruitment and Retention

6.1.1 Employees

As of the end of 2022, VisEra had a total of 1,445 employees, including 873 executives and professionals and 572 technical personnel. As the semiconductor optical component industry is a knowledge-intensive and technology-intensive industry, employees with a bachelor or master's degree account for more than 70% of the employees. VisEra continues to create a friendly and fair workplace environment for employees. Female employees accounted for 43% of all employees in 2022. In terms of the age groups, employees aged 30 and below accounted for approximately 35% of all employees and the overall average age was 35.1.

Type and number of non-employees

Item	Working Type	Average number of people entering the plant per visit
Long-term resident vendors	Security	6
	Cleaning	14
	Catering	9
	Gardening	2

Employees

2022 manpower distribution							
Item Name	Group	Male		Female		Group Subtotal and Percentage	
		Number of People	Ratio of the Group (%)	Number of People	Ratio of the Group (%)	Number of People	Ratio of All Employees (%)
Job role	Management personnel	123	79.9%	31	20.1%	154	10.7%
	Professional staff	565	78.6%	154	21.4%	719	49.8%
	Technical personnel	122	21.3%	450	78.7%	572	39.6%
Nationality	Taiwanese	764	62.2%	464	37.8%	1,228	85.0%
	Foreigners	46	21.2%	171	78.8%	217	15.0%
Nature of hiring	Full-time	810	100%	635	100%	1,445	100%
	Part-time	0	-	0	-	0	-
Age	Under 30	286	56.4%	221	43.6%	507	35.1%
	30-50 years old	494	55.2%	401	44.8%	895	61.9%
	50 and above	30	69.8%	13	30.2%	43	3.0%
Education	Ph.D	27	87.1%	4	12.9%	31	2.1%
	Master's	471	78.2%	131	21.8%	602	41.7%
	Bachelor's	236	60.2%	156	39.8%	392	27.1%
	Junior College	41	17.5%	193	82.5%	234	16.2%
	Senior high school	35	18.8%	151	81.2%	186	12.9%

Description: Does not include interns and contracted personnel.
Note: VisEra's locations of operations are located in Taiwan and no employees have been assigned overseas. All senior executives are Taiwanese.

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6.1.2 Talent Recruitment

Employees are the most important partners of VisEra and the strong pillars for supporting our sustainable development. Based on our vision of "becoming one of the best and largest professional semiconductor optical component and manufacturing service provider in the world", we adopted the six major characteristics of VISERA for talent recruitment — Visionary, Innovation, Sagacity, Excellence, Reliability, and Accountability — in our search for talents for common growth.

VisEra has formulated a talent program on the basis of annual business strategies. We use diverse recruitment channels to recruit talents including the talent recruitment system on the official website, participation in large-scale job fairs, social media operations, and organization of company visits and speeches on campus. We also use internal employee referral incentives to increase recruitment efficiency and benefits. In 2022, we recruited 347 new full-time employees and more than 60% of them were under the age of 30. The Company retains a relatively high percentage of young employees who continue to create innovative energy and vitality for VisEra.

Recruitment channels

01 Industry academia collaboration

- Campus job fairs: 7 sessions
- Speeches on campus/recruitment seminars / company visits: 5 sessions

02 Employee referrals

- Internal employee referrals*
  - Job acceptance rate: 81.7% professional personnel、96.6% technical personnel
  - Retention rate: 93.5%

03 Recruitment website

- Job Bank: 294,577 views
- Facebook social media: 27,163 views

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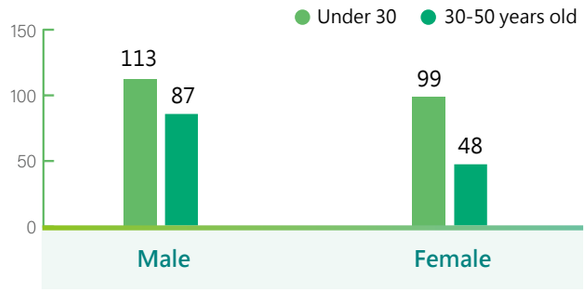
In 2022, VisEra hired 347 new employees and the employment rate was 24.0%. Number of people by age and gender:

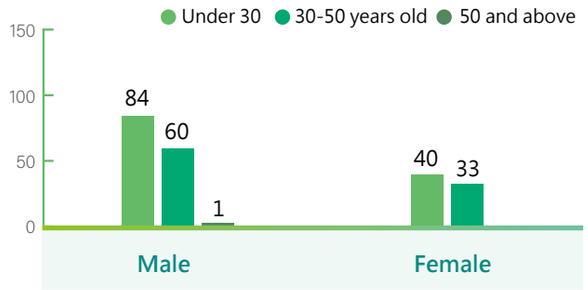
2022 Total New Employees and Percentage							
Group		Male		Female		Total Number of People	Percentage of All Employees
		Number of People	Percentage of the population in this age group (%)	Number of People	Percentage of the population in this age group (%)		
Age	Under 30	113	22.29%	99	19.53%	212	14.7%
	30-50 years old	87	9.72%	48	5.36%	135	9.3%
	50 and above	-	-	-	-	-	-
Total new employees		200	-	147	-	347	24.0%

Description: Does not include interns and contracted personnel.



The turnover in 2022 was 218 and the annual turnover rate was 15.4%. The turnover rate of new employees within one year was 6.2%. Number of people by age and gender:

2022 Total Turnover and Percentage							
Group		Male		Female		Total Number of People	Percentage of All Employees
		Number of People	Percentage of the population in this age group (%)	Number of People	Percentage of the population in this age group (%)		
Age	Under 30	84	16.57%	40	7.89%	124	8.6%
	30-50 years old	60	6.70%	33	3.69%	93	6.4%
	50 and above	1	2.33%	0	-	1	0.1%
Total turnover		145	-	73	-	218	15.1%
Annual turnover rate				15.1%			
New employee turnover rate				6.2%			



Description:
Note 1: The turnover rate is calculated based on former full-time employees, and does not include employees on unpaid leave, interns, contracted personnel, and foreign employees.
Note 2: Annual turnover rate = annual turnover / {(number of employees at the beginning of the year) + (number of employees at the end of the year) / 2}. The turnover rate is calculated based on former full-time employees, and does not include employees on unpaid leave, interns, contracted personnel, and foreign employees.
Note 3: New employee turnover rate = annual turnover / {(number of employees at the beginning of the year) + (number of employees at the end of the year) / 2}. The turnover rate is calculated based on former full-time employees who were employed for less than 1 year, and does not include employees on unpaid leave, interns, contracted personnel, and foreign employees.

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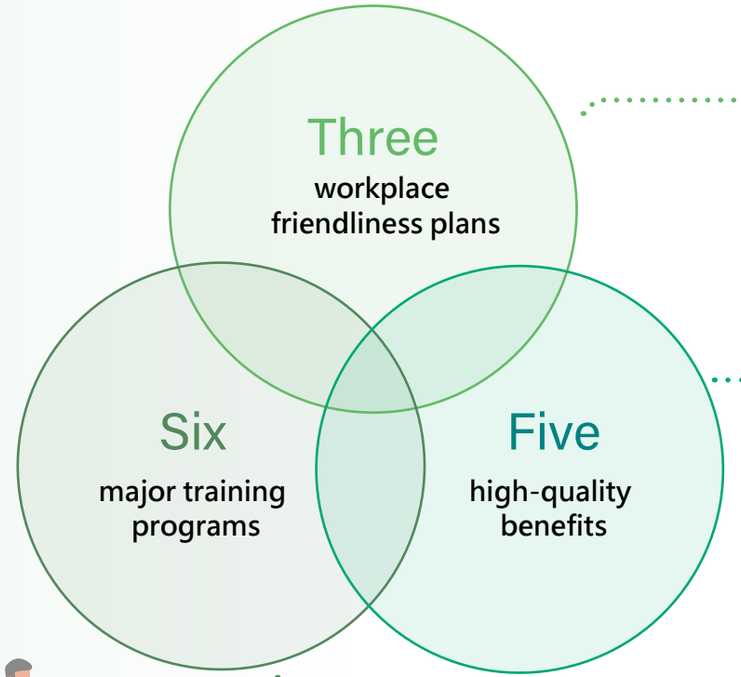
Talents are the most important partners for VisEra. We provide five high-quality benefits, six major training programs, and three workplace friendliness plans to continue to improve talent recruitment and retention to power the Company's sustainable development.

Talent Retention Measures



Three workplace friendliness plans

- Gender ratio near 1: 0.8
- Buddy system
  - Help newcomers familiarize themselves with work contents and the environment to shorten the time required to adapt
- Employee assistance programs
  - Maternity health protection, onsite physician health consultation, psychological consultation

Five high-quality benefits

- Abundant rewards and bonuses
- Employee referral bonuses
- More days of leave than statutory requirements
- Employee health care
  - gym/employee health examinations / insurance
- Abundant and diverse activities
  - employee vacation / family day events / clubs

Six major training programs

- On-the-job training
  - Professional courses
- Personal development programs
  - Plan professional courses based on the employee's role and duties
- Digital learning
  - V+ Talent online courses without time and spatial constraints
- Team building
  - Consolidate internal cohesion and build foundations for teamwork to increase efficiency
- Orientation training camp
  - Help new employees quickly learn about the workplace
- Professional licenses
  - Help employees obtain job-related licenses

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VisEra strives to create a diverse and inclusive workplace by employing people of different genders, religions, races, nationalities, and age groups. We are also committed to providing jobs for people with disabilities. However, due to the nature of the work, we did not have enough applicants fill the positions. The weighted percentage for hiring people with disabilities this year did not reach 1% of the total number of employees, and we have paid the difference subsidies to the Disabled Employment Funds in accordance with laws.

Diverse Employment		2018	2019	2020	2021	2022
People with disabilities	Number of Employees Required	7	9	12	13	14
	Number of Employees	3	3	5	5	5
	Number of Vacancies	4	6	7	8	9
	Employment Ratio(%)	0.4	0.3	0.4	0.4	0.3

Description: The number of employees required is based on the number of employees specified on the official letter from Hsinchu City Government in December each year

Due to the professional operations of VisEra in the technologies, design, and manufacturing of optical products, male employees account for the highest share of employees. However, we established a merit-based system that does not include gender as a factor, and we adopted an approach based on openness and diversity for hiring professional talents. In terms of career plans and promotions, 100% of VisEra employees receive regular performance evaluations for the Company to uncover talents with potential and provide them with opportunities for positive development. Managers propose promotions for employees based on their experience, professional skills, performance, and personal traits. We aim to find the right person for the right job to create a workplace environment of diversity and inclusion.

Promotion Rate	2018	2019	2020	2021	2022
Number of female employees	7	18	20	31	23
Percentage of female employees (%)	7.6%	24.3%	29.0%	27.7%	15.9%
Number of male employees	40	50	57	72	94
Percentage of male employees (%)	11.6%	21.5%	22.4%	23.5%	20.8%
Female/male ratio (%)	0.66	1.13	1.29	1.18	0.76

Rate of Promotion to Management Roles	2018	2019	2020	2021	2022
Number of female employees	0	3	3	3	4
Percentage of female employees (%)	0	9.7%	12.0%	18.8%	8.2%
Number of male employees	6	10	14	13	25
Percentage of male employees (%)	6.9%	9.2%	11.9%	19.4%	14.6%
Female/male ratio (%)	0	1.05	1.01	0.97	0.56

Percentage of female employees and managers (%)

	2018	2019	2020	2021	2022
Ratio of female employees (%)	46%	49%	47%	44%	44%
Ratio of female entry-level managers (%)	18%	18%	18%	20%	20%
Ratio of female senior executives (%)	0%	0%	0%	0%	0%
Ratio of female employees in management roles (%)	18%	18%	18%	20%	20%

Description: Entry-level managers include first-line managers. Senior executives are personnel ranked Vice President and above.

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The average monthly salary of all VisEra employees regardless of gender is at least 1.57 times the minimum wage. We conduct annual salary reviews and salary adjustments based on market salary surveys, job functions of each individual, and performance. The salary includes the fixed salary and the variable salary. The former is based on prevailing market rates and the latter is linked to the performance of the department and team as well as personal performance. The average salary in 2022 included 12 months of salary, 2 months of year-end bonus, and quarterly bonuses. The average salary of employees exceeded NT$1.49 million. The average salary of direct employees exceeded NT$800,000. The average income is 2.6 times that of the minimum wage in Taiwan. In 2022, the highest paid individual at VisEra was received remuneration approximately 16.36 times the median employee's total remuneration. The multiplier of changes between the annual total remuneration and the median remuneration was -7.5 times.

● Basic Salary ● Remuneration

Ratio of Female/Male Salary	2018		2019		2020		2021		2022	
	●	●	●	●	●	●	●	●	●	●
Management personnel	0.76	0.74	0.77	0.71	0.75	0.70	0.81	0.69	0.81	0.72
Professional staff	0.90	0.90	0.88	0.88	0.88	0.89	0.92	0.87	0.94	0.92
Technical personnel	1.05	1.05	1.14	1.18	1.03	1.05	1.06	1.07	1.06	1.03

Basic salary: Basic monthly salary, transportation allowances, DL allowances, and year-end bonus
Remuneration: Basic monthly salary, transportation allowances, DL allowances, overtime pay, year-end bonus, quarterly bonuses, holiday bonuses, bonuses, shift bonuses direct employees, MOB, and duty allowances
Ratio of Female/Male Salary：Female Salary / Male Salary

Average Salary and Median Salary			
Item	2021	2022	Difference Between the 2 Years
Number of full-time non-management employees	1,256	1,356	100
Total salary of full-time non-management employees (NT$: thousand)	1,735	1,809	74
Average salary of full-time non-managerial employees (NT$: thousand)	1,381	1,334	-47
Median salary of full-time non-management employees (NT$: thousand)	1,086	1,069	-17

VisEra pays close attention to the career development plans of employees and uses transparent internal vacancies to provide employees with a platform for diverse development. It increases the possibilities and prospects of their careers to facilitate internal flow of talents, achieve the goal of the having the right person for the right job, and create a friendly workplace environment. In 2022, we provided more than 80 internal job openings and the internal employee substitution rate was 66.7%, surpassing the 2022 target of 63%.

Internal employee substitution rate	2018	2019	2020	2021	2022
Number of job openings	22	26	50	94	81
Number of employee transfers	14	19	43	58	54
Internal employee substitution rate (%)	63.6%	73.1%	86.0%	61.7%	66.7%

VisEra is fully aware of the importance of talent development to the sustainable growth of the Company. We aim to use the internal promotion system to address the needs for organizational development for employees with high potential to make the most of their professional and management skills, improve work functions and benefits, and attract and retain outstanding talents. The internal promotion rate for management roles in 2022 increased to 78.4%, surpassingthe 2022 target of 65%.

Manager replacement rat	2018	2019	2020	2021	2022
Number of new managers	4	6	15	14	8
New manager ratio	22.2%	24.0%	31.9%	32.6%	21.6%
Number of internal promotion to managers	14	19	32	29	29
Manager internal promotion rate (%)	77.8%	76.0%	68.1%	67.4%	78.4%

New manager ratio = New managers in the current year / total number of manager openings in the current year
Manager internal promotion rate = number of people promoted in the current year / total number of management openingsin the current year

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To attract and retain talents, VisEra provides a leave system and benefits superior to statutory requirements. They include annual leave, flexible leave, sick leave, group insurance, health service, and other employee welfare activities and gift money applications. In terms of the leave system, VisEra provides new employees who have not yet served for one year with annual leave. One day of annual leave is provided for every two months of service. As for the 7 national memorial days which were canceled as holidays by the government, we still provide employees with flexible leave. In terms of sick leave, VisEra provides 120 hours of paid regular sick leave and 120 hours of half-paid sick leave each year, which is superior to the 30 days of half-paid sick leave specified in the Labor Standards Act. In response to the outbreak of the COVID-19 pandemic, we provide employees with one day of vaccine leave each time they receive vaccination.

To promote work and family life balance, VisEra has implemented flexible leave since September 2022. Employees can adjust their shifts based on their work and personal needs. 60 applications were filed in 2022 and they accounted for 7% of the employees with regular daytime office hours.

VisEra enrolls each employee under insurance plans in accordance with regulatory requirements. We also provide employees and their family members (spouse, children, and parents) with group insurance plans paid by the Company. Employees are eligible for life insurance, accident insurance, medical insurance, and cancer insurance starting from the day they report for duty. Employees are also eligible for group insurance paid by the Company during the period of statutory unpaid parental leave (within 6 months).

In terms of pension, VisEra established the "Labor Pension Reserve Supervisory Committee" in accordance with regulations. For employees eligible for the old labor pension system, we allocate fixed amounts to the "labor pension reserve" in the statutory account and all amounts have been paid in full. For employees eligible for the new labor pension system, the Company allocates pension funds equivalent to 6% of the employee's monthly salary to the dedicated personal pension account at the Bureau of Labor Insurance.

Item	Legal requirements	Practices superior to legal requirements
Annual leave	Those who have served for six months or more but less than one year shall be given three days of annual leave	New employees who have not yet served for one year shall be provided one day of annual leave for every two months of service.
Flexible leave	12 days of national holidays in each year	In addition to the 12 days of national holidays, the Company also provides flexible leave for the seven days of memorial days that are not statutory holidays
Sick leave	30 days of regular sick leave with half pay	120 hours of paid regular sick leave and 120 hours of half-paid sick leave each year
Group insurance	Employees are enrolled under labor insurance and national health insurance starting from the day they report for duty	VisEra provides employees and their family members with group insurance including life insurance, accident insurance, medical insurance, and cancer insurance. Employees are eligible for the Company's group insurance during the period of statutory unpaid parental leave (6 months).
Health services	None	Annual health examination services with free onsite services by physicians, health seminars, and aerobic courses
Employee benefits	None	Family day events, employee vacation, movie screenings and other events, birthday gift certificates, wedding and funeral gift money, emergency relief support, childbirth benefits, and other benefits available for application

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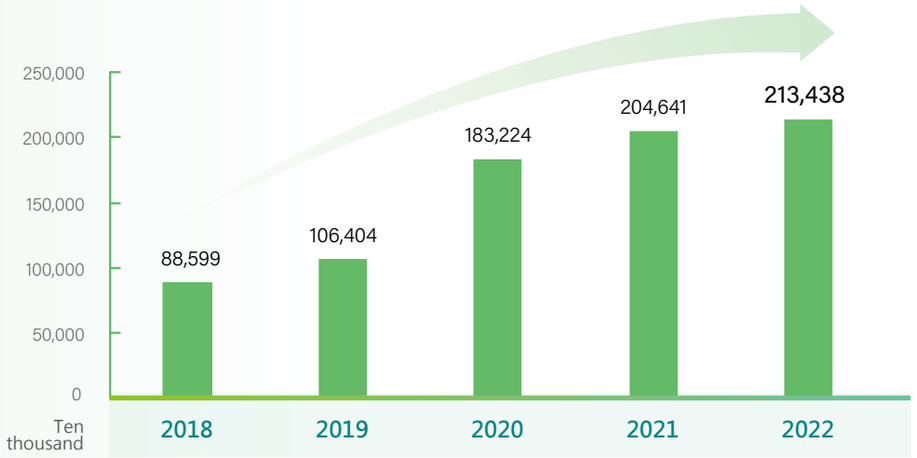
Compensation and benefits expenses



To attain balance between work and life for employees, in addition to unpaid parental leave, employees may also apply for unpaid leave due to other reasons that necessitate long periods of leave such as military service, major injury or illness, or care for family members. They may apply for reinstatement at the end of the period.

Unpaid leave	2018	2019	2020	2021	2022
General unpaid leave t (one month to two years)	1	2	2	6	5
Unpaid leave for injuries and illnesses (one year)	-	1	-	-	2
Unpaid leave for military service (military service period)	1	-	-	1	-

In 2022, 107 employees were eligible for unpaid parental leave and 11 employees applied for unpaid parental leave with an application rate of 10.28%. 6 employees were scheduled for reinstatement and the actual number of reinstatements was 3 with a reinstatement rate of 50%. 3 employees left the Company in 2022, of which 2 left due to career development and 1 left for childrearing. In 2022, 10 VisEra employees applied for maternity leave and 22 employees applied for paternity leave. The number of newborns totaled 32 and we have made some contributions to the birthrate in Taiwan.

Number of employees who applied for unpaid parental leave in 2022	Total	Male	Female
Application rate (B/A)	10.28%	1.41%	27.78%
Number of employees eligible for unpaid parental leave in 2022 (A)	107	71	36
Number of employees who applied for unpaid parental leave in 2022 (B)	11	1	10
Reinstatement rate (D/C)	50.00%	100.00%	40.00%
Number of employees scheduled for reinstatement from unpaid parental leave in 2022 (C)	6	1	5
Number of employees scheduled for reinstatement from unpaid parental leave in 2022 and reinstated in 2022 (or earlier) (D)	3	1	2
Retention rate (F/E)	100.00%	100.00%	100.00%
Number of employees reinstated from unpaid parental leave in 2021 (E)	6	1	5
Number of employees reinstated from unpaid parental leave in 2021 and remained at the Company as of the end of 2021 (F)	6	1	5

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VisEra is committed to providing a workplace environment with balance between work and life. We use the family day events to help family members learn about employees' work at the Company and strengthen the bond between employees as well as their family members to increase the support for the Company from employees' family members. We also set up different types of employee clubs that offer diverse activities. The company currently has five major clubs including the jogging club, volunteers club, basketball club, hiking club, and softball club.

Activity Type	2018	2019	2020	2021	2022
Social welfare	11	16	8	9	8
Employee vacation	7	8	6	0	0
Family day	1	1	1	0	1
Year-end party	1	1	1	0	1
Sports contests	1	1	1	0	1
Club activities	28	29	30	30	32
Number of activities	49	56	47	39	43
Number of participants	2,126	2,060	984	570	1,731

→Family day

→Sports contests

→Christmas - Donation of shoe boxes
Environmental education

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Spotlight

Talent Retention Measures

Talent is critical for the operations of a company and is the lifeblood of a sustainable business. Fierce international competition, passing of experience, and the poaching of talents by companies are factors that highlight the importance of human resources for sustainable business operations. To retain talents and ensure sustainability, VisEra has set three major medium-term objectives for human resources and gradually implemented them to retain outstanding talents

Retention rate for key and high-performing talents ≥ 85% 2030

In addition to actively attracting outstanding talent, VisEra also emphasizes the retention of key and high-performing employees. Through competitive salary and benefits, the implementation of performance management systems, multi-faceted incentive and reward measures, and diversified personal development programs, we aim to enhance employee dedication and engagement. Our target for the retention rate of key talents in 2022 was above 80%, and for high-performing talents, it was above 70%. In 2022, we achieved an actual retention rate of 88% for key talents and 93% for high-performing talents. Under the continuous implementation of talent retention strategies, we have set a target of not less than 85% for the retention rate of key and high-performing talents by 2030, aiming to continuously improve the overall operational performance of the Company.

Internal promotion rate for management roles ≥ 70% 2030

VisEra is fully aware of the importance of talent development to the sustainable growth of the Company. We use the promotion system to address the needs for organizational development for employees with high potential to make the most of their professional and management skills. The internal promotion rate for management roles in 2022 was 78.4%, surpassing the 2022 target of 65%. To retain outstanding talents, we have set a goal for attaining no less than 70% internal promotion rate for management roles by 2030 to support the development of both organizational development and personal career development.

Internal promotion rate for vacancies ≥ 65% 2030

VisEra pays close attention to the career development plans of employees and uses transparent internal vacancies to provide employees with a platform for diverse development. It increases the possibilities and prospects of their careers to facilitate internal flow of talents and achieve the goal of the having the right person for the right job. In 2022, we provided more than 81 internal job openings and the internal employee substitution rate for openings was 66.7%, surpassing the 2022 target of 63%. The Company continues to implement the internal hiring system to support both organizational development and personal career development with the target of attaining no less than 65% internal promotion rate for vacancies by 2030.

6.2 Talent development

VisEra is committed to improving employees' autonomous learning and uses a diverse range of resources and tools for learning to encourage employees to engage in learning activities regardless of the time, space, and format based on the Company's growth, organizational requirements, and personal performance requirements. We encourage them to continue to improve their work efficiency and create more energy for the growth of the Company and the society. VisEra actively implements on-the-job training and the Individual Development Program (IDP) for employees to learn and improve their performance in the actual workplace. In addition to systematically planning job rotations to nurture future talents, VisEra also encourages employees to organize their career development in line with the development of the Company so that they can develop their strengths and continue to grow.

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Training paths for new employees and current employees

New comer

Orientation 2 days

→ To know more about VisEra

1. HR/ER functions
2. IT resources
3. Environment safety & health
4. QMS & Quality Policy + DCC Functions

On Board

Buddy System 6 months

→ To accommodate VisEra

1. Buddy assigned by the manager
2. To take care of new comers

On the Job Training 3 months

→ To acquire related skills & knowledge

1. Each department has its own OJT roadmap
2. Each roadmap includes several items
3. Each item has a trainer assigned by the manager

Arrive Dept.

Annual Training Plan

→ To enhance ability & competence

1. MGR、IDL、DL
2. Management、Professional
3. Core、Common

Individual Development Plan

1. Different dept. & JG, specific training roadmap established
2. Each training roadmap includes several courses
3. Each staff(JG2X~33) has his/her IDP edit by the manager

A pro

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VisEra organized a total of 30,389 hours of training or learning and development activities in 2022 with more than 38,140 participants having completed the training. The average training hours for each employee was approximately 21 hours. Due to the COVID-19 epidemic in the past two years, we have gradually replaced in-person training with online courses in the form of digital courses produced by the Company.

Item	2018			2019			2020			2021			2022		
Total number of employees	750			924			1,232			1,380			1,445		
Employee category	Managers	Technical personnel	Professional staff	Managers	Technical personnel	Professional staff	Managers	Technical personnel	Professional staff	Managers	Technical personnel	Professional staff	Managers	Technical personnel	Professional staff
	102	302	346	106	407	411	132	515	585	148	556	676	154	572	719
Average hours	15.3	4.0	25.0	20.4	4.0	44.4	20.6	11.4	37.1	16.1	10.4	30.9	20.1	12.1	28.3
Total training hours	1,558	1,223	8,650	2,166	1,641	18,247	2,714	5,865	21,729	2,382.7	5,784.6	20,878.2	3,100.6	6,929.8	20,358.6
Gender	Male		Female	Male		Female	Male		Female	Male		Female	Male		Female
	404		346	467		457	656		576	766		614	810		635
Average hours	6,157.7		5,273.7	11,146.3		10,907.7	16,138.1		14,170	16,122.4		12,923.1	17,032.1		13,356.9
Total training hours	11,431.4			22,054			30,308			29,045.5			30,389		
Average training hours per employee	15.2			23.9			24.6			21			21		
Total training costs (NT$)	740,534			1,489,436			1,233,921			973,438			1,599,449		
Average training expenses per person (NT$)	987			1,612			1002			705			1,107		

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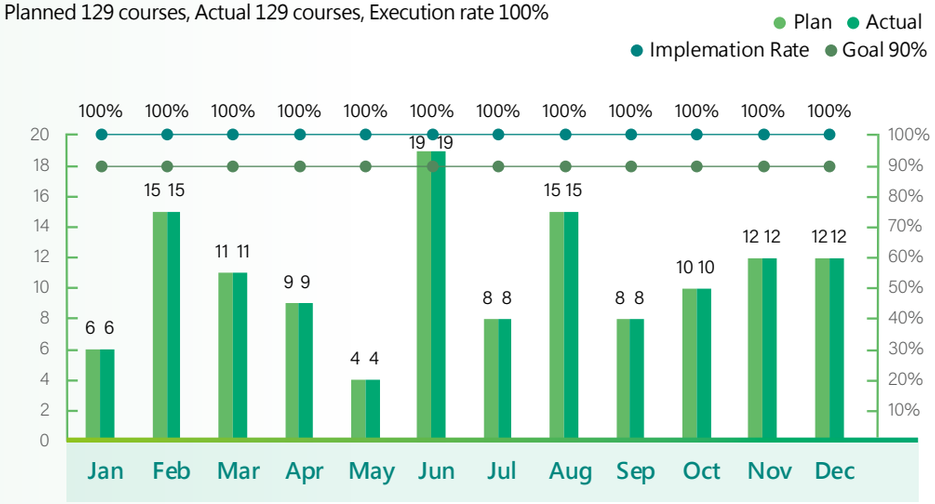
Y2022 Training KPI Four-box-matrix

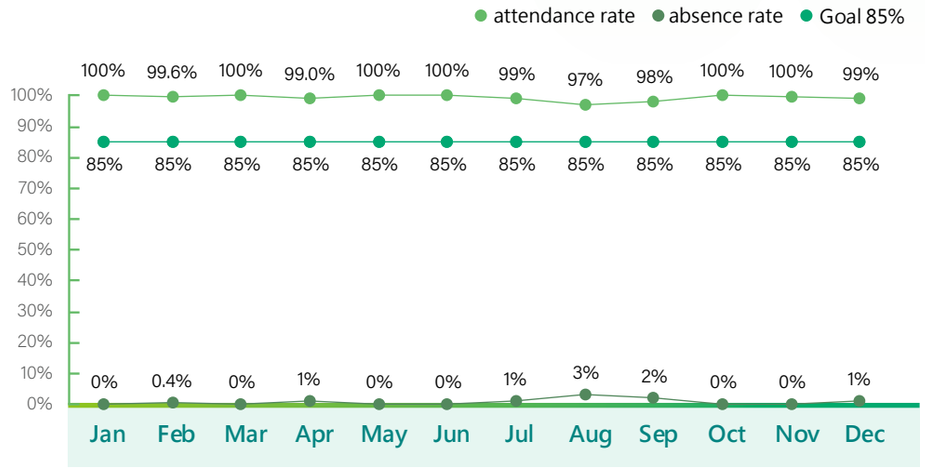
Plan vs Execution rate

Planned 129 courses, Actual 129 courses, Execution rate 100%



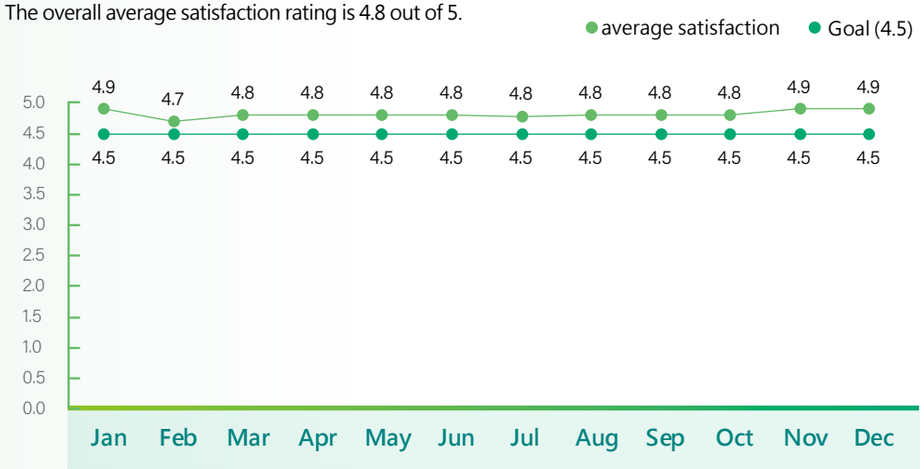
Attendance rate

The physical course attendance rate for the entire year is 99%.



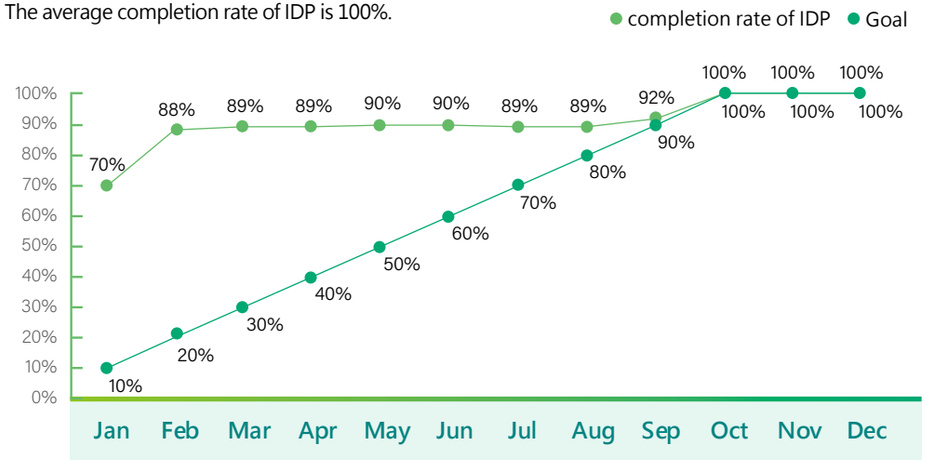
Overall average satisfaction

The overall average satisfaction rating is 4.8 out of 5.



IDP completion rate

The average completion rate of IDP is 100%.



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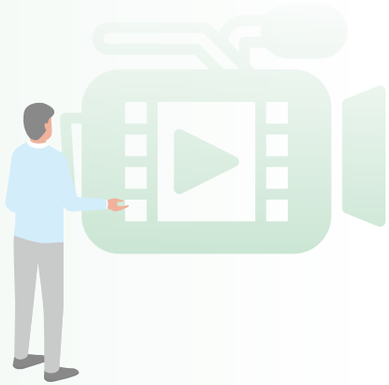
6.2.1 Competence Development

Although we have not yet provided transition assistance programs for employees "who ended their careers due to retirement or the termination of employment", VisEra has always focused on enhancing employees' competencies in line with recent developments to support the Company's sustainability and satisfy employees' needs for lifetime learning. In other words, if employees continue to learn progressive in the Company's talent development system, we believe that they will be well-prepared for their career development after leaving the Company.

To continue to focus on the talent development strategy of encouraging independent learning, VisEra helps employees to continue to improve in their own field and continue to expand their fields of expertise. To achieve this purpose, VisEra provides resources for independent learning to facilitate independent learning at anytime from anywhere.



Key courses for independent learning in 2022

Enhance the technical skills of engineers /entry-level managers	Strengthen the technical skills and quality awareness of engineers /entry-level managers with in-person courses, joint learning, external training, and hands-on operations	✓ Basic courses ✓ Quality courses ✓ Process-related courses
Encourage independent learning	Provide the e-learning system for employees to engage in learning activities at any time	✓ The "Effective Recruitment and Interview Skills" course focuses on the talent selection skills of the interviewer to set the talent specifications, structured interviews, behavioral event interview-ing, and listening and response skills, and includes instructions and rehearsals. ✓ The "Buddy System Guidance and Care Training" course focuses on cultivating the skills of buddies for helping new employees. It includes the guidance strategy, response, and listening skills as well as instructions and rehearsals.
Courses: Effective Recruitment and Interview SkillsBuddy System Guidance and Care Training	✓ The "Effective Recruitment and Interview Skills" course focuses on the talent selection skills of the interviewer to set the talent specifications, structured interviews, behavioral event interviewing, and listening and response skills, and includes instructions and rehearsals. ✓ The "Buddy System Guidance and Care Training" course focuses on cultivating the skills of buddies for helping new employees. It includes the guidance strategy, response, and listening skills as well as instructions and rehearsals.	✓ 77 employees took the "Effective Recruitment and Interview Skills" course. ✓ 71 employees took the "Buddy System Guidance and Care Training" course.

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VisEra set up the online learning system, V+ Talent, which currently has 573 online courses. The courses can be divided into four categories including basic, professional, general knowledge, and management courses. In the fourth quarter of each year, we collect information on the digital courses that each unit plans to record in the following year, and the supervisors appoint employees as course instructors. The training and development unit assists instructors in recording the digital courses and uploading them to the system for employees.

Use of V+ Talent online courses in 2022

2022	V+ Talent online courses
Number of online courses	573
Number of completed training sessions	32,112
Training hours	13,173

We produced 40 digital courses in 2022 and the completion status is as follows:

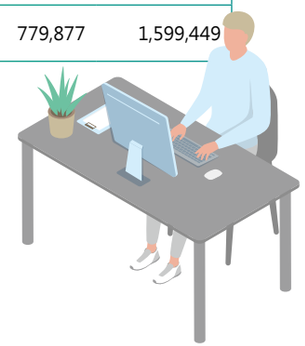
Course Category	Number of planned course recording in Y2022					Number of courses recorded and uploaded in Y2022					Completion rate
	Q1	Q2	Q3	Q4	TTL	Q1	Q2	Q3	Q4	TTL	
Basic	1	6	3	1	11	1	6	3	1	11	100%
Professional	4	6	12	6	28	4	6	12	6	28	
General knowledge	0	1	0	0	1	0	1	0	0	1	

VisEra continues to strengthen the functional development of employees to attain the goals of the Company. In addition to internal training courses, the Company also sends employees to external training courses, which are fully subsidized by the Company after they complete the courses. In 2022, there were 266 applications for external training and employees completed 3,219 hours of training. Employees obtained 192 industrial safety certificates in external training, and 74 employees have received certificates of completion of professional courses. Professional courses included courses on quality, R&D technology, product, and market trends. We use external training courses to ensure compliance with regulatory requirements and to enhance the professional competencies of employees.

External Training Category	Recipients	Number of Attendees	Attendance Rate
Occupational safety courses	Personnel that require the courses	192	100%
Professional courses	Personnel that require the courses	74	

Internal and external training in 2022

Item	In-person training	Online courses	On-the-job training	External training	2022 total
Number of classes/ courses	130	-	1,102	266	1,498
Number of online courses	-	573	-	-	573
Number of completed training sessions	5,415	32,112	347	266	38,140
Training hours	12,895	13,173	1,102	3,219	30,389
Training expenses	819,572	-	-	779,877	1,599,449



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6.3 Human Rights

VisEra formulated the "VisEra Corporate Social Responsibility Policy" and the "Compliance Statement for the Code of Professional Ethics and Supplier Code of Conduct" based on the spirit of the "Responsible Business Alliance Code of Conduct". The contents include commitments for no discrimination, ban on the use of child labor, and ban on forced labor. We require compliance by all employees and suppliers. In terms of employees, we organize regular human rights training and quarterly labor-management meetings to report the business overview, annual activities, and benefits to all employees. We respect all employee organizations, the unions of their choice, and right to collective bargaining and participation in peaceful protests. We also respect employees' rights to avoid such activities. As of 2022, no employee has organized a union. If the Company needs to terminate the employment of certain employees, we notify the employee in advance in accordance with regulations and complete the necessary communication to ensure that there are no disputes between labor and management.

VisEra values the opinions and rights of employees and we have set up several employee feedback channels, many of which are managed by the top executives of relevant units. We are committed to providing an open and transparent communication environment between supervisors, employees, and peers by processing feedback in a fast and confidential manner.

Type	Anti Corruption	Workplace Abuse	Sexual Harassment	PIP Violation	Complaint	General Inquiry
Scope	Breach of work ethic： • Finance (accounting, audit) • Other suspected unlawful matters within the company.	Abusing or causing harm to other people's bodily/ psychological well-being when exercising one's corporate power, such as: • Bodily violence/abuse • Psychology violence/ abuse • Verbal violence/abuse • Stalking and harassment	• Verbal abuse：telling dirty jokes, make inappropriate comments about people's physical appearance • Visual abuse：display pornographic pictures, staring at people's chest or other inappropriate places, or showing off inappropriate body parts. • Physical harassment：using hands to touch other's body, or forcefully touch people's breast or other body parts. • Using unbalance power relationship to make the weaker party uncomfortable, anxious, pressured or hurtful which can constitute as sexual harassment.	Any improper disclosure of confidential information or unauthorized disclosure of information (including personal data).	• Worker's benefit • Personal right • Administrative oversight • Labor dispute	Employee's concern or question about amenities provided by VisEra or any general inquiry or suggestion about working environment in general.
The person who responsible for internal/external whistleblower/ complainant/ inquiry.(classify cases)	• Chairman & CEO • The top manager of HR Department • The top manager of Legal	• Acceptance：The top manager of HR Department • Supervision：The manager of Audit / The manager of Legal	• Acceptance：The top manager of HR Department • Supervision：The manager of Audit / The manager of Legal	• Acceptance：PIP manager • Supervision：The manager of Audit / The manager of Legal	The top manager of HR Department	The top manager of HR Department
Reference Documents	Code of Ethics	Workplace violence prevention policy	Sexual Harassment Prevention Policy	VisEra PIP policy	Employee's Award, Disciplinary and Complaint Rules	Internal Communication Management Procedures

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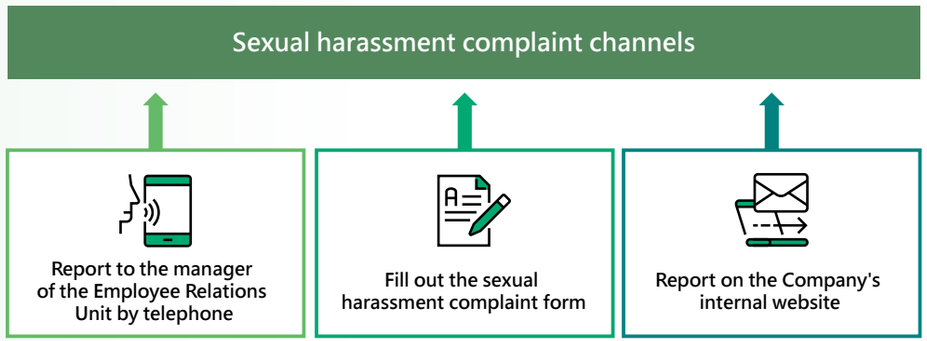
VisEra set up the Sexual Harassment Complaint Committee, which consists of three members appointed by the CEO, including the heads of employee relations, legal affairs, and other organizations. The representative of legal affairs serves as the convener of the Committee to process complaints regarding employees ranked department heads (managers) and below. If the subject of the complaint is a senior executive (plant/department head) or above, the CEO or a Vice President or above designated by the CEO shall serve as the convener, and the highest-ranking manager of legal affairs, human resources, or another Vice President or above shall form a Sexual Harassment Complaint Highest Appeal Committee consisting of these three members to investigate and process the case. If the subject of the complaint is a manager ranked President or above, the Audit Committee shall process the complaint. The Sexual Harassment Complaint Committee and Sexual Harassment Complaint Highest Appeal Committee shall exercise their rights independently in the review of cases and shall not be affected by the Company's internal administration system.



To ensure that security personnel understand and know how to deal with infringement in the workplace, we organize a training program twice a year to communicate relevant information to all security personnel. The training includes understanding what constitutes infringement in the workplace, VisEra's workplace violence complaint procedures, and how to respond to workplace violence. In the first half of 2022, 12 security personnel completed the training; in the second half of the year, 14 security personnel completed the training. The training completion rate of security personnel was 100%.

6.3.1 Human Rights Risk Assessment

The Company organized human rights training for all employees in 2022 and provided 0.9 hours of online training materials for the Responsible Business Alliance Code of Conduct. A total of 1,449 employees completed the training and the coverage rate and test passage rate were both 100%. We will continue to monitor human rights protection issues and promote related training to increase human rights awareness and reduce the possibility of related risks. We shall use the online courses with full employee participation to ensure employees understand the "VisEra Corporate Social Responsibility Policy" and implement it in their work. We use the Self-Assessment Questionnaire (SAQ) standardized risk assessment designed by the "Responsible Business Alliance" to assess the social, environmental, and moral risks in business activities. In 2022, the self-assessment score was 93.6 points and the human rights risks were low. There were no incidents of discrimination or violation of the rights of indigenous peoples at VisEra in 2022.

Responsible Business Alliance (RBA) Code of Conduct training

Employee category	Eligible Trainees		Number of Trainees that Completed Training	
	Male	Female	Male	Female
Management personnel	124	30	124	30
Professional staff	560	154	560	154
Technical personnel	124	457	124	457
Subtotal	808	641	808	641
Total	1,449		1,449	

The training period was from October 5th, 2022, to October 31st, 2022. The coverage rate was 100%; the test passage rate was also 100%

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6.4 Occupational Safety and Health

VisEra is committed to achieving zero safety accidents, building the best healthy workplace, and becoming a world-class company for ensuring safety and health. We also cultivate a safety culture based on humanistic values and build an intrinsically safe work environment. To ensure safety and security, we support the physical and mental health of employees to achieve work-life balance and we work together with stakeholders to reduce workplace safety and health risks. There were no litigation involving violations of employee health and safety in 2022.

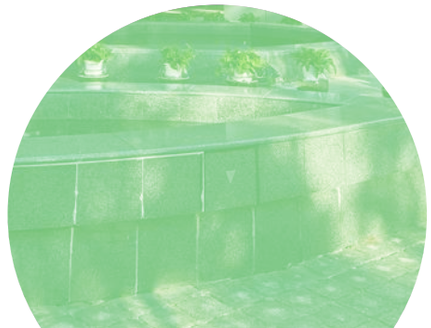
6.4.1 Build a Human-Centric Safe Workplace

Operations of the occupational safety and health organization and system

VisEra has established the Occupational Safety and Health Committee with members including 1 Chairman of the Committee, 1 Executive Secretary, 19 heads of departments, 8 occupational safety and health and medical personnel, and 24 labor representatives. The 53 members jointly review occupational safety and health issues to transform the Company into a benchmark for occupational safety and health. Non-management personnel account for 45.3% of the members. The Committee also convenes meetings regularly each month, which exceeds regulatory requirements and facilitates full consultation and communication for all employees. In 2022, the Occupational Safety and Health Committee reviewed and passed 7 proposals regarding plant safety, epidemic prevention measures, avoiding the triggering of alarms during installation, and enhancing safety and work friendliness in the work environment.

We established the employee proposal system to strengthen employee consultation, participation, and communication. Employees can file proposal forms or provide feedback to the Occupational Safety and Health Committee. The Company continues to obtain certification by independent third-party certification institutions for the ISO 45001/ TOSHMS Occupational Health and Safety Management System to continue to improve safety and health in the work environment. The certification covers 100% of all workers and related routine and non-routine activities in the locations of operations. VisEra has appointed occupational safety and health management personnel (9 in Hsinchu Plant and 1 in Zhongli Plant as required by law) in accordance with regulations. We also set up dedicated units to help all plants implement regular annual assessments, internal audits, management review, and other matters required by the system. The results pass external certification to ensure their effectiveness and implementation. We also set a target for filing 10 occupational safety management proposals each quarter and 40 proposals were filed in 2022 (the resources invested totaled NT$1.57 million). They included automatic measurement of the thickness of photoresist to reduce ergonomic risks and prevent musculoskeletal injuries when employees work. The Company received recognition for the performance of the safety and health management system and was shortlisted by the Hsinchu Science Park Bureau, National Science and Technology Council (hereinafter referred to as Hsinchu Science Park Bureau) as a company with outstanding performance in promoting occupational safety and health in 2022. VisEra employees have won the Occupational Safety and Health Excellent Employee Award presented by Hsinchu Science Park Bureau each year from 2019 to 2022.

Workers covered by the occupational health and safety management system	Coverage rate (%)
Hsinchu Plant	100%
Zhongli Plant	100%
Total	100%



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Safety and health communication procedures

Participation and Consultation Results — Formulate the EHS, Hazardous Substance Abatement and Energy Communication Management Procedures and establish a plant safety and health communication platform.

Internal information communication

- Follow the Internal Communication Management Procedures
- Build a communication platform to hold regular meetings related to environmental safety and health

Consultation and participation of non-management staff members

No employee other than managerial officer gave opinions and feedback in Y2022

External information communication

- EHS and hazardous substance reduction, and propaganda of energy management system information publicity related policies, provision of written materials when necessary
- Acquisition of external information (contact, receiving opinions, customer opinions)
- External information processing and response

Occupational Safety and Health Committee

Explaining the promotion of occupational safety and health to members and labor representatives

- Frequency of meeting: Once a month
- Chair of the meeting: President
- Participants: Occupational safety and health personnel, heads of various departments, engineering and technical personnel related to occupational safety and health, and labor representatives of medical staff
- The meeting AR was really discussed and tracked

Meeting of Occupational Safety Coordinators

Full communication and discussion on occupational safety and health issues)

- Frequency of meeting: Once a month
- Chair of the meeting: Head of Occupational Safety and Environmental Protection Department
- Participants: Each department appoints a representative to attend
- The meeting AR was really discussed and tracked

Sub-Safety Committee to promote

And strengthens the promotion of occupational safety and health norms

- Frequency of meeting: Once a month
- Chair of the meeting: Plant / division supervisor
- Participants: Head of sections, Occupational Safety Coordinator, and head of the OSH Department
- The meeting AR was really discussed and tracked

Contractor communication meeting

Communicate with manufacturers and strengthen the promotion of occupational safety and health standards in the plant)

- Frequency of meeting: Once a year
- Moderator: Deputy General Manager
- Participants: Manufacturer's occupational safety personnel
- Content: Propagandize the manufacturer's violations and the key safety issues of the plant area.
- Meeting communication status: Communicate with the contractors to publicize important matters in the plant area

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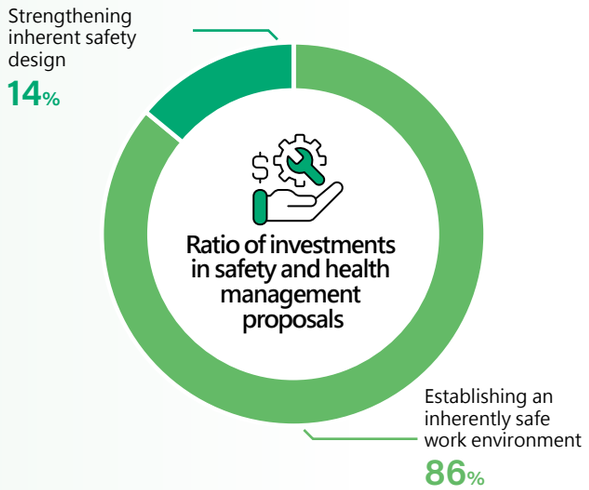

To enhance safety management, we use the audit system to progressively and continuously improve safety management. We conduct regular and ad hoc audits, including daily construction inspections by safety and environmental protection units, weekly routine and project inspections by the safety and environmental department to review the implementation of occupational safety and health management in each plant. We require the responsible unit to propose corrective measures for any failure to meet expectations or violations of regulations. We also set up 12 safety performance indicators (including active and passive indicators) and regularly track the effectiveness of the implementation in each plant every month. The parent company (TSMC) conducts at least 3 audits each year. We use the system to track all non-compliances or violations found in audits and regularly submit results for review to continuously improve and manage the system operations. Non-compliances are also reported to the Occupational Safety and Health Committee to review the effectiveness of improvements.

Safety Performance Indicators

VisEra has established procedures based on the Occupational Safety and Health Act, domestic and overseas safety and health standards, and ISO 45001 requirements. To implement the safety and health related procedures, VisEra has established the Safety Performance Index (SPI) system based on the management model of the parent company TSMC to implement quantitative management and supervision of the daily safety and health implementation results in the plants. The SPI includes active and passive indicators and management mechanisms with four color-coded indicators including blue, green, yellow, and red. The indicators have been maintained at blue or green (indicating excellent or good performance).

Active indicators

- Completion rate of regulatory and parent company-required occupational health and safety implementation tasks.
- Number of Safety Management of Change (SMOC) and occupational health and safety management plan proposals.
- Completion rate of emergency response education and training.
- Contractor's self-management.

Passive indicators

- Number of incidents
- Number of abnormalities
- Number of incidents and abnormalities involving contractors.
- Audit of the parent company.
- External validation deficiencie

SPI detailed indicators					
Safety Performance Indicators (SPI)	2018	2019	2020	2021	2022
Color indicator	●	●	●	●	●

Description: ● Blue (excellent)-SPI ≧ 95 ; ● green (good)-85 ≦ SPI<95 ; ● yellow (warning)-70 ≦ SPI<85 ; ● red (warning)SPI<70

Risk control and opportunities for improvement

VisEra focuses on global safety and health issues, assesses risks and opportunities, and invites employees or representatives in the Company to participate and provide opinions for building a good workplace environment. We set environmental safety and health factors for consideration and hazard identification management procedures, and implement regular evaluations of internal and external issues and issues of concern to stakeholders every year. We determine risk assessments and response to opportunities by considering regulatory compliance, level of concern, technical, financial (including annual operating costs), operational (including operational and business impact on quality, cost, and delivery), and business factors to continuously reduce potential risks. In 2022, we performed 1,566 risk assessments and evaluations, and assessed 12 internal and external issues and 16 stakeholder requirements and expectations. We also strengthened the safety awareness of all employees by incorporating the "right to active avoidance of danger" in the Occupational Safety and Health Act so that the concept of safety first can be implemented in the workplace.

Medium to long-term objectives for occupational safety and health management

Medium-term objectives

- Incident rate per thousand persons < 0.20
- Disabling injury frequency rate <0.4
- Disabling severity rate < 4

Long-term objectives

Number of occupational diseases caused by exposure to chemicals remain 0

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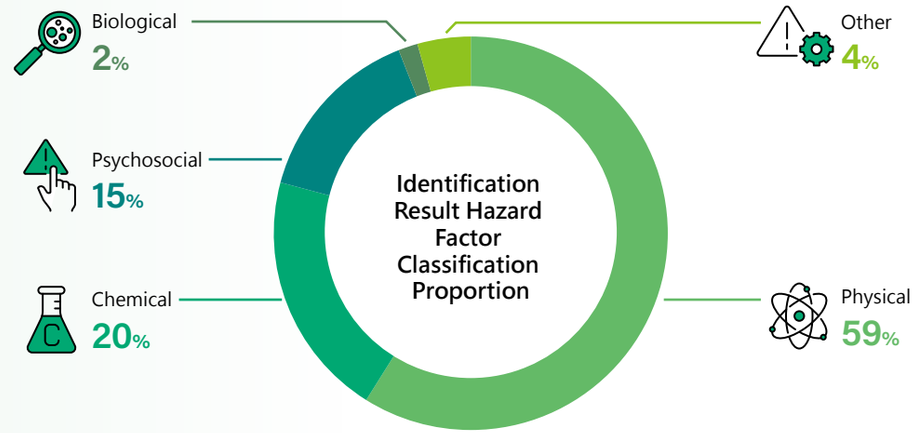
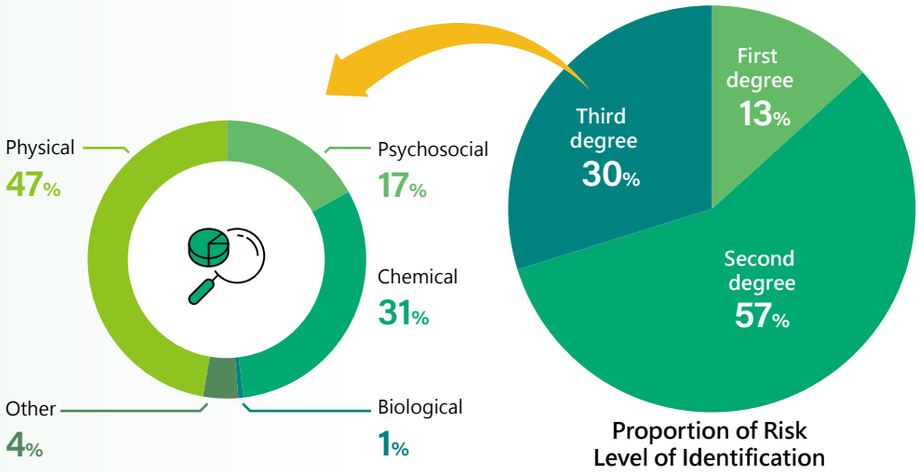
Hazard identification and risk assessment results

Risk-related threats and opportunities — Annual hazard identification results





EHS risk identification results

1. This year, the risk assessment scores were redefined according to the risk assessment technical guidelines, and the risk assessment level 5 and level 4 are occupational safety and health risks.
2. The identification results of each department were compiled and no "occupational safety and health risks" were identified this year.
3. Considering that there are still risks worthy of attention in the operation characteristics of the plant, the "occupational safety and health risks" operation items are defined as "occupational safety and health risks" for this year with reference to the identification results of last year.

Table: Risk Level and Control Plan

Risk level	Risk control plan	Note
5 - Major risks	Risk reduction measures must be taken immediately, and operations shall not be started or continued until the risk is reduced.	Unacceptable risk, for major and high risk, risk mitigation control measures should be taken to reduce the risk to below moderate level.
4 - High risks	Risk control measures must be adopted within a certain period of time, operations shall not be started before risk reduction, and considerable resources may be required to reduce the risk. If current operations are highly risky, risk mitigation measures shall be implemented as soon as possible.	
3 - Medium risks	Need to work on risk mitigation, such as 1. Based on cost or financial considerations, it is appropriate to gradually adopt risk mitigation facilities to gradually reduce the proportion of moderate risk. 2. For severe to major or very major moderate risks, it is advisable to further evaluate the possibility of occurrence as a basis for improving control facilities.	Acceptable risk, for which maintenance, supervision and inspection of existing protection facilities, as well as education and training mechanisms shall be implemented or reinforced.
2 - Low risks	There is no need to adopt risk mitigation measures for the time being, but the effectiveness of the existing protection facilities shall be ensured.	
1 - Mild risks	There is no need to adopt risk mitigation measures, but the effectiveness of the existing protection facilities shall be ensured.	

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Ergonomic

→ Continuous actions

- Appoint professional medical specialists to conduct onsite visits and provide recommendations.
- Continue to observe operations and identify potential ergonomic hazard factors in the workplace based on the risk identification methodology and ergonomic hazard assessment tools, and implement corresponding preventive actions.
- Use the Health Center's ergonomic factors questionnaires and records on the use of pain relief patches to monitor employees with musculoskeletal pain. Work with occupational medicine specialists for on-site services and interviews.

→ Results

- The Company completed 12 onsite work observation sessions and made a total of 3 recommendations for ergonomic design improvements, including improving the posture of the warehouse personnel operation and adding a new elevation platform and roller conveyor belt for the transportation of wafer cassette boxes. All improvements have been completed with a 100% completion rate.
- 1366 employees completed the musculoskeletal symptom survey questionnaire, and the Company assisted 10 employees with suspected ergonomic risks to attend work interviews and assessments, and arranged onsite visits by occupational medicine specialists to provide recommendations.
- After interviewing employees affected by soreness and pain and identifying the ergonomic risks, we found that they did not work in areas with potential or existing ergonomic risks

Chemical

→ Continuous actions

- In terms of the selection of chemicals, we referenced the green procurement questionnaire of VisEra to process chemicals restricted by the EU REACH regulation. The unit using the chemicals evaluate the feasibility of alternatives and prioritize the selection of chemicals with low health hazards.
- VisEra adopted the chemical hazard classification and calculation system in 2021 and required all suppliers of chemicals to provide the H code information and explain whether they meet the regulatory requirements for registering new chemical substances and existing chemical substances. We verify the accuracy of the hazard classification information in the SDS provided by suppliers.
- If chemicals contain CMR substances or IARC substances, employees in maternity health protection programs may not engage in related operations.

→ Results

- We completed the replacement of process NMP and perfluorooctanoic acid materials in 2020 and regularly review the regulations and customer requirements for the elimination of hazardous substances in products. The European Chemicals Agency (ECHA) plans to restrict the use of PFHxA by 2035 and VisEra has established related chemical replacement programs for continuous verification and replacement.
- The number of occupational diseases caused by exposure to chemicals remained 0.

Biological

We readily monitor changes in the policies announced by the Centers for Disease Control for continuous adjustments of plant response measures and to provide timely health education information.

→ Continuous actions

- We continue to pay close attention to the development of infectious diseases in Taiwan and overseas. We established preparation and response measures for notifiable diseases and the Epidemic Prevention Committee continues to monitor developments of the COVID-19 epidemic to formulate epidemic prevention measures of TSMC.
- We continue to implement reporting mechanisms for non-notifiable diseases and provide health education information for seasonal influenza and dengue fever.

→ Results

- Support COVID-19 control measures and implement individual epidemic prevention management for high-risk personnel.
- 0 cases of infections of employees due to business operations.

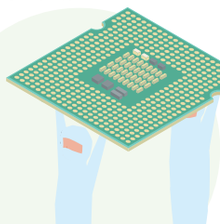
Physical

→ Continuous actions

- Set up non-ionizing radiation measurements for machines in plants in past years and require non-ionizing radiation measurements for process machines once every six months.
- Arrange operation observation for operations with higher hazard identification scores in each unit. Observe 1 case each month to confirm that employees meet regulatory requirements in operations and identify the areas for improvements in environmental and operational safety.

→ Results

- Completed special eye examinations for 7 employees and the results were normal.
- Completed 12 operation observations and provided recommendations for improvements.



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Risk assessment and mitigation of hazards	Assessment methods used for such hazards	Mitigation measures for high-risk hazards identified in the assessment	Number of employees/non-employees covered in the hazard prevention program1
Physical hazards	Established with reference to the Technical Guidelines for Risk Assessment of the Occupational Safety and Health Administration, Ministry of Labor	No occupational safety and health risks were found in the plants and all operations must be processed in accordance with operating regulations of the plants	100%
Ergonomic hazards	Established with reference to the Key Indicator Methods (KIM table) for ergonomic risk assessment	No occupational safety and health risks were found in the plants and all operations must be processed in accordance with operating regulations of the plants and managed based on VisEra's ergonomic hazard internal control operating procedures	100%
Chemical hazards	Established with reference to the Technical Guidelines for Risk Assessment of the Occupational Safety and Health Administration, Ministry of Labor	No occupational safety and health risks were found in the plants and all operations must be processed in accordance with operating regulations of the plants	100%
Biological hazards	Established with reference to the Technical Guidelines for Risk Assessment of the Occupational Safety and Health Administration, Ministry of Labor	No occupational safety and health risks were found in the plants and all operations must be processed in accordance with operating regulations of the plants	100%
Specific sensitive groups (e.g., middle-aged, young workers, or those at risk of maternal health hazards)	Established with reference to related guidelines of the Occupational Safety and Health Administration, Ministry of Labor (Safety and Health Guidelines for Middle-Aged and Senior Workers and Technical Guidelines for Maternity Health Protection at the Workplace (Version 2))	Established related regulations with reference to related guidelines of the Occupational Safety and Health Administration, Ministry of Labor	100%

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COVID-19 has been a major issue of concern in recent years. In order to prevent the impact of COVID-19 on the health of workers and company operations, we continuously adjusted and set epidemic prevention measures in accordance with the epidemic prevention management regulations of the competent authority and the development of the epidemic. As domestic and foreign epidemic management measures are relaxed and borders reopen in October 2022, VisEra maintained measures for reporting contact tracing information and connecting the reporting system for employees returning from overseas with access management to continuously manage and prevent the entry of high-risk personnel into VisEra premises.

Epidemic prevention results in 2022

Effectiveness of epidemic prevention management

Continuous control strategy

- Reviewed the vaccination status of employees, encouraged them to receive vaccines, and reduced moderate to severe cases.
- Got special COVID-19 cases controlled, with no moderate or severe cases.

Important epidemic prevention management events during the aggravating epidemic in 2022

2022 Jan — Epidemic prevention and control after the Lunar New Year
- Started working at home

2022 Feb — Epidemic prevention & control in Taoyuan Airport cluster event
- Implemented company-wide red and blue grouping operation measures

2022 Mar — Handled epidemic investigation drills
- Completed epidemic investigation drills,and required strengthening the emergency response of foreign workers' dormitories and intermediaries

2022 Apr — Epidemic prevention and control of foreign worker clusters
- In case of outbreaks of epidemics among foreign workers in other counties or cities, promulgate epidemic prevention strengthening measures

2022 May — Epidemic prevention & control in local epidemic peaks
- Established epidemic investigation teams to strictly implement epidemic investigation and access control on a daily basis, and reported the tracking of COVID-19 special cases to the continuous operation commander and epidemic prevention committee on a daily basis
- Closely cooperated with foreign labor agency to take case control and epidemic prevention measures every day
- Launched epidemic investigation and rapid screening & report system

2022 Jun — Cooperated with the government to control the epidemic and relax control measures
- Made fine tune to some controls in line with the gradual remittance of epidemic, but still maintained the red and blue grouping
- Reexamined and continuously strengthened epidemic prevention management mechanism for foreign workers' dormitories and intermediaries

2022 Oct — Cooperated with the government's border opening policy
- In line with the government's border opening policy, adjusted the regulations on entry management and access control for employees and contractors traveling from overseas countries

2022 Nov — Cooperated with the government to relieve epidemic investigation
- Cooperated with the government to loosen the restrictions, adjusted the benchmark for epidemic investigation and the number of days for access control restriction

2022 Dec — Cooperated with the government to relieve epidemic prevention
- Cooperated with the government to relax epidemic prevention measures and got the epidemic controlled, and lifted the Company's red and blue grouping operation measures
- Lifted the daily temperature report requirement
- Lifted the requirement for quick screening of guests

The Company also established accident investigation procedures. In the event of an accident involving an employee or contractor (including anomalies or incidents), investigation procedures are activated to identify the cause of the accident. We aim to clarify the reason to ensure that such accidents do not recur. There were no cases of material, severe, or recordable occupational injuries (including occupational diseases) in 2022. However, the Company analyzed and reviewed the 8 cases of anomalies that occurred in 2022 but did not cause specific damages to review the appropriateness of operational risk assessments and ensure continuous and sustained improvements.

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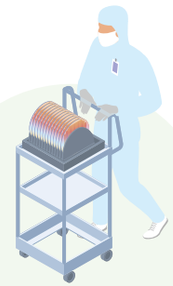
Statistics of occupational safety and health accidents in past years

	2018		2019		2020		2021		2022		2022 target	
	Employees	Contractors	Employees	Contractors	Employees	Contractors	Employees	Contractors	Employees	Contractors	Employees	Contractors
Number of material occupational safety and health accidents	0	0	0	0	0	0	0	0	0	0	0	0
Number of severe occupational safety and health accidents	0	0	0	0	0	0	0	0	0	0	0	0
Number of recordable occupational safety and health accidents	0	0	0	0	2	0	0	0	0	0	0	0
Total work hours	1,347,702	147,349	1,520,312	506,718	2,355,038	233,192	2,795,757	232,982	2,938,372	430,296	NA	NA
Disabling frequency rate	0	0	0	0	0.85	0	0	0	0	0	<0.4	0
Number of accidents	0	0	0	0	2	0	0	0	0	0	1	0
Number of anomalies	0	0	4	0	15	0	11	0	8	0	8	0
Number of near misses	0	0	0	0	64	0	24	0	5	0	12	0

Description:
1. Material occupational safety and health accidents: Occupational injuries or occupational diseases that cause death; severe occupational safety and health accidents: Occupational injuries or occupational diseases that necessitate more than 6 months of recovery time (excluding death); recordable occupational safety and health accidents: Occupational injuries or occupational diseases that cause the worker to be unable to perform original functions (including material and severe)
2. Disabling frequency rate = number of disabling cases / total work hours *200,000
3. The disabling injury frequency rate of peers is 0.86
4. Accident: It refers to incidents in the workplace that harm equipment or personnel safety and cause injuries or property loss
5. Anomaly: It refers to incidents in the workplace that jeopardize the safety of equipment or personnel but have not caused specific injuries or losses
6. Near miss: It refers to incidents in the workplace that may jeopardize the safety of equipment or personnel and have not caused specific injuries or losses, but shocked the personnel



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Anomaly analysis

Description:

- Y2021: 11 cases (4 cases for chemical leakage, 4 cases for water leakage, 1 case for external air/gas, 1 case for fire alarm and 1 case for others).
- Y2022: 8 cases (3 cases for fire alarm, 2 cases for water leakage and 3 for others), and **7 cases for plant affairs**.

Year	Abnormal											
	Q1			Q2			Q3			Q4		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	1	1	1	0	3	0	0	1	1	1	2	0
2022	2	0	0	0	1	0	1	1	1	0	1	1

Number and types of anomalies in 2022

Key improvement measures for anomalies in 2022

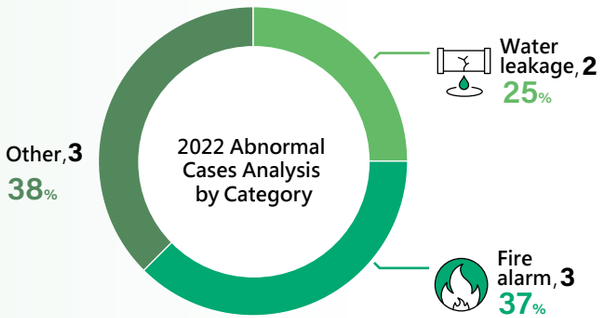
Among the anomalies in 2022, the top three categories were fire alarms, leaks, and elevator malfunction and were mostly caused by malfunctioning parts. We have also established response measures for leaks.

- Reduce the recommended service life of parts and increase the frequency of replacement of key parts
- Evaluate and replace pipes with high risks of leaks: Strengthen the management system based on the risks of leaks and; add check list inspections and personnel inspections

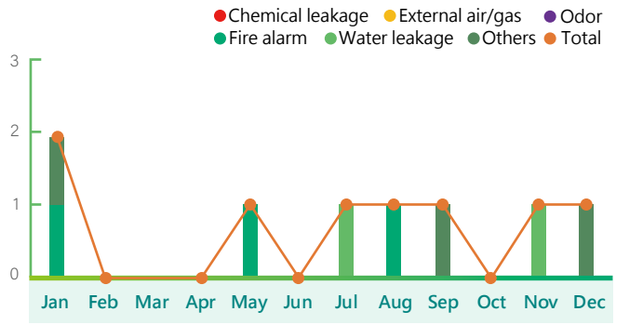
Expected improvements and preventive measures in 2023

- Increase operational inspections and onsite audit frequency after construction
- Increase the number of internal audit inspections
- Enhance onsite construction inspections and ESEP operation observation

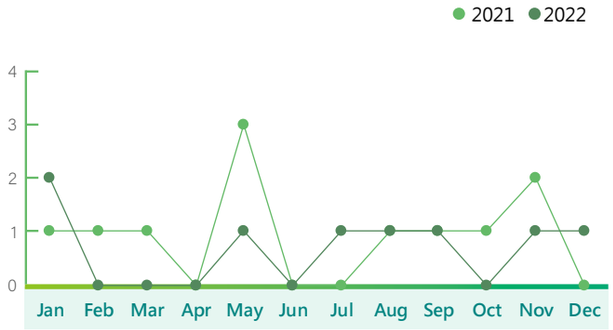
2022 Pie Chart of Abnormal Category %



2022 Chart of Monthly Cases and Category Analysis



Trend Chart of Abnormal Parts from Y2021 to Y2022



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Definition of false alarm

No.	Type	Content
1	Fire alarm	When the fire alarm detection system is activated but it is confirmed caused by dust resulting from the site construction or minor damage to equipment components and does not cause adverse effects on personnel, equipment and environment, it will be recorded as false alarm.
2	Gas	When there is activation of the gas detection system not caused by real gas leakage at the gas supply end, such as: external gas or construction, minor interference with by-product or device component damage caused by PM/TS (failed to reach the level of red light alarm), causing no adverse impact on personnel, equipment or environment, it will be recorded as false alarm.
3	Gas	Where there is readings on equipment not required by OI specifications at the detection site, and no adverse impact is caused to personnel, equipment or environment, it will be recorded as a false alarm.
4	Odor	When there is an employee report that there is an odor (including burnt smell, etc.), which is confirmed not caused by any reason or involves minor damage of equipment components, causing no adverse impact on personnel, equipment or environment, it will be recorded as false alarm.
5	Water leakage	Where there is small amount of water leakage (less than 10 square meters), and no adverse impact is caused to personnel, equipment or environment, it will be recorded as a false alarm.
6	Chemical	Hazardous process material (HPM) leakage is defined as false alarm when it is not chemical leakage and abnormality.

Near miss incident reports and investigation procedures

Incident occurs (Confirm definition)
- Execution method: Implement emergency response measures.
- Responsible department: ERC and responsible department.

On-site investigation
- Execution method: Basic information and description of the incident.
- Responsible department: Department commander and ERC.

Issue the investigation report
- Execution method: The Security Committee to report and close the case according to its resolution.
- Responsible department: Responsible department for false alarm.

Review the investigation report
- Execution method: Review the investigation report for completeness and reasonableness.
- Responsible department: Responsible department for false alarm & Security Committee members.

Track progress
- Execution method: Close the case and track the progress & Parallel expansion scheme
- Responsible department: Responsible department for false alarm

Archive closing report for future reference
- Execution method: Report exists.
- Responsible department: Responsible department for false alarm.

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All personnel safety and disaster prevention preparation

VisEra has developed a safety and health training system to enhance the safety and health awareness, responsibility and commitment of all employees, ensure the safety of all employees, and increase the safety awareness of all workers. In addition to the statutory training for all types of operations or business personnel, those who perform ISO 45001 internal audits at the plants are required to receive training as ISO 45001 internal auditors. We also provide safety and health training for contractors. We exercise caution and preparedness to respond to possible accidents. The Company established an emergency response plan and conduct regular or unannounced drills to effectively control and minimize damage of accidents. In 2022, we conducted 26 drills for scenarios including fire, earthquake, gas leak, chemical leak, food poisoning, industrial machinery failure, damage from smoke outside the plant, environmental anomalies, and odor. All drills were conducted in accordance with the regulations and OI (F-RMS-2100 VisEra Emergency Response Plan). In addition, we organized 6 training sessions (basic, advanced, and commander) for the Emergency Response Team this year and personal protective equipment (PPE) usage tests twice a year. We also assign on-duty personnel on a rotating basis every day to respond to emergencies. If courses are held by means of online courses (V+talent), we conduct evaluations and satisfaction surveys after the courses. If courses are held in person, the instructor engages trainees during the course or the review of test papers to measure the effectiveness of the training. We also conduct a review at the end of the course to enhance the awareness of participants. In 2022, we commenced the Green Card certification training for contractors and we plan to set up refresher training every two years. We plan to implement group training for emergency response personnel in 2023 (once every year) to enhance the skills and awareness of the team members.

Occupational safety and health training and drills in 2022

	Number of activities	Total number of people	Coverage rate* (%)
General safety and health training (traffic safety, equipment operation safety training, protective equipment, etc.)	56	410	100
ISO 45001/ISO 14001 internal audit training	1	46	100
Contractor safety and health training	-	854	100
Emergency response training or drills (earthquakes, typhoons, fires, etc.)	Training: 2 Drills: 25	Training: 226 Drills: 424	-
***Coverage rate = (actual number of trainees/number of eligible individuals) *100%**			

Note: VisEra has not yet provided high-risk operation training (Little Red Card) courses for contractors. Contractors are only permitted to engage in high-risk operations after they obtain the training certificate from the parent company (TSMC).

6.4.2 Create a Safe and Comfortable Workplace for Physical and Mental Balance

VisEra upholds its core value for placing people first. We invest manpower and resources to protect employee safety and health at work and create a safe and healthy work environment. We use health risk assessments or environmental monitoring to prevent occupational accident and organize health examinations to provide systematic health management assessments or health promotion activities to enhance the safety and physical and mental health of employees.

Occupational health management

Occupational safety and health management and health hazard assessment, monitoring and mitigation measures in the plants

Health hazard assessment item	Monitoring	Mitigation measures
Work environment monitoring (including clean rooms)	Once every six months	• The monitoring results are announced on the homepage of the Company's internal network (My VisEra) • All regulatory standards have been met so far
Hazard identification (including ergonomic hazards)	• Once every year • Recipients include employees, contractors, visitors, suppliers, group meal providers, outsourced operations, security, and labor service providers	Where necessary, request relevant units to propose management measures
Special operation personnel (nickel and indium operations)	• Manage the number of operators with the license management system • Nickel and precision operations are controlled by system access settings to prevent operations by unauthorized personnel	Organize special health examination for employees in accordance with laws
Respiratory protection equipment airtightness tests	Once every year	For employees who fail to pass the test, specify the operations they are excluded from

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Provide health examination benefits superior to regulatory requirements

In terms of onsite health consultation and assistance, the Company assigns 1 specialist physician and 2 general physicians to provide onsite consultation in plants (3 hours/physician/month) and provide the following service:

1. Provide related hazard assessment and recommendations based on the needs of the occupational safety and health unit.
2. Consultation, evaluation, and recommendations for personnel exhibiting anomalies such as special operation health examination rating management consultation and evaluation, ergonomic hazards, physical examination/health examination anomalies, and physiological assessment for respiratory protection.
3. The recommendations proposed by physicians onsite shall be evaluated and implemented by related units. The Health Center and the onsite physicians shall provide necessary based on actual conditions.
4. For personnel with abnormal health conditions, the Health Center and the onsite physicians shall continue to track improvements or help provide recommendations for adjusting work conditions.

In addition, VisEra provides health examination benefits superior to regulatory requirements and implements tiered management based on the results of health examinations. Special operation classification and management are implemented in accordance with the Labor Health Protection Rules. In 2022, we completed the special health examination for 366 individuals and identified a total of 150 cases with high potential risk of work-related diseases. The general operation classification is managed in accordance with the recommendations of the onsite physicians and is divided into five classifications including normal, mildly abnormal, moderately abnormal, severely abnormal, and obviously abnormal. We implemented management in accordance with the Labor Health Protection Rules. In 2022, 945 employees participated in health examinations, and regular follow-ups were conducted for 62.2% of employees with moderately to severely abnormal health examination results.

Range	Level 1	2A	2B	3	Obviously abnormal
Description	Normal	Mildly abnormal	Moderately abnormal	Severely abnormal	Obviously abnormal
Response	N/A	→ Health examination report with health education description → Employee health requirements and consultation	→ Provide onsite physician consultation → Provide free re-examination after six months → Provide necessary assistance such as work adjustments		

Item	Recipient	Timing Specified in Regulations	Payment of Expenses	VisEra Benefits
General physical examination	New employees	Before new employees report for duty	Labor-zmanagement negotiation	Fees borne by the Company
Special physical examination	Personnel of special hazardous operations	Before reporting for duty or change in job function	Labor-management negotiation	Fees borne by the Company
General health examination	1. Age <40 years old 2. Age 40-64 3. Age 65 and above	Every 5 years Every 3 years Every year	Paid by employer	1. All employees are eligible for general health examinations every year and the fees are borne by the Company 2. Executives are eligible for executive health examinations every year and the fees are borne by the Company
Special health examination	Personnel of special hazardous operations	Every year	Paid by employer	Provide health examination items superior to regulatory requirements such as laser operations (retinal examinations)

Health Management Item	2018	2019	2020	2021	2022
Nickel - special physical examination	185 individuals/100% implementation	223 individuals/100% implementation	147 individuals/100% implementation	353 individuals/100% implementation	323 individuals/100% implementation
Ionizing radiation - special operations	NA	1 individuals/100% implementation	2 individuals/100% implementation	4 individuals/100% implementation	6 individuals/100% implementation
Indium - special operations	NA	NA	23 individuals/100% implementation	45 individuals/100% implementation	48 individuals/100% implementation
Health service personnel	2 individuals	2 individuals	2 individuals	3 individuals	3 individuals
Duration of services provided by onsite physicians	72 hours	72 hours	96 hours	108 hours	108 hours
Number of cases processed by onsite physicians	-	-	248 cases	610 cases	411 cases

*Among the special operation personnel, 11 individuals concurrently perform special operations involving nickel and indium, resulting in a total of 366 special operation personnel.

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Health Promotion Items	2018	2019	2020	2021	2022
Psychological consultation services/participation	14 sessions	16 sessions	21 sessions	15 sessions	21 sessions
Overloading questionnaire/ participation rate	100%	100%	100%	100%	100%
Health seminar	-	214 sessions	487 sessions	Online*	Online*
Health promotion activities	207 sessions	1,494 sessions	2,824 sessions	291 sessions	1,346 sessions

Note1: Due to the epidemic, health seminars were held online in 2021 and no in-person seminars were held.
Note2: The health promotion activities in 2022 included cancer screening and vaccination (72.7% participation rate) and bone density measurement (23.8% participation rate).
*Due to the pandemic situation in 2021 and 2022, health seminars were held online, making it impossible to gather attendance data.

6.4.3 Work with Contractor Partners to Create an Inclusive Workplace

VisEra actively communicates and cooperates with customers and suppliers to jointly improve the safety and health performance of the supply chain. We also share safety and health knowledge and experience with external parties and build partnerships with business partners, industries, governments, academia, and the entire society to build a safe and healthy workplace environment together.

The Blue Book for Contractors' Safety, Health and Environmental Protection was published in 2021 for contractors to enhance their environmental, safety, and health management awareness in all construction operations. Before contractors enter the plant, they must use the construction management system to organize pre-construction safety meetings, construction permit reviews, and completion of safety and health training for all contractor personnel before the access control system permits their entry and implements management and control.

Enhancement of assistance for contractors

We encourage high-risk contractors to obtain ISO 45001 occupational health and safety management system certification. In 2022, 10 contractors responsible for onsite high-risk operations obtained certification (approximately 80%), and we aim to attain 100% certification by 2030. Contractors are not permitted to perform high-risk operations in plant areas without obtaining comprehensive management system certification. We continue to verify the feasibility of JSA work safety analysis through pre-construction surveys and pre-construction meetings for remaining construction items. We ensure that the contractors have sufficient safety and health enforcement capabilities to complete the contracted work on time in accordance with quality and safety requirements.

We also continue to conduct onsite safety, health, and environmental protection audits for suppliers each year. We require a score of at least 70 and provide support. The contract value is used as the basis for screening and grading for onsite audits. We also require reports on improvements for deficiencies and include them as the criteria for the selection of suppliers and contractors. In 2022, we conducted a total of 11 supplier/contractor audits and identified a 50 deficiencies and recommendations during the audits. There were 42 items related to safety and health, 5 items related to fire safety, and 3 items related to environmental protection, and the completion rate of corrections for deficiencies was 96% (48/50), and continued monitoring will be carried out until the improvement reaches 100% completion.

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Contractor training

VisEra organizes annual training for new contractors to inform them of the hazards in accordance with regulations. If a new contractor fails to obtain the certification for the hazard communication training course, the contractor will not be able to apply for the VisEra Qualified Vendor Work Permit and will not be able to apply for permission for related construction projects. If a contractor does not have a contractor's work permit, the Company will prohibit the entry of its personnel when reviewing the qualifications of the contractor personnel for entry into the plant.

Contractor training results

Contractor environmental, safety, and health assessment procedures

The Company selects contractors with high risk ratings to conduct self-assessments on safety and health every year. We require all contractors to identify mechanical, material, compliance, and environmental risks for the work contents and propose countermeasures during the negotiation and organization meeting. We also require them to conduct environmental, safety, and health audits for the construction project every day. If there are any deficiencies, they must be immediately addressed to effectively reduce the environmental, safety, and health risks.

Resources invested/cost of helping contractors' environmental, safety, and health improvements

The Company invests significant amounts of manpower and financial resources each year to increase the safety and health performance of contractors. We reintroduced the contractor safety and health management system in 2022 to improve the efficiency of contractors' construction management procedures in the plants.

No.	Item Name	Investment cost	Unit
1	Safety and health instructor resources	159	Person/hours
2	Contractor safety and health management system fees	1,300,000	NT$
3	Contractor safety and health access control management fees	178,413	NT$

Contractor management and immediate correction

We implement risk-based management for contractors and established the "High-Risk Operation Management Regulations", "High-Risk Area Management Regulations", and "Operation Permit Management Regulations" to require contractors and employees of the Company to work together and ensure safety in construction. In 2022, we improved the functions of contractor construction management system, and recorded high-risk construction audit results and deficiencies in the electronic system to effectively monitor construction safety issues in the plants. We also implemented 100% high-risk audits so that the Company did not have any occupational accident in 464 high-risk operations and 430,296 hours of contractor operations in the plant in 2022.

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Operational risk ratings (extract from the VisEra Blue Book)

01 High-risk operation management measures

High-risk plant works

Level 1 / 2

High-risk ISEP operations

Level 1 / 2

High-risk equipment operation

02 High-risk region management measures

Inflammable and explosive chemicals and specific hazards, gas workplace

High-voltage power equipment place

Workplace with danger of falling from high places

Other high-risk areas of each plant

03 Measures for the administration of work permits

1. Pipeline work permit
2. Roof work permit
3. Busbar switch box installation
4. permit, confined space work
5. Dangerous mechanical work permit
6. Work permit for construction frame erection/ dismantling over 5m
7. Work permit for replacement of LDS cylinders for inflammable substances
8. Apply for a permit for ceiling (including mezzanine) work
9. Wall demolition permit
10. Hot work permit
11. Fire detector isolation permit
12. Fire protection interruption permit
13. Organic solvent work permit (F-CHV-01-03-010)
14. Permit for turning on 208V~750V active switchboard

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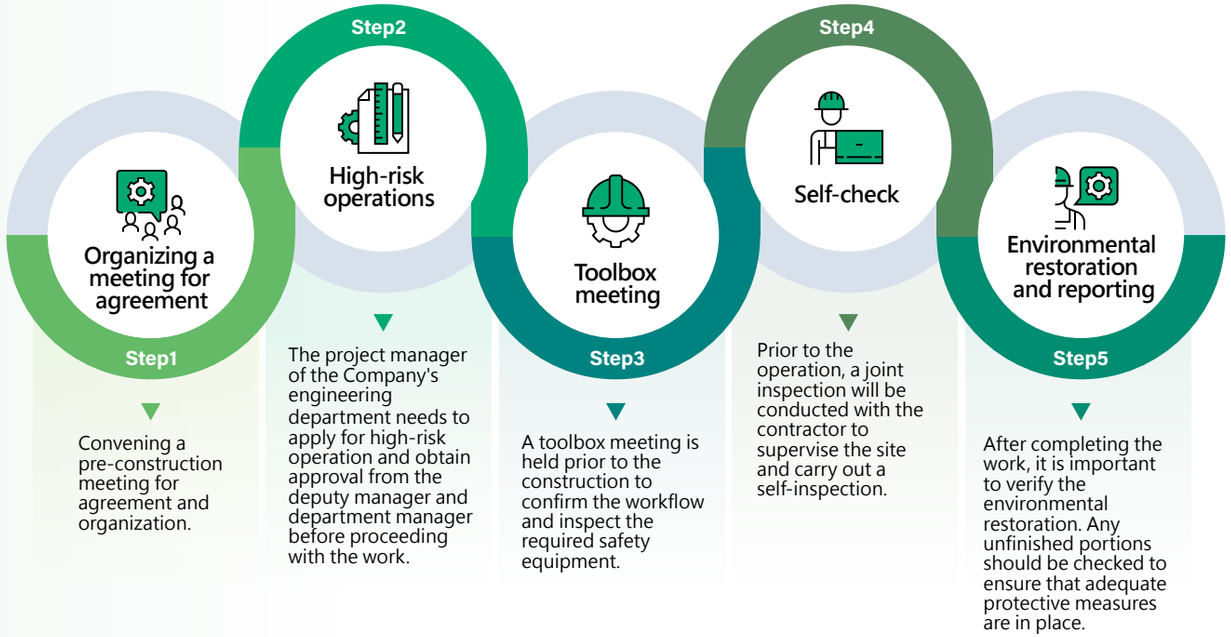
These measures are implemented to prevent potential significant casualties of high-risk operations, electric shocks of personnel, fire, leaks of hazardous gases/chemicals, and operations that may cause system shutdown or interrupt production. Contractors are required to apply for work permits for high-risk operations in advance. We also implement restrictions on 14 types of hazardous operations (pipeline operations, roofing operations, installation of bus switches, operations in confined spaces, operations of hazardous machinery, construction scaffolding assembly/dismantling operations at a height of over five meters, LDS cylinder replacement operations for pyrophoric substances, ceiling (including mezzanine) operations, wall removal operations, fire operations, fire sensor isolation, fire safety interruptions, organic solvent operations, and activation of electricity supply panel rated 208V or higher). Supervisors and operators must obtain technical certification (obtain a legal license or the little red card) to be qualified for entering the construction site.

High-risk operation and construction management



We require contractors to implement the following tasks to promote contractor self-management and implement occupational safety tasks:

- Explain the matters of note for the work of the day, including the operation method, division of labor, safety, and tools and materials used, in the daily toolbox meeting.
- Check the status of the equipment and safety and protection equipment before work.
- Conduct at least three onsite inspections every day. If unsafe conduct or environment is found, they must be addressed immediately and the contractor shall affix his/her signature on the inspection table.
- Supervise onsite operations and oversee personnel at all times.
- Verify the restoration of the environment after operations. If it cannot be immediately restored on the same day, verify whether protection measures are adequate.

The Company's personnel shall implement front-end management with pre-operation reviews such as work permits and independent onsite inspections with the contractor's supervisors. They shall also take measures such as recording violations, deductions, suspension of rights, termination of contract, and request for restoration of damages against the contractor, and impose penalties in accordance with the contract if necessary.

Future safety and health plans

VisEra understands the importance of occupational safety and health for all workers of the Company. We also value and continuously invest resources to create a safe and healthy workplace environment. We planned four major strategies for future improvement with the aim of working with employees and contractors to create a more sustainable work environment.

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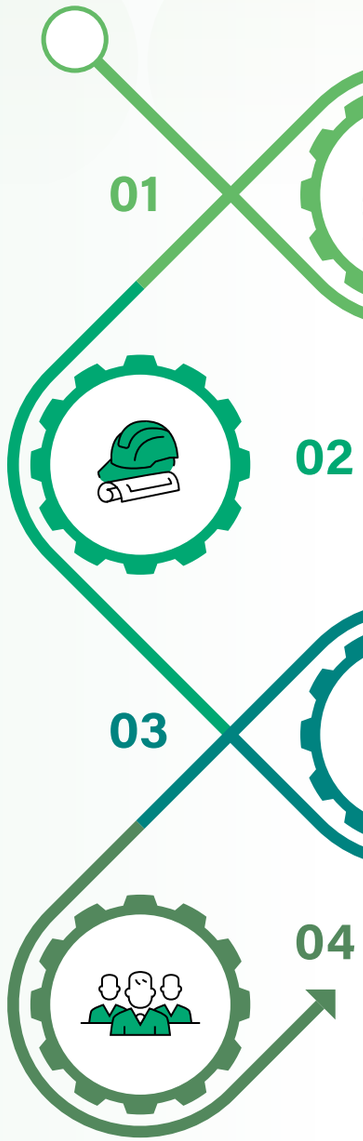

Strengthen the source management in the use of chemicals and implement replacement plans for hazardous substances

1. We launched the chemical hazard classification and calculation software in 2021 to confirm that the information provided by suppliers meet the calculation principles in the GHS Purple Book. We also continue to improve the chemical review system and review principles to verify that supplier practices meet regulatory requirements.
2. In terms of the selection of chemicals, we referenced the green procurement questionnaire of VisEra to process chemicals restricted by the EU REACH regulation. The unit using the chemicals evaluate the feasibility of alternatives and prioritize the selection of chemicals with low health hazards.
3. We completed the replacement of process NMP and perfluorooctanoic acid materials in 2020 and regularly review the regulations and customer requirements for the elimination of hazardous substances in products. The European Chemicals Agency (ECHA) plans to restrict the use of PFHxA by 2035 and VisEra has established related chemical replacement programs for continuous verification and replacement.

Periodically implement operation observation to identify the areas for improvements in environmental and operational safety

1. Arrange operation observation for operations with higher hazard identification scores in each unit. Observe 1 case each month to confirm that employees meet regulatory requirements in operations and identify the areas for improvements in environmental and operational safety.

Use AI image recognition technology to strengthen operational safety risk identification

1. In 2020, we used AI image recognition technology to set up the automatic identification system for postures when moving wafer cassette boxes and the use of helmets. If the posture for moving is inappropriate or if personnel enter a designated area without a helmet, the system sends an email notification to remind the individual. Continue to use AI image recognition technology for operational safety risk identification (e.g., identification of the use of personal protective equipment in routine plant operations)
2. In 2022, we used a fixed high-resolution camera to set up the blockage detection of photoresist waste liquid pipelines and the AI recognition of personal protective equipment for filling up tankers

Continue to implement contractor construction inspections

1. Implement construction inspections for 100% of the high-risk operations to verify that the contractor follows the requirements of VisEra and the operating procedures listed in the work analysis table for implementation and reduce the occupational safety accidents of contractors.

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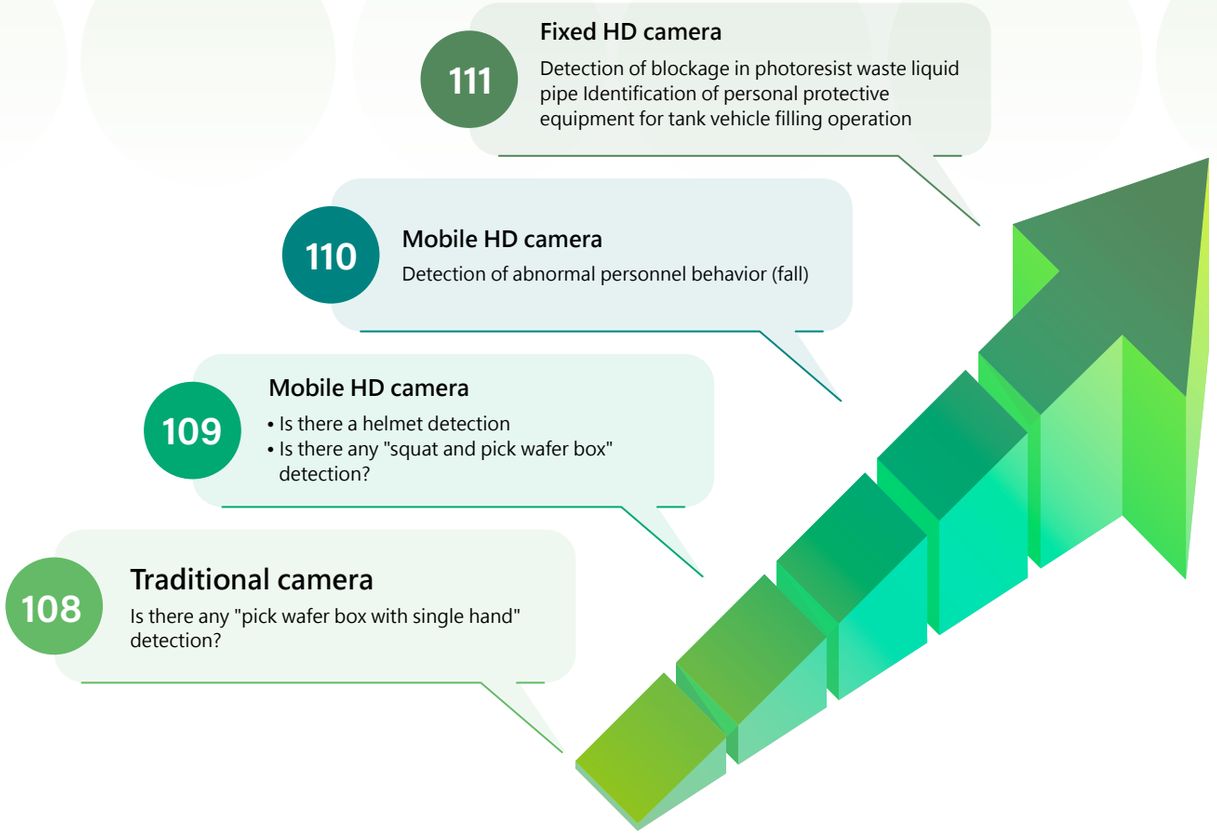
Intelligent occupational safety, reduce the chance of occupational accidents and reduce the risk of personal injury

- Occupational safety personnel need to go to the workplace for routine inspection of engineering safety compliance every day, and automatically detect whether the workers in the workplace wear appropriate safety protection equipment or have abnormal conditions through the system to ensure the safety of personnel.

Detection rate of AI higher than 80%:

- Detection rate with helmet worn - 91%
- Detection rate of abnormal personnel behavior (fall) - 99.5%
- Detection rate of PPE for tank vehicle filling operation - 87.8%
- Is there a "squat and pick FOUP" detection, wrong posture detection rate - 98%, correct posture detection rate - 82%



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Spotlight

Issuance of the VisEra Blue Book for Contractors' Safety, Health and Environmental Protection

As contractors adopt different safety and health regulations due to different work methods, work areas, and approaches, VisEra referenced the parent company's "TSMC Blue Book for Contractors' Safety, Health and Environmental Protection" for compiling the VisEra Blue Book in 2021 based on the motto of "zero accident and zero occupational disasters" and incorporated the spirit of "self-protection, mutual protection, and supervision". All employees of the Occupational Safety and Environmental Protection Unit worked together to produce environmental, safety, and health notices for three stages including before construction, during construction, and after construction, as well as detailed and correct construction guidelines complete with drawings based on complicated regulations. The information is provided as an information pack for contractors to learn and implement with greater ease when reading the Blue Book and during actual work. The Blue Book can also be shared with different industries to improve the environmental, safety, and health standards of all industries.

We continue to monitor the construction and operation requirements and regulatory requirements of the plants, compile common deficiencies and difficulties in implementation for contractors, and continue to improve the "VisEra Blue Book for Contractors' Safety, Health and Environmental Protection". The Blue Book is currently provided for contractors to download on the website. We hope to create a safe and healthy workplace by sharing our knowledge and experience. In 2022, contractors accumulated 430,296 work hours in the plants. The Occupational Safety and Environmental Protection Unit enhanced inspections and the number of audited cases in contractor inspections increased significantly (19 cases) by 8 cases compared to 2021 (11 cases). We shall work with contractors to identify hazards, continue to reduce occupational safety and health risks, and create a safe and healthy workplace together.

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Role in Sustainability

Corporate Citizenship

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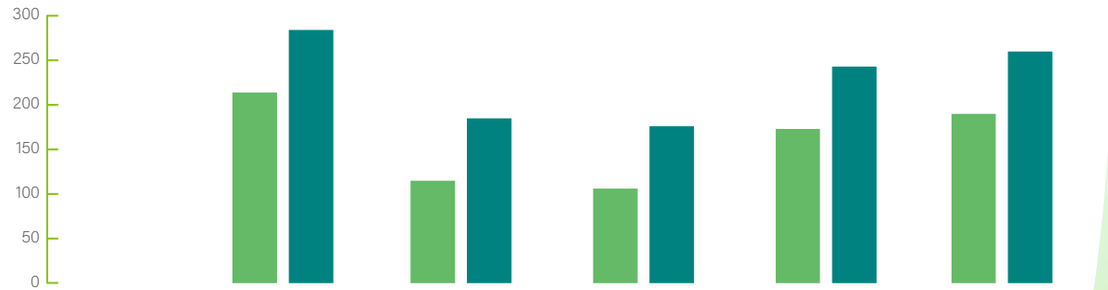
7.1 Corporate Citizenship

VisEra aims to be a responsible corporate citizen and we are committed to social care with our support for education, environmental conservation, and charity. We provide volunteer services and work with local governments, schools, and non-profit organizations (NPOs) to maximize social influence and value.

VisEra's volunteers club is an organization of volunteer employees headed by a senior executive who leads employees in volunteer activities. It organizes long-term charitable activities of local communities and schools such as the annual landscaping activities for Hsinchu Science Park, landscaping and care for Wenshan Elementary School with volunteers and community services near Longtan Plant every two months. It upholds the spirit of sustainable development and takes real actions to support the communities.

Statistics of VisEra's charitable activities in the last five years



Year	2018	2019	2020	2021	2022
Number	214	115	106	173	190
Total participation hours	284	185	176	243	260

Main charitable activities of the volunteers club

- Wufeng Qingquan → volunteer services
- Rural elementary school → shoe box donations
- Donate discarded computers → to remote rural areas
- Atayal Academy → cultivation and support
- Community volunteers → in Veterans' homes
- Taoshan Elementary School → cultivation and support
- Wenshan Elementary School → cultivation and support
- Hsinchu coastal area → environmental protection beach cleanup
- Longtan Plant → community activities

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Education

Taoshan Elementary School

Contents

Supported Father Barry Martinson of Qingquan Village, Wufeng Township in activities in remote rural areas and sponsored the choir of Taoshan Elementary School in the Johannes Brahms Competition in Germany

2018~2022 Cumulative number of volunteer participants **10**

Benefits

Employees voluntarily raised funds for the trip with the charity sales of books written by Father Barry Martinson and painted glass art works and donations

Atayal Academy

Contents

- The Atayal Academy Choir consists mostly of teachers in Hsinchu County with indigenous backgrounds and elementary and junior high school teachers who love singing and indigenous cultures with approximately 25 teachers
- VisEra supports indigenous peoples and their love of music. We invited the Atayal Academy Choir to perform at the year-end party to support them with real actions

2018~2022 Cumulative number of volunteer participants **5**

Benefits

We support the choir in using their voices to communicate the beauty of indigenous culture, art, and music and their philosophy for sharing, and spread the wonderful music across Taiwan and all corners of the world

Donate discarded computers to remote rural areas

Contents

Every computer was carefully restored, packaged, and boxed by VisEra employees. We donated the computers to the classrooms of schoolchildren by leveraging the extensive knowledge of Professor Daisy Hung of IC Broadcasting for the needs of remote rural areas. We deliver the donated equipment regardless of how far they are to connect children with the external world with computer knowledge. As of the end of 2021, VisEra has donated more than 223 PCs/NBs with a value of approximately NT$110,000.

2018~2022 Cumulative number of volunteer participants **5**

Benefits

We restored the second-hand computers and donated them to schoolchildren in remote rural areas or those who could not afford a computer; recipients included eight schools and one foundation

Donate discarded computers to remote rural areas

- Pingtung Xiangle Elementary School
- Pingtung Ailiao Elementary School
- Pingtung Zhulin Elementary school
- Pingtung Yonggang Elementary school
- Pingtung Gougou Junior High School
- Pearl S. Buck Foundation
- National Tsing Hua University
- Taitung Binmao Junior High School
- Penghu Cimei Primary School

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Social welfare and charity

Volunteer services at Qingquan Village, Wufeng Township

Contents

Supported Father Barry Martinson of Qingquan Village in Wufeng Township with the Qingquan Village landscape reconstruction project in 2018.

2018~2022 Cumulative number of volunteer participants **180**

Benefits

Organized volunteer services for painting the external walls of six private residences with gardening volunteer services for "building a garden for every house" and "landscaping for Mintuyu Village"

Landscaping services for Wenshan Elementary School, Xinpu Township

Contents

Basic maintenance of the landscape of Wenshan Elementary School in Xinpu Township (weeding / tree removal / tree pruning / event venue preparation, etc.)

2018~2022 Cumulative number of volunteer participants **232**

Benefits

Assistance in landscaping services for elementary schools in remote rural areas

Longtan Plant community activities

Contents

We uphold sustainable development to support the society and community. We have organized groups of volunteers since September 2020 to provide community services in areas outside Longtan Plant for weeding and cleaning the sidewalks.

2018~2022 Cumulative number of volunteer participants **106**

Benefits

Improve the environment near the plant

Rural elementary school shoe box donations

Contents

We organize the annual Christmas shoe box donation activity based on the theme of "learning to make contributions and share love" so that everyone can spread warmth and love in the cold winter. We also arranged environmental education courses for children in rural elementary schools to feel the warmth of the society and enjoy holiday spirit.

2018~2022 Cumulative number of volunteer participants **50**

Benefits

We donated 223 shoe boxes in 2022 so that children in urban cities who have never lacked material resources can learn a true lesson on life and understand the meaning of happiness and the joy of sharing.

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Environmental education

Beach cleanup

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Employees actively participate in beach cleanup activities organized by Hsinchu City Government each quarter. They support the reduced use of disposable plastic products and do not discard plastic waste without due process.

2018~2022
Cumulative number of volunteer participants 70

Benefits

Communicate environmental education in activities to encourage all citizens to focus on environmental protection and develop sustainable habits for resource recycling

Spotlight

2022
3 sessions

NT$ 36,000

For supporting cultural development: Art and Culture Corridor

VisEra has always supported artistic cultural development. Since 2019, we have collaborated with art and cultural institutions to exhibit works by contemporary artists every quarter. The exhibitions support the development of art and culture, cultivate the artistic sensibilities of employees, and add vibrancy to the workplace.

In 2022, we worked on exhibitions with institutions such as World Vision Taiwan, Ming Shan Art Gallery in Hsinchu, and Capital Art Center in Taipei. The exhibitions help employees support children in underdeveloped areas and enjoy the oil paintings and lithography works of landscape and portraits by contemporary artists. Expenses for 3 sessions totaled NT$36,000

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Long-term social welfare contributions

VisEra supports education, environmental conservation, and charity, provides volunteer services, and works with local governments, schools, and non-profit organizations (NPOs) to maximize positive social influence. In April 9, 2022, we worked with Tse-Xin Organic Agriculture Foundation in the "VisEra Coastal Tree Planting" event and donated 1,000 seedlings for the reforestation of the coastal area. We wish to extend our gratitude to 74 employees and their family members who participated in the tree planting activity and helped plant 500 seedlings. We look forward to seeing them grow and prosper. See you there next time.

cumulative services since 2018

- **1,148 hours** — of cumulative services
- **798 hours** — number of people cumulative served
- **583** — Christmas Warmth Love Shoebox
- **27 boxes** — Collection of second-hand good

↑ Aerial footage of tree planting captured by a drone.

↑ Group photo before departure.

↑ Planting trees together with unity and cooperation.

↑ Passionate tree planting.

↑ Attentively listening to the volunteer's explanation of tree planting methods.

↑ Both adults and children participate.

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VisEra took over the cleaning tasks of areas along the coast in Happiness Beach, Ocean View Park, and Sports Park in Hsinchu City and organized a beach cleanup activity in the morning on September 24. Volunteers removed 340kg of waste to help support the environment and restore the beautiful home for marine life. The activity also helped participants and children learn the importance of recycling and waste reduction as well as not to discard waste without due process. We must take care of the Earth together.

↑Before beach cleaning

↑During beach cleaning

↑After beach cleaning

↑Sorting and disposing of the collected waste.

↑Weighing the waste.

↑Group photo after beach cleaning.

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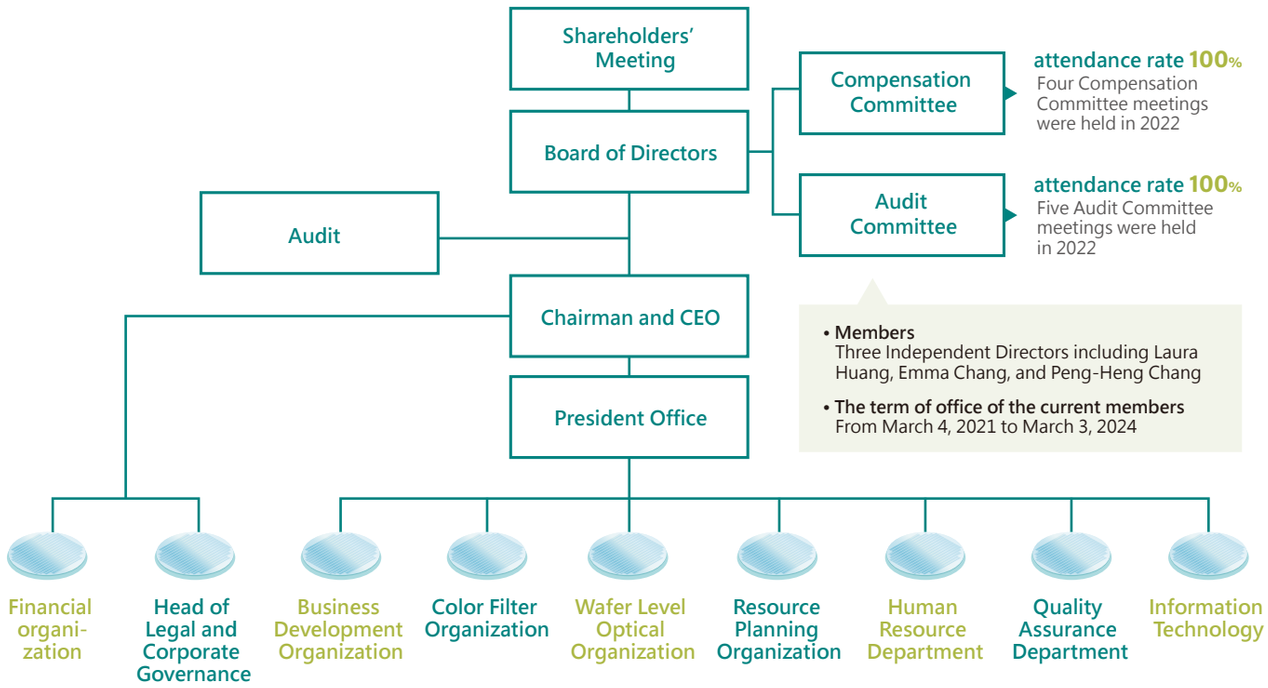
8.1 Corporate Governance

8.1.1 Structure and Operations of the Board of Directors

The Company's Board of Director is the highest-ranking governance unit of the Company. It directs company strategies, supervises the management, and bears responsibility to the Company and shareholders. The procedures and arrangements of its corporate governance system shall ensure that, in exercising its authority, the Board of Directors complies with laws, regulations, the Articles of Incorporation, and the resolutions of the shareholders' meetings. According to the "VisEra Technologies Company Ltd. Articles of Incorporation", the Company shall have five to seven directors, who shall be elected by the shareholders' meeting from persons of adequate capacity to serve a term of three years. Their terms of service may be renewed if they are re-elected in the following election. The Company currently has 6 Directors. To maintain the independence of the Board of Directors, the Company has 3 Independent Directors who account for half of all Directors. Each Independent Director meets the requirements in the "Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies" and there are no relations of spouses or relatives within the second degree of kinship between Directors, which meet requirements in Article 26-3, Paragraphs 3 and 4 of the Securities and Exchange Act. The Company set up the Audit Committee and Compensation Committee under the management of the Board of Directors and set up bylaws for them to implement official business. The Company's 8th Board of Directors convened 5 meetings in 2022 and the average attendance rate of Directors was 100%.



The Company's Chairman serves concurrently as the CEO and is responsible for business judgments, business management, crisis management, international market perspectives, and demonstrating leadership and decision-making abilities to continuously adjust the Company's business strategies based on market changes. The Chairman determines the company's annual budget, final accounts, profit distribution plan, and loss make-up plan to ensure the Company's sustainable and healthy development and implementation of other plans. He is also accountable to the Board of Directors and organizes the implementation of the Board's resolutions and regulations to meet the targets set by the board and report the progress to the board.

The Company also created the position of the President to take charge of the Company's business, marketing, R&D, production, and other operation management tasks. The President organizes and implements the Company's annual business plan and investment plan to supervise operations. The two roles support each other to implement tiered management and increase overall business efficiency.

Although the Company's Chairman has served concurrently as the President after the former President retired on August 31, 2022, the Company already specified the authorization and duties of the Chairman and the President in the Articles of Incorporation. Except for the Chairman, the other five Directors are not employed by the Company, which means that more than half of the Directors are not employees or managers of the Company and more than half of the Directors are Independent Directors who can supervise the management of the Company in an independent and impartial manner with real independence. Independent Directors also serve as the members of the functional committees and they fully discuss important issues before proposing recommendations to the Board of Directors to implement corporate governance and demonstrate overall business performance. The Board of Directors and the management retain complete independence from each other.

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8.1.2 Diversity of the Board of Directors

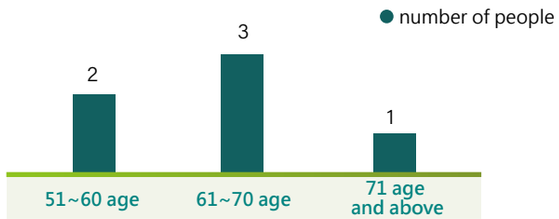
According to the regulations in the "Corporate Governance Best Practice Principles" and the "Regulations for Election of Directors", board members must retain as a whole the knowledge, skills, and literacy required for executing their duties. The Company seeks to fulfill the ideals of corporate governance and requires members of the Board of Directors as a whole to possess eight major skills including business judgments, accounting and financial analysis, business management, crisis management, industry knowledge, international market perspective, leadership, and decision-making.

The Company's Directors are elected through a candidate nomination system. The Board of Directors or the shareholders may nominate candidates for Directors in accordance with laws for the shareholders' meeting to elect the Directors. Directors who are also managerial officers in the Company may not take up more than one-third of all seats. In addition, appropriate diversity policies shall be stipulated for the election of Directors based on the Company's operation status, operational pattern, and developmental needs, which should include, without limitation, the following: 1. Basic qualifications and values: gender, age, nationality, and culture. 2. Professional knowledge and skills: professional background (such as law, accounting, industry, finance, marketing, or technology), professional skills, and industry experience.

All Directors of VisEra are Taiwanese nationals and only one Director is an employee. The Company also supports gender equality. Of the 6 Directors, 3 are female and they account for 50% of the Directors. In terms of the age distribution, 2 Directors are aged 51-60; 3 Directors are aged 61-70; and 1 Director is aged over 71. The gender and age distribution remained balanced. The diversification of the Company's board members is shown in the table below:

Gender distribution of the board members

Age distribution of the board members



Diversity Item / Name of Director	Gender	Age	Knowledge of the industry				Professional skills								
			Semiconductors industry	Optoelectronics industry	Finance and management	Finance and securities	Business judgments	Business management	Crisis management	Knowledge of the industry	International market perspective	Leadership and decision making	Finance and accounting	Law	Environmental sustainability and social engagement
TSMC Representative: Robert Kuan	Male	61-70 years old	●	●			●	●	●	As shown on left	●	●			●
TSMC Representative: George Liu	Male	61-70 years old	●				●	●	●	As shown on left	●	●			●
TSMC Representative: Diane Kao	Female	51-60 years old	●		●		●	●	●	As shown on left	●	●	●		●
Independent Director Laura Huang	Female	61-70 years old			●	●	●	●	●	As shown on left	●	●	●		●
Independent Director Emma Chang	Female	51-60 years old	●			●	●	●	●	As shown on left	●	●		●	●
Independent Director Peng-Heng Chang	Male	71 and above	●	●			●	●	●	As shown on left	●	●			●

Note 1: The Director understands corporate sustainability and social engagement issues and has experience in strategic issues related to corporate sustainability, including but not limited to environmental protection, resource and waste management, enterprise risk management, and corporate governance. The Director also has experience in strategic issues related to social engagement, including but not limited to human rights, talent development, diversity and inclusion, and occupational safety and health.

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8.1.3 Board Performance and Performance Evaluation

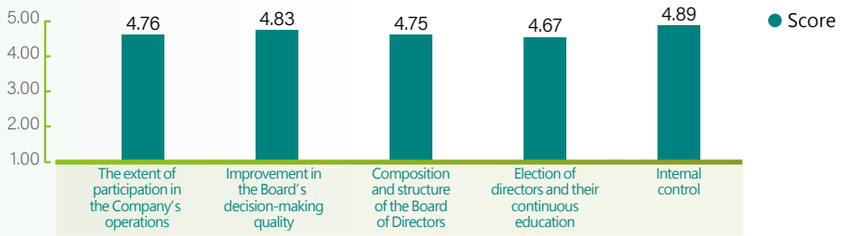
The Company established the performance evaluation system for the Board of Directors and passed the "Board of Directors Performance Evaluation Guidelines" on June 22, 2021 to increase the functions of the Company's Board of Directors and enhance the efficiency of operations. The scope of the evaluation covers the performance evaluation of the board as a whole, individual directors, and functional committees. The performance evaluation methods include self-evaluation of the Board of Directors, self-evaluation of the Directors, peer evaluation, appointment of external professional institutions or experts, or other appropriate methods. The internal performance evaluation of the Board of Directors shall be conducted once every year. The Company shall appoint an external professional independent institution or a team of external experts and scholars to conduct an external performance evaluation of the Board of Directors at least once every three years. The performance evaluations of the Board of Directors shall be completed before the end of the first quarter in the following year. The implementation and results of the performance evaluation of the Board of Directors shall be reported to a board meeting in the first quarter of each year and used as the basis for determining the salary and remuneration or the selection or nomination of Directors.

The Company completed the self-evaluation of all Directors for the 2022 board performance evaluation in January 2023 in accordance with the "Board of Directors Performance Evaluation Guidelines" and received 15 valid responses. The results included the board performance evaluation, performance evaluation of the members of the Board of Directors, and the performance evaluation of the functional committees. The evaluation results are as follows:

Overall board performance evaluation

All Directors evaluated the overall performance of the board in five evaluation categories (as shown in the figure below). The average scores for all categories was 4.67 to 4.89 and the overall average score was 4.78, which demonstrated that the overall board operations remained sound. The "selection and continuing education of directors" item received a score of 4.67 points. The management team is advised to consider the needs of the Directors when they plan the continuing education programs. The Company could organize more practical case studies and group discussions to help Directors fully understand the cases and strengthen their professional capabilities. Additionally, it is expected that in the 2023 board performance assessment, ESG (Environmental, Social, and Governance) sustainability initiatives and other related projects will be included for evaluation.

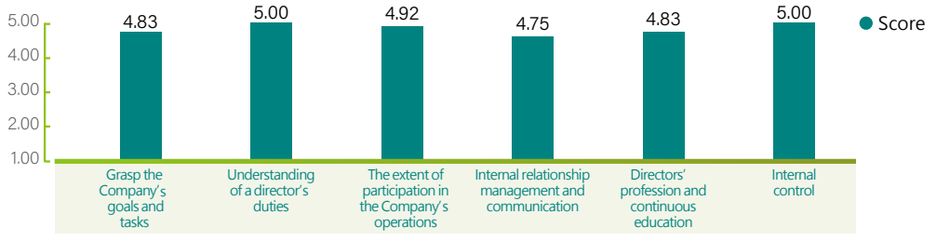
Results of the performance self-evaluation of the Board of Directors



Performance Evaluation of Directors

Individual Directors conducted self-review and evaluations in six evaluation categories (are shown in the figure below). The average score was 4.75 to 5 and the total average score was 4.9, which demonstrated that individual Directors have a firm grasp on their duties and participated in the board meetings.

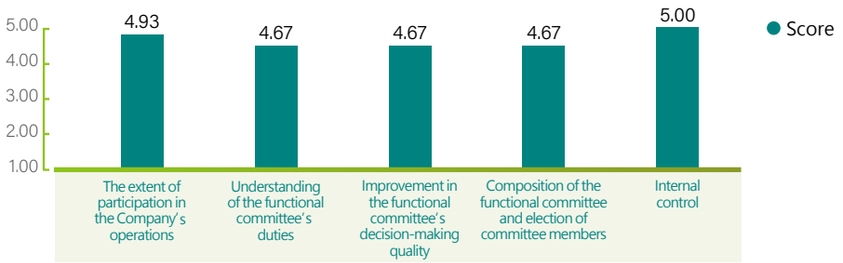
Results of the performance self-evaluation of the Directors



Performance Evaluation of Functional Committees

Independent Directors conducted self-review and evaluations in five evaluation categories (are shown in the figure below). The average score for all categories was 4.67 to 5 and the total average score was 4.86, which demonstrated that the Independent Directors have performed well in terms of the recognition of their duties and the quality of their decisions in both the Audit Committee and the Compensation Committee.

Results of the performance self-evaluation of the functional committees



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To strengthen the functions of Directors, enhance the quality of supervision, and keep up with key trends such as corporate governance and sustainable development, VisEra notifies Directors to attend professional knowledge development courses organized by relevant institutions. The content covers corporate sustainability, risk management, low carbon transformation, tax governance, etc. In 2022, all Directors attended the legally required number of hours for continuing education and met the requirements in the "Directions for the Implementation of Continuing Education for Directors and Supervisors of TWSE Listed and TPEx Listed Companies". The continuing education information is as follows:

Title	Name	Date of Course	Organizer	Course Name	Course Duration
Chairman	Robert Kuan	2022.05.24	Taiwan Corporate Governance Association	From CSR to ESG - Corporate Sustainability Transformation	3
		2022.10.25	Taiwan Corporate Governance Association	How Directors and Supervisors Perform Company Risk Management and Crisis Management	3
Director	George Liu	2022.05.24	Taiwan Corporate Governance Association	From CSR to ESG - Corporate Sustainability Transformation	3
		2022.07.19	Taiwan Corporate Governance Association	[ESG Advanced Course] Carbon Management Trends and Response Measures for Attaining Net Zero	3
		2022.09.06	Taiwan Corporate Governance Association	True Value of Circular and Low-Carbon Innovations - Circular Economy and Governance	3
		2022.10.25	Taiwan Corporate Governance Association	How Directors and Supervisors Perform Company Risk Management and Crisis Management	3
Director	Diane Kao	2022.05.24	Taiwan Corporate Governance Association	From CSR to ESG - Corporate Sustainability Transformation	3
		2022.07.19	Taiwan Corporate Governance Association	[ESG Advanced Course] Carbon Management Trends and Response Measures for Attaining Net Zero	3
		2022.09.06	Taiwan Corporate Governance Association	True Value of Circular and Low-Carbon Innovations - Circular Economy and Governance	3
		2022.10.25	Taiwan Corporate Governance Association	How Directors and Supervisors Perform Company Risk Management and Crisis Management	3
Independent Directo	Laura Huang	2022.05.24	Taiwan Corporate Governance Association	From CSR to ESG - Corporate Sustainability Transformation	3
		2022.06.15	Securities & Futures Institute	Discussions of Employee and Director Remuneration - Amendment of Article 14 of the Securities and Exchange Act	3
		2022.08.23	Taiwan Corporate Governance Association	Corporate Financial Information Analysis and Usage for Decision-Making	3
		2022.10.25	Taiwan Corporate Governance Association	How Directors and Supervisors Perform Company Risk Management and Crisis Management	3
Independent Director	Emma Chang	2022.05.24	Taiwan Corporate Governance Association	From CSR to ESG - Corporate Sustainability Transformation	3
		2022.06.15	Securities & Futures Institute	Discussions of Employee and Director Remuneration - Amendment of Article 14 of the Securities and Exchange Act	3
		2022.08.23	Taiwan Corporate Governance Association	Corporate Financial Information Analysis and Usage for Decision-Making	3
		2022.10.25	Taiwan Corporate Governance Association	How Directors and Supervisors Perform Company Risk Management and Crisis Management	3
Independent Director	Peng-Heng Chang	2022.05.24	Taiwan Corporate Governance Association	From CSR to ESG - Corporate Sustainability Transformation	3
		2022.07.29	Taiwan Corporate Governance Association	Latest Developments in International Taxation and Domestic Taxation and Regulatory Updates (Part 1)	3
		2022.07.29	Taiwan Corporate Governance Association	Latest Developments in International Taxation and Domestic Taxation and Regulatory Updates (Part 2)	3
		2022.10.25	Taiwan Corporate Governance Association	How Directors and Supervisors Perform Company Risk Management and Crisis Management	3

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8.1.4 Conflicts of interest

VisEra implements numerous procedures to avoid conflicts of interest. When a Director or manager engages in acts within the scope of the Company's business for himself/herself or for others, he/she shall obtain prior approval from the shareholders' meeting or the Board of Directors, respectively, in accordance with the law. Each Director and manager must complete an annual related party transaction statement and report the results to the Audit Committee. In addition, the Company discloses related-party transactions in the financial statements in accordance with the rigorous reporting requirements in the laws and regulations of the Republic of China.

8.1.5 Compensation Policy for Directors and Managers

The salary and compensation for the Company's Directors and managers are determined by the Compensation Committee in its regular evaluations based on the Compensation Committee Charter. The performance evaluation and the salary and remuneration of the Directors and managers are based on prevailing rates of the industry as well as their individual performance, the Company's overall performance, and reasonable assessments of future risks.

The managers' remuneration includes fixed salary and performance-based floating salary. The performance evaluation includes financial indicators as well as ESG indicators. They include environmental targets such as energy management (e.g., quantity of electricity saved), water resources (e.g., process water recycling rate), and waste management (e.g., waste chemical recycling rate); economic targets such as information security (e.g., information security accidents), innovation management (e.g., patents), and customer service and management (e.g., customer satisfaction); social targets such as talent attraction and retention (e.g., turnover rate) and environmental safety and health (e.g., number of occupational safety accidents).

According to the Company's Articles of Incorporation, before the Company distributes earnings, it shall set aside no more than 2% of the profit from the period of distribution as remuneration for Directors and no less than 1% as remuneration for employees. However, if the Company has accumulated losses, the Company shall set aside a part of the profit to make up for the losses. The distribution of employee remuneration shall be resolved by a majority vote at a board meeting attended by more than two thirds of the Directors and it shall be reported at the shareholders' meeting. After the allocation, the Board of Directors shall draft an earnings distribution proposal regarding the remainder of the earnings as well as accumulated undistributed earnings for the shareholders' meeting to approve the distribution of dividends and bonuses.

Please refer to the Company's annual report for the remuneration for the Directors, President, and Vice Presidents, the names of managers who received the employees' remuneration, and the distribution status. All severance pay and pension were paid in accordance with laws and the conditions were the same as those of other employees.

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8.2 Professional Ethics

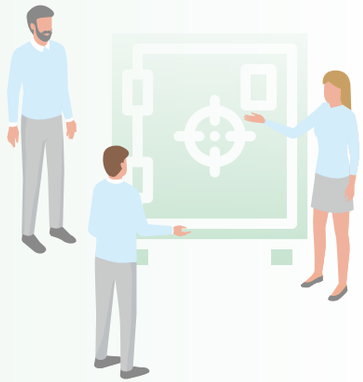
"Integrity" is the most important core value of VisEra and the top priority in the Company's business philosophy. VisEra upholds integrity in all business activities and does not permit corruption or any form of fraud. The Company established the "Ethical Corporate Management Best Practice Principles" and "Code of Professional Ethics" as the foundations for the Company's corporate culture for ethical management and healthy development. Ethical corporate management is implemented based on the regulations of the Company's internal control system. The Audit Department regularly audits the compliance of the accounting system and internal control system and reports results to the Board of Directors.

Professional ethics and legal compliance

VisEra has established the Company's professional ethics and legal compliance system based on honesty and integrity. The system includes the identification of laws, establishment of company regulations, thorough implementation, self-evaluation and review, open whistleblowing channels, and whistleblower protection. The management also holds themselves accountable for comprehensive top-down implementation.

The Human Resource Department is the dedicated unit responsible for establishing and supervising the implementation of the ethical corporate management policies and prevention programs. It regularly reports to the Board of Directors (at least once a year) and implements comprehensive training and awareness campaigns for employees to continue to strengthen the corporate culture of integrity. We work with external customers and the supply chain to implement ethical corporate management in the industry for common growth and prosperity and become reliable partners.

VisEra does not permit any violation of professional ethics or related regulations. Any employee or manager who violates our ethical standards shall be subject to severe penalties in accordance with the Company's Rewards and Penalties Regulations regardless of their seniority. Penalties include dismissal and legal action will also be taken in the event of a violation of laws.



Anti-corruption

VisEra has a zero-tolerance policy for corruption and does not tolerate any bribery, fraud, extortion, abuse, misappropriation of company assets, or personal gain at the expense of the Company. The Company has established a comprehensive anti-corruption risk assessment system to identify regulations and classify corruption patterns. We established operating procedures and regulations for different businesses and require all employees to comply and implement the regulations. Plants and departments conduct annual self-evaluations and reviews and we establish smooth internal and external reporting channels and a whistleblower protection policy for early detection of anomalies and prevention of corruption. All operations of the Company are in Taiwan. In 2022, plants and departments conducted self-evaluations and reported information and investigation results. No significant corruption risks were found and there has been no incidents of corruption in recent years.

Suppliers are crucial for the implementation of VisEra's professional ethics and legal compliance. We established the "VisEra Supplier Code of Conduct" for suppliers to understand and comply with VisEra's Code of Professional Ethics. We expand the core values of integrity across the supply chain in all business activities.

Political donations

The Company stated in the Ethical Corporate Management Best Practice Principles that the Company may not provide political donations. All donations or sponsorship provided by the Company must meet related regulations and internal operating procedures and the Company shall not surreptitiously engage in bribery.

Identification of laws and establishment of company regulations

VisEra continuously monitors changes in laws to evaluate the potential risks and impact of such changes on the Company. We also use the identification of regulations to review whether changes must be made to existing internal regulations and ensure the appropriateness and adequacy of related policies and regulations. In 2022, VisEra did not commit any material violations of social or economic regulations with a penalty exceeding NT$1 million.

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Annual professional ethics and legal compliance training

To increase employees' awareness of professional ethics and legal compliance, we provide every new employee with training on anti-corruption, professional ethics, and legal compliance. For current employees, we provided the "annual professional ethics and legal compliance" (0.5-hour online course). The content covers a variety of important compliance information, including ethics and anti-corruption, avoidance of conflicts of interest and reporting, privacy, export controls, personal data protection, and insider trading prevention. We offer a variety of training courses for each business function, including intensive face-to-face courses, face-to-face seminars as well as posters in plant areas, company internal website pages, and educational articles. The Company provides regulatory compliance guidelines and frequently asked questions for employees to obtain new knowledge of regulations at any time and strengthen their knowledge of various issues. As of 2022, 1,450 employees completed the annual training programs (the completion rate was 100%):

Mandatory courses for professional ethics and legal compliance in 2022

Employee Category	Eligible Trainees	Number of Trainees that Completed Training	Training Completion Rate
Managers	154	154	100%
Professional staff	697	697	100%
Contracted workers	1	1	100%
Foreign migrant workers	236	236	100%
Technical personnel	362	362	100%
Total	1,450	1,450	100%

We also use the annual contractor conference to communicate the RBA Code of Conduct and key issues such as labor rights, environmental protection, and occupational safety to suppliers and share our experience. A total of 158 contractors attended the conference in 2022.

Antitrust

We organize periodic and ad hoc training programs for the Fair Trade Act and antitrust laws to enhance employees' awareness of regulations. We organized two sessions of antitrust courses for senior executives and business personnel in 2020. Related courses were not held due to the impact of the pandemic in 2021. To address this issue, we recorded digital courses in 2022 and requested managers and personnel of related businesses to take the courses. The number eligible trainees was 44 and the completion rate was 100%. In 2022, VisEra was not involved in litigation pertaining to anti-competitive behavior and antitrust laws that were ongoing or concluded.

Whistleblowing and protection

VisEra heeds the feedback from both internal and external sources through a variety of reporting channels to protect the interests of stakeholders and the Company. We set up a reporting/complaint/response channel on the internal and external websites to accept anonymous and named reports. The Human Resource Department processes the feedback and communicates it to the relevant department and top management based on its nature. The reports received in the Company's internal and external reporting channels are adequately recorded and tracked. The identity of the whistleblower is kept confidential to prevent retribution. In 2022, there was 1 case of illegal infringement in the workplace. After the verification and review of the investigation team, we instructed the employer unit to provide communication assistance and training on peer-to-peer and conflict management. In 2023, we planned inter-generational communication and conflict management training programs for first-line managers to enhance their management skills.

We assign a dedicated unit to investigate reported cases based on the nature of the case. We adopt a serious and prudent approach in handling these cases. For confirmed cases, we take legal actions including penalties for violations, termination of employment contracts, or necessary legal actions based on actual conditions. We use a variety of method for communication including announcements or communication seminars to increase employees' awareness and prevent the recurrence of similar cases.

Classification of reported cases and data

VisEra Channel	2018	2019	2020	2021	2022
Feedback	0	0	0	2	2
General complaints	0	0	0	2	2
Illegal workplace infringement complaints	0	0	0	0	1
Sexual harassment complaints	0	0	0	0	0
Anti-corruption	0	0	0	0	0

Note: "Feedback" includes improvements or recommendations for issues involving employees' food, domicile, transportation, work environment, and work procedures. General complaints include employee benefits, personal rights and interests, administrative management deficiencies, and labor disputes.

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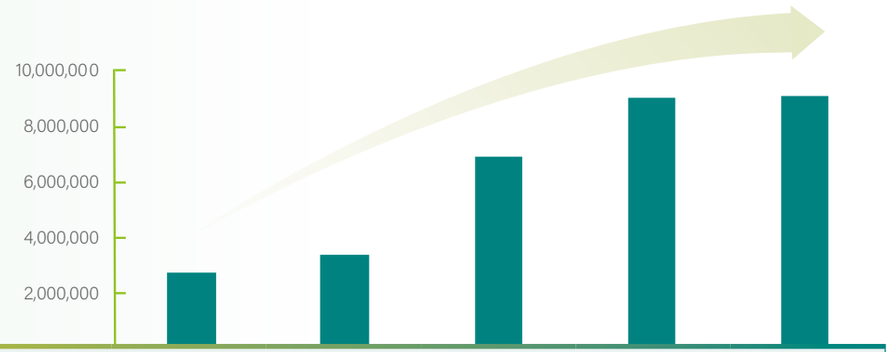
8.3 Financial Growth

8.3.1 Financial Performance

The Company's revenue in 2022 totaled NT$9.07 billion and the earnings per share was NT$5.80. The financial performance was sound.

Unit: NT$ thousand



	2018	2019	2020	2021	2022
● Operating revenue	2,748,420	3,395,724	6,946,349	9,029,178	9,077,148
R&D expenses	239,746	346,489	366,794	542,020	671,886
Financial costs	27	4,955	5,221	12,514	12,355
Net profit for the period	412,283	613,841	2,090,545	2,165,280	1,765,795
Earnings per share (NT$)	1.42	2.11	7.18	7.41	5.80

Note 1: The financial costs were higher in 2022 compared to previous years mainly due to the increase in interest for bank loans.
Note 2: As of December 31, 2022, the Company obtained a preferential loan from the government totaling NT$6,180,000 thousand. The loan must be used for capital expenditures that meet the criteria for subsidies within the specified period. The loan period ends in December 2027 and the method of repayment is a monthly interest payment for the first two years and the repayment of the principal in equal amounts starting from the third year. Based on the market interest rates of 0.9%, 1.15%, and 1.525% at the time of loan, we estimated the fair value of the loan as NT$6,109,777 thousand. The difference between the acquisition amount and the fair value of the loan totaling NT$70,223 thousand is regarded as a government subsidy in the form of a low-interest loan and is recognized as a deduction from interest expense that is recognized monthly as deferred income over the loan period. In 2022 and 2021, the interest expenses were reduced by NT$15,542 thousand, and NT$13,386 thousand, respectively.

8.3.2 Shareholders' Equity

VisEra is committed to increasing revenue and profitability and protect the rights and interests of shareholders. To reduce the negative impact of information asymmetries on investors, we disclose business decisions and financial information in the prospectus or annual report. We set up the Investor section on the company website in both Chinese and English to help shareholders and employees quickly access information, download the Company's financial statements and annual reports, and obtain main financial, business, and governance information. We also promptly publish important resolutions of board meetings or material information and report to the competent authority in accordance with regulations.

Shareholder structure

March 25, 2023

Shareholder Structure > / Quantity v	Government Agencies	Financial Institutions	Other Institutions	Individuals	Foreign Institutions and Foreigners	Total
Number of people	-	4	125	19,353	108	19,590
Number of shares held	-	1,984,000	219,780,167	60,809,821	33,203,131	315,777,119
Shareholding percentage	-	0.63%	69.60%	19.26%	10.51%	100.00%

Dividend distribution

	2018	2019	2020	2021	2022
Earnings per share (NT$)	1.42	2.11	7.18	7.41	5.80
Cash dividends (per share/NT$)	2.0	0	2.0	2.0	2.0
Distribution rate (%)	141	0	28	27	34

Note: As the Company will have a significant demand for funding for its continuous expansion projects, the Company is required to obtain medium to long-term loans from banks in addition to using its own funds. The Board of Directors therefore resolved not to distribute dividends for the 2019 earnings and use all earnings for the expansion of production. The Company distributed cash dividends of NT$2.0 per share from 2020 to 2022 and the remaining funds were used to support the expansion of production.

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List of major shareholders

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Shares > Name of major shareholder	Number of shares held	Shareholding percentage
Taiwan Semiconductor Manufacturing Company Limited	213,619,000	67.65%
GIC Private Limited	11,670,000	3.70%
The Banking Department of Standard Chartered in its capacity as the custodian for the investment account with the Small-amount World Fund	10,872,906	3.44%
Chun-Chi Lin	1,411,548	0.45%
Jin-Pen Lin	1,319,000	0.42%
JPMorgan Chase as Trustee of Vanguard Total International Stock Index Fund	1,139,000	0.36%
HSBC Bank (Taiwan) Limited as Trustee for Matthews Asia Funds - Asia Dividend Fund Ex-Japan	1,067,557	0.34%
JPMorgan Chase as Trustee of Vanguard Emerging Stock Market Index Fund investment account	1,052,000	0.33%
Fubon Life Insurance Co., Ltd.	1,001,000	0.32%
Tai-Ping Wu	786,000	0.25%

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8.4 Tax Governance

The Company supports tax policies that help companies innovate and promote economic growth. We are also committed to ensuring information transparency and sustainable development. Our commitments are as follows:

Commitments

1. All company operations shall comply with applicable tax laws and regulations
2. Transactions between affiliated companies are based on regular transaction principles and comply with the Transfer Pricing Guidelines promulgated by the Organization for Economic Co-operation and Development (OECD)
3. The Company shall ensure information transparency in financial reports and comply with related regulations and standards for the disclosure of taxation information
4. The Company shall not use tax havens or plan implement tax planning for the purpose of tax avoidance.
5. The Company shall not transfer profits generated by the Company to countries with low tax rates
6. The Company shall establish a relationship of mutual respect with taxation authorities based on the principles of mutual trust and information transparency
7. The Company shall consider the impact of all major decisions on taxes
8. The Company shall analyze the business environment and implement management mechanisms for taxation risk assessments

To effectively manage taxation risks, the Company complies with internal control procedures to identify, assess, and manage taxation risks derived from changes in regulations and business activities for identifying, assessing, and managing risks in an appropriate manner. The CFO bears the ultimate responsibilities for taxation management. The Board of Directors appointed the Audit Committee to supervise the quality and integrity of the Company's accounting, audit, financial reporting procedures, and financial management. It regularly reviews major items such as the accounting policies and procedures, internal control system, compliance (including taxation compliance), and corporate risk management. The routine taxation, administration, and management are implemented by the Finance Organization. The Company also appoints qualified and experienced external taxation professionals to assist in fulfilling the Company's tax obligations.

Taxes paid in each country

The source of the Company's revenue is Taiwan and the Company pays 100% of its income tax expenses in Taiwan. The Company paid taxes totaling NT$537 million in 2022.

Tax governance performance

Unit: NT$ thousand

Year	2018	2019	2020	2021	2022
Operating revenue	2,748,420	3,395,724	6,946,349	9,029,178	9,077,148
Net profit before tax	508,833	743,372	2,555,351	2,703,946	2,100,449
Income tax expenses	96,550	129,531	464,806	538,666	334,654
Effective tax rate (%)	19	17	18	20	16
Income tax paid	51,897	100,810	125,316	585,655	536,923
Cash tax rate (%)	10	14	5	22	25

The Company's effective tax rate in 2019, 2020, and 2022 was lower than the statutory tax rate of 20% for profit-seeking enterprise income tax in the Republic of China. The main reason was the Company's eligibility for R&D investment tax credits based on the Statute for Upgrading Industries and Statute for Industrial Innovation. The lower cash tax rate in 2020 was mainly due to payment of income taxes for the previous year in 2020. The cash tax rate decreased in 2020 due to the significant growth in operations compared to the previous year. The cash tax rate for 2020 was higher because the taxable income was paid in the following year (i.e., 2021).

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8.5 Risk Management

8.5.1 Risk Management Policy and Strategy

VisEra upholds its corporate vision and sustainability commitments to the industry and society and established the Enterprise Risk Management (ERM) mechanisms. The Board of Directors established the "Risk Management Policies and Procedures" in 2021 as the top guiding principles for the Company's risk management. VisEra established the "Risk Management Steering Committee" in which the President serves as the chair and the highest-ranking officer of the Resource Planning Organization serves as the Executive Secretary to take charge of the formulation of corporate sustainability development strategies and plans. We implement identification of risks and risk scenarios, risk level assessment, preventive measures, and contingency measures with business continuity management procedures. We also implement compliance management with specific actions and training exercises.

Corporate risk management strategy

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8.5.2 Risk Management Organization and Operations

The Company's risk management organization consists of the Risk Management Steering Committee, Risk Management Implementation Committee, and risk management team. We use a management framework of risk identification, risk assessment, risk management, risk mitigation, risk response, risk monitoring, and risk reporting to define risk management priorities and risk ratings and adopt corresponding risk management actions. We identified 21 risk items in 2022 and derived 87 risk scenarios from the risk items. We evaluated the frequency of risk events and the severity of their impact on VisEra's operations with a Risk Map, defined the priority and risk level, and adopted corresponding risk management strategies. We listed six risk items as significant risks. They include supply chain disruption, significant reduction of yield rate caused by production lines and suppliers, information security vulnerabilities, information service disruptions, more stringent environmental protection requirements, and epidemics (COVID-19). We conduct training and exercises with risk scenarios, impact identification, development of prevention mechanisms, and response plans for accidents. The Risk Management Implementation Committee oversees operations and conducts compliance checks to ensure that the significant risks are managed or mitigated.

We hold regular meetings of the risk management team to implement risk management mechanisms. Each unit reviews the business continuity risks of its operations at least once each quarter, including the changes in risks and new or derived emerging risks to respond to overall external changes. They use the results to review response measures and specific actions. The ERM Implementation Committee reviews the risk management status and estimates the risk trends for the next quarter every quarter. It reports the risk management results to the Board of Directors once each year. The implementation status of risk management in 2022 was reported to the board meeting in the third quarter of 2022.

Risk management organization structure

3 Organizational Structure and Responsibilities

3.1 The organizational structure of the Company's Risk Management Committee is as follows

3.1.1 Risk Management Steering Committee

3.1.1.1 Chaired by the President, with the top supervisor of the Resource Planning Unit serving as the Secretary, consisting of top supervisors of all units
3.1.1.2 Regularly report to the Board of Directors every year
3.1.1.3 Supervise the improvement of risk control
3.1.1.4 Identify and approve priorities for risk management

3.1.2 Risk Management Execution Committee

3.1.2.1 Convened by the supervisor of the Occupational Safety and Environmental Protection Department, consisting of representatives from each unit
3.1.2.2 Decide and implement cost-effective risk control plans
3.1.2.3 Improve the transparency of risk management and risk control practices

3.1.3 Risk Management Working Group

3.1.3.1 Identify potential risk scenarios and operational impacts
3.1.3.2 Take corresponding risk mitigation actions based on risk scenarios
3.1.3.3 Establish crisis management procedures and conduct drills

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Scope of risk management

We implement pre-crisis risk assessment for critical crisis events and identify feasible strategies for crisis prevention in our risk management to reduce the impact of crises on the Company's operations. We also developed crisis management procedures and recovery plans for each type of crisis. We set up a risk management team to increase the crisis management awareness and strengthen the risk management culture of VisEra. We target important crises such as fires, earthquakes, information system service disruptions, information security, supply chain disruptions, significant reduction in yield rate, and water and electricity supply disruptions to strengthen risk assessment and crisis response exercises. We also use crisis response exercises to review the integrity of enterprise risk management and the effectiveness of risk controls to implement continuous improvements and reduce enterprise risks.

To achieve the corporate risk management goal of zero production disruptions due to climate, disaster, and labor shortage factors, VisEra prioritized enhancing preventive measures in supply chain management, cybersecurity management, and the risk scenario of epidemics such as COVID-19 in 2022. In supply chain management, efforts were made to strengthen the selection of backup suppliers for critical materials/components and to enhance inventory management to ensure supply chain stability. In terms of cybersecurity management, focus was placed on six key areas: cloud security, external network (Demilitarized Zone or DMZ) security, cybersecurity governance, office area security, data center security, and production line and supplier security to maintain stability in company and production operations.

Amidst the severe COVID-19 pandemic, VisEra established an epidemic prevention committee and adjusted epidemic prevention policies on a rolling basis. Resources were allocated to develop epidemic management systems and temperature recording systems to enhance employee and vendor epidemic investigation and health management. Backup manpower control and business continuity plans were implemented in production units to avoid production disruptions caused by personnel isolation during the pandemic.

Through precise risk prevention and control measures, the corporate risk management goal was successfully achieved in 2022.
In the enterprise risk management plan for 2023, in addition to the existing 21 risks, considerations for geopolitical factors and ESG development have been added. This is done at a company-wide level and perspective, continuously identifying and assessing the impact of relevant events on the Company's operational activities. The aim is to develop response strategies and prevent potential disruptions.

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8.5.3 Establishment of a Risk Culture

To effectively establish the Company's risk culture and increase employees' risk awareness, all new employees of the Company must complete the "ISO 22301 (Business Continuity Management System Overview)" online course within one week of reporting for duties. For internal auditors responsible for the Company's Business Continuity Management System, we provide the internal auditor courses for the ISO 22301 Business Continuity Management System.

The Risk Management Committee assigned the risk management members of each unit to share their experience regarding risk issues in the 2022 management review meeting. The contents included the epidemic prevention and risk management for COVID-19, information security risk management, and supply chain risk management, which were used to strengthen the risk culture. We also organized inter-departmental work presentations and discussions to gradually build the risk management culture in actual work.

Course topic	Training participants	Training hours	Number of participants	Pass rate
Introduction to ISO 22301	New employees	0.33 hours	220	100%
ISO 22301 Business Continuity Management System internal auditor course	ISO 22301 internal auditors	6 hours	37	

Note 1: The training targets new employees and does not include technical personnel.
Note 2: The introduction to ISO 22301 course included online tests which participants must pass before they complete training. The ISO 22301 Business Continuity Management System internal auditor course was a professional course provided by an external lecturer. Those who completed the training received the internal auditor certificate.

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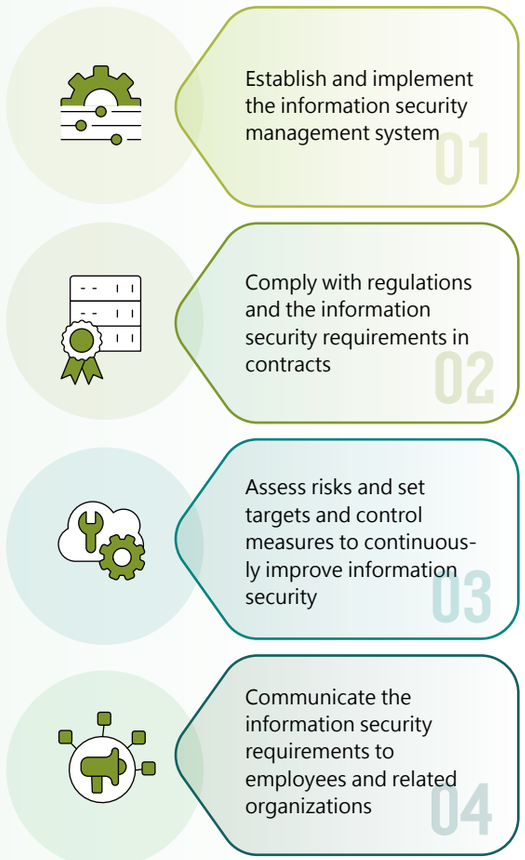
8.6 Information Security Management

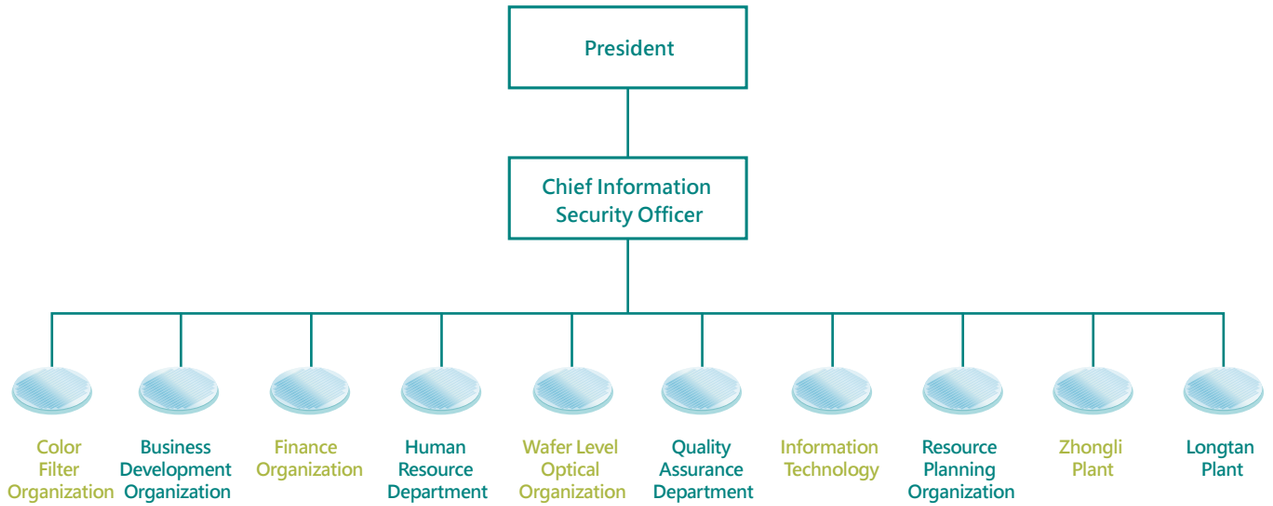
VisEra established information security management regulations based on ISO 27001 standards. We are committed to promoting information security, protecting and maintaining customer design and related information, and continuous improvements to meet the following targets in the requirements of the Information Security Policy:



8.6.1 Information Security Management Framework

We established the "Information Security Management Committee" for implementing information security management operations to maintain the Company's competitiveness, reduce the risks of business disruptions, ensure that the information system meets confidentiality, integrity, and availability requirements, and strengthen employees' information security awareness. We assigned a dedicated information security supervisor and dedicated information security personnel to promote, coordinate, supervise, and review information security management matters. We established an information security incident notification and response organization to identify information security risks and implement information security risk improvement measures. The highest-ranking officers of the Information Technology Department reported the Company's information security management results to the Audit Committee in the fourth quarter of 2022.

Structure of the Information Security Management Committee



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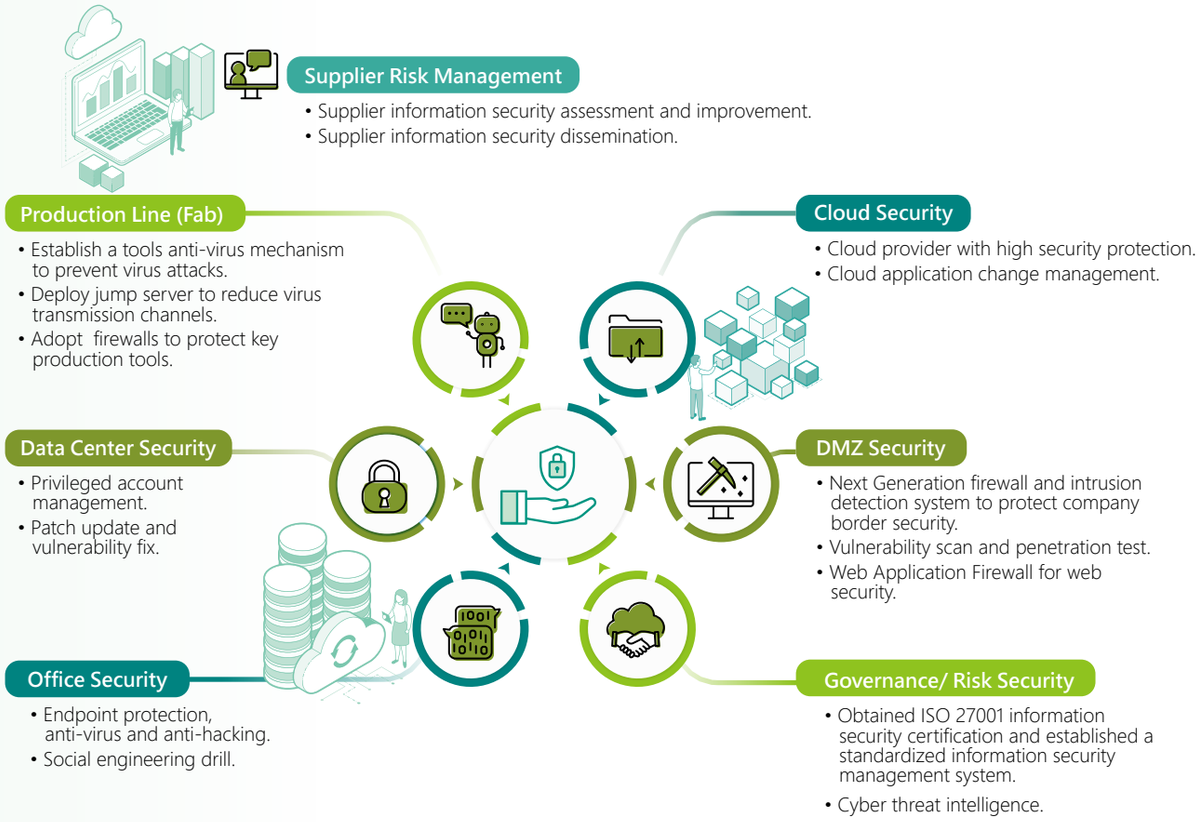
8.6.2 Information Security Protection Measures

To strengthen information security, VisEra uses the six major aspects including cloud security, Demilitarized Zone (DMZ) security, information security governance, office area security, data center security, and production line and supplier security to strengthen the defenses for information security.

Six major aspects of information security protection



To effectively monitor information security intelligence, the Information Security System O&M Unit of VisEra's Information Technology Department uses the information security products and intelligence of renowned domestic and foreign companies such as Fortinet, TrendMicro, Crowd Strike, Palo Alto Networks, and Proofpoint. It established the Security Operation Center (SOC) in 2020 to monitor changes in the internal information security environment, actively detect information security problems, and take response measures for data centers, anti-virus protection, networks, operating systems, applications, and production line machine protection. We also work with the Science Park Information Security Sharing and Analysis Center to collect, exchange, and analyze information on information security risks for critical infrastructure. We monitor potential security threats and vulnerabilities and address the vulnerabilities to prevent potential threats with the security intelligence we obtained and reduce the risks of major information security incidents. After the establishment of the SOC, it monitors the use of the Internet, gateways, servers, and terminals each day. If it identifies suspected attacks from an external IP, it blocks the source IP. In 2022, we implemented CrowdStrike's Managed Detection and Response (MDR) service to assist in monitoring the office computers and IT server rooms for any malicious software implants. Using cloud-based machine learning, it helps detect and prevent the execution of malicious programs. Since its implementation, the system has successfully blocked 247 instances of medium to high-risk malicious programs. Furthermore, there were zero cybersecurity incidents reported in 2022.

To ensure compliance with the Company's Proprietary Information Protection Policy, the Proprietary Information Protection Officer (PIP Officer) inventories and classifies sensitive information such as proprietary information and personal data within the Company. Each unit sets up a special folder for personal data protection in the shared space with restricted data access and encryption. The PIP Officer performs quarterly self-audits to protect proprietary information and personal data.

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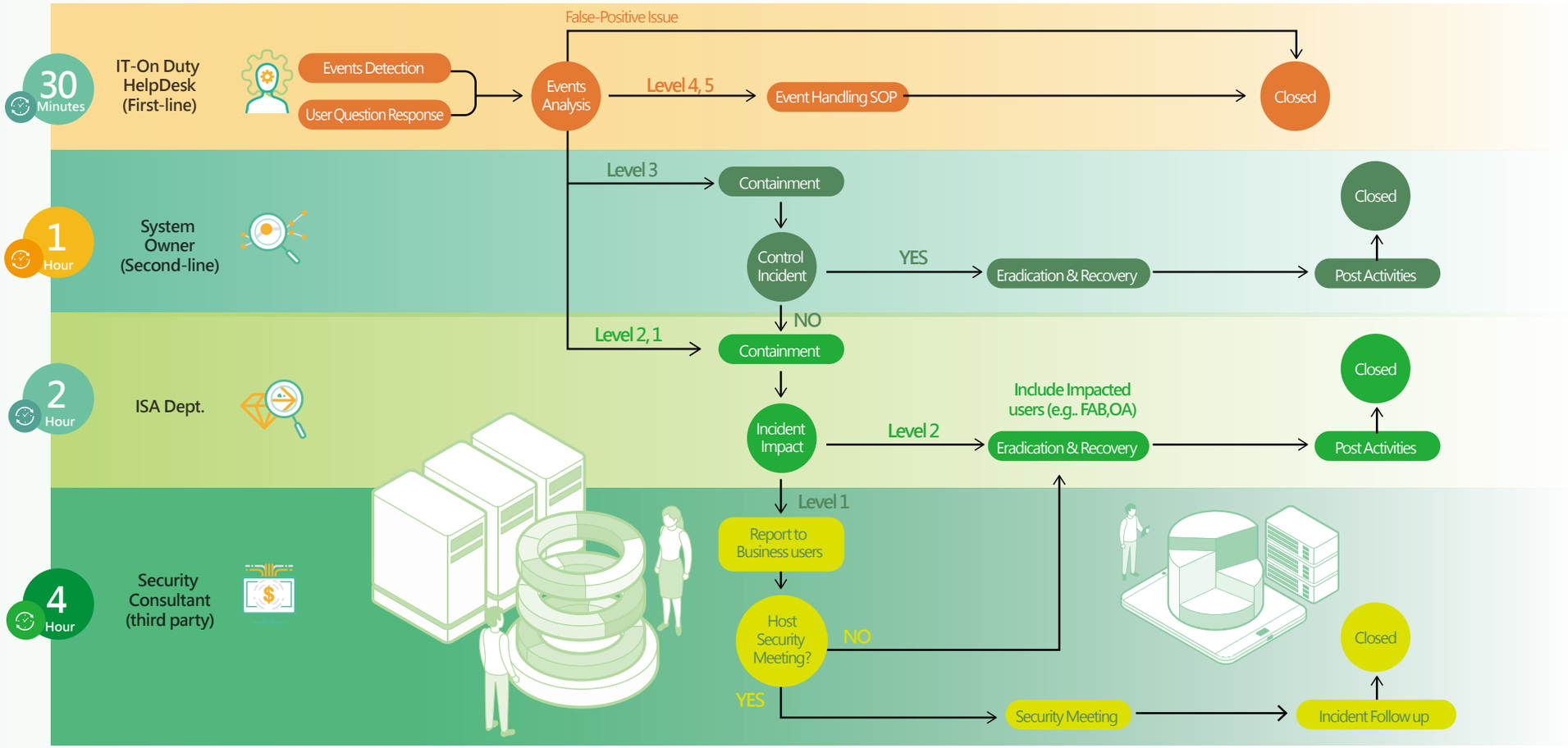
In addition, to ensure that important operations are not affected by failure of the information system in the event of natural disasters, man-made disasters, or virus infections of the organization, the Company established internal reporting procedures for earthquakes, fires, power blackouts, information system incidents, environmental safety and health incidents, and company reputation incidents (as shown below). In the event of a crisis, employees shall determine the person responsible for immediate reporting and the reporting level for each type of crisis based on the level of impact on operations. Where necessary, they must eport the incident to the President to activate emergency response measures and minimize losses.

Emergency response procedures



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8.6.3 Information Security Implementation Results

- Starting from 2011, we have established information security management regulations that meet ISO 27001 standards and passed third-party certification and audit. We have also passed the re-inspections based on ISO 27001 standards each year.
- For DMZ (servers that provide external services), office areas, data centers, production lines, and cloud services, we implement and improve information security protection measures and we also established KPIs for related management measures and daily monitoring mechanisms.
- We work with information security intelligence sharing organizations to obtain early-warning intelligence as well as information on security threats and vulnerabilities.
- The Company regularly organizes information security training and social engineering exercises to increase information security awareness.
- We purchased cyber protection insurance with coverage for data confidentiality and privacy liabilities, network security liabilities, media liabilities, incident response, and business interruption to demonstrate our commitment to customers' rights and interests.

Information security training • 100% Coverage rate

Recipients	Contents	Number of trainees
Information security personnel	General information security training	51
Regular employees		1,450
New employees		350

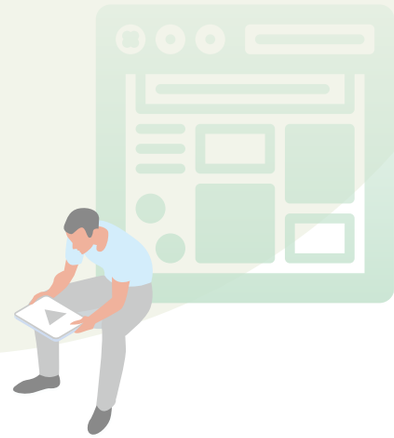
Social engineering exercises • 100% Qualification rate

Number of exercises in 2022	Number of participants
1	1,087

Spotlight

The primary targets of many malicious attacks include companies as well as their supply chain suppliers. Hackers target suppliers in the upstream and downstream supply chain because they may have weaker information security protection. Hackers thus launch attacks from the flanks to breach the information security of the primary targets. To protect the security of the supply chain and strengthen supplier information security, VisEra conducted supplier information security surveys in 2022 for 20 major suppliers identified based on ESG criteria. The survey included remote connection management, DMZ security protection mechanisms, Internet connection security, email information security, password policy and management of accounts with special authorization, security updates, backup and recovery test exercises, information security reports, and information sharing.

The results of the surveys showed that suppliers have set up appropriate risk control measures for the aforementioned items. For example, they control Internet access with proxy servers, implement identity verification with two-factor authentication, conduct regular vulnerability scans and updates to address vulnerabilities, and use IPS and firewalls to protect the company network. VisEra will use a third-party security inspection platform to verify the information security management items specified in the responses of suppliers to ensure information security in the supply chain.



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9.1 About the Report

This Sustainability Report covers material issues of concern to stakeholders as well as the results of VisEra's economic, environmental, social, and governance actions. It was published on the Company's ESG website in June 2023.

Reporting Period	The information disclosure period is from January 1 to December 31, 2022
Scope of the Report	• The scope includes VisEra's Hsinchu Plant & Zhongli Plant. Any difference in the scope of disclosure shall be specified in the section. • Longtan Plant was inaugurated in June 2022. To ensure the integrity of the data based on the time mass production officially began, this year environmental information is temporarily excluded and the data shall be included in the report for the next year.
Compilation Principles	GRI Standards 2021 and SASB Standards
Information Redacted	• 5.3 Energy Management: The information for 2018~2021 has been restated due to changes in the quoted data for total energy consumption. • 5.4 Water Resource Management: The information for 2018~2021 has been restated due to changes in the cited data for water intensity.
Information Reliability	• Internal audit: The information and data in this report were collected and compiled by employees of each department, reviewed by heads of the units, and submitted to the report work team for confirmation. We also appointed an external consulting team to provide recommendations for improvements. After all the data and information are prepared, they are reviewed by the heads of the units at each level. The results are reviewed by the chair of the ESG Sustainable Development Promotion Committee and then submitted to the Chairman for approval and disclosure. • External verification: The financial data in this report are based on the annual financial report certified by Deloitte Taiwan and are expressed in NTD. Non-financial information includes information for the Environmental Management System (ISO 14001), Energy Management System (ISO 50001), Quality Management System (ISO 9001), Hazardous Substance Management System (QC 080000), Occupational Safety and Health Management System (ISO 45001), Information Security Management System (ISO 27001), Greenhouse Gas Emission Inventory (ISO 14064-1), Product Life Cycle Assessment (ISO 14040), Carbon Footprint (ISO 14067), and Water Footprint (ISO 14046). All data have been verified by impartial third parties.
Feedback	• Responsible unit: ESG Sustainable Development Promotion Committee • ESG website: https://www.viseratech.com/tw/ESG/ • Email: ESG@viseratech.com • Telephone: +886-3-666-8788 • Address: No. 12, Dusing 1st Rd., East Dist., Hsinchu City, 30078, Taiwan (R.O.C.)

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9.2 Summary of ESG Performance

Role in Sustainability	Primary Indicator	2018	2019	2020	2021	2022
Product innovation	R&D expenses (NT$ thousand)	239,746	346,489	366,794	542,020	671,886
	R&D funding as percentage of revenue (%)	8.72	10.20	5.28	6.00	7.40
	Number of R&D personnel	86	121	157	203	213
	R&D personnel as a percentage of total employees (%)	11.4	13.0	12.8	14.7	14.7
Responsible procurement	Percentage of local procurement of raw materials (%)	55%	55%	60%	70%	67%
	Percentage of local procurement of parts (Note 1)	92%	86%	74%	69%	72%
Green production	Greenhouse gas emissions (metric ton-CO_2e) (including Scope 1 and Scope 2; market-based method)	36,345	37,785	38,315	44,016	28,991
	Scope 1 (metric ton-CO_2e)	12,397	12,904	8,167	7,725	5,728
	Scope 2 (metric ton-CO_2e) (market-based method)	23,948	24,881	30,148	36,291	23,263
	Scope 2 (metric ton-CO_2e) (location-based method)	23,948	24,881	30,148	37,797	36,578
	Scope 3 (metric ton-CO_2e)	-	-	19,025	21,968	18,448
	Total energy consumption (million kWh)	48,645	52,433	67,992	85,032	82,993
	Electricity from non-renewable energy (million kWh)	43,243	46,681	59,230	72,293	45,705
	Electricity from renewable energy (million kWh)	0	0	0	2,999	26,157
	Natural gas (million cubic meters)	5,316	5,527	8,463	9,397	10,725
	Diesel (million kWh)	86	225	300	343	407
	Water withdrawal (m^3)	130.053	128.470	190.490	226.840	277.221
	Water recycled (m^3)	332.760	340.769	328.154	332.478	467.549
	Process water recycling rate (%)	88	88	88	88	88
	Wastewater discharge (m^3)	67.938	79.204	120.148	145.005	141.298

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Role in Sustainability	Primary Indicator	2018	2019	2020	2021	2022
Green production	Total industrial waste quantity (metric tons)	489	611	1,463	2,054	2,348
	General industrial waste (metric tons)	37	136	370	781	930
	Hazardous industrial waste (metric tons)	451	475	1,093	1,273	1,418
	Waste Recycling Rate (%)	75.66	74.45	55.10	52.93	63.5
Employee relations	Ratio of female employees in management roles (%)	18	18	18	20	20
	Internal employee substitution rate (%)	63.6	73.1	86.0	61.7	66.7
	Manager internal promotion rate (%)	77.8	76.0	68.1	67.4	78.4
	Average training hours per employee (hours)	15.2	23.9	24.6	21	21
	Safety Performance Indicators (SPI)(Note2)	●	●	●	●	●
	Number of material occupational safety and health accidents (employees)	0	0	0	0	0
	Number of severe occupational safety and health accidents (employees)	0	0	0	0	0
	Number of recordable occupational safety and health accidents (employees)	0	0	2	0	0
	Number of accidents (employees)	0	0	2	0	0
	Number of anomalies (employees)	0	4	15	11	8
	Number of near misses (employees)	0	0	64	24	5
	Number of cases processed by onsite physicians	-	-	248	610	411
	Number of psychological consultation services provided	14	16	21	15	21
Corporate Citizenship	Number of participants	214	115	106	173	190
	Total participation hours	284	185	176	243	260

Note 1: Introduction and monitoring of new processes (sputtering physical vapor deposition in the multi-film process)
Note 2: Safety Performance Indicators (SPI): ● Blue (excellent)-SPI ≧ 95 ; ● green (good)-85 ≦ SPI<95 ; ● yellow (warning)-70 ≦ SPI<85 ; ● red (warning) SPI<70

9.3 GRI Standards Index

Usage Statement	VisEra has followed the GRI guidelines for the period January 1, 2022 to December 31, 2022.
GRI 1 used	GRI 1：foundation 2021
Applicable GRI Industry Standards	None

GRI Standard	Disclosure Item	Related chapters/ Reason for omission/ Notes	Page number
GRI 2：General Disclosures 2021	2-1 Organizational details	1.1 Company Profile	05
	2-2 Entities included in the organization's sustainability reporting	9.1 About the Report	158
	2-3 Reporting period, frequency and contact point		
	2-4 Restatements of information		
	2-5 External assurance	9.5 Independent Third-Party Assurance Opinion Statement	167
	2-6 Activities, value chain and other business relationships	1.1 Company Profile 4.1.1 Supply Chain Management	05 56
	2-7 Employees	6.1.1 Employees	95
	2-8 Workers who are not employees		
	2-9 Governance structure and composition	8.1.1 Structure and Operations of the Board of Directors 8.1.2 Diversity of the Board of Directors Currently, there is no ESG functional committee in place. The annual ESG operational achievements, work plans, and significant issues are comprehensively considered by the Board of directors, taking into account the future Company's business strategy, and recommendations for implementation are proposed.	139 140
	2-10 Nomination and selection of the highest governance body	8.1.1 Structure and Operations of the Board of Directors 8.1.2 Diversity of the Board of Directors	139 140
	2-11 Chair of the highest governance body	8.1.1 Structure and Operations of the Board of Directors	139
	2-12 Role of the highest governance body in overseeing the management of impacts	2.1 ESG Management Framework	13
	2-13 Delegation of responsibility for managing impacts		

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GRI 2 : General Disclosures 2021	2-14 Role of the highest governance body in sustainability reporting	2.1 ESG Management Framework 9.1 About the Report	05 158
	2-15 Conflicts of interest	8.1.4 Conflicts of interest	143
	2-16 Communication of critical concerns	2.1 ESG Management Framework	13
	2-17 Collective knowledge of the highest governance body	8.1.3 Board Performance and Performance Evaluation	141
	2-18 Evaluation of the performance of the highest governance body		
	2-19 Remuneration policies	8.1.5 Compensation Policy for Directors and Managers	143
	2-20 Process to determine remuneration	8.1.1 Structure and Operations of the Board of Directors 8.1.5 Compensation Policy for Directors and Managers	139 143
	2-21 Annual total compensation ratio	6.1.2 Talent Recruitment	96
	2-22 Statement on sustainable development strategy	Message from the Chairman	03
	2-23 Policy commitments	4.1.2 Supply Chain Sustainability Management 6.3 Human Rights 8.2 Professional Ethics	59 110 144
	2-24 Embedding policy commitments		
	2-25 Processes to remediate negative impacts	6.3 Human Rights 8.2 Professional Ethics	110 144
	2-26 Mechanisms for seeking advice and raising concerns		
	2-27 Compliance with laws and regulations	8.2 Professional Ethics	144
	2-28 Membership associations	1.2 Participation in External Initiatives, Organizations, and Associations	09
	2-29 Approach to stakeholder engagement	2.2 Materiality Analysis and Stakeholder Communication	15
	2-30 Collective bargaining agreements	6.3 Human Rights; VisEra has not signed collective bargaining agreements. However, we organize regular human rights training and quarterly labor-management meetings to report the business overview, annual activities, and benefits to all employees. We respect all employee organizations, the unions of their choice, and right to collective bargaining and participation in peaceful protests.	110
GRI 3 : Material Topics 2021	3-1 Process to determine material topics	2.2 Materiality Analysis and Stakeholder Communication	15
	3-2 List of material topics		
	3-3 Management of material topics		

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GRI Standard	Disclosure Item	Related chapters/ Reason for omission/ Notes	Page number
GRI 201 : Economic Performance 2016	201-1 Direct economic value generated and distribute	6.1.2 Talent Recruitment 8.3 Financial Growth	96 146
	201-2 Financial implications and other risks and opportunities due to climate change	5.2.1 Climate Risk Management	66
	201-3 Defined benefit plan obligations and other retirement plans	6.1.2 Talent Recruitment	96
	201-4 Financial assistance received from government	8.3.1 Financial Performance	146
GRI 202 : Market Presence 2016	202-1 Ratios of standard entry level wage by gender compared to local minimum wage	6.1.2 Talent Recruitment	96
	202-2 Proportion of senior management hired from the local community	6.1.1 Employees	95
GRI 204 : Procurement Practices 2016	204-1 Proportion of spending on local suppliers	4.1.3 Local Procurement and Green Procurement	60
GRI 205 : Anti-Corruption 2016	205-1 Operations assessed for risks related to corruption	8.2 Professional Ethics	144
	205-2 Communication and training about anti-corruption policies and procedures		
	205-3 Confirmed incidents of corruption and actions taken		
GRI 206 : Anti-competitive Behavior 2016	206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	8.2 Professional Ethics	144
GRI 207 : Tax 2019	207-1 Approach to tax	8.4 Tax Governance	148
	207-2 Tax governance, control, and risk management		
	207-3 Stakeholder engagement and management of concerns related to tax		
	207-4 Country-by-country reporting		
GRI 302 : Energy 2016	302-1 Energy consumption within the organization	5.3.2 Energy Consumption	75
	302-2 Energy consumption outside of the organization	5.2.2 Greenhouse Gas Inventory	70
	302-3 Energy intensity	5.3.2 Energy Consumption	75
	302-4 Reduction of energy consumption	5.3.4 Improve Energy Efficiency	78
	302-5 Reductions in energy requirements of products and services	Not applicable. VisEra's products are mainly optical designs (not directly related to the transmission of electricity)	-

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GRI Standard	Disclosure Item	Related chapters/ Reason for omission/ Notes	Page number
GRI 303 : Water and Effluents 2018	303-1 Interactions with water as a shared resource	5.4.1 Water Resource Risk Management	81
	303-2 Management of water discharge-related impacts	5.4.4 Effluent Management	85
	303-3 Water withdrawal	5.4.1 Water Resource Risk Management	81
	303-4 Water discharge	5.4.4 Effluent Management	85
	303-5 Water consumption		
3GRI 305 : Emissions 2016	305-1 Direct (Scope 1) GHG emissions	5.2.2 Greenhouse Gas Inventory	70
	305-2 Energy indirect (Scope 2) GHG emissions		
	305-3 Other indirect (Scope 3) GHG emissions		
	305-4 GHG emissions intensity		
	305-5 Reduction of GHG emissions		
	305-6 Emissions of ozone-depleting substances (ODS)	VisEra does not use ODS in the production process and operations	-
	305-7 Nitrogen oxides (NO_X), sulfur oxides (SO_X), and other significant air emissions	5.6 Air Pollution Prevention	92
GRI 306 : Waste 2020	306-1 Waste generation and significant waste-related impacts	5.5.1 Waste Production and Recycling	86
	306-2 Management of significant waste-related impacts		
	306-3 Waste generated		
	306-4 Waste diverted from disposal		
	306-5 Waste directed to disposal		
GRI 308 : Supplier Environmental Assessment 2016	308-1 New suppliers that were screened using environmental criteria	4.1.1 Supply Chain Management	56
	308-2 Negative environmental impacts in the supply chain and actions taken	4.1 Sustainable Supply Chain	56
GRI 401 : Employment 2016	401-1 New employee hires and employee turnover	6.1.1 Employees	95
	401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	6.1.2 Talent Recruitment	96
	401-3 Parental leave		
GRI 403 : Occupational Health and Safety 2018	403-1 Occupational health and safety management system	6.4 Occupational Safety and Health	112
	403-2 Hazard identification, risk assessment, and incident investigation		
	403-3 Occupational health services		

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GRI 403 : Occupational Health and Safety 2018	403-4 Worker participation, consultation, and communication on occupational health and safety	6.4 Occupational Safety and Health	112
	403-5 Worker training on occupational health and safety		
	403-6 Promotion of worker health	6.4.2 Create a Safe and Comfortable Workplace for Physical and Mental Balance	122
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	6.4 Occupational Safety and Health	112
	403-8 Workers covered by an occupational health and safety management system		
	403-9 Work-related injuries		
	403-10 Work-related ill health		
GRI 404 : Training and Education 2016	404-1 Average hours of training per year per employee	6.2 Talent Development	105
	404-2 Programs for upgrading employee skills and transition assistance programs		
	404-3 Percentage of employees receiving regular performance and career development reviews	6.1.2 Talent Recruitment	96
GRI 405 : Diversity and Equal Opportunity 2016	405-1 Diversity of governance bodies and employees	6.1.1 Employees 8.1.2 Diversity of the Board of Directors	95 140
	405-2 Ratio of basic salary and remuneration of women to men	6.1.2 Talent Recruitment	96
GRI 406 : Non-Discrimination 2016	406-1 Incidents of discrimination and corrective actions taken	4.1.2 Supply Chain Sustainability Management 6.3 Human Rights 8.2 Professional Ethics	59 110 144
GRI 407 : Freedom of Association and Collective Bargaining 2016	407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	4.1.2 Supply Chain Sustainability Management 6.3 Human Rights	59 110
GRI 408 : Child Labor 2016	408-1 Operations and suppliers at significant risk for incidents of child labor	4.1.2 Supply Chain Sustainability Management 6.3 Human Rights	59 110
GRI 409 : Forced or Compulsory Labor 2016	409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	4.1.2 Supply Chain Sustainability Management 6.3 Human Rights	59 110
GRI 414 : Supplier Social Assessment 2016	414-1 New suppliers that were screened using social criteria	4.1.1 Supply Chain Management	56
	414-2 Negative social impacts in the supply chain and actions taken	4.1 Sustainable Supply Chain	56
GRI 418 : Customer Privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	8.6.3 Information Security Implementation Results	156

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9.4 SASB Standards Index

Disclosure Topic	Indicator No.	Nature	Accounting Indicator	Report Content Description
Greenhouse gas	TC-SC-110a.1	Quantitative	1. Scope 1 emissions	5,728 metric ton-CO_2e
			2. Amount of emissions from perfluorinated compounds (PFCs)	0 metric ton-CO_2e
	TC-SC-110a.2	Quantitative	Set long-term and short-term strategies or management plans and related target performance analysis for Scope 1 emission reduction targets	Please refer to "5.2.1 Climate Risk Management"
Process energy management	TC-SC-130a.1	Quantitative	1. Total energy consumption	323,379 billion joules
			2. Percentage of grid electricity used	> 85%
			3. Percentage of renewable electricity	> 30%
Water resources	TC-SC-140a.1	Quantitative	Areas with high or extreme baseline water stress:	According to the Water Risk Filter developed by the World Wildlife Fund (WWF), VisEra plants are not located in areas with high water stress (stress <10%)
			1. Total water withdrawal; % in the area	
			2. Total water consumption; % in the area	
waste management	TC-SC-150a.1	Quantitative	Quantity of hazardous waste produced in the production process and recycling percentage	Hazardous waste produced in the production process: 1,418 tons; percentage recycled: 63.5%
Employee health and safety	TC-SC-320a.1	Quantitative	Describe the measures for evaluating, monitoring, and reducing exposures that harm human health	Please refer to "6.4.1 Build a Human-Centric Safe Workplace"
	TC-SC-320a.2	Quantitative	Total monetary losses from litigation involving violations of employee health and safety	There were no such litigation or monetary losses Please refer to "6.4 Occupational Safety and Health"
Recruitment and management of global professional talents	TC-SC-330a.1	Quantitative	1. Percentage of foreign employees	15%
			2. Percentage of overseas employees	The operational base is only in Taiwan and there are no other overseas locations.
Product life cycle management	TC-SC-410a.1	Quantitative	Including the percentage of revenue from products with IEC 62474 Material Declaration for Products	0%
	TC-SC-410a.2	Quantitative	Energy efficiency of system-level processors: 1) servers, 2) desktop computers, 3) laptop computers	VisEra is not a producer of final products and the corresponding contents are not applicable
Procurement of raw materials	TC-SC-440a.1	Quantitative	Describe the risk management for the use of key materials	4.1.1 Supply Chain Management 4.1.4 Management of Conflict Minerals
Protection of intellectual property rights and competitive behavior	TC-SC-520a.1	Quantitative	Total losses from litigation involving regulations on anti-competitive behavior	None Please refer to "8.2 Professional Ethics"

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DNV

Independent assurance statement

Scope and approach

VisEra Technologies Company Limited . ('VisEra ' or 'the Company') commissioned DNV Business Assurance Co. Ltd. ("DNV") to undertake independent assurance of the 2022 Sustainability Report (the "Report") for the year ended 31 December 2022.

We performed our work using AA1000 AS v3 and DNV's assurance methodology VeriSustain™[1], which is based on our professional experience, international assurance best practice including International Standard on Assurance Engagements 3000 (ISAE 3000) and the Global Reporting Initiative (GRI) Sustainability Reporting Standards.

The Report also incorporated the relative sustainability reporting guidelines, such as Sustainability Accounting Standards Board (SASB) Semiconductors Sustainability Accounting Standard and Recommendations of the Task Force on Climate-related Financial Disclosures (TCFD).

We evaluated the performance data using the reliability principle together with VisEra's data protocols for how the data are measured, recorded and reported. The performance data in scope was against VisEra's significant Environmental, Social and Governance (ESG) issues and the 2025 sustainability commitment and the topics set forth in the GRI standards 2021.

We understand that the reported financial data and information are based on data from VisEra's Annual Report and Accounts, which are subject to a separate independent audit process. The review of financial data taken from the Annual Report and Accounts is not within the scope of our work.

We planned and performed our work to obtain the evidence we considered necessary to provide a basis for our assurance opinion. We are providing a Type 1 and moderate level of assurance.

Responsibilities of the Directors of VisEra and of the assurance providers

The Directors of VisEra have sole responsibility for the preparation of the Report. In performing our assurance work, our responsibility is to the management of VisEra; however, our statement represents our independent opinion and is intended to inform all of VisEra stakeholders. DNV was not involved in the preparation of any statements or data included in the Report except for this Assurance Statement.

DNV provides a range of other services to VisEra, none of which constitute a conflict of interest with this assurance work.

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

Basis of our opinion

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

- Review of the current sustainability issues that could affect VisEra and are of interest to stakeholders;
- Review of VisEra approach to stakeholder engagement and recent outputs;

[1] The VeriSustain protocol is available on dnv.com

DNV

- Review of information provided to us by VisEra on its reporting and management processes relating to the Principles;
- Interview with selected Directors and senior managers responsible for management of sustainability issues and review of selected evidence to support issues discussed.;
- Site visits to HQ (in Hsinchu, Taiwan) to review process and systems for preparing site level sustainability data and implementation of sustainability strategy.;
- Review of supporting evidence for key claims and data in the report. Our checking processes were prioritised according to materiality, and we based our prioritisation on the materiality of issues at a consolidated corporate level;
- Review of the processes for gathering and consolidating the specified performance data and, for a sample, checking the data consolidation. Where financial data had been checked by another third party, and, where data of scope 1, 2 and 3 of Green House Gases Emission has been verified by DNV, we tested transposition from these sources to the report; Where relevant data and information has been generated from a certified management system note which data and management system certification and that this was considered;
- An independent assessment of VisEra's reporting against the Global Reporting Initiative (GRI) Standards 2021.
- The verification was conducted based only on the Chinese version Report.

Opinion

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

VisEra has developed its own data management system for capturing and reporting its ESG performances. In terms of reliability of the performance data, in accordance with Moderate level assurance requirements engagement, nothing came to our attention to suggest that these data have not been properly collated from the information reported at the operational level nor that the assumptions used were inappropriate.

Observations

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

The following is an excerpt from the observations and opportunities reported back to the management of VisEra.

- The management approach can be by improved involving with specific topics. It is suggested to establish specific objectives/ targets for continuous performance improvement.
- Improving the accuracy and reliability by implementing internal verification during the internal audit in accordance with certified management system.

Sustainability Context
Sustainability Report provides an accurate and fair representation of the level of implementation of related ESG policies and meets the content requirements of the GRI Standards 2021.

Materiality
The materiality determination process was revalidated based on survey from key stakeholders including employees, customers, suppliers / contractors, NGOs, governments, shareholders, investors, regulatory bodies, local communities and senior management of VisEra and has not missed out any significant and known material issues about the Semiconductor Sector. A methodology has been developed to evaluate the priority of these issues and identified priority issues are fairly covered in the Report.

Completeness

DNV

The Report has fairly attempted to disclose the generic disclosures and management approaches and performances of identified material topics for GRI Standards 2021. The reporting of performance and data are within the Company's reporting boundary and reporting period except for certain material topics. A system to report the performances of material topics are being established and set the internal timelines for disclosure.

Accuracy and Reliability

The majority of data and information verified at the Corporate Office and sampling operational sites were found to be accurate and nothing came to our attention to suggest that reported data have not been properly collated from information reported at operational level, nor that the assumptions used were inappropriate. Some of the data inaccuracies identified during the verification process were found to be attributable to transcription, interpretation and aggregation errors and the errors have been communicated for correction.

Inclusivity

The Company has identified the expectations of stakeholders through internal mechanisms in dialogue with different groups of stakeholders. The stakeholder concerns are well identified and documented. The significant ESG issues identified through this process are reflected in the Report.

Responsiveness:

VisEra 2022 Sustainability Report meets the content requirements of the GRI Standards 2021. The report provides an accurate and fair representation of the level of implementation of related ESG policies.

The Company has adequately responded to stakeholder concerns through its policies, ESG Committee, and quarterly / annual financial report, and this is reflected in the Report.

Impact

The Company presents the impacts related to its identified material topics by measuring and monitoring impacts through appropriate performance metrics demonstrating outcomes and outputs of its value creation processes. Nothing has come to our attention to suggest that the Report does not meet the requirements related to the Principle of Impact.

For and on behalf of DNV Taiwan
18 May 2023

Wu, Johnny
Lead Verifier
Business Assurance
DNV Taiwan

David Hsieh
District Manager,
Business Assurance
DNV Taiwan

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