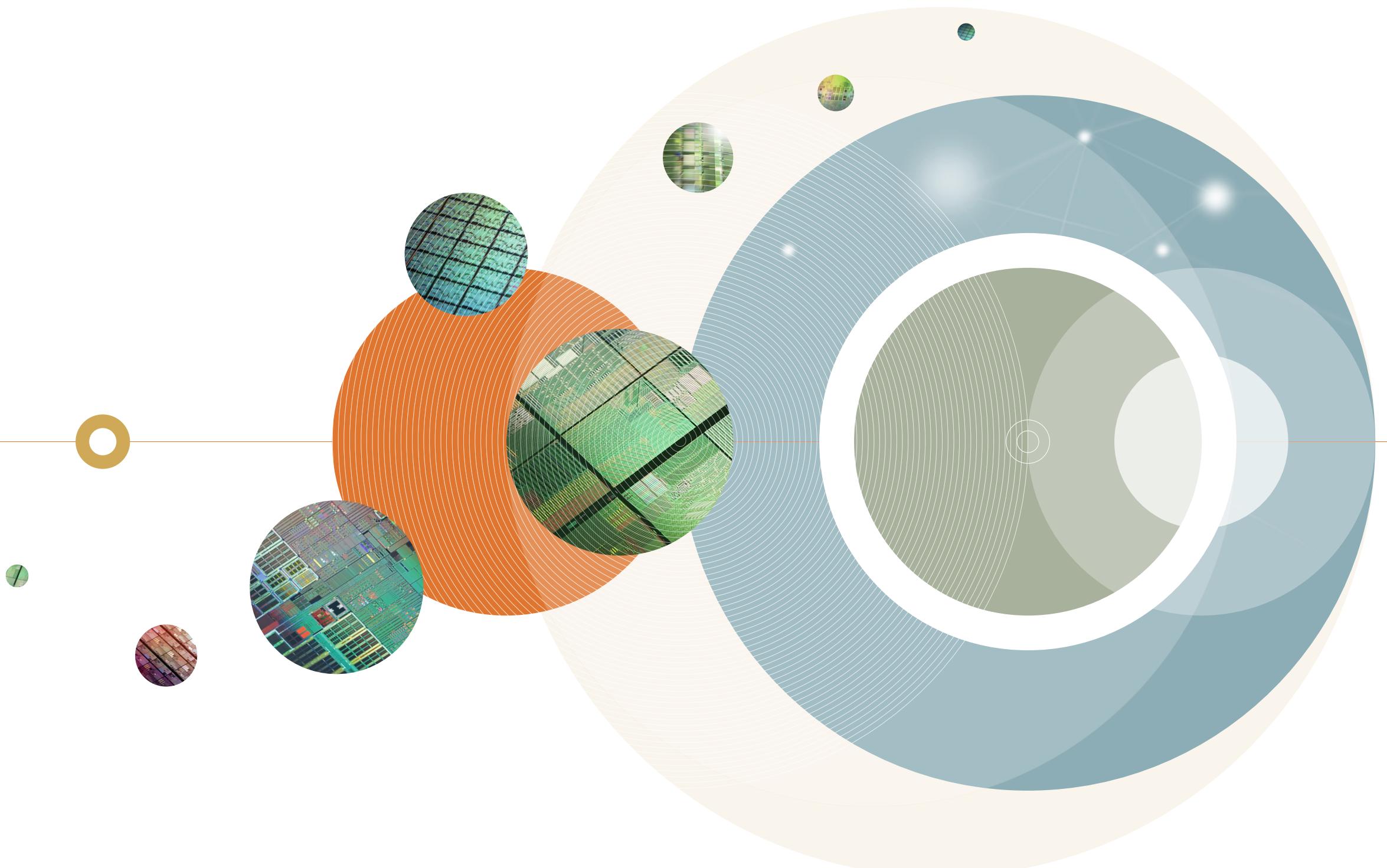


2018 TSMC Corporate Social Responsibility Report Highlights



Letter from
the CSR Committee Chairperson

Taking a Sustainable Path

As the world's largest dedicated semiconductor foundry, TSMC accelerates the flow of innovation in IC design and product applications with a pioneering business model. We have enabled a world where semiconductors are ubiquitous and brought epoch changes over the past 31 years to the way we live, work, and play.

Facing the challenges of an increasingly difficult environment, TSMC believes in and supports the United Nations' Sustainable Development Goals (SDGs). The Corporate Social Responsibility (CSR) Committee, has completed a thorough survey of the ways that the SDGs align with TSMC's operations and encourages employees to collaboratively consider how to incorporate sustainability into their daily work. We hope that corporate social responsibility can help drive our company's team spirit and build a challenging and fun workplace. We support our colleagues' efforts to continue learning and innovating.

Looking to the future, TSMC will provide the most advanced and comprehensive semiconductor solutions, uphold a responsible business philosophy, collaborate with both upstream and downstream partners to foster sustainable development, and make progress on the dimensions of economy, environment, and society. TSMC aspires to be an uplifting force for the common good of society.



Lora Ho
Senior Vice President and Corporate Social
Responsibility Committee Chairperson

Awards & Recognition



FTSE4Good Emerging Index component
FTSE4Good TIP Taiwan ESG Index component



Rated an ESG "Leader" within the
Semiconductor Industry



Dow Jones Sustainability World Index
component for the 18th consecutive year



MSCI ACWI ESG
Leaders Index component

2025 Goals



Promote industrial waste reduction

Goal: Reduce outsourced waste treatment per unit wafer to approximately 0.30 kg / 8-inch wafer equivalent mask layer

Promote a closed loop fab economy

Goal: Develop electronic-grade materials recycling mechanisms with suppliers



Implement climate change strategies

Goal: Reduce 2010 GHG emission per unit of production by 18%
Goal: Zero days of manufacturing operations halted by natural disasters

Strengthen supply chain climate change resilience

Goal: Organize supplier emergency response drills for a total of 200 suppliers beginning in 2016



Develop energy-efficient manufacturing processes

Goal: Reduce 2010 power consumption per unit product (kWh / 8-inch wafer equivalent per mask layer) by 12%

Develop energy-efficient equipment and promote energy conservation measures with suppliers

Goal: Implement new energy conservation measures that save a cumulative 2,800GWh of electricity
Goal: Help 30 suppliers implement factory energy conservation measures that reduce cumulative electricity consumption by 2%, beginning in 2018



Improve wastewater quality

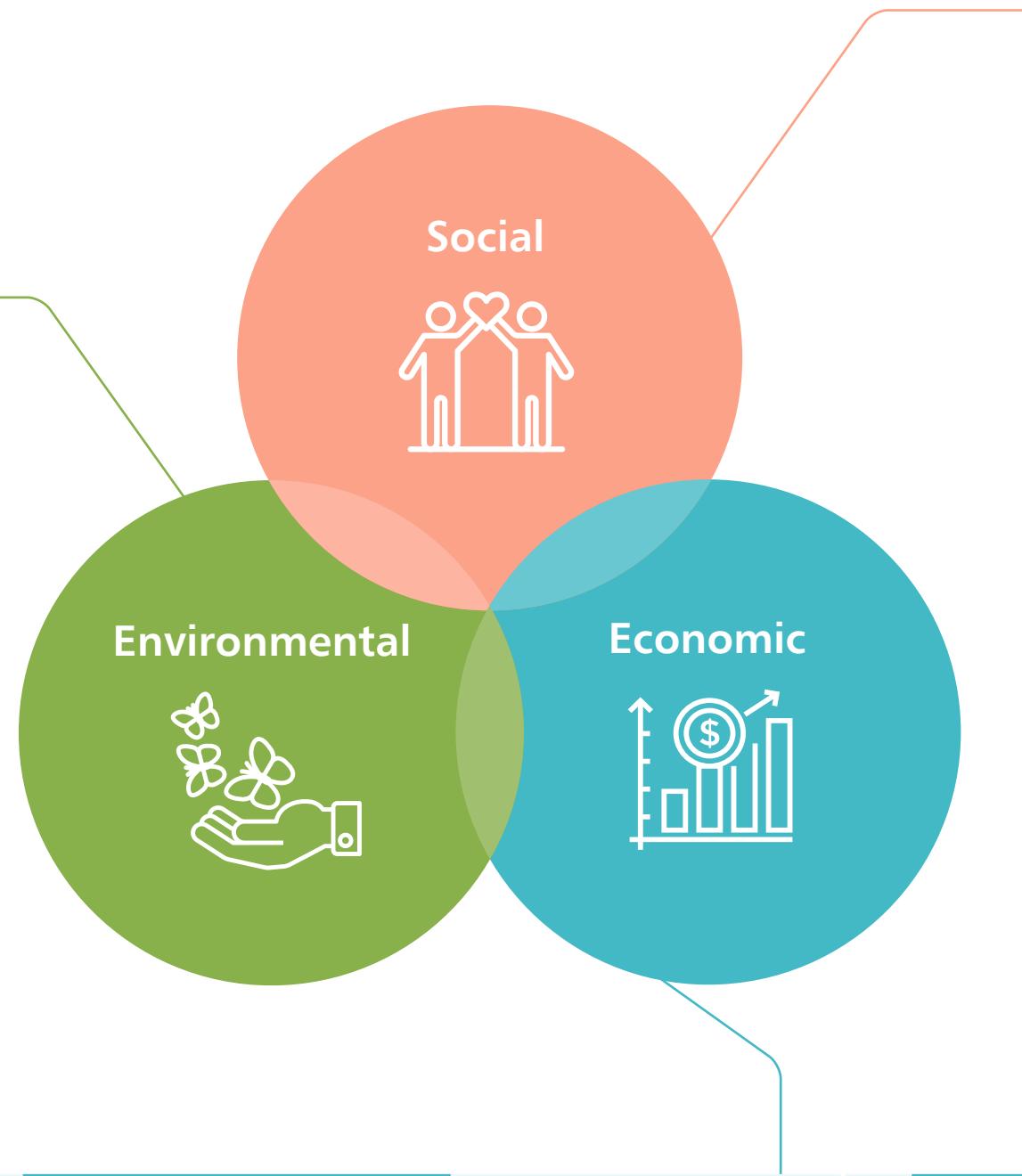
Goal: Improve wastewater quality with stricter than mandated standards

Increase urban recycled water use

Goal: Replace up to 50,000 metric tons of tap water per day with recycled water

Replace PFOA-related substances

Goal: 100% compliance with hazardous waste regulations and customer requirements



Awards & Recognition



World's Best Employers

2025 Goals



Provide resources to disadvantaged groups

◎ Goal: Donate at least NT\$10 million to disadvantaged groups each year



Improve medical care quality for elder people living alone

◎ Goal: Provide service to at least 10,000 elder people living alone through the Network of Love System



Promote filial piety within younger generations

◎ Goal: Promote filial piety education at 100 education institutions

Care for the educationally disadvantaged

◎ Goal: Invest at least NT\$10 million each year with education institutions



Recruit reading volunteers

◎ Goal: Provide more than 8,000 hours of reading services each year



Provide competitive compensation

◎ Goal: Sustain employee's total compensation within the top 25% of the industry

Promote occupational safety

◎ Goal: Frequency of debilitating injuries <0.41; Severity of debilitating injuries <6

Enhance environmental protection

◎ Goal: Donate at least 1,000 volunteer hours to environmentally related causes

Awards & Recognition



"Prime" rated by ISS-oekom Corporate Rating



The World's 50 Most Innovative Companies



Global 100 Most Sustainable Corporations



2025 Goals

Mitigate corruption and bribery

◎ Goal: 100% annual ethics and regulatory compliance employee training completion

Improve supplier management ethics

◎ Goal: 98% of suppliers in compliance with the "TSMC Supplier Code of Conduct"



Establish a sustainable supply chain

◎ Goal: Require 100% of critical suppliers to conduct annual self-assessment of their upstream suppliers and request them to sign the Suppliers Code of Conduct and Self-Assessment Questionnaire of Sustainability Management

◎ Goal: 100% of outsourced waste treatment and recycling companies earn international environmental safety management certificates such as ISO

Support local suppliers

◎ Goal: Help 38 local suppliers to improve manufacturing processes and quality (base year: 2016)

Enforce a quality culture among suppliers

◎ Goal: 100% of local supplier participation in the National United Circle Competition, with 60% entering the final round

Overall Most Outstanding Company in Taiwan



Top 100 Global Technology Leaders



A Trustworthy Company



As a trustworthy company whose foundation is built on the core value of integrity, TSMC has always held itself to the highest standards. TSMC's ethical culture is continuously strengthened through comprehensive education and training.

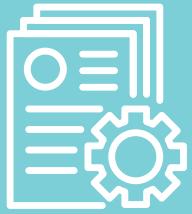


1

The world's largest dedicated semiconductor foundry



Integrity



>12 million

Annual production capacity owned and managed by TSMC and its subsidiaries exceeded 12 million, 12-inch equivalent wafers



10,436

TSMC produced 10,436 different products for 481 customers through 261 process technologies



56%

The 9th consecutive year of market share growth, reaching 56% global market share



7

Consecutive year of record revenue, net income, and earnings per share



0

Material regulatory violation (fines exceeding NT\$1 million)



39,500

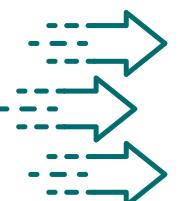
Number of employees who completed TSMC's 2018 ethics and regulatory compliance training

A Pioneer in Innovation

Economic

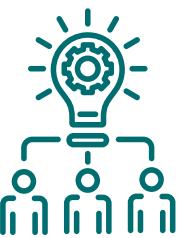


TSMC aspires to be an innovation pioneer. The Company provides customers with leading-edge technology and solutions to help them gain a competitive edge in the market through high quality, low-power, next generation sustainable products.



1

The world's first semiconductor foundry to reach 7nm process technology volume production, ahead of the industry by one year



8%

Continued to expand research and development with 2018 R&D expenditures of US\$2.85 billion, equivalent to 8% of the year's total revenue



5,100

The number of global patents granted in 2018 exceeded 5,100. The number of registered trade secrets exceeded 8,800



34,000+

The Company's total number of global patents exceeded 34,000, strengthening TSMC's technology leadership

Innovation Management



100%

Compliance with hazardous substance-free product legal regulations and customer standards



100%

TSMC updated its product life cycle assessments, its carbon footprint and its water footprint across all company fabs, and received ISO14040, ISO14067 and ISO14046 certifications



97.8%

Chip size shrink compared to 55nm technology



96.5%

Total power consumption reduction compared to 55nm technology



93%

Customer satisfaction rate surpassing 90% for the fifth consecutive year and demonstrating TSMC's strong relationships with its customers



701

Provided customers with 701 different manufacturing and process technologies, a 9.9% increase over the previous year

Sustainable Products

Product Quality

Customer Service



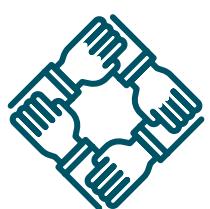
7 nm

Completed reliability qualification for N7+ technology and specialty technologies



>NT\$ 10 billion

43,005 employee suggestions and 2,196 continual improvement cases created a benefit of over NT\$10 billion



94%

The percentage of TSMC's local raw material suppliers enrolled in the Taiwan Continuous Improvement Competition



62%

Analyzed 62% of CMR substances, surpassing the 49% annual target



A Responsible Purchaser

Economic



As the world's largest dedicated IC foundry, TSMC actively seeks to use its influence as an industry leader to encourage upstream and downstream suppliers to achieve advancements in technology, quality, delivery, environment, human rights, safety, and health. TSMC is committed to building a world-class green semiconductor supply chain.



100%

First-tier suppliers who signed the Supplier Code of Conduct, the Guidance on Supplier Business Conduct, and the Self-Assessment Questionnaire



100%

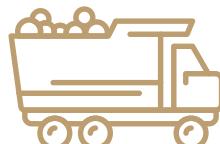
Suppliers who requested their direct suppliers to conduct self-assessments and sign the Guidance on Supplier Business Conduct and the Self-Assessment Questionnaire

Local Supply
Chain
Optimization



2

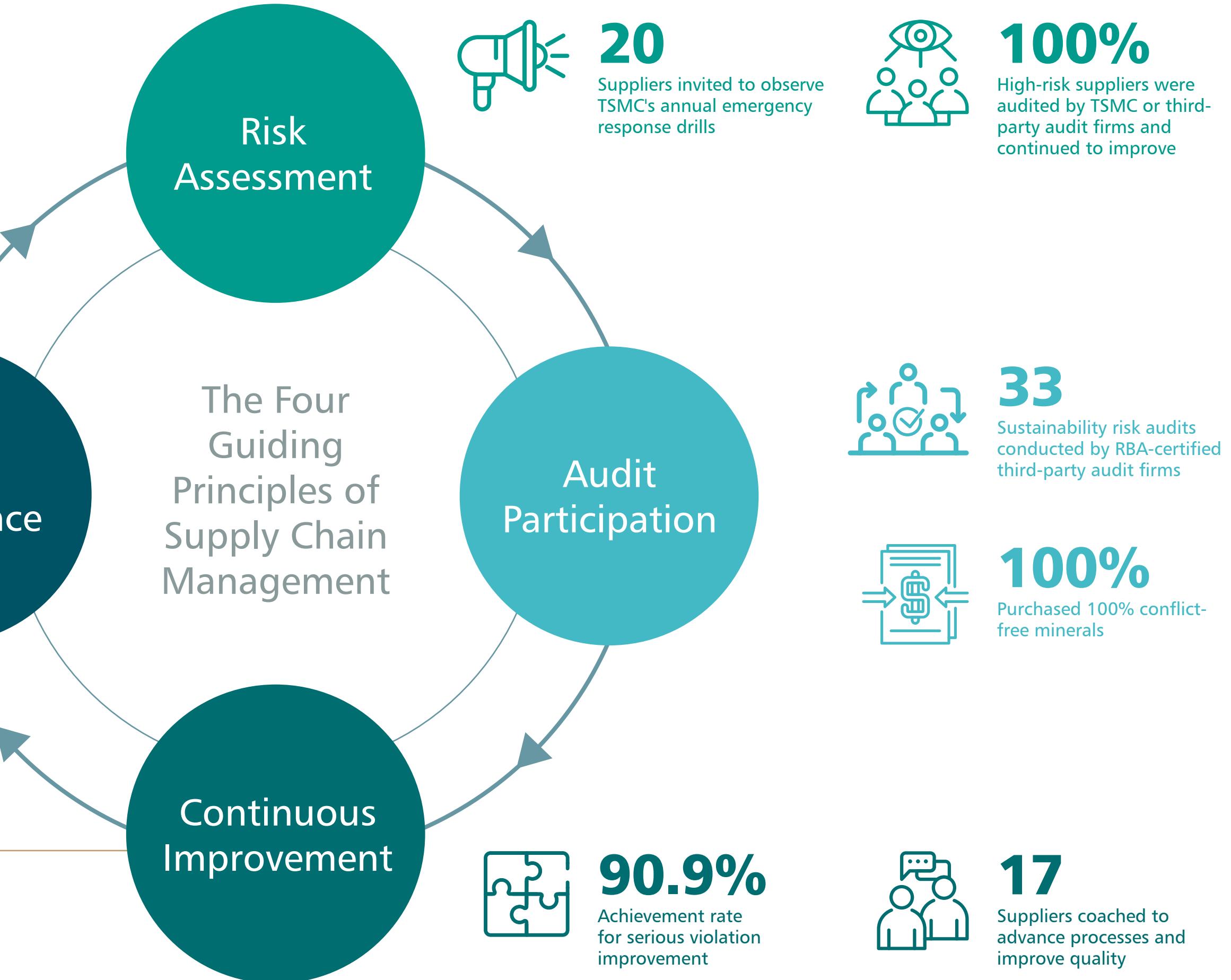
"Responsible Supply Chain Forums" held in June and December to improve communications



26.2%

Waste reduction by major local suppliers

Code
Compliant

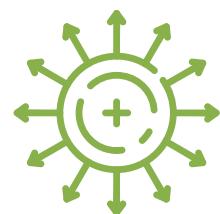




A Green Power Practitioner



Environmental



524

Number of conservation measures that reduced energy consumption by 300 GWh



880 GWh

Renewable energy purchased worldwide in 2018, the largest amount purchased in the Taiwan semiconductor industry



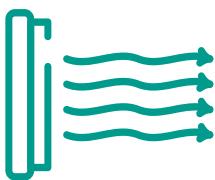
25%

More equipment installed to reuse resources



1

2018 perfluorinated compound (PFC) emission per unit product, 60% below 2010 levels – the largest reduction in the industry



17%

2018 greenhouse gas emission per unit product reduced 17% below 2010 levels



95%

2018 waste recycling rate, exceeding 90% for 10 consecutive years

Green management is deeply ingrained in TSMC's daily operations and the company continues to push forward with green fabs and green manufacturing. TSMC strengthens its green process capability along four dimensions: energy management, water management, waste management, and air pollution control. The Company selflessly shares its sustainability experience, broadening its impact on society and realizing the goal of an environment in harmony with technology.

Increase Energy Efficiency

Reduce Environmental Impact



129 million metric tons

Recycled water, equivalent to 4.1 times the volume of Baoshan Reservoir II



100%

Waste treatment and recycling vendors audited and provided with guidance



1.274 million tons

Water saved after adopting new conservation measures



24.7%

2018 water consumption per product unit below 2010 levels



21 ppm

The average concentration of NH4-N in the Company's wastewater discharge, less than Science Park regulations



0

Days of lost production due to climate disasters



0

Abnormal occurrences cases reported to supervising authorities



An **Attractive Employer**

Social



Employees are TSMC's most valuable asset. The Company has created a friendly workplace that exceeds domestic and international standards for safety, health, and human rights and encourages a challenging and fun environment where learning never stops. TSMC aspires to be an attractive employer.



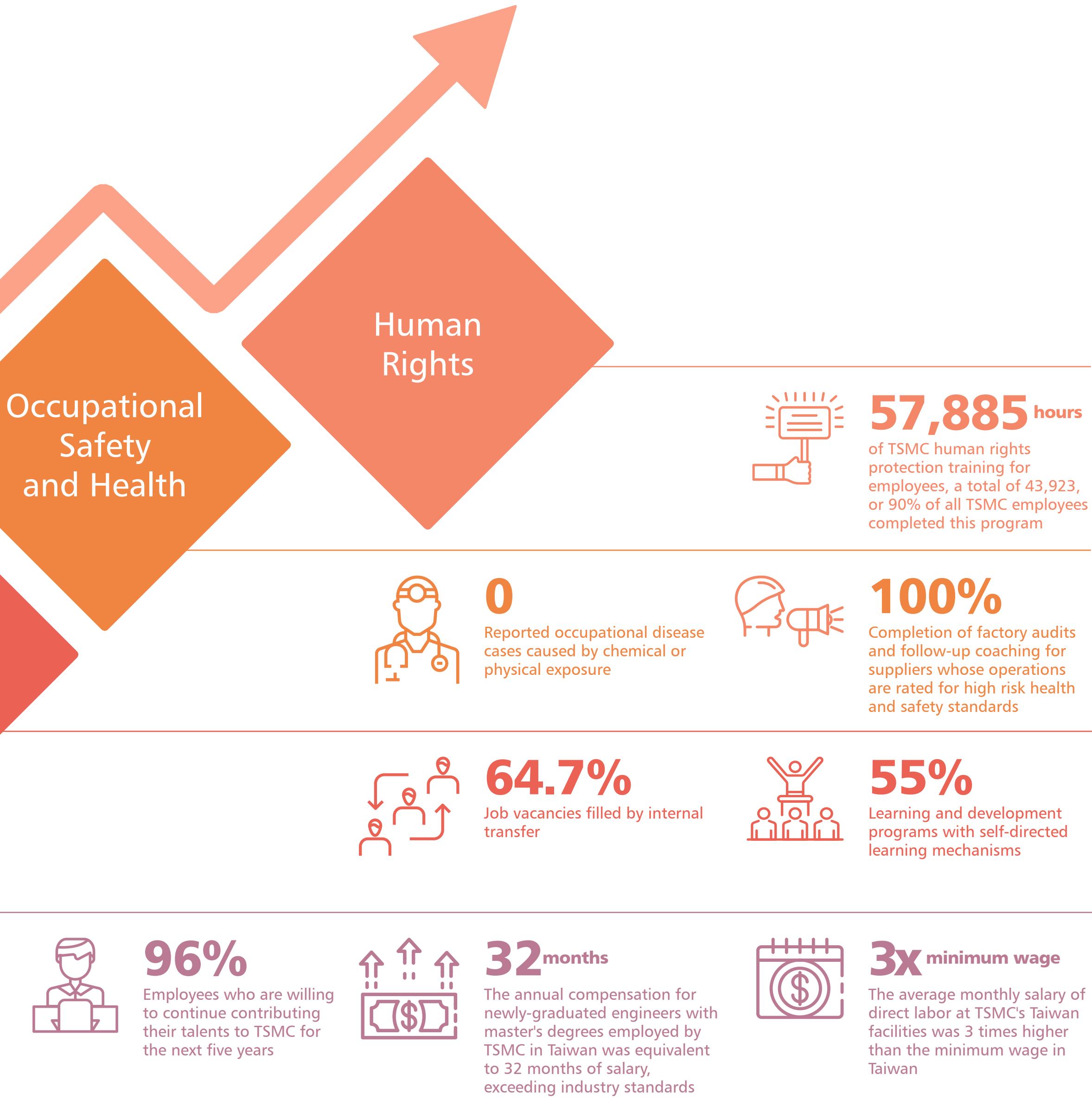
Talent
Attraction and
Retention

Talent
Development



98%

Employees who say they
are fully committed to
their work





Power to Change Society

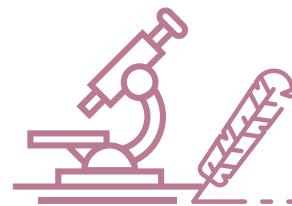


Social



NT\$ 13 million

With contribution of over NT\$13 million, the Foundation has helped close the gap in education resources between urban and rural areas



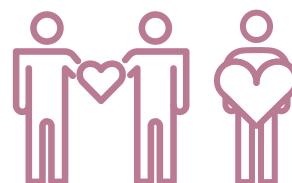
NT\$ 40 million

More than NT\$40 million contributed to inspire the next generation's interest in science and humanities



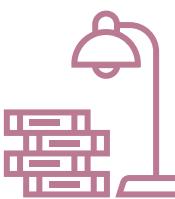
3,600

Sponsored 3,600 students from 17 counties and cities to visit science and art galleries all over Taiwan



13,000

The 16th TSMC Hsinchu Art Festival invited nine local art groups and one international group to perform, bringing an art feast to 13,000 attendees



>373%

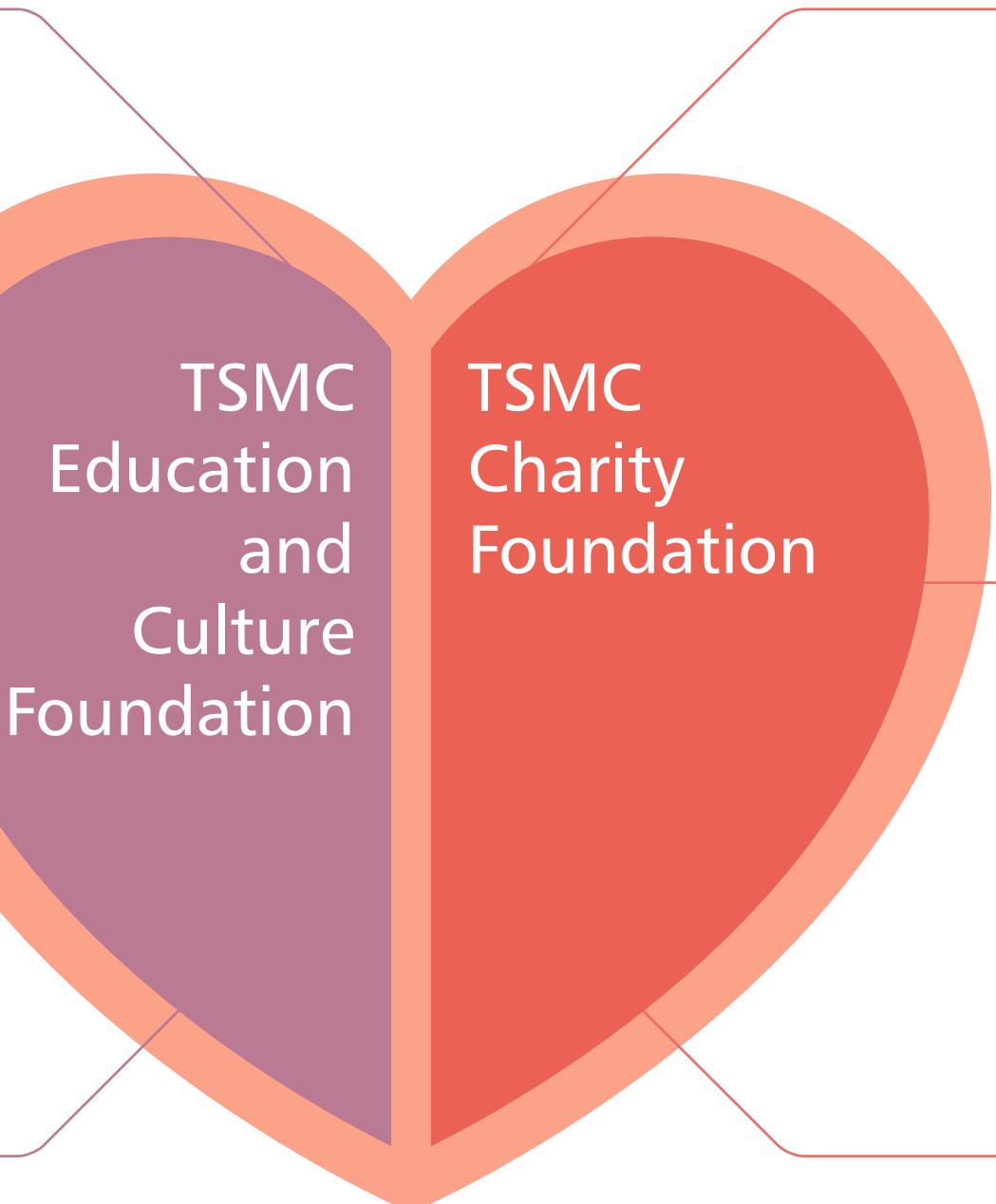
Percentage of books read by students increased from 19 to 90 per year through the Hope Reading 2.0 program



NT\$ 3 million

67 teams of students from 13 universities and colleges submitted proposals to "Youth Dream Building Project" for NT\$3 million dreams-pursuing grants

TSMC, through the TSMC Education and Culture Foundation and the TSMC Charity Foundation, stands by its commitment to its Corporate Social Responsibility Policy and gives back to the community by focusing on the United Nations Sustainable Development Goals (SDGs) and helps meet the needs of Taiwan society by investing in many areas of public service that even out resource disparities.



27,590

Total number of times
employees volunteered in
2018



109,059

Hours dedicated to
volunteer service in 2018



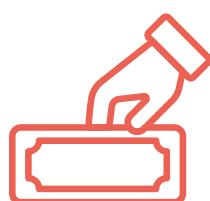
37,400+

Beneficiaries



3,200

Medical services donated
through the mobile
hospital van program



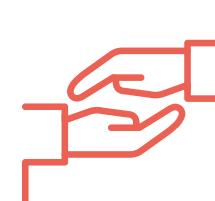
NT\$ 103 million

Value of monetary
donations, products, and
services



3,000

The filial piety program
has trained 149 teachers
in 98 branches who have
inspired approximately
3,000 students



9,000

Seniors living alone
covered by the Network of
Love System; implemented
the filial piety curriculum at
21 educational institutions

CSR Performance Summary ^{Note1}

Key Indicators	2014	2015	2016	2017	2018
Revenue (NT\$ billion)	763	843	948	977	1,031
Net Income (NT\$ billion)	264	307	334	343	351
Income Tax Expense (NT\$ billion)	38	44	52	53	46
R&D Expenditures (NT\$ billion)	57	66	71	81	86
Capital Expenditures (NT\$ billion)	289	258	328	331	316
Greenhouse Gas Emission (Metric Ton - CO ₂ equivalent) (Scope 1 and Scope 2)	6,356,130	6,670,291	7,413,953	8,156,140	8,475,367
Scope 1 (Metric Ton - CO ₂ equivalent))	2,113,858	2,027,645	2,035,510	2,075,928	2,125,725
Taiwan Facilities	1,655,498	1,566,662	1,648,268	1,640,532	1,705,746
Subsidiaries ^{Note 2}	458,360	460,983	387,242	435,396	419,979
Scope 2 (Metric Ton - CO ₂ equivalent)	4,242,272	4,642,646	5,378,443	6,080,212	6,349,642
Taiwan Facilities	3,939,172	4,315,766	5,030,647	5,702,511	6,325,931
Subsidiaries ^{Note 2}	303,100	326,880	347,796	377,701	23,711
Scope 3 (Metric Ton - CO ₂ equivalent)	—	3,446,447	3,767,411	4,242,521	4,315,603
Fluorinated Greenhouse Gas Emission (Metric Ton - CO ₂ equivalent)	1,394,492	1,331,467	1,259,527	1,194,136	1,185,433
NOx Emissions (Metric Tons)	59.65	54.42	60.54	82.5	118.92
SOx Emissions (Metric Tons)	43.22	32.55	33.08	43.87	39.71
Energy Consumption (GWh) (Including electricity, nature gas and diesel)	7,968	8,915	9,848	12,016	13,167
Direct Energy Consumption (GWh) (Including nature gas and diesel)	423	455	489	628.2	726
Indirect Energy Consumption (GWh) (Electricity)	7,545	8,460	9,358	11,388	12,441
Water Consumption (Million Metric Tons)	38.2	37.5	42.0	48.9	56.8
Taiwan Facilities	34.9	34.0	38.6	45.2	51
Subsidiaries ^{Note 2}	3.3	3.5	3.4	3.8	5.7
Process Water Recycling Rate (%) (Taiwan Sites) ^{Note 3}	87.6	87.3	87.4	87.5	87.5
Total Water Saving (Million Metric Tons) (Taiwan Sites) ^{Note 3}	81.0	85.6	94.3	103.4	129
Waste Generated (Metric Tons)	208,213	273,096	298,761	369,745	393,784
General Waste Generated	66,462	137,524	163,584	201,114	213,840

Key Indicators	2014	2015	2016	2017	2018
Taiwan Facilities	61,026	132,427	158,899	196,077	208,340
Subsidiaries ^{Note 2}	5,436	5,097	4,685	5,037	5,501
Hazardous Waste Generated	141,751	135,572	135,177	168,631	179,944
Taiwan Facilities	140,024	133,360	133,085	165,891	169,427
Subsidiaries ^{Note 2}	1,727	2,212	2,092	2,740	10,516
Waste Recycling Rate (%)	93	95	95	95	95
Taiwan Facilities	93	95	95	95	95
Subsidiaries ^{Note 2}	79	79	79	80	83
ISO 14001 Certified Sites	15	16	18	20	22
% Sites Certified	100	100	100	100	100
Numbers of Employee	43,591	45,272	46,968	48,602	48,757
Employee Training Hours	884,174	780,546	623,711	639,852	540,408
Women in Workforce (%)	42.00%	41.30%	40.10%	39.30%	38.70%
Females in Management (%)	11.10%	11.50%	11.70%	12.30%	12.60%
Females in Junior Management (%) ^{Note 4}	12.20%	12.60%	12.70%	13.40%	13.50%
Females in Top Management (%) ^{Note 4}	25.00%	26.30%	22.70%	22.70%	20.80%
Turnover Rate (%)	6.2%	5.2%	4.3%	4.2%	4.5%
Voluntary Turnover Rate (%)	6.0%	5.0%	4.2%	4.1%	4.3%
Safety - Injury Frequency Rate ^{Note 5}	0.36	0.47	0.54	0.56	0.88
Safety - Injury Severity Rate ^{Note 6}	3	5	7	7	13
Fatalities - Employees	0	0	0	0	0
Fatalities - Contractors	0	0	0	0	0
Cash Donation (NT\$ million) ^{Note 7}	99	64.8	89.1	301.2 ^{Note 8}	199.0

Note 1 Data are collected from all of the facilities and subsidiaries of TSMC

Note 2 The scope of subsidiaries in Environmental parts includes WaferTech, TSMC China Company Limited, TSMC Nanjing Company Limited and VisEra

Note 3 Data are collected from all facilities in Taiwan

Note 4 Data excludes VisEra

Note 5 Safety - Injury Frequency Rate=Injury NumberX1,000,000/ Total hours worked

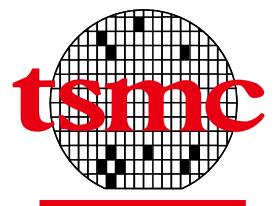
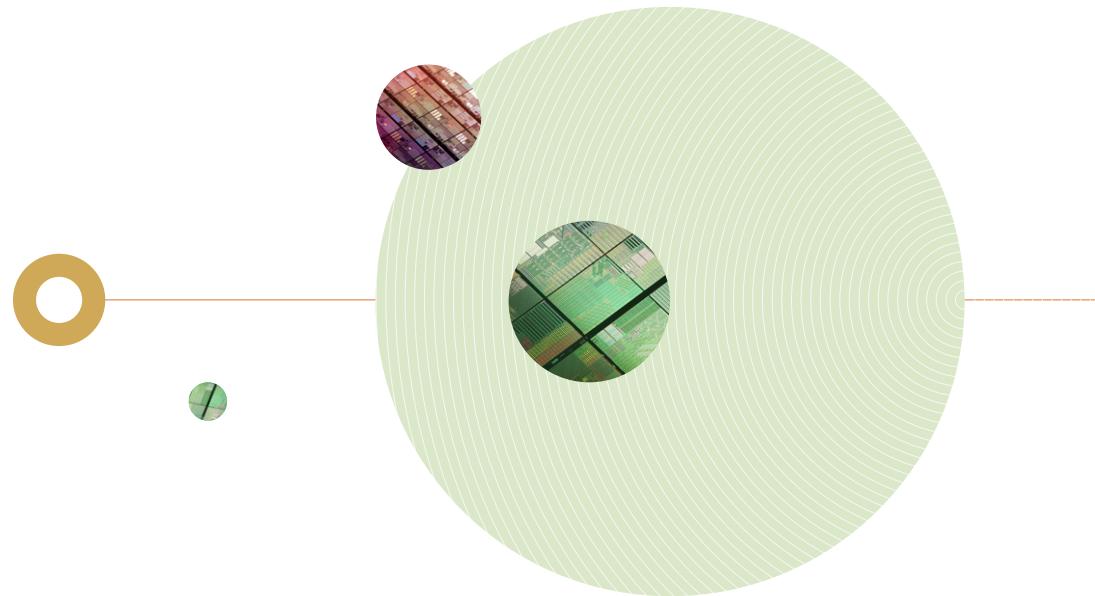
Note 6 Safety - Injury Severity Rate= Lost Work DaysX1,000,000/ Total hours worked

Note 7 Amounts donated by TSMC, TSMC Education and Culture Foundation, TSMC Charity Foundation, TSMC employees and TSMC Employee Welfare Committee

Note 8 In response to the government's renewable energy policy, TSMC has purchased 100 GWh green power in 2017., which was the main reason for the higher amount of annual cash donations. The government green power subscription plan was terminated at the end of 2017. TSMC is currently actively searching for renewable energy

Stewards of a Sustainable Future

TSMC practices innovation, and drives the never-ending progress of global technology. In addition to developing the growth potential of its core business, TSMC initiates green manufacturing practices, cultivates an inclusive workplace, cares for the disadvantaged, and builds a responsible supply chain to serve as a positive force in society. Dedicated to "diligently doing everything right", we never stray from the path of pursuing sustainability and the mutual good, and always seek ways to improve and move forward.



Learn more about TSMC's sustainable development. Refer to our [CSR Website](#) and [CSR Report](#). If you have any feedback, please feel free to contact us at csr@tsmc.com