

UMC



2018
CORPORATE SOCIAL RESPONSIBILITY REPORT

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VIDEO



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MESSAGE FROM CHAIRMAN OF THE CORPORATE SUSTAINABILITY COMMITTEE

Dear friends of UMC sustainability:

With the intensifying US-China trade conflict and volatility in international financial markets, 2018 seemed to be the most turbulent year since the 2008-2009 financial crisis. However, in the face of such a challenging external environment, UMC has continued to achieve breakthroughs in technology, capacity and customer development through the joint efforts of all its employees. We have also reached a record high in annual revenue.

Continuing to uphold our vision of "People-oriented, Environmental Symbiosis, and Social Prosperity," we have formulated UMC's mid and long-term goals for sustainable development for 2020 and 2025. We adhere to the standards of the UN Sustainable Development Goals, and are committed to promoting the concept of environmental, social and governance (ESG) sustainability.

In 2018, UMC continued to see improvement in the implementation of its sustainability management strategies. Our performance has been brilliant. In addition to being listed as a constituent stock on the DJSI World Index of the Dow Jones Sustainability Indices (DJSI) for 11 consecutive years, we were named as a constituent stock by the Taiwan ESG Index three times since its launch. Moreover, we continue to receive awards such as the Corporate Social Responsibility Award from Global Views Monthly and the Taiwan Corporate Sustainability Report Award.

To strengthen corporate governance, UMC has four independent committees under the Board of Directors, namely the Remuneration Committee, the Audit Committee, the Capital Budget Committee and Nomination Committee. These committees serve to strengthen the supervisory function of the Board of Directors, ensure the integrity of the company's operations, and rigorously safeguard stakeholder interests in its corporate governance. In the corporate governance evaluation conducted by the Taiwan Stock Exchange, UMC has also stood out from others since 2015, and continues to be in the top 5%. We are pleased to be consistently recognized by domestic and foreign investors for our persistence in corporate governance.

In terms of environmental sustainability, we regard climate change, water and energy resource management issues as both corporate challenges and opportunities.

In 2018, by closely integrating with operational development, we successfully achieved our 3-year objectives of the Green 2020 energy saving, water saving and waste reduction plan. Moreover, we are honored to have won the highest Enterprise Environmental Protection Award from Taiwan's Environmental Protection Administration for 16 consecutive years. UMC's subsidiary in Singapore has also won the Watermark Award for its contribution and commitment to protecting water source. At the same time, we reached Leadership Level in the international CDP climate change disclosure. Our accomplishments not only reduce the environmental burden of product life cycle, but also fulfill the goal of green design, production and operation. Through our efforts, we have demonstrated to the international community the efforts of Taiwanese companies in promoting environmental sustainability.

In terms of creating social value and participation, UMC has invited suppliers to jointly create a green supply chain through the Triple R League initiative to reduce, reuse and recycle. From waste reduction to circular economy, we have jointly expanded the influence of the overall industry, and enhanced the value of sustainable development. In addition, we have also fulfilled the global partner spirit of the UN Sustainable Development Goals by recruiting like-minded companies to join us in the Eco Echo Award and Energy Saving Service Team.

The Eco Echo Award established by UMC has expanded and strengthened over the past three years. Award prizes have increased yearly, and have supported 14 exceptional ecological conservation programs. It has become a very important force in Taiwan's environmental protection.

In 2018, more than 20,000 people participated in the Eco Echo Award activities to jointly protect local ecologies. In addition, our environmental charity, the Energy Saving Service Team, has teams both in UMC's Hsinchu Headquarters and also in Tainan to connect more professional technicians as volunteer partners. By providing services to the disadvantaged, social welfare organizations and schools, the teams contribute directly to society with their core professional abilities.

I wish to thank our customers, suppliers, shareholders and the community for supporting UMC. We have always promoted corporate sustainability and social responsibility, and will continue to do so. In the future, UMC will further strengthen its advantages and cooperate with our global operating partners and stakeholders. We will work together to exert influence, advance forward on the road towards sustainable operations, and contribute our utmost to the positive development of the overall environment, society and economy.



Co-President and CS Committee Chairman

Sun-Chieh Chen



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ABOUT THIS REPORT

This report is the 14th Corporate Social Responsibility Report issued by UMC and the 19th consecutive public non-financial annual report. UMC consistently upholds the principles of sincerity, pragmatism, transparency and joint sustainable development, and discloses its corporate sustainability philosophy and approaches to the general public. This report makes public the implementation of the 2018 UMC corporate sustainable development and social responsibility.

SCOPE

Information disclosed in this CSR Report includes various performance metrics and data of environmental protection, corporate governance, and community participation work carried out by UMC from January 1 to December 31, 2018. For the disclosure of major activities, the period was further extended to March 31, 2019. In addition to information about UMC Headquarters and wafer fabs in Taiwan and Singapore, this CSR Report also included information from HeJian Technology (Suzhou) Co., Ltd. (HJTC) and United Semiconductor(Xiamen) Co., Ltd. (USC), which are UMC subsidiaries relevant to the key material topics. For other information of affiliated joint ventures and subsidiaries, please refer to Page 143 in this Report.

REPORTING GUIDELINES AND PRINCIPLES

The content framework in this report is based mainly on major UMC corporate sustainability issues in 2018 and stakeholder concerns, to report on impacts related to specific economic, social, and environmental topics. In addition, this report is compiled according to the GRI standards of the Global Reporting Initiative (GRI) for global sustainability reports, and complies with the AA1000 standards and principles for identifying, implementing and disclosing information pertaining to the implementation of corporate social responsibility. Data from the annual financial report prepared by certified accountants (Ernst & Young Accounting) are used in this report, and data on greenhouse gas emission and reduction are based on ISO 14064-1 standards and verified by DNV GL Business Assurance Co. Ltd. Taiwan. For further details, please refer to Chapter 3.

INTERNAL MANAGEMENT PROCESS AND ISSUING OF THIS REPORT

After being approved by the top management of each department, this report is sent to the Corporate Sustainability Committee for inspection and review. The report is issued after being approved by the chairman of the committee.

DRAFT

Approved by the top management of related departments



COMPILATION

Overall inspection and review by the Corporate Sustainability Committee Office



FINALIZATION

Reviewed and approved by the chairman of the Corporate Sustainability Committee



2018 Corporate Social Responsibility Report: Issued in June 2019.

2019 Corporate Social Responsibility Report: Scheduled to be issued in June 2020.

In support of environmental protection, a paperless, electronic version of this report is posted on the company website.

REPORT ASSURANCE

This report was verified by SGS Taiwan Ltd. in March 2019 according to

GRI Sustainability Reporting Standards Comprehensive option and the Accountability 1000 Assurance Standard TYPE II. The SGS verification report is attached in the appendix of this report.

YOUR FEEDBACK

For any questions or comment about the report content or activity, please contact us at:

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UMC'S IMPORTANT ACHIEVEMENTS AND SUSTAINABLE PERFORMANCE IN 2018

POSITIVE ACCLAIM FOR OUR CORPORATE SUSTAINABILITY

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MEMBER OF
**Dow Jones
Sustainability Indices**

In Collaboration with RobecoSAM

DOW JONES SUSTAINABILITY INDICES

Selected as a DJSI global component for the 11th consecutive year.



FTSE4GOOD EMERGING INDEXES & FTSE4GOOD TIP TAIWAN ESG INDEX

Selected into the FTSE4Good Emerging Indexes & FTSE4Good TIP Taiwan ESG Index.

Corporate Responsibility
rated by
ISS-oekom

ISS-OEKOM CORPORATE RATING

Rated "Prime" by ISS-oekom Corporate Rating



INTERNATIONAL CDP ORGANIZATION

Climate Change Score Level: Achieved Leadership Level Score of A- for the 3rd consecutive year.



TAIWAN CORPORATE SUSTAINABILITY AWARDS

Awarded the Corporate Sustainability Report Awards for 11 consecutive years



CSR AWARD FROM GLOBAL VIEWS MONTHLY

UMC received the '2018 Global Views Magazine CSR Award' - Electronic Technology Group Model award.



CORPORATE GOVERNANCE ACCREDITATION FOR LISTED COMPANIES

Top 5% for 4 consecutive years, Corporate Governance Assessment Award of the TWSE



ENTERPRISES ENVIRONMENTAL PROTECTION AWARD

For 16 consecutive years, UMC's Taiwan fabs were awarded with the Enterprises Environmental Protection Award by the Environmental Protection Administration.



WATERMARK AWARD

UMC Fab 12i Wins Singapore's Watermark Award

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ENVIRONMENTAL PERFORMANCE



ENERGY AND GREENHOUSE GAS MANAGEMENT

57,127 MWh Power reduction

The newly added reduction for 2018 was 57,127MWh, which is equivalent to a decrease of 31,648 tons in CO₂ emissions and a savings of about NT\$ 131 million.

2,882 MWh Natural gas reduction

The newly added reduction for 2018 was 2,882 MWh, reaching the targeted goal, which is equivalent to a decrease of 567 tons in CO₂ emissions and a savings of about NT\$ 3,280,000.

2.8 Million KWh renewable energy generation

UMC has completed the installation of a 4,335 KWp solar energy system, which is expected to generate up to 2.8 million KWh of electricity each year. The installation capacity is the highest among Taiwan's wafer fab industry.

51% Reduction in Units of Fluorinated Greenhouse Gas Emissions.

Achieved the objective for reducing emissions by 51%. Reductions in fluorinated greenhouse gas emissions were equivalent to 1,285,000 tons of CO₂e. Gas replacement measures also achieved savings in raw material procurements of over NT\$ 20 million.



WASTE MANAGEMENT

1,790 TONS of waste reduction

The newly added reduction for 2018 was 1,790 tons, reaching the targeted goal, which is equivalent to a savings of about NT\$ 6.9 million in annual treatment costs.

4,265 TONS of waste sulfuric acid conversion of in-plant resources

Reduced UMC's purchases of sulfuric acid by approximately 4,265 metric tons. The total economic benefit was NT\$18.60 million.

90% Waste Recycling

The amount of reused waste was 35,053 metric tons, which is a gain of more than NT\$35 million from recycled resources.

WATER RESOURCE MANAGEMENT



28% OR MORE ammonia and nitrogen concentration reduction for wastewater

Owing to ammonia source reduction, ammonia and nitrogen concentration in wastewater was reduced by 28%~63%, which saved annual raw material cost of NT\$ 48 million and annual wastewater treatment cost of approximately NT\$ 180 million.

3,281 MILLION TONS of Recovered Water

Recovered water is equivalent to saving 1.04 of the stored water in No.2 Baoshan Reservoir.

3.15 MILLION TONS of recycled water usage

In Singapore, UMC's use of recycled water (Newater) reached 3.15 million tons, accounting for 94% of Fab12i's total water use of 3.35 million tons, thus reducing the impact on local water resources.

228,000 TONS of reduction in water usage

The newly added reduction for 2018 was 228,000 tons, reaching the targeted goal, which is equivalent to a savings of about NT\$5,700,000.



ENVIRONMENTAL MANAGEMENT

3 MILLION total prize money for UMC Eco Echo Award

UMC invested NT\$ 3 million in rewarding excellent and innovative eco preservation proposals.

Various projects were successfully completed, totaling more than 20,000 participants in the Eco Echo Award activities.

0 Environmental Incidents or Fines

In 2018 there were no environmental incidents or fines.

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ECONOMIC PERFORMANCE



ECONOMIC PERFORMANCE

NT\$151.25 BILLION

Annual consolidated revenue reached a record high

4% Annual increase in product manufacturing volume

Annual product manufacturing volume of approximately 7,108,000 in term of 8" wafer, with an annual increase rate of 4%.

93.1% PRODUCTION CAPACITY utilization

15.1% Gross margin



INNOVATIVE RESEARCH AND DEVELOPMENT OF ADVANCED TECHNOLOGIES

12,991 patents

In 2018, UMC was awarded 423 domestic and foreign patents, totaling 12,991 patents to date.

35% advanced process capacity

Proportion of advanced process capacity for 40nm or below has reached 35%.

20% reduction in power consumption

UMC has developed 22nm process technology and its 28nm high performance compact low power process technology platform (HPC^{U+}). With the same number of mask layers and compatible design criteria as 28nm, the performance of 22nm process technology has been enhanced by 10%, power consumption has been reduced by 20%, and area has been reduced by 10%.

19.5 BILLION of investment in advance technology R&D and manufacturing equipment

Approximately NT\$ 19.5 Billion was invested in advance technology R&D and manufacturing equipment.



OPERATIONS MANAGEMENT AND SUPPLY CHAIN MANAGEMENT



3,000 suppliers

More than 3000 suppliers joined UMC in committing to sustainable development.



37 suppliers participate in UMC's Triple R Major League Initiative

37 suppliers participated in this cooperation platform, a total reduction of about 175,000 tons of CO₂e.



86.8% Customer satisfaction

Customer satisfaction maintaining a steady level.



0 High-risk Suppliers

UMC has established the ISO 22301 business continuity management system, and completed business continuity risk assessment for vendors who supply 95% of the company's procurement.



0 CONFLICT MINERALS

UMC's 13 suppliers, 9 contractors and 16 UMC subsidiaries all use non-conflict minerals.

ABOUT UMC

COMPANY PROFILE

United Microelectronics (UMC) is a world leading semiconductor foundry. The company leverages its manufacturing excellence and extensive technology portfolios to produce IC wafers for every major electronics sector. UMC offers comprehensive solutions that give IC design companies a competitive edge through advanced processes and a wide range of specialty technologies, helping customers differentiate their products in the competitive IC market.

COMPANY NAME

United Microelectronics Corp.

DATE FOUNDED

May, 1980

COMPANY HEADQUARTER

No. 3, Li Hsin 2nd Road, Hsinchu Science Park

NUMBER OF EMPLOYEES

More than 20,000 employees, including those in worldwide affiliated companies

MAIN OPERATION

Professional integrated foundry services

TOTAL CAPITAL AMOUNT

Authorized capital amounted to NT\$260 billion
Paid-in Capital amounted to NT\$124.24 billion

PRODUCT SERVICES

Wafer foundry services, silicon intellectual property according to customer needs, embedded integrated circuit design, design verification, photomask production, wafer manufacturing, testing and other services

NUMBER OF PRODUCTS OR SERVICES PROVIDED

In 2018, UMC served 376 companies and provided up to 6,369 different kinds of customer products

AFFILIATED BUSINESSES

Affiliated business operations including wafer manufacturing, electronics, optoelectronics, investment, insurance and trading

FIRM TAIWAN ROOTS, GLOBAL PRESENCE

UMC plays an important role in Taiwan's semiconductor industry. In addition to being Taiwan's first wafer fabrication company, it was also Taiwan's first listed semiconductor corporation. To meet the needs of customers worldwide, UMC has established service locations in Taiwan, Japan, China, Singapore, South Korea, Europe and the United States. UMC will continue to strive to provide its customers with world leading process technologies and a full range of professional foundry solutions so that they may continue to build a competitive advantage in today's rapidly changing industry.

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FOUNDRY MANUFACTURING



- 200mm IC fab
Fab8A,Fab8C & Fab8D,Fab8E,Fab8F,Fab8S

- 300mm IC fab
Fab12A

- 300mm IC fab
Fab12i

- 200mm IC fab
Subsidiary: HJTC

- 300mm IC fab
Subsidiary: USC

UMC is a 300mm manufacturing leader with several advanced 300mm fabs in operation. Fab 12A in Tainan, Taiwan has been in volume production for customer products since 2002 and is currently manufacturing 14nm and 28nm products. The multi-phase complex is actually three separate fabs, consisting of Phases 1&2, 3&4, and 5&6. Fab 12A's total production capacity is currently over 75,000 wafers month. UMC's second 300mm fab, Fab 12i, is UMC's special technology center. With its specialty 12-inch manufacturing processes, it produces ICs that are essential for a wide variety of application products demanded by customers.

United Semiconductor Co., Ltd.(USC) is the first 12-inch IC manufacturing fab in Southern China, which began its commercial operation in late 2016. USC offers an excellent diversity of manufacturing services for local and global IC design companies in the region. It also helps fulfill the tremendous IC manufacturing demand for electronic products in China.

MANAGEMENT TEAM

Chairman
Stan Hung



President
SC Chien



President
Jason Wang



PARTICIPATION IN OUTSIDE ASSOCIATIONS

Besides promoting corporate sustainability related activities within the organization, UMC also actively participates in events that are initiated by outside organizations such as industrial unions and associations. It is hoped that by offering practical experiences and suggestions to the industry, UMC could help government and related authorities to come up with appropriate policies and regulations.

Key UMC Association Involvement

Institution	Member fees paid in 2018 (NTD)	
Association of Industries in Science Parks (ASIP)	1,026,000	
Taiwan Semiconductor Industry Association (TSIA)	900,000	
Semiconductor Equipment and Materials International (SEMI)	677,776	
Responsible Minerals Initiative	453,263	
Taiwan IC Industry & Academia Research Alliance (TIARA)	100,000	
Business Council for Sustainable Development of Taiwan (BCSD-Taiwan)	60,000	
Taiwan Electrical and Electronic Manufacturers' Association (TEEMA)	42,000	
Chinese Professional Management Association (CPMA)	20,000	

Member

Participation in Project or Committee

The cost of UMC participating in important associations in the past

2015
NT\$ 2,048,000

2016
NT\$ 2,729,000

2017
NT\$ 2,148,000

2018
NT\$ 3,279,039

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1 CORPORATE SUSTAINABLE DEVELOPMENT

1-1 Sustainable Development Strategy and Organization

1-2 Communication with Stakeholders

42 SUSTAINABILITY TOPICS COLLECT SUSTAINABILITY TOPICS

Adopt the GRI sustainability reporting standards, ISO 26000 social responsibility standard guidelines, UN Global Compact and domestic and international sustainability assessments as basis for topics.



492 COPIES OF QUESTIONNAIRES

Conduct questionnaire surveys to determine the degree of stakeholder concern over the various types of sustainability topics so that stakeholders can express their needs.



34 UMC REPORT TASK GROUP MEMBERS

The Sustainability Report Group analyzes the impact of topics on company operations sustainability, and screens for materiality topics.

14 MATERIAL TOPICS

Multiply the score for degree of stakeholder concern over each topic and the score for its significant economic, environmental, and social impacts. Rank topics for disclosure.

18 CATEGORIES OF SUSTAINABILITY TOPICS COMPILE SUSTAINABILITY TOPICS

Members of the Corporate Sustainability Committee Report Group compile and analyze topics.



37 KPIs

Set medium- and long-term management goals for each major material topic and conduct effectiveness reviews annually.

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1-1

SUSTAINABLE DEVELOPMENT STRATEGY AND ORGANIZATION

1-1-1

COMMITMENT TO SUSTAINABILITY

UMC is committed to the philosophy of "employee care, environmental focus and public service," and furthering sustainable development, corporate social responsibility and guiding society towards a positive cycle. UMC's sustainable development is built on the vision of "creating a friendly global ecology where the new value is people orientation, co-existence with the environment and shared social prosperity." "Customers, shareholders, employees, the environment and society" are the primary focus of the joint pursuit of sustainable growth.



VISION

Creating a friendly global ecology where the new value is people orientation, co-existence with the environment and shared social prosperity.



MISSION

Company growth is built on green innovation and corporate social responsibility, and helping customers meet the challenges of sustainable development.

Corporate Social Responsibility Principles

UMC's Corporate Social Responsibility Principles are used as a reference and guiding rule for fulfilling the company's corporate social responsibility (CSR), improving the economy, environment, and society, and achieving the goals of sustainable development.

The Corporate Sustainability Committee of UMC shall constantly review the development of relevant CSR guidelines and codes in Taiwan and other countries as well as changes to the business environment in order to review and improve upon the CSR system established in UMC and improve the performance of CSR activities.

Equal Emphasis on Core Competitiveness and Social Responsibility

Based on the four competitive advantages of "Independent R&D capability," "Excellent manufacturing capability," "Capable employees" and "Sound financial structure," as well as the five business cultures of "customer orientation," "integrity," "innovation," "accountability" and "efficiency" that have been deeply rooted in the company's operations, UMC is able to maintain its position as an industry leader. Combining its competitive advantages, UMC also defines its corporate social responsibility and the three major directions based on its business culture:



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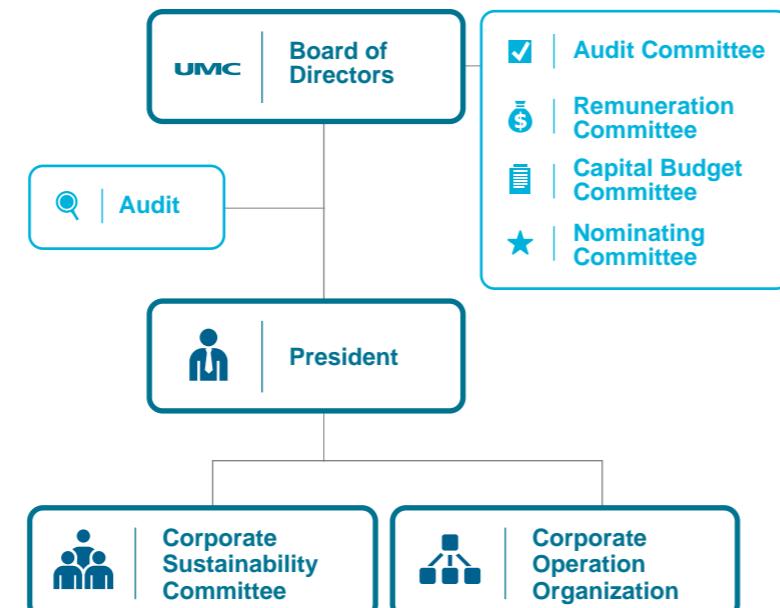


1-1-2 CORPORATE SUSTAINABILITY COMMITTEE ORGANIZATION AND OPERATION

In its longstanding spirit of focus, cultivation and sustainability, UMC fulfills its corporate governance and corporate social responsibility.

UMC's sustainable organizational structure includes the Board of Directors, the Corporate Operation Organization and the Corporate Sustainability Committee. From the co-president down through all general managers, UMC thoroughly implements corporate sustainability policies from the top down, and an audit organization oversees the execution. The Board of Directors has set up the Remuneration Committee, Audit Committee and Capital Budget Committee, and also the Nomination Committee for evaluating the external performance of the Board of Directors. These committees aim to enhance operational supervision and transparency and ensure the interests of all shareholders. Corporate Operations Organization and Corporate Sustainability Committee also set up sub-committees to meet their respective needs and to jointly execute and practice sustainable commitments.

Corporate Operations Organization vs. Corporate Sustainability Committee



The President is a member of the Board of Directors, and simultaneously serves as the Chair of the Corporate Sustainability Committee.

Corporate Sustainability Committee

The Corporate Sustainability Committee of UMC was established in 2008 and serves as the highest ranking CSR organization in the company. The Committee is responsible for stipulating the direction and goals of CSR and sustainable development. Every 6 months, the Director and member of the Committee shall review the performance and target achievements of sub- committees. The Committee shall also provide annual reports to the Board of Directors on the performance and plans of CSR activities. The Sustainability Office of the Corporate Sustainability Committee will report the yearly CSR promotion results and plans to the committee board. The scope of the report will include the management and review of material issues in the area of economics, environment and society.

In 2018, the Corporate Sustainability Committee reported to and discussed with the Board of Directors important issues and countermeasures pertaining to legal compliance and climate change problems that stakeholders are concerned about.



High level executives such as the Chief Financial Officer and Chief Human Resource Officer form the core members of the committees. Vice Presidents, Assistant Vice Presidents and Senior Division Directors of the functional divisions within the Operations Organization serve as the administrators of the various committees.



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The Corporate Sustainability Committee has seven functional committees: Corporate Governance Committee, Customer Relationship Management Committee, Supplier Management Committee, Innovation Technology Committee, Human Rights and Social Participation Committee, Environmental Committee and Green Manufacturing Committee.

Descriptions of Committee Functions

Corporate Governance Committee

Help strengthen the function of the Board and shareholder equity, integrate related regulations and policies of relevant departments, and help complete and implement the company's internal control system to ensure information transparency and disclosure, and compliance with regulations.



Supplier Management Committee

To establish a protective environment and emphasize the obligation to society, labor rights, security and health while pursuing the goal of a continuously evolving supply chain, this sub-committee develops long-term partnerships with vendors for quality, cost leadership, delivery, service/response, and sustainability.



Human Rights and Social Participation Committee

Responsible for protecting the basic rights of employees and promoting communication with outside communities and society. Integrate the UMC Cultural and Educational Foundation, and with focus on education, arts, sports, public service and environmental protection, strive to promote technological research and development cooperation, long-term educational assistance, arts and sports activities and other social welfare events.



Customer Relationship Management Committee

Refine customer service and quality control, improve service quality and customer satisfaction, and protect customer interests and relevant trade secrets.



Innovation Technology Committee

Promote green product research and development and innovations, and lead in cutting-edge green technology.



Environmental Committee

Promote company-wide environmental, safety and health, energy, water and greenhouse gas emission management. Establish sustainable supply chains and long-term partnerships with suppliers to enhance sustainable competitiveness.



Green Manufacturing Committee

Promote company-wide green processes, such as hazardous materials management and increases in resource productivity.



To maintain and effectively implement UMC's corporate sustainability promises, UMC's corporate sustainability committee will adjust the organizational structure in accordance with actual operating results.

Operation Management Model



Depending on the communication results with stakeholders and other critical considerations, each functional committee will submit an annual promotion plan to the corporate sustainability committee every year for review and approval.



Functional committees follow up and assess the progress of their respective annual plan during quarterly meetings.



The Corporate Sustainability Committee follows up and reviews implementation performance every six months.

Corporate Sustainability Committee Management Mechanisms

Once every 6 months

Corporate Sustainability Committee

Participant

- Committee chair
- Committee members
- Chief administrator
- Functional committee administrators

Management Content

- Committee reviews
- Operational progress of various functional committees
- Review and approve goals and plans, review executive performance

Quarterly

Functional Committees

Participant

- Chief administrator
- Functional committee administrators
- Members

Management Content

- Develop key performance indicators (KPI) to quantify the execution of management performance
- Implementation programs
- Follow up implementation progress

Monthly

Key Corporate Sustainability Projects

Participant

- Functional committee administrators
- Members

Management Content

- Follow up and review based on company project management system
- Follow up progress, and present results to the Corporate Sustainability Committee for review



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In 2018, the corporate sustainability committee proposed a total of **46 KPI** items. All **46 items** were implemented and completed by each and every department within UMC, achieving a completion rate of **100%**.

For 2019, **45 KPI** items in 5 categories were proposed by the corporate sustainability committee based on UMC's operational goals and 11 of United Nation's Sustainability Development Goals (UN SDGs).

UMC's Operational Goals

- Focus on differentiating advanced manufacturing and development of specialty technologies to help customers succeed.
- Continue to strengthen manufacturing capabilities, shorten lead-time, and improve overall quality and productivity.
- Expand marketing and customer management to maintain the company's leadership in foundry.
- Cultivate employee potential and responsibility, integrate the organization's operational efficiency, and increase competitiveness in sustainable management.

Direction

- International trend/assessment integration
- Ensure completion of Green2020 Plan
- Strengthen the connection with subsidiary/supply chain/customers in terms of CS issues
- Strengthen employee's CS cognition
- Cultivate volunteer work culture

The main projects



GLOBAL PARTNERSHIP

- UMC 3R League: reduce, reuse, recycle; circular economy collaboration program
- UMC Eco Echo award



CLIMATE ACTION

- Greenhouse gas reduction and energy saving
- Green factories and buildings



RESPONSIBLE CONSUMPTION AND PRODUCTION

- Clean production promotion
- Green product
- Waste management



SUSTAINABLE CITIES AND COMMUNITIES

- Community service participation
- Spreading the Seeds of Hope plan
- Energy saving service team



REDUCED INEQUALITIES

- Promotion of UMC volunteer culture
- Ensure labor rights



GOOD HEALTH AND WELL-BEING

Health and Safety Workplace



QUALITY EDUCATION

- Environmental Education and Green Concept Promotion
- Talent training
- Campus talent cultivation



GENDER EQUALITY

Ensure labor rights



CLEAN WATER AND SANITATION

- Water resources management
- Process water saving
- Water pollution prevention and improvement



AFFORDABLE AND CLEAN ENERGY

- Green energy
- Energy resource productivity improvement plan



INDUSTRY, INNOVATION AND INFRASTRUCTURE

Advanced technologies research and development



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1-2 COMMUNICATION WITH STAKEHOLDERS

To maintain effective stakeholder communication, UMC formulated a management system for the identification of and communication with various stakeholders. This report and the UMC official website were used as a means of disclosing important information.

Principles for Communication with Stakeholders

- Active and timely disclosure
- Providing adequate amounts of information
- Providing suitable and a diverse selection of communication channels

Objectives

- Evaluate and understand the reasonable expectations and requirements of the stakeholders and providing appropriate responses to key corporate social responsibility (CSR) topics that the said stakeholders are concerned with.
- Consider all related CSR topics and analyze the potential impact that each topic may exert upon the environment, society, economy, and business operations.
- Employ a system-based mechanism to continuously review and enhance corporate sustainability.

1-2-1 MECHANISMS FOR STAKEHOLDER COMMUNICATION

Identified major stakeholder topics and concerns

Frequency : Annually

Stakeholders communication plan and implementation

Frequency : According to plan

- Consultation and communication channels with stakeholders are established by respective sub-committees
- Designated personnel to receive, record and reply to messages from stakeholders and to come up with appropriate responding measures.

Assessment of stakeholder communication outcome

Frequency : Bi-annually

- Stakeholder communication outcome reported, and key topics reviewed and responded to the Corporate Sustainability Committee.

Report major stakeholder concerns topics

Frequency : Annually/Irregular

- Regularly report major communication topics to the Board of Directors.
- Report specific events to the Board of Directors through extraordinary(irregular) meetings.

Public disclosure

- Annual financial reports, corporate social responsibility report, etc.

Frequency : Annually

- Press Releases

• UMC official website
(The Stakeholder Area was established for stakeholder inquiry)

Frequency : As Required



1-2-2 PROCEDURE FOR DEFINING REPORT CONTENT

Identify Stakeholders

The UMC referenced the nature of its businesses as well as the 5 key principles of AA1000 SES (Stakeholder Engagement Standard) to identify a total of 7 types of stakeholders.

5 Key Principles of AA1000 SES

Dependency , Responsibility , Influence , Diverse perspective , Tension

Major Stakeholders of UMC



CUSTOMERS



EMPLOYEES



SUPPLIERS



COMMUNITY/
NON-PROFIT
ORGANIZATIONS



GOVERNMENT
AGENCIES



INVESTORS



MEDIA

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Sustainability Topics Identification, Communication and Review

Identifying sustainability topics considered to be relevant to UMC's operations.

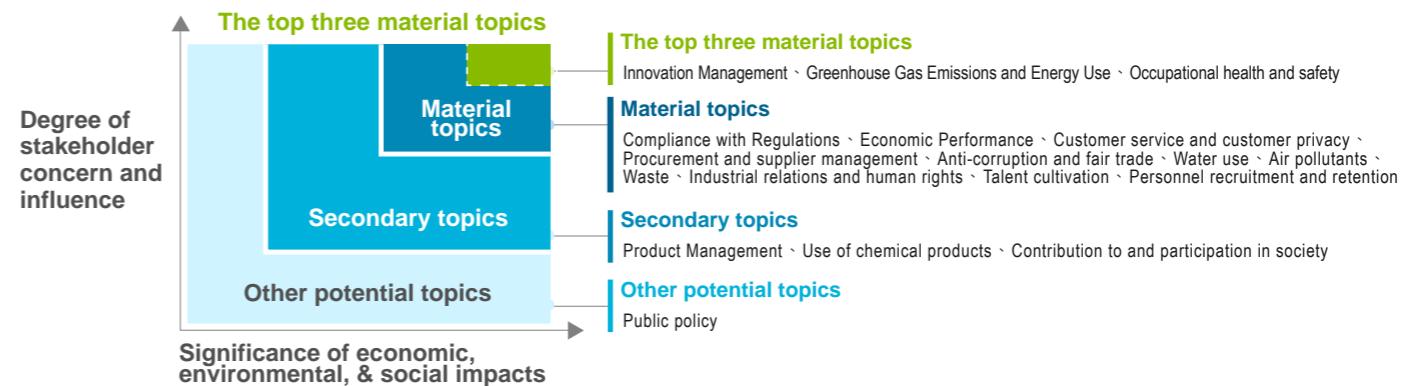


Major Topic Identification and Management Disclosure

The topics about corporate social responsibility are wide. Based on the company's materiality analysis results over the last three years, UMC adjusted the survey topics of sustainable development. In addition to sustainable development strategies, governance, risk management, and ethics and integrity already included in the company's long-term management, UMC will continue to strive forward. Moreover, in 2018, UMC adjusted 42 topics to focus on 18 economic, environmental and social dimensions that are more closely related to the operations of UMC. Surveys and external consultation were used for identification and analysis.

A total of 14 major material topics were identified. In addition to meeting GRI standards by disclosing management guidelines and current practices in this report, long-term management objectives for 2025 have also been developed for each major material topic, totaling 37 key performance indicators.

Ranking the materiality analysis result of sustainability topics



Note 1: Stakeholders scored differently in their degree of concern and influence for each topic (10 points = very concerned, 8 points=concerned, 6 points =somewhat concerned, 4 points=little concerned, 2 points=not concerned)

Note 2: UMC Sustainability Report Group member score for impact of each topic on economic, environmental, & social impacts (5 points=highly impacted, 4 points= impacted, 3 points=moderately impacted, 2 points=not very impacted, 1 point=not impacted)

Note 3: Impact factors includes six dimensions, namely revenue, cost, brand image, environmental impact, customer satisfaction and employee sense of coherence.

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Business Impact	Business Strategies Direction of Response and Management Approach	Long-Term Target /KPI(Summary)	GRI Topic Category	Performance in 2018 (Chapter in the 2018 CSR Report)
💡 Innovation Management Importance: Continuous innovation can strengthen UMC's core competitiveness and fulfill sustainable development.				
Continuous innovative breakthroughs can increase revenue.	<ul style="list-style-type: none"> Continue to invest in semiconductor process development to maintain a leading position in semiconductor process technology. Continue patent distribution to ensure that the Company's R&D achievements and intellectual properties are fully protected. Gradually increase proportion of sustainable products. 	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Complete development of 4 green technology platforms. Complete 3 green chemical developments. Obtain more than 200 patent applications worldwide each year. Achieve 56% in eco-products. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> Obtain more than 20,000 patent applications worldwide. Achieve more than 14,000 patents worldwide. Achieve 60% in eco-products.. 	<ul style="list-style-type: none"> UMC self-defining topic 	<ul style="list-style-type: none"> 2-2 Innovation Management 3-5 Green Product
🌐 Greenhouse Gas Emissions and Energy Use Importance: Good greenhouse gas emissions and energy management can improve operational performance and reduce environmental burden.				
Governments have successively set national long-term reduction targets for greenhouse gases. Power restrictions will directly affect production, and lack of appropriate countermeasures will increase operating costs.	<ul style="list-style-type: none"> Introduce low-carbon design into production processes for source replacement and reduction of process greenhouse gas. Use the best available technologies to reduce greenhouse gas emissions. Promote various types of reduction measures to optimize energy efficiency. Construct green buildings and increase use of renewable energy. 	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Reduce fluorinated greenhouse gas (F-GHG) emissions per unit of product by 36% compared to 2010. Reduce electricity consumption per unit of product by 10% compared to 2015. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> 30% absolute reduction of fluorinated greenhouse gas (F-GHG) emissions compared to 2010. Reduce total greenhouse gas emissions per unit of product by 5% compared to 2010. <ul style="list-style-type: none"> - Reduce Scope-1 GHG emissions per unit of product by 40% - Reduce fluorinated greenhouse gas (F-GHG) emissions per unit of product by 55% Reduce electricity consumption per unit of product by 15% compared to 2015. 	<ul style="list-style-type: none"> 302 Energy 305 Emissions 	<ul style="list-style-type: none"> 3-2 Carbon Asset Management
❤️ Occupational health and safety Importance: Maintaining employee safety and health and providing a good working environment for employees is UMC's basic responsibility.				
In addition to impacting employees, any safety and health risk may also lead to significant economic or social loss for the company and undermine its competitiveness	<ul style="list-style-type: none"> Adopt advanced security, risk and disaster relief technologies to eliminate hazard factors. Promote a culture of occupational safety for every worker, increase safety awareness and implement preventive management. 	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Reduce number of incidents by 67% compared to 2011. Perform better than the 3-year average Disabling Frequency Rate (FR) and Disabling Severity Rate (SR) for semiconductor manufacturing. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> Reduce number of incidents by 88% compared to 2011. Perform better than the 3-year average Disabling Frequency Rate (FR) and Disabling Severity Rate (SR) for semiconductor manufacturing and reduce by 25% compared to 2020 goal. 	<ul style="list-style-type: none"> 403 Occupational Health and Safety 	<ul style="list-style-type: none"> 4-3 Health and Safety Workplace

Note: Please refer to UMC's website for details on mid and long-term goals/management indicators for 2020 and 2025. http://www.umc.com/English/CSR/c_6_copy.asp

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Material Topics - Economic Dimension

Business Impact	Business Strategies Direction of Response and Management Approach	Long-Term Target /KPI(Summary)	GRI Topic Category	Performance in 2018 (Chapter in the 2018 CSR Report)
Compliance with Regulations	Importance: Compliance with regulations is UMC's basic principle for sustainable development.			
Violation of laws and regulations not only affects corporate image and goodwill, but also brings financial risk as a result of fines.	<ul style="list-style-type: none"> Through regular education and training, continue to strengthen supervisors' and employees' understanding and knowledge of professional ethics. 	<ul style="list-style-type: none"> Maintain 0 cases of environmental, social and economic regulation violations. 	<ul style="list-style-type: none"> 307 Environmental Compliance 419 Socioeconomic Compliance 	<ul style="list-style-type: none"> 2-1-6 Legal Compliance
Economic Performance	Importance: Customer validation can enhance the competitiveness of the company and its customers, and is the key foundation for UMC's long-term operation.			
Customer service and customer privacy	<ul style="list-style-type: none"> Provide customers with competitive and superior foundry solutions to enhance company competitiveness, customer competitiveness and customer satisfaction. Protect security of customer product information and intellectual property rights by increasing employee awareness of customer intellectual property rights, institutional soundness and systems soundness. 	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Maintain customer satisfaction at 85 points or more. 100% completion rate in employee education and training on customer intellectual property protection. Maintain zero customer product information security impact in network and information security incidents. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> Remain within top 3 in customer ranking. Internal and external audits to find no failing in customer product information protection Zero product recalls. 	<ul style="list-style-type: none"> 201 Economic Performance UMCself-defining topic 418 Customer Privacy 	<ul style="list-style-type: none"> 2-1-6 Legal Compliance 2-2-2 Business Performance 2-3 Customer Service
Procurement and supplier management	Importance: UMC has numerous upstream and downstream suppliers. Cooperation with global partners can improve sustainability performance in the overall value chain.			
A good supply chain can bring stable economic benefits by reducing the risk of operating disruption and impact of cost increase.	<ul style="list-style-type: none"> Establish a supply chain that protects the environment and values social responsibility, labor and human rights, safety, health and sustainable development. Build long-term partnerships with suppliers. 	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Supplier Sustainability Management I. Supply chain assessment/review/management mechanisms are in 100% compliance with the Responsible Business Alliance Code of Conduct (RBA). II. 100% of new suppliers sign supplier ethics and code of conduct. III. Maintain zero procurement of conflict minerals. IV. Conduct at least 3 sessions of global sustainability briefings for suppliers. Establish supply chain risk maps and a real-time reporting mechanism. In case of major disasters, supplier response time for starting stock preparation mechanism is expected to decrease by 75%. Establish the 3R (Reduce, Reuse, Recycle) DNA in local vendors. Lead suppliers to save energy and reduce carbon emissions, reducing supply chain carbon consumption by 390,000 tons. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> 80% of key second-tier suppliers to sign the Employee Ethics Agreement, and 30% to be included in the supply chain assessment/review/management mechanisms. NT\$664 million in total precious metal recycling. 	<ul style="list-style-type: none"> 204 Procurement Practices 308 Supplier Environmental Assessment/ 414 Supplier Social Assessment 	<ul style="list-style-type: none"> 2-5 Sustainable Supply Chain Management
Anti-corruption and fair trade	Importance: Integrity management is the operational foundation for building UMC's sustainable development.			
Establishing good business practices and ethics can ensure UMC's sustainable operation by avoiding operational risks caused by illegal or illegitimate benefit funneling.	<ul style="list-style-type: none"> Through regular education and training, continue to strengthen supervisors' and employees' understanding and knowledge of professional ethics. 	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> 100% completion rate for annual education and training in professional ethics. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> 100% completion rate for annual education and training in professional ethics. 	<ul style="list-style-type: none"> 205 Anti-corruption 	<ul style="list-style-type: none"> 2-1-5 Code of Ethics and Anti-Corruption

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Business Impact	Business Strategies Direction of Response and Management Approach	Long-Term Target /KPI(Summary)	GRI Topic Category	Performance in 2018 (Chapter in the 2018 CSR Report)
Water use The lack of water caused by climate change will increase operating costs, and water restrictions will directly affect production and revenue.	Importance: Water is basic to semiconductor production. Effective water resources management can enhance competitiveness. • Introduce water risk management system, develop and adopt diversified water sources. Promote water conservation and maximize water efficiency.	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Reduce water consumption per unit of product by 10% compared to 2015. Improve action efficiency and save UPW by 0.3%/year. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> Reduce water consumption per unit of product by 15% compared to 2015. Improve action efficiency and save UPW by 0.2%/year. 	• 303 Water	• 3-3 Water Risk Management
Air pollutants Lack of appropriate response will increase operating costs.	Importance: Good air pollutant emissions management can prevent regulation violations and also enhance corporate image. • Introduce and develop eco-friendly technologies to strengthen source reduction and prevent pollution.	• Continue to ensure volatile organic gas reduction rate is >92%.	• 305 Emissions	• 3-1-3 Air Pollution Control
Waste Proper waste management can reduce waste generation and related costs, create revenue value and reduce the environmental impact of operations.	Importance: Reducing environmental load at all stages of a product life cycle is an important goal in UMC's environmental protection promotion. • Improve process technology and source management measures to reduce raw material use and waste output. Cooperate with global operating partners to recycle and reuse waste resources.	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> Reduce waste per unit of product by 10% compared to 2015. Landfill rate of less than 1%. Greater than 98% recycling for liquid waste. 100% resource recycling for acid-based liquid waste. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> Landfill rate of less than 1%. Greater than 98% recycling for liquid waste. 100% resource recycling for acid-based liquid waste. 	• 306 Effluents and Waste	• 3-4 Waste Management

Note: Please refer to UMC's website for details on mid and long-term goals/management indicators for 2020 and 2025. http://www.umc.com/English/CSR/c_6_copy.asp

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Material Topics - Social Dimension

Business Impact	Business Strategies Direction of Response and Management Approach	Long-Term Target /KPI(Summary)	GRI Topic Category	Performance in 2018 (Chapter in the 2018 CSR Report)
 Industrial relations and human rights	Importance: Protecting the basic rights and interests of employees and providing a harmonious working atmosphere is UMC's responsibility.	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> • 70% coverage in employee engagement surveys. • Continue to ensure fair treatment of employees and compliance with laws and regulations. • Review compliance with relevant labor laws each quarter. • Each fab completes and scores more than 90 points on the Responsible Business Alliance Code of Conduct assessment survey. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> • 80% coverage in employee engagement surveys. • Continue to ensure fair treatment of employees and compliance with laws and regulations. • Review compliance with relevant labor laws each quarter. • Each fab completes and scores more than 90 points on the Responsible Business Alliance Code of Conduct assessment survey. 	<ul style="list-style-type: none"> • 401 Employment • 406 Non-discrimination • 407 Freedom of Association and Collective Bargaining • 408 Child Labor • 409 Forced or Compulsory Labor • 412 Human Rights Assessment 	<ul style="list-style-type: none"> • 4-1-2 Employer-employee Communication • 4-2 Recruitment and Cultivation • 4-1 Labor Rights • 4-1-1 Human Rights
 Talent cultivation	Importance: UMC regards its employees as the most important partners.	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> • 100% completion rate in improvement programs for low-performance employees. • 95% completion rate in annual training programs. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> • 100% completion rate in improvement programs for low-performance employees. • 100% completion rate in annual training programs. 	<ul style="list-style-type: none"> • 404 Training and Education 	<ul style="list-style-type: none"> • 4-2-3 Education and Training
 Personnel recruitment and retention	Importance: Attracting and retaining outstanding employees can improve UMC's performance.	<p>GOALS FOR 2020</p> <ul style="list-style-type: none"> • Provide comprehensive training program to attract and retain talent. Achieve retention rate of 91.3% for medium and high performing talents. • Scores of up to 70% in employee engagement surveys. • Improve quality and quantity of human resources supply, develop market competitiveness of talents, and achieve talent fit rate of 80%. <p>GOALS FOR 2025</p> <ul style="list-style-type: none"> • Provide comprehensive training program to attract and retain talent. Achieve retention rate of 91.5% for medium and high performing talents. • Scores of up to 75% in employee engagement surveys. • Improve quality and quantity of human resources supply, develop market competitiveness of talents, and achieve talent fit rate of 85%. 	<ul style="list-style-type: none"> • 202 Market Presence • 401 Employment • 405 Diversity and Equal Opportunity 	<ul style="list-style-type: none"> • 4-2-1 Human Resource • 4-2-2 Compensation and Benefits

Note: Please refer to UMC's website for details on mid and long-term goals/management indicators for 2020 and 2025. http://www.umc.com/English/CSR/c_6_copy.asp

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Secondary and Other Topics

A total of 3 secondary topics were identified in 2018, which will be highlighted in this report with reference to the GRI topic category. No special response has been made to any remaining general topics.



Product Management

- Business Strategies Direction of Response and management Approach
Promote hazardous material substitution programs, energy resource reduction programs, and product environmental impact assessment.
- GRI topic category
301Materials,302 Energy,416 Customer Health and Safety
- Performance in 2018(Chapter in the 2018 CSR Report)
2-1-6 Legal Compliance,3-5 Green Product



Use of chemical products

- Business Strategies Direction of Response and management Approach
Promote hazardous material substitution programs, energy resource reduction programs, and product environmental impact assessment.
- GRI topic category
UMCself-defining topic
- Performance in 2018(Chapter in the 2018 CSR Report)
2-1-6 Legal Compliance,3-5 Green Product



Contribution to and participation in society

- Business Strategies Direction of Response and management Approach
Serving the community with core professional skills.
- GRI topic category
413 Local Communities
- Performance in 2018(Chapter in the 2018 CSR Report)
3-1-4 Promoting the "Green" concept
4-4 Community Service

Special Topics and Expectations

In addition, based on the outcome of the open survey questionnaires and this year's communication results (excluding the above mentioned topic),stakeholders believe that plastic waste reduction and control, social enterprise support,eco-efficiency and circular economy, andair pollution (PM2.5) are important topics for UMC to further discuss and exert its corporate influence in the sustainable development of the overall society.



PLASTIC WASTE REDUCTION AND CONTROL TOPIC

• Current status

UMC's processes do not use or produce plastic and plastic waste. Only a small amount of plastic waste comes from packaging materials and employee meals. Currently, these are sorted and turned over to a certified removal/treatment and reuse agency for disposal.

• Responding measures

- Compile a special report on plastic hazards through the company's Safety Committee.
- Strengthen employee awareness on plastic hazards and incorporate into company-wide education. Gradually change employee habits, and set an example by reducing the generation of waste plastics.
- In 2018, UMC promoted disposable tableware reduction in the company's food service, conference rooms and convenience stores to reduce the amount of plastic products used.



SOCIAL ENTERPRISE SUPPORT TOPIC

• Current status

UMC is not a social enterprise, but like social enterprises, it is a company that continuously reciprocates society with its achievements. Over the years, UMC has responded to domestic and international trends to actively promote green procurement. However, it does not have a focus in its support of and cooperation with social enterprises.

• Responding measures

- Taiwan's model social enterprise company, Dialogue in the Dark, was invited to give a special speech to enhance employee understanding of social enterprises.
- In 2018, UMC cooperated with several social enterprises in Taiwan to organize Green Festival and Green Market activities at UMC where employees can purchase social enterprise products.



ECO-EFFICIENCY AND CIRCULAR ECONOMY TOPIC

• Current status

"Zero Waste" is UMC's ultimate goal in waste management. In addition, waste total volume reduction and waste reutilization are the strategies taken by UMC. By implementing source management measures such as process improvement and raw material reduction, the amount of waste generated can be reduced, achieving the goal of waste volume reduction.

• Responding measures

- A special project was established to promote a circular economy within the organization. The goal is to convert waste that costs money for treatment into products that can be sold for money.
- The UMC 3R League will be promoted to expand the collaboration with suppliers in terms of a circular economy.



AIR POLLUTION (PM2.5) TOPIC

• Current status

UMC currently uses only natural gas and low-sulfur diesel as fuel. High performance preventive treatment facilities were also deployed to treat waste gases that include acidic exhaust, basic exhaust, and volatile organic compounds (VOC) exhaust in order to reduce the amount of pollutants entering the atmosphere and ensure that the levels of pollutants in emitted gases are compliant to (or lower than) the limits imposed by the environment protection laws.

• Responding measures

- The company-wide Safety Committee was charged with providing PM2.5 topic reports. Employees in various departments were also given reminders and instructions on how to protect their personal health.
- Employee's cognition on PM2.5 will be strengthened. Knowledge about PM2.5 will be incorporated into factory's environmental education program.
- Voluntary measurement on PM2.5 was taken in the demonstration factory. The result showed low PM2.5 concentration, implying no significant risk.
- Further researched and evaluated the PM2.5 management strengthening measures for production and process exhaust treatment equipment.



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Other Opinions and Expectations of Communications with Various Stakeholders



ECONOMIC DIMENSION

Expectations of communication

- Special attention should be paid to energy consumption. Power and water resources countermeasures should be in place to avoid conflicts with public interest.
- Make timely proposals to the government regarding the rational distribution of power and water resources; improve utilization efficiency and increase resource recycling and reuse.
- Process services should be oriented towards differentiation and diversification to increase competitiveness, such as innovative applications of biomedical wafers.
- Suggestions and expectations for investing more into advancing key talents and maintaining competitiveness.

Feedback

- Participate in organizations such as the Business Council for Sustainable Development of Taiwan, The Allied Association for Science Park Industries, and the Taiwan Semiconductor Industry Association and lead and promote activities relevant to environment, safety, health, and corporate sustainability. Serve as a representative in providing advice to advocate sound formulation and development of CSR policies by government and academic institutions.
- Strengthen governance of subsidiaries as well as CSR evaluation of the supply chain; organize sharing and exchange of relevant experiences.
- Promote cooperation between 3R League and suppliers, propose circular economy initiatives, and expand the influence of the value chain
- Formulate mid and long-term management goals for 2025 to reduce environmental impact and improve the company's competitiveness.

ENVIRONMENTAL DIMENSION

Expectations of communication

- Continue to expand involvement in the promotion of environmental conservation and resources.
- Allow more cross-industry participation and observation in the Eco Echo Award initiative to achieve more brilliant results.
- Continue to implement green procurement and green education, and fulfill the company's corporate social responsibility by contributing to the earth's preservation.
- Increase concern over relevant topics regarding ecological conservation charity activities
- Assess publicly disclosed environmental impact from the lifecycle perspective

Feedback

- Conduct Eco Echo Award Partnership briefings, expand the scope of UMC's Eco Echo Award and increase the grant for excellent ecology conservation ideas to facilitate the promotion of green concepts. In 2018, total cash prize was increased to NT\$3 million.
- Organize the Green Festival. Promote environmental protection mentality within the company, and set the annual growth target for green procurement. In 2018, UMC was awarded with the Green Procurement Award by the Environmental Protection Administration
- Introduce true value assessment methods, conduct evaluation on the indicators of environmental impact and draft management countermeasures.



SOCIAL DIMENSION

Expectations of communication

- Continue to prioritize and increase employee benefits.
- Education takes time, and UMC expects to keep focusing on and supporting future society and education.
- Through ongoing education, provide a new wave of cultivation activities to inspire disadvantaged families to learn environmental protection technology.

Feedback

- In 2018, the Taiwan Labor Standards Act was revised and the number of national holidays was reduced from 19 days to 12 days. However, UMC continues to offer an additional 7 days of flexible special holidays.
- Actively surveys the remuneration adjustments of well-known domestic and foreign enterprises to ensure that the overall remuneration offered by the Company is competitive.
- Through the UMC Technology and Education Foundation, continue to establish and cultivate education in rural areas, and support and help youths in special circumstances.
- Collaborate with external parties through the UMC Fire Brigade and the Energy Saving Service Team and participate in social public welfare through core work competencies.



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1-2-3 KEY POINTS AND OUTCOMES OF STAKEHOLDER COMMUNICATION

Stakeholder communication method, key concerns and major outcome for 2018 are compiled as follows:



EMPLOYEE

Communication Method

- President –employee forums, Secretary forums, Welfare committee meeting, Factory & Division meeting, Employer-employee meeting, Communication platforms
- eUMC information website for employees, BBS message boards, sexual harassment complaint channel, mailbox for reporting fraud or professional ethics violation, e-suggestion and feedback platform, platform, confidential complaint system, 12885ER help hotline
- My UMC website, UMC CSR Newsletter
- Employee satisfaction survey on benefits measures, service satisfaction survey, HR satisfaction surveys, employee recognition survey

Key Concern

- | | | |
|---|----------------------------------|----------------------------------|
| • Personnel recruitment and retention | • Occupational Health and Safety | • Innovation management |
| • Industrial relations and human rights | • Talent cultivation | • Anti-corruption and fair trade |
| • Customer service and customer privacy | | • Product Management |

Key Stakeholder Communication Outcome in 2018

- Continue to promote a comprehensive personnel health management program, which will be focusing on the three aspects of safe working environment, employee health protection and work-life balance.
- Introduced employee work engagement surveys in 2018 to better understand the real needs of employees and their willingness to remain in their employment.
- Continue to implement industrial salary surveys and provide competitive performance-based and differentiated remuneration and welfare systems (that include rewards, bonuses, and shares).
- Continue to enhance the UMC Ice-cream APP welfare information platform to improve accessibility to employee benefits and discounts
- Strengthen communication of business strategies and directives and to continue the provision of up-to-date information of corporate performance. A total of 152 communication meetings were held in 2018.
- The e-suggestion opinion feedback platform received 481 opinions from various employees in 2018; all cases (100%) have been closed.
- Strengthen the RBA Committee; continue to promote and respect international code and standards of laborers as well as human rights.
- Conducted sharing activities on sustainability themes to strengthen employee perspectives.



CUSTOMER

Communication Method

- Online Service Platform
- Regular communication and discussion meetings
- Questionnaire response
- On-site audit and discussion
- Voice of Customer (VOC) instant customer online complaint system
- Customer satisfaction monitoring

Key Concern

- | | |
|---|----------------------------------|
| • Customer service and Customer privacy | • Innovation management |
| • Compliance with regulations | • Anti-corruption and fair trade |
| • Product Management | |

Key Stakeholder Communication Outcome in 2018

- UMC established the "Enterprise Risk Management Committee" to collaborate with key organizations in the company's risk management and control to jointly examine and manage internal and external risks and prioritize risk response strategies for major risk issues across the company. UMC also established the "Corporate Security Division" responsible for the company's information security and physical security planning and related audit matters to further strengthen information security and protect customer assets.
- Continuous customer services - provide a total of 76 BCM / BCP pieces of risk management data.
- Continued to invest in various semiconductor process R&D. Won numerous domestic and international patents in 2018. Currently, UMC has a total of 12,991 patents.



INVESTOR

Communication Method

- General Shareholders:
- Annual general shareholder meeting
 - Quarterly investor conferences
 - Financial reports

Corporate shareholders:

- Quarterly domestic and overseas investor conferences
- Domestic and overseas seminars for investing institutions

Key Concern

- | | |
|---|----------------------|
| • Customer service and Customer privacy | • Product Management |
| • Air pollutants and Greenhouse Gas Emissions | • Water use |
| • Compliance with regulations | |

Key Stakeholder Communication Outcome in 2018

- Continue to hold stockholder's meetings and seminars
- Upload multimedia information of the financial and business report in the stockholders' section of the UMC official website <http://www.umc.com/English/investors/e.asp>
- Participated in 7 seminars held by domestic and international investment institutions
- Worked with the Financial Supervisory Commission (FSC) to complete corporate governance accreditation

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SUPPLIER

Communication Method

- Review reports or meetings
- health and safety, and corporate social responsibility related management briefings.
- Questionnaires and audit visits
- Jointly implement ESH and corporate social responsibility program with suppliers

Key Concern

- Compliance with regulations
- Customer service and customer privacy
- Anti-corruption and fair trade
- Industrial relations and human rights
- Occupational Health and Safety

Key Stakeholder Communication Outcome in 2018

- Promote BCM management amongst suppliers; completed risk assessments for suppliers that constitute 95% of UMC purchases
- Implemented anti-corruption measures and promoted the signing of Agreement on Supplier Code of Ethics and Conduct
- Completed conflict mineral surveys for 2018
- Advocated the UMC 3R League. To promote recycling economy and waste reduction, 2 sharing sessions were organized in 2018 where suppliers were invited to share their experiences and 19 outstanding vendors were recognized.



COMMUNITY/NON-PROFIT ORGANIZATION

Communication Method

- Assigned a department for community communication
- Invite community residents to participate in the company's Family Day activities
- Participate in community activities or seminars
- Participate in the operations of outside associations

Key Concern

- Product Management
- Air pollutants and greenhouse gas emissions
- Water use
- Waste
- Contribution to and participation in society

Key Stakeholder Communication Outcome in 2018

- Organized the 2018 UMC family day activity
- Volunteer work culture was promoted to provide volunteer work opportunities for minority groups. A total of 7,158.5 hours of volunteer work was conducted, which benefited more than 26,000 people (visits).
- Worked with the Society of Wilderness (SOW), an ecological conservation organization, to promote the Sauter's Frog (Ranasauteri) Habitat Conservation Project
- Organized the UMC Eco Echo Award program to offer grants to ecological conservation proposals, totaling more than 20,000 beneficiaries. Invited by Hakka Radio and Voice of Hakka to share the promotion content and experience.
- The UMC Energy Saving Service Team helped 6 organizations in energy saving, water saving and environmental safety improvement.



GOVERNMENTAL AGENCY

Communication Method

- Participate in parks and Science Park Administration functional organizations for operations.
- Participate in public hearings and symposiums organized by governmental authorities

Key Concern

- Water use
- Air pollutants and greenhouse gas emissions
- Energy Use
- Use of chemical products
- Occupational Health and Safety

Key Stakeholder Communication Outcome in 2018

- Played the role of coordinator for the Science Industrial Park Union to discuss regularly related laws and regulations and to provide operation experiences and suggestions for draft.
- Participate in the Industrial GHG Voluntary Reduction Information Platform organized by the Industrial Development Bureau, Ministry of Economic Affairs to strengthen exchange on energy conservation and carbon reduction issues.
- The PFASs Evaluation Program and Green 2020 Program were promoted within the organization.
- Participated in the "Occupational Safety and Health and Risk Management Training Program" sponsored by the Hsinchu Science Park Administration Bureau of the Ministry of Science and Technology and provided relevant experiences.
- Serve as a committee member in the Occupational Safety and Health Administration's Taiwan's Systems for Monitoring and Controlling Exposure to Occupational Improvement Project and provided experience.



MEDIA

Communication Method

- Press conferences
- Press releases
- Company Website

Key Concern

- Economic performance
- Innovation management
- Personnel recruitment and retention
- Compliance with regulations
- Air pollutants and greenhouse gas emissions

Key Stakeholder Communication Outcome in 2018

- Released 27 press articles on corporate governance and sustainability management



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Summary of Outcomes from UMC Partnerships and Feedback

CUSTOMER



Strengthen collaborative efforts for manufacturing processes and expand strategic partnerships

- UMC and Avalanche Technology Partner for MRAM Development and 28nm Production
- Allegro MicroSystems and UMC Sign Long-Term Foundry Agreement

Feedback

"We're excited to team with a world leader in semiconductor manufacturing such as UMC to bring this outstanding technology to market."

Petro Estakhri, CEO and co-founder of Avalanche Technology



Feedback

"We wanted a partnership that would help us expand Allegro's business and portfolio. UMC has been extremely successful in satisfying the technology, quality, and production needs of our customers. UMC has the capacity and technology to accommodate Allegro's projected growth and increasing wafer shipment requirements."

Thomas Teebagy, Senior Vice President of Operations and Quality at Allegro



COMMUNITY/NON-PROFIT ORGANIZATION

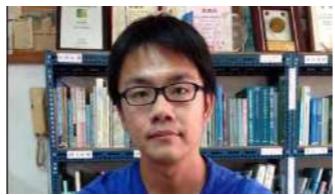


Community Service Project - "Spreading the Seeds of Hope"

Daisy Ho, UMC volunteer; Hong-Ming Yan, Principal of Chengjiheng High School

Feedback

"We want to thank UMC for your long-standing care for society. The juvenile students at Chengjiheng High School have benefitted from your Science and Culture Foundation, and I want to express appreciation on behalf of the students."



Eco Echo Award Program: Voice of the Wetland-Chouchai Wetland Sound Monitoring and Education Project

Chongjie Cheng, Executive Secretary of Wetlands Taiwan

Feedback

For more than a decade, the Wetlands Taiwan and the Maintenance Office, Public Works Bureau of Kaohsiung City have collaborated over the Jhouzai Wetland. Through our joint effort, the Jhouzai Wetland has become a very important habitat for the rare Pheasant-tailed Jacana, a Level 2 protected bird, and many other organisms in Kaohsiung City. In this year's Eco Echo Award, we are fortunate to have the support of Dr. Lin, Chihao from the Academia Sinica and the Soundscape Association of Taiwan. We also want to especially thank UMC, Global Views Monthly and many businesses for their support. Jhouzai Wetland has completed its first soundscape monitoring, and has promoted it to the Kaohsiung City public through numerous activities. In the future, the Soundscape Association of Taiwan will continue to monitor and manage the Jhouzai Wetland ecology. We hope that more enterprises will join in the wetland conservation work in Taiwan.

The IUCN has announced that soundscape is the next generation of indicators for environmental health, making the development of sound monitoring imperative.

SUPPLIER



Cooperation in Eco Echo Award Program

Hwee Tong Lim, RVP & GM of Taiwan Operations Lam Research

Feedback

"Lam Research Corporation is a global supplier of innovative wafer fabrication equipment and services to the semiconductor industry. Our Core Values shape the way we define success in the marketplace as we create solutions for our customers, invest in our employees and incorporate environmental, social, and economic responsibility across our business. We strive to responsibly manage our environmental footprint in terms of energy, waste and water and support our customers in achieving their environmental goals."

Lam is honored to be UMC's supply chain partner on developing advanced chips, and commend UMC on their approach to corporate sustainability, responsible business practices & continuous operation improvement. UMC demonstrates strong presence on strengthening corporate governance, ensuring environmental sustainability & creating social value that makes a positive impact on society.

In 2018, UMC invited Lam to support the Eco Echo Award, a program designed to recognize the most innovative ecological conservation proposals of the year and to encourage sustainable development of environmental organizations in Taiwan. We are privileged to participate in such meaningful environmental initiative and to promote green awareness, responsible environmental behavior and sustainable practices in the community."



3R League: Reduce, Reuse, Recycle, a Circular Economy Cooperative Initiative

Chwung-Shan Kou, President of Highlight Tech Corp.

Feedback

"Highlight Tech Corp. (IPO: 6208) is a vacuum system component expert. Its products have passed ISO 9001/ISO 14001/OHSAS 18001 certification. The company has a longstanding commitment to green production and upholds the core value of sustainable operation by promoting circular economy in its manufacturing process. In addition to achieving waste reduction, energy conservation, water conservation and hazardous materials management, Highlight Tech is also recognized by the UMC Triple R League. Through the effort of all its employees and cooperative partners, Highlight Tech expects to cultivate corporate social responsibility into the work and life of all employees, thereby fulfilling its corporate social responsibility and contributing to protecting the ecology of earth."

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2 ECONOMIC SUSTAINABLE GROWTH

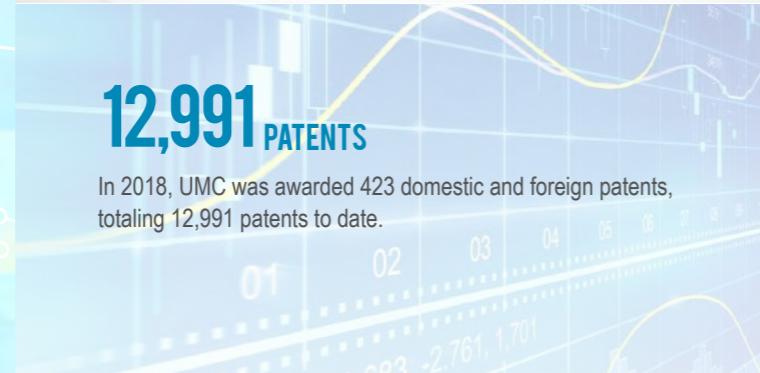
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37 SUPPLIERS PARTICIPATE IN UMC'S TRIPLE R MAJOR LEAGUE INITIATIVE

37 suppliers participated in this cooperation platform, a total reduction of about 175,000 tons of CO₂e.



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2-1 COMPANY GOVERNANCE

UMC has an effective corporate governance framework that is consistent with Taiwan's Company Act, Securities and Exchange Act, and other related laws and regulations. UMC also established the "UMC Corporate Governance Practice Principles", "UMC Ethical Corporate Management Best Practice Principles" and "UMC Corporate Social Responsibility Principles" as practical company considerations to protect shareholders' equity, respect stakeholders, enhance information transparency, strengthen the competency of the Board, and uphold corporate integrity and code of conduct. The Corporate Sustainability Committee reports the performance to the Board on the regular basis. It is hoped that through effective corporate governance, the company can fulfill its corporate responsibility in sustainable development and enhance corporate performance.

Executive Summary**Establish effective corporate governance framework****Performance in 2018**

The Corporate Sustainability Committee reported the promotional outcomes and plans to the Board.

Ensure shareholder equity, strengthen competencies of the Board

- The performance of the board, sub-committees and individual board members were reviewed and evaluated according to the Rules for Performance Assessment of the Board of Directors.
- Engage an external evaluation institution to conduct evaluations of board performance.
- The 14th Board of Directors is elected according to the operation and system of the Nominating Committee.
- The 4th Audit Committee had been established by the independent members of the 14th Board of Directors.
- The 4th Remuneration Committee members had been decided by the 14th Board of Directors.
- The 2nd Nominating Committee members had been decided by the 14th Board of Directors.

Enhance information transparency

UMC was rated the top 5% of listed companies by the 4th Corporate Governance Evaluation Results in Taiwan.

**Plans and Objectives for 2019**

- The Corporate Sustainability Committee will meet regularly with the Board to report promotional outcomes and plans.
- The Nominating Committee selects and sets up the corporate governance officer and submits it to the board of directors for approval to strengthen competencies of the Board.

- The performance of the board, sub-committees and individual board members will be reviewed and evaluated annually according to the Rules for Performance Assessment of the Board of Directors.
- Build up the skill matrix of board members. Enhance the diversity policy for nomination and election of directors.
- Establish the standardized operating procedures for handling the requests of any board member.

Continue to promote the effectiveness of the Corporate Governance Evaluation.



The UMC Board of Directors, Audit Committee, Remuneration Committee, Capital Budget Committee and Nominating Committee conduct their duties according to the regulations of "Convention Rules for Meetings of Board of Directors," "Audit Committee Charter," "Compensation Committee Charter," "Capital Budget Committee Charter" and "Nominating Committee Charter." To implement corporate governance, enhance capability and review performance of the Board, UMC instituted the Rules for Performance Assessment of the Board of Directors to self-assess the performance of the Board, sub-committees and individual board members annually. The evaluation covers the following aspects such as awareness of the duties of directors, the degree of participation in the Company's operations, understanding of the business and its risks, the improvement of policy decision quality, the composition and structure of the board of directors, the election and continuing professional development of directors, internal control and Audit Committee communications, oversight of the financial reporting process, oversight of the external audit function and so on. In 2018, the self-assessment of the Board of Directors, functional committees and individual board members concluded that the performance was "Excellent," and the reports were submitted to the Nominating Committee and Board of Directors on March 6, 2019.

Furthermore, the Company's board performance assessment is conducted by an external independent professional institution or a panel of external experts and scholars at least once every three years.

UMC engaged with Taiwan Corporate Governance Association to conduct an assessment of board performance and efficiency, and completed the evaluation on March 7, 2018. The assessment comprised of 8 scopes and 38 indicators including Composition, Direction, Authorization, Monitoring, Communication, Internal control, Risk management and Discipline of the Board, and was executed through online self-assessment and due diligence.

The report concluded that the discretion of the company's long-term strategy was incorporated into the composition of the Board, and the establishment of the Nominating Committee surpassed governmental regulations; the independent directors with diversified background were devoted to and were fully accountable with regard to their duties of direction and monitoring; the intensive communication between board members and management team ensured timely and sufficient information delivery, thus building an open and transparent culture for the Board. The report also provided recommendations on periodic assessment and human resource development for the company to enhance the efficiency of the Board.

In addition to the annual operational disclosure, the company has a corporate governance section on the UMC website so that stakeholders can easily access UMC corporate governance information to view its Corporate Governance Policy (URL: http://www.umc.com/English/investors/Corp_Gov.asp).



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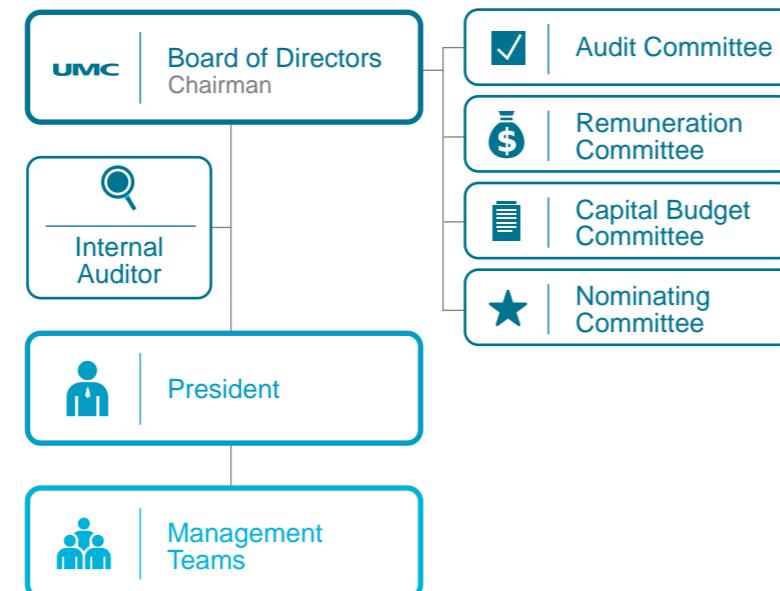
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2-1-1 BOARD OF DIRECTORS

The UMC Board of Directors comprises of 9 members from different professional backgrounds, and is responsible for company operation and supervision. The diverse academic and industrial experiences of the Board members are an asset to corporate decision-making and long-term strategy planning. Currently, the Board has 4 seats for independent directors and two for outside directors. Two thirds of the director seats are filled by members of outside companies. As of 2018, the average tenure of all directors was 5.9 years. In 2018, a total of 8 board meetings were held; the average attendance rate was 97.14%, which was higher than 80%, the criterion for board performance assessment. The ratio of total remuneration for board directors to company after-tax net income was 4.33% in 2018.

Board of Directors Structure



Policy for Nomination and Election of Directors

To ensure a fair, just, and open election of directors, the nomination and election procedures of the company's directors shall comply with the Company Act and all related laws and regulations. The organizational culture, business model and long-term development of UMC shall be taken into consideration to the composition of the Board members. The criteria established to ensure the diversity of the Board members shall include but not be limited to the following three dimensions:



BASICCRITERIA

shared visions, gender, race, nationality, independence and culture etc.



PROFESSIONALISM

educational background, professional skills and industry experience etc.



CORPORATE SUSTAINABILITY AND COMMUNALPARTICIPATION

corporate governance, environmental sustainability, corporate social responsibility, legal compliance and human rights protection etc.

http://www.umc.com/English/investors/Corp_Gov.asp

UMC Board of Directors

Name	Gender	Age	Attendance Rate	Name	Gender	Age	Attendance Rate				
Chair of Board											
Stan Hung	Male	59	100%	Cheng-Li Huang	Male	70	100%				
Director											
Jason S. Wang	Male	56	100%	Wenyi Chu	Female	52	100%				
SC Chien	Male	61	87.50%	Ting-Yu Lin	Male	57	87.50%				
Capital Budget Committee member											
Chung Laung Liu	Male	85	100%	Lih J. Chen	Male	73	100%				
Capital Budget Committee member											
Jyuo-Min Shyu	Male	65	100%	Independent Director							
Audit Committee member											
Remuneration Committee member											
Capital Budget Committee member											
Convenor for Nominating Committee member											

The board was elected on June 12, 2018.

Directors' current position at UMC or other company is disclosed on Page 16~17 of the company's annual report.



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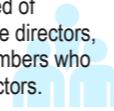
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The Board has 9 seats, of which 4 are occupied by independent directors. The various committees are composed of independent directors and outside directors, and members do not include members who also serve as administrative directors.



Board members are elected by shareholders according to regulations for Director Election during shareholder meetings, and in compliance with the Board of Directors Regulations and company constitution. Jurisdiction for each committee is based on organizational constitution, and committee members are nominated and approved by the Board.



The Board has 9 seats, of which 3 are occupied by members who also serve as administrative directors, namely the President and Chief Strategy Officer.



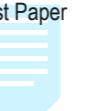
Each year, UMC arranges for its directors and managers to participate in economic, social and environmental courses in corporate sustainability. Continuing training courses for directors in 2018 is disclosed on pages 52–53 of the company's annual report.



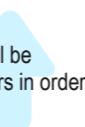
The Nominating Committee shall perform the duty to supervise the corporate governance system and its execution of the Company and its subsidiaries, in order to protect the interests of stakeholders.



Independent director Cheng-Li Huang, with research expertise of international accounting, green accounting and CSR, attended the Asian Pacific Conference on International Accounting Issues in 2009 and won the Vernon Zimmerman Best Paper Award with his paper on environmental accounting.



To implement corporate governance, enhance capability and review performance of the Board, UMC instituted the Board of Directors' Self-Assessment of Performance in 2015 to assess the performance of the Board annually, and the board performance assessment will be conducted by an external independent professional institution or a panel of external experts and scholars at least once every three years in order to enhance operational efficiency of the Board.



The company engaged with Taiwan Corporate Governance Association to conduct an assessment of board performance and efficiency, and completed the evaluation on March 7, 2018. The assessment comprised of 8 scopes and 38 indicators including Composition, Direction, Authorization, Monitoring, Communication, Internal control, Risk management and Discipline of the Board, and was executed through online self-assessment and due diligence.



The report concluded that the discretion of the company's long-term strategy was incorporated into the composition of the Board, and the establishment of the Nominating Committee surpassed governmental regulations; the independent directors with diversified background were devoted to and were fully accountable with regard to their duties of direction and monitoring; the intensive communication between board members and management team ensured timely and sufficient information delivery, thus building an open and transparent culture for the Board. The report also provided recommendations on periodic assessment and human resource development for the company to enhance the efficiency of the Board.

**Principles for Avoiding Conflict of Interest in Management**

Provisions for avoiding conflict of interest are stated in the company's Board Meeting Regulations and Audit Committee Regulations. Directors with vested interest in an agenda, personal or representing organizations should explain the key content of their interest at the meeting. Should that interest undermine company interest, the said directors are not permitted to participate in discussions or votes, must be excused from discussions and decisions, and must not vote on behalf of another director. The name, key content and excuse from participation are recorded in the minutes of the meeting.

The company has formulated the Ethical Corporate Management Best Practice Principles, the Procedure of Transaction with Related Parties, the Code of Ethics for Directors and Officers and the Employee Code of Conduct to avoid conflict of interests. In addition, employee code of conduct implementation is reported to the Audit Committee. Detailed regulations and information on disclosure are available on Stakeholder Engagement of the company website for stakeholder communication. The company has spokespersons and email for handling enquiries and input from various stakeholders.



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2-1-2 UMC FUNCTIONAL COMMITTEE

CAPITAL BUDGET COMMITTEE

The Capital Budget Committee comprises independent directors and outside directors to assist in the company's long-term development strategy, financial planning and business performance. The committee discusses plan implementations, modifies and follows up on the company's capital expenditure budget by auditing its cost-effectiveness and tracking its performance.

Effectiveness in 2018

The UMC Capital Budget Committee was established in October 2013. In 2018, the committee met 5 times, audited and approved capital budget expenses of NT \$40,326 million.

NOMINATING COMMITTEE

The Nominating Committee comprises of independent directors to enhance the management mechanism and to improve corporate governance with the company's sustainable development. The committee reviews the selection and performance assessment of directors and executives, and supervises the issues related to corporate governance.

Effectiveness in 2018

The UMC Nominating Committee was established in December 2017. The first meeting of the committee was convened in March 7, 2018 to review and to propose the candidate list of the directors to the Board, and also reviewed the company's achievement on corporate sustainability, climate change, corporate governance and ethical management.

All 4 independent directors meet the requirements of the Regulations Governing Appointment of Independent Directors and Compliance Matters for Public Companies for professional qualification, work experience, and restrictions and the independence of independent directors.

REMUNERATION COMMITTEE

According to Regulations Governing the Appointment and Exercise of Powers by the Remuneration Committee of a Company Whose Stock is Listed on the Stock Exchange or Traded Over the Counter Act, UMC established the Remuneration Committee to strengthen corporate and risk management. In addition, to motivate and retain talent, the Committee reviews and supervises the remuneration system of the company's directors and managers. The committee meets at least twice a year.

Effectiveness in 2018

In 2018, the committee convened meetings in March, July and October.

Please refer to the company's annual report on page 57 for the actual attendance information.

AUDIT COMMITTEE

UMC's Audit Committee assistants in performing its supervision functions. It is also responsible for tasks defined by the Company Act, Securities and Exchange Act and other relevant regulations. Since UMC is listed on the New York Stock Exchange (NYSE), it also has to comply with the U.S. regulations regarding foreign issuers. The UMC Audit Committee is comprised of all independent directors, with two financial experts. According to the terms and responsibilities stated in the company's Audit Committee Regulations, the Audit Committee shall convene at least four regular meetings per year.

Effectiveness in 2018

In 2018, a total of six meetings were convened; the attendance rate was 100% and good communication channels with the company's internal auditors, independent auditors and management were maintained.



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Remunerations for UMC directors (including independent directors), presidents and vice presidents include salary, performance bonus, pensions, etc., and will be disclosed regularly in UMC's annual report. To ensure the steady operating growth and breakthrough innovative power for the company, the compensations for UMC's management team are primarily divided into two parts: fixed and variable. Furthermore, according to the responsibility and importance of the job, UMC provides fixed compensation, and to fully reflect individual and team performance, UMC provides variable compensation like performance bonus, retention sign-on, employee's profit sharing bonus and stock options, and so on.

For motivation and talent retention purposes, performance evaluation and salary remuneration policies, system, standards and structure for directors and managers are determined and reviewed by the Remuneration Committee. The committee members include independent directors who can provide suggestions from an external perspective. The committee meets at least twice a year to review and ensure compensations remains competitive.

In addition, in order to promote ethics, honesty and professionalism, UMC established the "Code of Conduct." UMC believes in being an integrated organization; every employee is obligated to strive for the extension of the company's interests within legal limits and is responsible for preventing damages or loss of the company's interests. The violators of the integrity rules will be inflicted, in proportion to the weight of the incident, with difference punishments, including withholding of performance cash award, year-end bonus and profit sharing bonus, demotion, removal from post, and even taking any legal actions. UMC expects all employees, especially Executive Level Managers, to be responsible for management and supervision, and strictly observe the "Code of Conduct" to ensure UMC's sustainable growth and development.

Executive officers lead the company towards business goals and financial targets, which includes commitment to achieving key performance indicators, profitability, customer satisfaction, innovative product and technology research, development of sustainable environment and talent development and so on. Furthermore, UMC's executive level managers also maintain high focus on and strong performance linkage with sustainable development indicators. We work diligently in economic, environmental and social development and innovation to create common harmony and prosperity for the corporation and society.


2-1-3 SHAREHOLDERS' PARTICIPATION OF CORPORATE DECISION

In the 2018 UMC Annual General Meeting and First Extraordinary General Meeting, electronic voting accounted for 59.4% and 67.5% of total shares outstanding, and 68.8% and 82.1% of those attending the meeting, respectively. Investors may exercise their voting rights via direct electronic voting, thereby significantly reducing the difficulty of transportation and schedule conflict to attend shareholder meetings. Direct participation of shareholders in decision-making can reduce agency costs and risk, and increase the motivation of shareholders to exercise their voting right.

All admitted bills and motions during UMC shareholder meetings are discussed and voted by meeting attendees, and resulting shareholder support and vetoes for each bill are recorded so that shareholder opinions are fully reflected in the resolutions.

Following the global trend of Shareholder Activism, UMC legally accepted the motions of shareholders holding more than 1% of shares to the regular shareholders' meeting. Given that activist shareholders pay more attention to financial performance, compensation schemes and corporate governance of the company, the sub-committee of the Board shall assist management with such issues. The Nominating Committee will be responsible to review shareholder's proposals and to propose responses to the Board for discussion.

TAIWAN	SINGAPORE
Ratio of maximum remuneration to median annual remuneration	
10.07	4.3
Ratio of % increase in highest total annual remuneration to % increase in median total remuneration	
0.61	Personnel with the highest remuneration showed no increase in total income (comparing 2018 with 2017).

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2-1-4 INTERNAL AUDIT

UMC has set up internal auditing under the direct jurisdiction of the Board for the following purpose and tasks:



MAIN PURPOSE

- Examine and evaluate the effectiveness of the internal control system.
- Evaluate the efficiency and effects of the business operation.
- Ensure reliability, timeliness, transparency and legal compliance of reports.
- Provide timely suggestions for improvement to ensure the sustainability and effective implementation of internal control tasks.



DUTIES AND RESPONSIBILITIES

- Conduct an annual audit in accordance to the provisions of the Taiwan authorities and in the event of risks.
- Issue audit reports and track improvement.
- Regularly revise internal control system, audit implementation details and annual internal self-assessments.
- Communicate with independent directors, and report to the Audit Committee and Board of Directors.

Since UMC is listed on the New York Stock Exchange (NYSE) and subject to US regulations for foreign issuers. Since 2006, UMC has complied with the SOX 404 Act and audited by the independent auditors annually. To date, the independent auditors have issued unqualified audit report for UMC's internal control design and implementation performance.



The Organization and Operation of UMC's Internal Audit



UMC Corporate Governance Policy



UMC Code of Conduct

2-1-5 CODE OF ETHICS AND ANTI-CORRUPTION

Through annual internal control and self-assessment, UMC has also conducted a self-review of all fab, department and subsidiary operations, including compliance with laws and regulations, awareness of professional code of conduct and risk assessment. The design and implementation of internal control systems are also adjusted to achieve self-monitoring. In addition, based on the provisions of Taiwan and in the event of risks, the Audit Division has formulated audit plans for relevant reviews, and regularly reports results and follow-up improvements to the Audit Committee and the Board of Directors.

How We Manage

- By formulating a management code of practice
- By establishing a thoroughgoing corporate governance organization



Purposes

- The establishment of a corporate culture of ethical management and sound development



Goals and Targets

- All UMC employees should abide by the company's ethical standards during their daily work and business operations in order to gain public trust and ensure the company's sustainable growth and development.



Relevant Principles

- 'Corporate Governance Practice Principles,' 'Ethical Corporate Management Best Practice Principles,' 'Corporate Social Responsibility Principles,' 'UMC Code of Conduct,' 'Code of Ethics for Directors and Officers' and 'Employee Code of Conduct.'



Applicable Entities

- UMC
- HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits





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UMC has developed relevant principles for all directors, managers and employees to enhance company and employee knowledge of conduct and professional ethics from the top down.

UMC expects all employees to comply with the company's principles in their daily work and business execution to gain public confidence and ensure sustainable growth and development for the company. By promoting the UMC Code of Conduct (targets include company subsidiaries, joint ventures, suppliers, customers and others entities pertaining to UMC operation and development), it is hoped that joint efforts can be put into fulfilling corporate social responsibility and promoting balanced and sustainable economic, social and environmental development.

UMC encourages open communication with employees and third parties. Questions pertaining to ethical and legal conduct or unequal treatment in the workplace may be referred to the Human Resource Office or Employee Care Office for assistance, and reports may be filed to uncover, stop and prevent major misconduct or violation of government regulations.

UMC provides online self-testing and training courses to help employees clearly understand the concept of appropriate employee conduct. In addition, the employee code of conduct is posted on the company's intranet for employee reference. Employees may refer relevant questions to the Human Resource Office for inquiry and assistance in implementing the code of conduct in their daily work and tasks. In 2018, 100% of employees completed and passed the online employee code of conduct training and self-testing course.

Through annual internal control and self-assessment, UMC has also conducted a self-review of all fab, department and subsidiary operations, including compliance with laws and regulations, awareness of professional code of conduct and risk assessment. The design and implementation of internal control systems are also adjusted to achieve self-monitoring. In addition, based on the provisions of Taiwan and in the event of risks, the Audit Division has formulated audit plans for relevant reviews, and regularly reports results and follow-up improvements to the Audit Committee and the Board of Directors.



UMC Corporate Governance Policy



UMC Code of Conduct

The total number of grievances filed through the mechanism		
Anti-corruption	Environmental issues	Social issues
1	0	0
The number of grievances that were addressed (or reviewed)		
1	0	0
The number of grievances that were resolved		
1	0	0

Note: No proof of corruption or bribery was found in 2018.

2-1-6 LEGAL COMPLIANCE

UMC's customers are located around the world, and its operations are distributed over several countries. To ensure that operations are in compliance with the laws and regulations of each country, thereby avoiding losses due to legal violations or avoiding profit loss due to fines, UMC has consistently paid close attention to all changes in policies or laws that might impact the company's business or finances.

How We Manage

- By dedicating a legal department to serve as a legal platform to offer legal advice and assistance to each department.
- By arranging training programs and courses on legal compliance to familiarize employees with updated regulations.

Purposes

- Ensure that the company keeps its commitment to comply with the law to realize its core values of integrity and honesty

Goals and targets

- Company employees carrying out their work should always adhere to the relevant laws and regulations.
- No major violation of Corporate Social Responsibility*

Relevant Principles

- 'Corporate Governance Practice Principles,' 'Ethical Corporate Management Best Practice Principles,' 'Corporate Social Responsibility Principles,' 'UMC Code of Conduct,' 'Code of Ethics for Directors and Officers' and 'Employee Code of Conduct.'

Applicable Entities

- UMC
- Hejian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits

N.B.: Refers to a single incident with a fine of more than NTD 1 million.



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All UMC departments must comply with relevant laws and regulations. The company has a dedicated legal department serving as a legal platform to offer legal advice and assistance to each department. UMC and its employees are required to comply with relevant business laws and regulations. The company arranges training programs and courses on legal compliance to familiarize employees with updated regulations. Prompt updates allow employees to implement job regulations into their daily management, thereby ensuring that the company complies with the law.

UMC Training Courses for Legal Compliance



Online Courses

Allow employees to learn at any time, and strengthen awareness of the latest laws, and offer online testing, review and correction of employees' legal knowledge. Other related online courses or tests include: Fair Trade Law (antitrust law), import and export control.



Classroom Courses

Classroom instruction on important policy or statutes, including fair trade, insider trading, classified information protection, high-tech export controls, intellectual property protection and personal data protection are offered.



Seminar Courses

Outside legal professionals and experts are invited to lecture on the latest legal trends and information, and exchange ideas.



Outsourced Courses

Arrangements are made for legal staff to attend outside training to update their knowledge of amendments and latest news and details to ensure compliance with latest requirements.

Employees can obtain training course information and promotional information from the company's internal intranet site. Information updates, internal reviews, regulation amendments and implementation ensure our compliance with legal standards.

Examples of UMC Legal Compliance:

PERSONAL DATA PROTECTION LAW

In response to Taiwan's newly issued Personal Data Protection Act, Taiwan's UMC inventoried its personal data on file and established appropriate information protection mechanisms to prevent information theft, tampering, damage, loss or disclosure. Regular education and training enhanced the basic knowledge of employees to help them understand the restrictions for handling personal data, restrictions on storing personal data, alert and reporting mechanisms.

HIGH TECHNOLOGY EXPORT CONTROL

To ensure that UMC export controls meet international requirements, the company has long since implemented internal controls for review and feedback, and has simultaneously introduced the Internal Control Program (ICP) in Taiwan and Singapore. For overall control of the export process, the company requires customers to provide necessary information for a series of self-examination and screening from beginning Customer Inquiry to Order Processing to Shipping, and outlines clear control procedures to its various departments.

With government certification, UMC customers can now enjoy preferential export licensing and reduce operation time.

CLASSIFIED INFORMATION PROTECTION

UMC signed non-disclosure agreements with both its vendors and customers to require mutual protection of classified information. UMC has also set an internal system for classified information /data management so that customer information is handled by a designated unit to avoid inappropriate disclosure.

INTELLECTUAL PROPERTY RIGHTS

Courses on intellectual property protection laws and regulations are provided to new employees, and in 2018, a total of 1,333 employees were trained.

CONFLICT MINERALS

In compliance with the US Securities and Exchange Commission, UMC confirmed in its August 22, 2012 Conflict Minerals Regulations Disclosure that its suppliers did not supply conflict minerals to the company. At the same time, in accordance with US Securities and Exchange Commission regulations, the company also submits an annual Special Report to the Commission.

TRADE SECRET PROTECTION

In 2017, UMC was accused by Micron corporation, alleging that its business secrets were infringed. UMC has denied this in its press releases, and the matter is currently in litigation. Prior to this, every employee of the company had trained to protect business secrets during the training of newcomers. To this end, in response to the protection of business secrets, the company specifically asked employees to refresh such training. As of the end of February 2019, 8,650 people had received training courses. In addition, a new course was introduced on basic legal and risk awareness of foreign documents to improve employees' risk management awareness of foreign documents, and then to avoid the violation of other people's business secrets. Currently, 9,823 people have received this training.

FAIR TRADELAW

In 2011, UMC formulated and announced its fair trade policy, and required employee compliance. The company also conducted education and training for its directors and employees to prevent legal violation. Every year, additional training courses will also be held for new employees who have never attended the educational training program, hoping that all employees will have a basic knowledge about the fair trade policy.

INSIDER TRADING

UMC has formulated the Prevention Policies and Procedures for Managing Insider Trading, and is committed to promoting policies against insider trading. The company has designated personnel to notify directors and the management team of blackout dates within the next two months when trading is not allowed.

In 2018, no penalty cases with regard to violation of company governance, anti-corruption, or fair trade were observed and no cases of insider trading from the management personnel were found. For other violations and fines amounting to less than NT\$200,000, company employees that were involved were punished according to company rules and corrective improvement measures implemented. Please refer to the company's annual report on page 92 for details.

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2-2 INNOVATION MANAGEMENT

End-user electronic products are becoming more functional, lightweight, energy saving and carbon reducing. In recent years, the incorporation of concepts such as artificial intelligence, deep learning and voice control have also influenced the direction of wafer design. Therefore, in view of factors such as functional integration, increased performance and low power consumption, chip design has become increasingly complex. Moreover, for production efficiency, semiconductor manufacturing technology must continue to miniaturize, and wafer surface area must increase in diameter. Hence, given these two major trends, the threshold for semiconductor manufacturing is increasing, and investment cost is rising rapidly. UMC continues to be involved in new research and development to strengthen corporate competitiveness and to help the company create profits.

How We Manage

- Through commitment to promoting the development of advanced production process technologies
- By paying attention to the arrangement and distribution of patents to protect technical intellectual property rights
- Through active independent research and development, and the establishment of proprietary technology

**Purposes**

- To uphold the philosophy that the customers' needs come first, and to provide silicon wafer fabrication solutions that meet market trends and customer demand

**Goals and Targets**

- Effective expansion and control of costs, the development of product technologies, product structure improvement, and continued raising of profits

**Applicable Entities**

- UMC
- Hejian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd. which are UMC subsidiaries selling and manufacturing integrated circuits
- Customers

Future Business Opportunities in the Semiconductor Market

The four types of traditional IC products are computers, communication, consumer and automotive. Electronic products are already more compact, save more power and are interconnected. For example, notebooks and tablets have longer operating times, and cell phones can be connected to laptops and tablets via wireless networks. In addition, significant improvement in the bandwidth of broadband networks has facilitated the combination of the Internet and smart TV. Through information reading, transmission and processing, objects are linked into a large network, and the many derivative breakthrough applications will result in huge business opportunities. In the future, key technologies in smart phones, wearable electronics, virtual reality / augmented reality, self-driving / electric vehicles, artificial intelligence / deep learning, voice controlled products and Internet of Everything are expected to be constantly adopted and commercialized. Hence wafer manufacturing services must develop corresponding processes and silicon intellectual property as soon as possible to meet the variety of customer needs in Internet of Everything applications.



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2-2-1 PRACTICING THE PHILOSOPHY OF SUSTAINABLE OPERATIONS

Innovative Products and Technologies

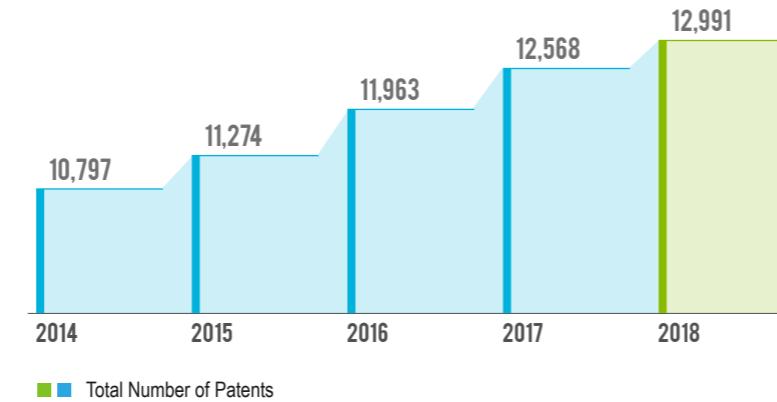
The UMC R&D team is committed to developing advanced manufacturing technology, and upholds the philosophy of offering foundry solutions that are consistent with market trends and customer needs, such as world class advanced manufacturing technology, customer support and production.

Innovative Development of Advanced Technologies

In the face of intense technological competition, besides significantly increasing its key technology capabilities, UMC is also focused on patent distribution to protect its intellectual property rights, and has seen steady growth in its number of patents.

In 2018, numerous domestic and foreign patents were awarded. To date, UMC has a total of 12,991 patents that provide our manufacturing process with comprehensive and powerful barriers to protect its intellectual property. To remain competitive, UMC has also significantly increased the patent quality of its key technologies, and continues to strengthen its customer service and competitive advantage, while generating profits for the corporation.

Total Number of Patents



Successful Development of Technology or Products in 2018

Successful development of 22nm ultra-low power (uLP) / ultra-low leakage (uLL) HK / MG process to provide customers chips with faster speed, better cost efficiency and improved power saving to meet future demands from IoT, automotive electronics, industrial electronics, and various wearable product applications.



UMC developed a new 14nm FinFET platform process (14FFC), with yield for the 128Mb SRAM on this process having reached industry competitive levels. 14FCC also passed process and product reliability verification to officially enter the pilot production stage for customer chips.



UMC partnered with the leader in next generation STT-MRAM, USA-based Avalanche, to jointly develop and produce MRAM.



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In addition to continuing to develop technologies that reduce power consumption, UMC also develops processes for energy management, body sensor and medical, mobile communications, imaging sensors and displays to reduce the environmental impact of end product use, promote social communication and enable health care and safety.

22NM ULTRA-LOW POWER/ULTRA-LOW LEAKAGE PROCESS TECHNOLOGY

UMC has developed 22nm process technology and its 28nm high performance compact low power process technology platform (HPC^{U+}). With the same number of mask layers and compatible design criteria as 28nm, the performance of 22nm process technology has been enhanced by 10%, power consumption has been reduced by 20%, and area has been reduced by 10%. Therefore, the cost competitiveness of 22nm technology has been greatly improved to provide customers with more process options. 22nm ultra-low power/ultra-low leakage technologies are suitable for IoT, automotive electronics, industrial applications, and various wearable products that utilize analog, mixed signal, RF, and other relevant technologies. The introduction of 22nm by UMC has maximized the value of the company's 28nm process, with IP verification from 28nm directly converting to 22nm due to the use of compatible design specifications. UMC's 22 nm process is expected to be completed in the middle of 2019 and introduced to customers for pilot production.

POWER MANAGEMENT PROCESS TECHNOLOGY

As for the demands for various power management applications (PMIC), UMC's super high voltage (5V and 30V in coordination with 300V, 500V or 700V) processes have entered the mass production stage. This technology is suitable for special applications such as power charger, LED bulb, power amplifier, AC/DC converter, and motor driver and can meet industry demand for higher voltage and reduce the energy consumption during voltage conversion in order to save energy. As for customers with demands for highly integrated power management, UMC can provide a complete silicon IP platform compatible with the standard logic process, and various 0.5, 0.35, 0.25, 0.18, and 0.11 micron process technologies that integrate world-class, third generation low conduction resistance/high sustained voltage (5V~200V) devices that can be used for cell phone, tablet PC, appliance, vehicle applications, etc. UMC has also begun developing a BCD+NVM technology platform, and adopted a 12-inch 55nm copper process for PMIC as a complete SoC solution for green energy demands.

EMBEDDED MRAM

For future market demands related to advanced IoT, automotive electronics, wearable products, and cloud applications, conventional embedded non-volatile flash memory based on eFlash is gradually showing an imbalance between cost and performance. In light of this, UMC invested in the R&D of eMRAM in 2018. For this R&D plan, UMC has integrated all existing machines in the company while drawing upon its mass production experience for previous generations of eFlash memory (55nm/40nm). It is expected that this technology can be incorporated into 28/22nm to be used by customers in 2021.

DISPLAY DRIVER IC PROCESS TECHNOLOGY

This technology includes displays for smart phones, portable telephones / personal digital assistants (PDAs), computer screens, touch screens, tablets, eBooks, televisions, digital cameras, car screens and wearable displays. UMC's High Voltage Technology has led the development of various voltages to meet the required specifications of various market applications.

CMOS IMAGE SENSOR (CIS)

For CMOS image sensor technology development, UMC's 65nm process has been verified to enter the mass production stage. The new processes, such as backside-illuminated sensor (BIS) and 55nm CIS process technologies, have entered the verification stage. This technology is expected to provide higher sensing resolution to meet product upgrade requirements.

MICRO-ELECTROMECHANICAL SYSTEMS

With the rising popularity of MEMS sensor applications, the demand for CMOS-MEMS pure-play foundry service has also increased. UMC's MEMS microphone process platform can help many customers shorten their design process flow. UMCs total shipments for MEMS microphone products in 2018 exceeded 400 million units.

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2-2-2 BUSINESS PERFORMANCE

Industry Specific Key Performance Indicators in 2018

UTILIZATION RATE	WAFER SALES CONTRIBUTED FROM 40NM AND BELOW TECHNOLOGIES
Target	
93.4%	44.3%
Actual	
93.1%	40.5%
Difference	
-0.3 PPTS	-3.8 PPTS

Continual Growth in Advanced Processes

In recent years, UMC has continued to invest in advanced process and R&D equipment. The benefits generated in 2018 are as follows:

Proportion of advanced process capacity for 40nm or below has reached **35%**

Compared to the previous year, the proportion of advanced manufacturing capacity for 28nm or below has increased by **13%**

Profitability

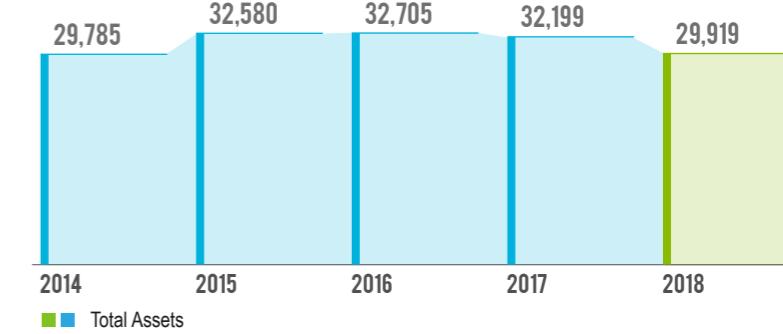
2016	2017	2018
Return on assets		
2.73%	3.21%	2.47%
Return on equity		
3.75%	4.48%	3.37%
Pre-tax income to paid-in capital		
7.14%	8.26%	5.00%
Net profit margin		
6.13%	7.28%	5.32%
Earnings per share		
0.68	0.79	0.58

Note: The above entity financial information is based on the Executive Yuan Financial Supervisory Commission approved international financial reporting guidelines. For consolidated information, please refer to page 184 of the company's 2018 Annual Report.

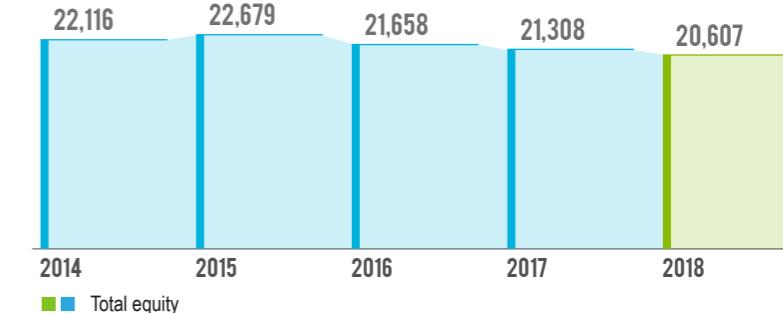
Operating Revenues (in NT\$10 millions)



Total Assets (in NT\$10 millions)



Total equity (in NT\$10 millions)



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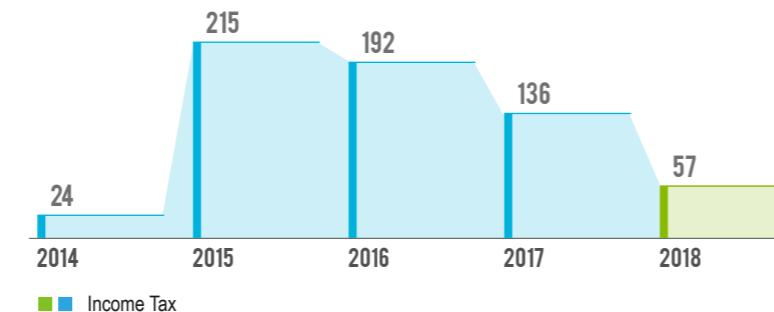
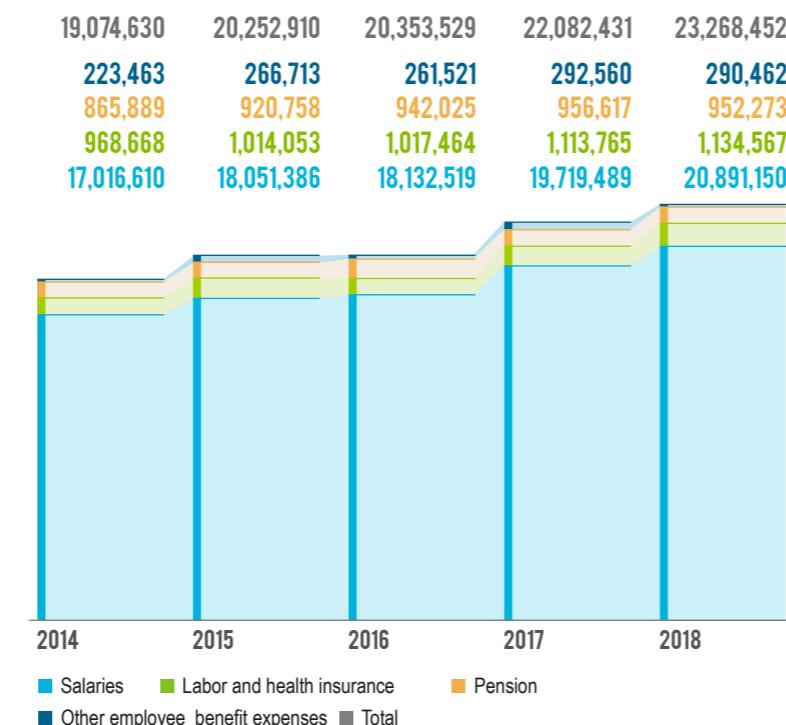
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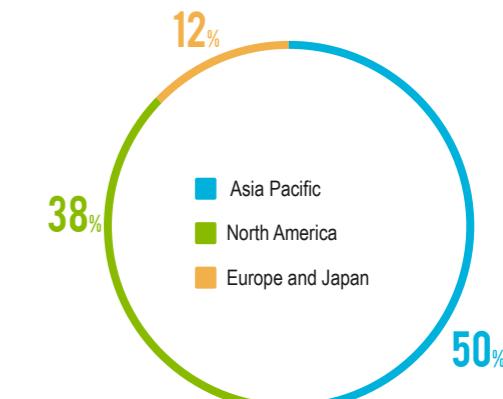
CH3 Environmentally Friendly Management**CH4 Common Prosperity****Appendix****Income Tax (in NT\$10 millions)****Employee Benefit Expenses (NT\$1,000)**

Note 1: The above information is in accordance with the Executive Yuan Financial Supervisory Committee approved international financial reporting guidelines.

Note 2: The above information is UMC's financial information. For consolidated information, please refer to pages 180-184 and page 231 of the company's 2018 Annual Report.

Marketing and Sales Overview

Being highly recognized by customers, UMC's customer base includes major vendors in different regions. Asia Pacific and North America account for most of the product sales, where respective total sales in 2018 were 50% and 38%, while Europe and Japan accounted for 12% of the company's total revenue. UMC will continue to strengthen cooperation with world class customers, and is committed to developing high level customer products to ensure long-term stable growth.

Export Ratio

2-2-3 INVESTMENT TO ENHANCE COMPETITIVENESS

UMC's R&D team is committed to promoting the development of advanced manufacturing technology, and upholds the philosophy of foundry solutions that are consistent with market trends and customer needs, including world class advanced manufacturing technology, customer technical support and production. With the expansion of the Southern Taiwan Science Park, the company continues to employ a large number of R&D personnel, and spares no effort in recruiting and nurturing R&D talent.

China has the world's highest domestic demand for semiconductors, and recently, the Chinese government has supported the semiconductor industry through different approaches. Since 2015, UMC and its subsidiaries have a plan to invest about US\$1.35 billion over the subsequent 5 years to better approach the market and meet the needs of local IC design industries. Capital was invested into United Semi's 12-inch fab in Xiamen according to this investment schedule to provide 28nm and 55nm wafer processing services and further the development of the Group.



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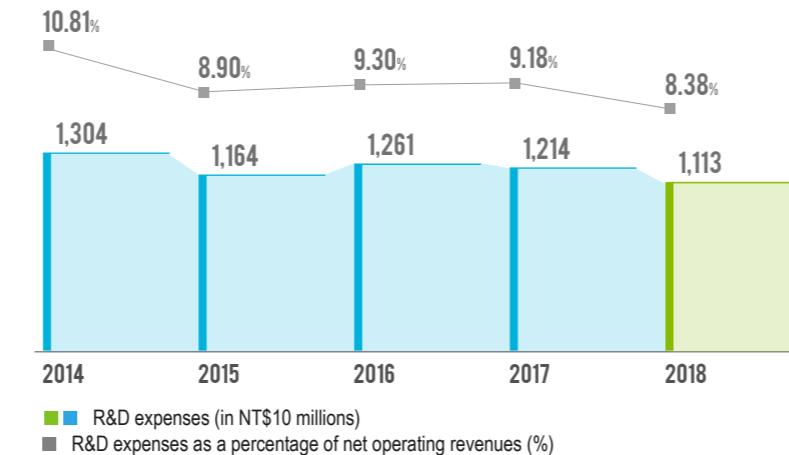
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Moreover, in recent years, energy conservation and carbon reduction have become important administrative goals in major advanced and developing countries to cope with energy shortage and the potential crisis of environmental changes. Therefore, UMC established the UMC New Business Investment Corp in 2009. Since then, through strategic investments, the company has channeled its existing technological talents and resources into solar energy, LED and other green industries. In addition, with the benefit of global growth in smart phone shipments and extensive construction of wireless communication stations by emerging markets, UMC continues to focus and invest in pure gallium arsenide wafer foundry service related industries. Recently, the solar energy and LED industries have undergone a round of industrial phase-out, reorganization and consolidation, but market conditions continue to slump. However, UMC will strive to increase the operational efficiency and reduce the costs of its new investments, and is committed to assisting its investment companies to grow and the parent company to profit.

R&D Expenses for the Past 5 Years



Note 1: The R&D expense is in accordance with the Executive Yuan Financial Supervisory Commission approved international financial reporting guidelines.

Note 2: The above information is UMC's financial information. For consolidated information, please refer to page 122 of the company's 2018 Annual Report.

2-2-4 MEASUREMENT AND EVALUATION OF TRUE VALUE

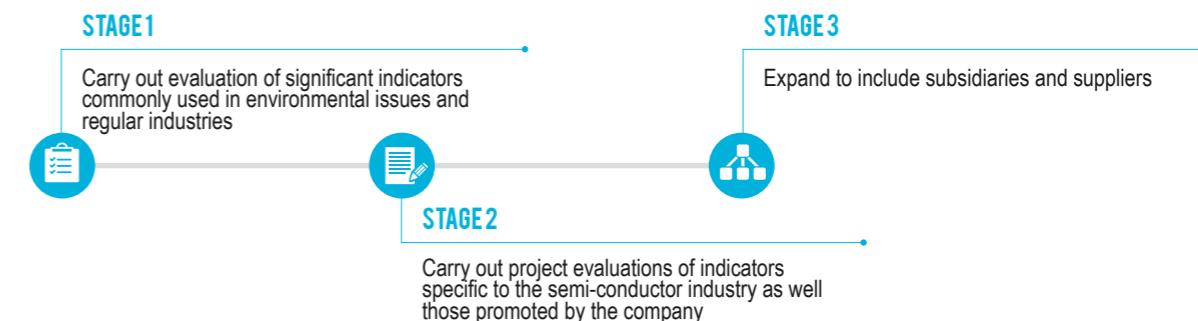
UMC considers issues of interests to stakeholders, and plans to evaluate the environmental and social externalities generated by the entire value chain in the course of operations in stages according to the types of issues and attributes. At the same time, UMC uses true value assessment methods developed by KPMG to monetize various external costs and impacts to enable companies to conduct comprehensive business opportunity evaluations and risk assessments. Subsequently, the company will step up and quantifiably manage the issues related to sustainability, making them important pieces of reference information when making relevant decisions.

Schematic Diagram of True Value Measurement and Evaluation Steps



Scope of Evaluation:

In the face of expanding global climate change and increasing shortages of energy and resources, UMC endeavors to give priority to evaluating significant environmental issues and indicators commonly used in industries. In the future, UMC plans to gradually expand into the assessment of other issues and indicators.





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2. Aside from UMC, the scope of this evaluation includes upstream and downstream value chains; content and description of relevant indicators are shown in the table below.

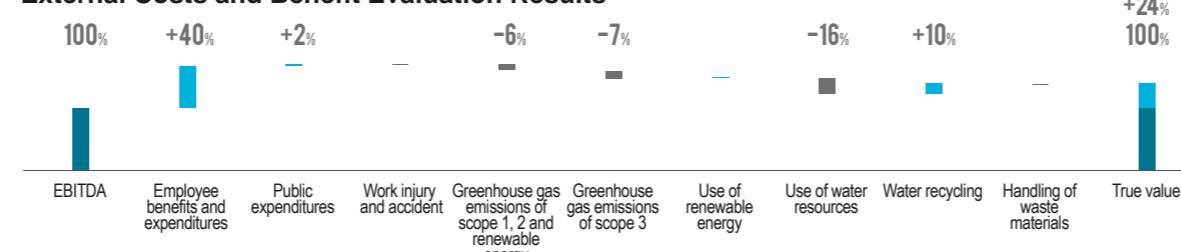
ENVIRONMENT			ECONOMY			SOCIETY		
• Greenhouse gas emissions	Greenhouse gas emissions of scopes 1, 2, 3	UMC upstream UMC UMC downstream	• Employee salary and benefits	Salary, labor and health insurance, pension, and other employee benefits	UMC	• Work injuries and accidents	Direct company financial loss, financial loss of injured person, money given by the Bureau of Labor Insurance and insurance company	UMC
Description of external factors	Carbon emissions have an additional social cost due to impact on agriculture, human health, and climate systems		Description of external factors	Salary and benefits are the labor costs incurred by the company in the process of creating economic value		Description of external factors	Work accidents have corresponding social costs for employees, businesses and the society	UMC upstream UMC UMC downstream
• Use of renewable energy	Solar generated electricity	UMC	• Public expenditures	Income tax paid, government subsidies related to asset acquisition	UMC	UMC upstream	Suppliers/logistics companies/equipment manufacturers	Headquarters/fab areas/subsidiary business units
Description of external factors	Renewable energy can prevent the social costs incurred by carbon emissions		Description of external factors	Public expenditures paid by companies is one of the major sources of the country's infrastructure		UMC downstream	Community/general public/waste treatment company/waste recycling company	
• Use of water resources	Amount of water used	UMC						
Description of external factors	The extent of the lack of water resources reflects the social costs that we are required to pay							
• Recycled water	1. Amount of recovered condensed water and rainwater 2. Amount of recycled water in the entire fab (manufacturing process/ equipment)	UMC						
Description of external factors	Recycling of water can prevent the social costs of water consumption							
• Waste material handling	Amount of waste materials landfilled and incinerated	UMC UMC downstream						
Description of external factors	Air pollution emissions and bad odors from landfilled or incinerated waste materials result in additional social costs							

2018 Project Implementation Outcome

1. In 2018, UMC implemented a special project to conduct the first assessment of various 2017 indicators. Analysis indicate that in 2017, overall external benefits increased by NT\$13.1 billion compared to traditional financial performance, which is about a 24% increase.

2. Greenhouse gas emissions and use of water resources are still the most important external costs in the overall assessment. As UMC has continued to promote a number of GHG scope 1 and scope 2 reduction plans over the years, the external cost of scope 3 is greater than the costs of scopes 1 and 2. On the other hand, the impact of the use of water resources accounts for a significant proportion, which means, in addition to reduction done at the source, efforts can be made toward water recycling to reduce the overall impact.

External Costs and Benefit Evaluation Results



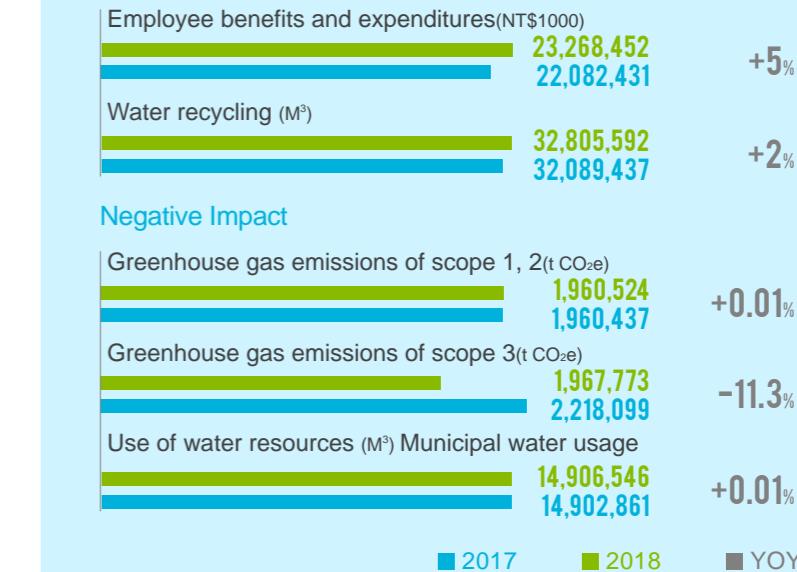
Note 1: For emissions and reductions of greenhouse gases and water resources, please refer to Chapter 3-2 on Carbon Asset Management as well as Chapter 3-3 on Water Risk Management.

Note 2: EBITDA (Earnings Before Interest, Taxes, Depreciation and Amortization)

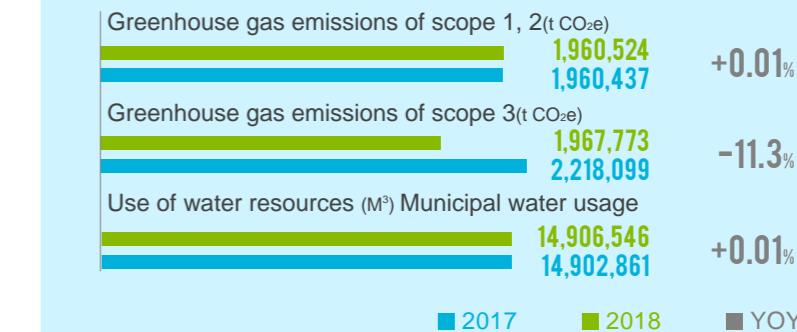
Note 3: The impact of public expenditure, use of renewable energy, work injury and accident and waste disposal costs is less than (+/-) 3%

The Company continues to track annual changes in major impact items. In 2018, two major positive benefit factors continued to grow, three negative impact factors increased slightly due to annual production capacity increasing by 4.9% and electricity coefficient of greenhouse gas emissions increasing by 4.5%.

Positive Benefit



Negative Impact



Future Promotion Focus:

Reduce negative impact

- Actively carry out in-fab regenerative energy installation, list solar energy system as a new fab standard design and build project, and expand the promotion of greenhouse gas reduction plan, including reduction in major subsidiaries, procurement of green products, localization of procurement, and change of transportation methods, etc. to reduce overall greenhouse gas emissions.
- The company continues internal promotion of the Green 2020 program, to reduce power and water consumption as well as production of waste materials by 10%.
- Promote the security mindset 4.0 program and reinforce the prevention and management of accidents.

Promote increase of positive benefits

- Through education, training and social participation, the company will expand the holding of the Eco Echo award program and support the Energy Saving Service Team as well as the Spreading the Seeds of Hope Project, creating social value.
- Promoting a circular economy – The 3R League plans to work with suppliers to Reuse, Recycle, and Reduce (waste material energy and resource reduction) and increase the value of the environmental aspect.

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2-3 CUSTOMER SERVICE

In the spirit of UMC's philosophy of towards sustainable development, we believe sustainable economic development requires stability and growth in business performance, respect for customer feedback, customer demand, customer recognition and customer long-term support. While striving to strengthen operational performance, the company's economic growth and business sustainability is facilitated by a virtuous cycle that can only be truly created by investing and giving back to society, so that mutual benefits can be realized.

UMC is a leader in the semiconductor foundry industry. It provides advanced process technology and foundry services, and is a major wafer manufacturer for various application products in the IC industry. UMC is committed to meeting customer product demand, and emphasizes customer orientation and professional support. The company thinks from the customers' perspective, and based on their needs, provides a full range of services to achieve customer satisfaction and business sustainability.

How We Manage

- Protect customer assets
- Provide a full range of customer service
- Satisfy customer needs and improve product quality

Purposes

- Achieve customer satisfaction and business sustainability.

**Goals and Targets**

- No customer complaints about infringement of customer privacy or disclosure of confidential information
- Scorecard scores reach the level of customer satisfaction

**Relevant Policies**

- Intellectual Property (IP) Protection Policy, Information Security Policy, Quality Policy



Intellectual Property (IP) Protection Policy.

Applicable Entities

- UMC
- Hejian Technology (Suzhou) Co., Ltd, and United Semiconductor (Xiamen) Co., Ltd. which are UMC subsidiaries selling and manufacturing integrated circuits



2-3-1 PROTECTING CUSTOMER ASSETS

The UMC intellectual property (IP) protection policy is based on the following three principles:

INTEGRITY

Uphold integrity toward self and customers.

PARTNERSHIP

Through respect and mutual support, maintain positive long-term partnership to ensure maximum success.

COMMITMENT

UMC is committed to ensuring the success of our partners, which marks our success in our objectives.

We carefully explain the UMC policy and principles on IP protection mentioned above to demonstrate our commitment to ensuring the important IP security of our customers. UMC is fully convinced that our philosophy of operation has not only helped us and our customers achieve today's growth and prosperity, but is also the best guarantee for achieving long-term success in the future.

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UMC satisfies customer needs by helping manufacturers systematically develop, design and manufacture reliable and safe products that comply with international standards. In 2014, UMC began pushing for International Organization for Standardization (ISO 15408) certification. In addition, its Fab 12A fab was awarded ISO 15408 Level EAL6 safety certification by the Germany Federal Office for Information Security, becoming the first wafer foundry in Taiwan to win such a certification and possessing manufacturing conditions that comply with the ISO 15408 Common Criteria. In addition to the comprehensive increase in the security of company and customer assets, customers are not required to verify wafer fabrication safety in their future applications for product safety certification, thereby reducing their costs in time and resources, and accelerating their product entry into the market.

Protecting Customer Assets - Customer Property (physical + information + data) Confidentiality (diagram)

In addition, the IT department also received ISO 27001 certification and established a complete information security management system (ISMS). Through the process of certification, IT security policies and management procedures are implemented and employees' information security is improved. Furthermore, through regular reviews conducted on security KPIs and implementation of information security audits, UMC reduced the information security threat to the company from the technical and procedural aspects. The benefits achieved include strengthening internal security controls, enhancing the security, trust, and satisfaction of external customers' intellectual property rights, as well as reducing the customer's own repeated requests for UMC information security audits.

In 2018, UMC established the "Corporate Security Division," responsible for the company's information security and physical security planning and related audit matters, and working together with the "Information Technology Division" to further strengthen information security.

UMC's information security policy is based on the guiding principle

To establish Information Security Management rules in accordance to regulations and customer's requirement.



To reach a consensus that information security is everyone's responsibility through full awareness.



To protect information Confidentiality, Integrity, Availability for the Company and Customer.



To provide a safe production environment to ensure sustainable operation of the company's business.

The major information security objectives are aimed at antivirus, anti-intrusion and anti-leakage through the building of multiple internal controls such as firewall, intrusion detection and antivirus systems to enhance the company's ability to defend against external attacks. Also, with the support of top management and through regular education and training programs, security operation/awareness is tightly involved and seamlessly integrated into every employee's daily work.



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2-3-2 IMPROVING SERVICE QUALITY AND CUSTOMER SATISFACTION

Since the beginning of its operations, UMC has been committed to customer satisfaction as its duty and long-term objective. This customer-centric mentality became the core value of the company. Customer-oriented products and services are our priorities, and overall solutions for fulfilling demands are based from a customer perspective. UMC has introduced the My UMC, My HJTC (reserved for HJTC customers) and MyUSC (reserved for USC customers) online service platforms to provide customers with complete and immediate online supply chain information, including production status of orders, shipping date inquiry, and product quality data and status. At the same time, the website also offers an Engineering Data Analysis feature which provides an easy engineering analysis function for customers. Moreover, the Voice of Customer (VOC) instant online complaint system allows customers to request UMC products or services, or offer comments or suggestions. Designated employees are responsible for distributing the feedback and managing and responding to customers, who may make online enquiries about the progress at any time. For UMC, understanding customer needs through the VOC, and transforming these requests into practical action enhance the company's service quality and competitiveness, and ultimately achieves customer satisfaction.

My UMC 、 My HJTC and My USC instant online complaint systems for customers

MyUMC



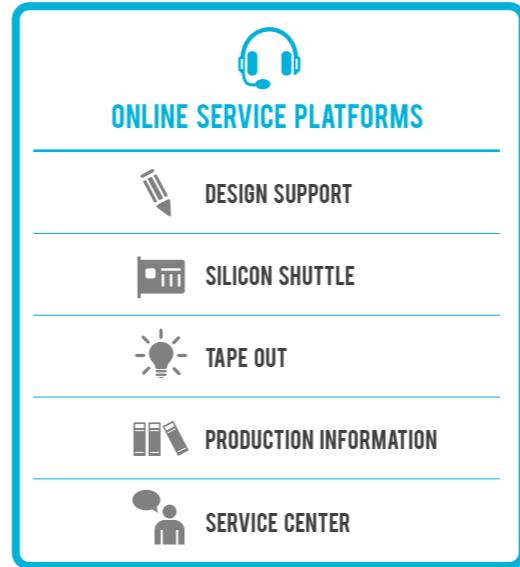
MyHJTC



MyUSC



Online service platforms provide real-time information



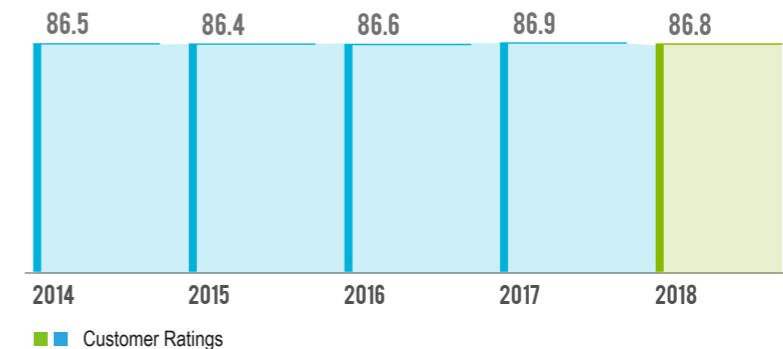
Improving Customer Satisfaction

UMC (including its subsidiaries HJTC and USC) regularly receives satisfaction ratings from those customers. Customer scorecards are distributed on an annual, semi-annual or quarterly basis. All scorecards from customers will be analyzed to identify opportunities for improvement, and UMC upholds its responsibility to make timely and effective improvements to increase customer satisfaction.

UMC's (and its subsidiaries HJTC and USC) utilization of scorecards to determine customer needs and satisfaction allows for more immediate knowledge of customer needs. In addition, UMC also responds to customer needs through meetings, and ensures that their needs receive proper attention. At the same time, the company lists product quality and timeliness as key indicators of the company's internal performance to further enhance customer satisfaction and create a win-win business.

Customer scorecard ratings show that customer satisfaction towards UMC (and its subsidiaries HJTC and USC) has been maintaining steady levels. At the same time, UMC's overall performance over the years has also received customer approval and awards, thereby indicating customer endorsement of UMC's product and service quality, and demonstrating the positive interaction and cooperation between UMC and its customers.

Customer Ratings



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2-4 RISK AND CRISIS MANAGEMENT

The ultimate direction of UMC's business operations is sustainable development, sound risk management and appropriate crisis management to ensure sustainable operations. To reduce accidents and their subsequent negative impact and losses, UMC is diligent in its crisis response, crisis prevention and drills in order to maintain its company image and protect the interests of stakeholders.

How We Manage

- Financial and Operational Risks Management
- Response to the new and global risks in the semiconductor industry
- Hazard Risk Control



Relevant Policy

- Business Continuity Management Policy.



Purposes

- With sustainable business as the ultimate focus of our operations, and using comprehensive risk management and timely crisis handling, the company actively implements crisis response, pre-crisis prevention, and disaster drills.



Applicable Entities

- UMC
- Hejian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits.



Goals and Targets

- Pursue sustainable business operations.
- Provide customers with wafer manufacturing that is diverse, uninterrupted, and of good quality.

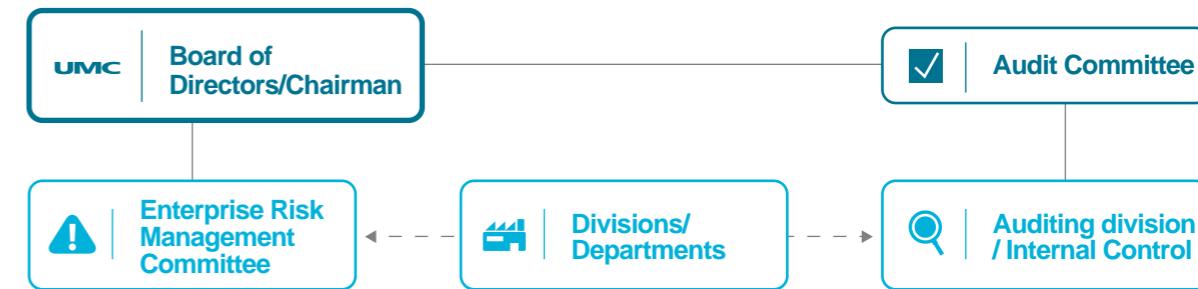


2-4-1 RISK MANAGEMENT ORGANIZATION AND SYSTEM

Risk Management History

The Enterprise Risk Management (ERM) Committee was established in the second half of 2018 to strengthen the identification and management of critical risks. In 2019, based on the risk database co-developed with Mash Risk Consulting, the senior representatives of ERM organization will review and identify risk items, then evaluate the impact and draw the risk map. In addition, critical risks will be managed with high priority, and corresponding response strategies will be addressed, including the emerging risks that may occur in the next 3-5 years.

Enterprise Risk Management Organization



The Enterprise Risk Management Committee coordinates key risk management departments within the company to jointly examine internal and external risks of the company, organize major risk issues and the responding action plans of the company, and discuss the results with the company's operation management team to reach consensus in risk management goals and structure. In addition, risk management strategies are carried out and implemented, and the corresponding plans and implementation results are reported to the board of directors on a regular basis. Furthermore, internal audit and control are incorporated to ensure that the risks associated with operations are properly managed.

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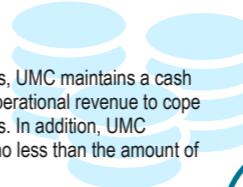
The Enterprise Risk Management Committee organized risk items that have been identified in categories such as strategy, operation, finance, hazard, etc., and evaluated the likelihood as well as the severity of their occurrences to determine their corresponding priority and risk level, and to adopt appropriate risk management plans. In addition, the Committee reviews the time-dependent possibility as well as the severity of risk occurrence regularly to ensure the effectiveness of risk management plans and related control measures.

2-4-2 FINANCIAL AND OPERATIONAL RISKS

Analysis of the impact to financial performance indicates the following financial risks for UMC:

LIQUIDITY RISK

The semiconductor industry requires intensive capital. If adequate cash cannot be maintained, the company may face liquidity risk for its short-term financial needs.

**Risk Strategy**

To continue operations in emergency situations, UMC maintains a cash reserve equivalent of about three months of operational revenue to cope with operational needs under various situations. In addition, UMC maintains cash balance and bank facilities of no less than the amount of monthly revenue to ensure liquidity.

**CREDIT RISK**

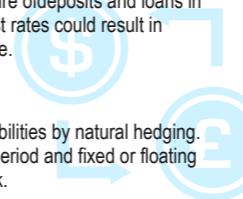
Due to financial deterioration or other factors, customers may be unable to fulfill their contractual obligations, resulting in risk of loss from default.

**Risk Strategy**

UMC's Credit Management Department controls customer credit amount according to the company's credit policies and customers' financial conditions.

CURRENCY INTEREST RATE RISK

Revenue and capital expenditure in the semiconductor industry is mainly calculated in currencies other than NT, and hence fluctuates with exchange rates. However, due to large exposure of deposits and loans in the semiconductor industry, changes in interest rates could result in deviations from expected financial performance.

**Risk Strategy**

UMC balances foreign currency assets and liabilities by natural hedging. In addition, appropriate management of debt period and fixed or floating interest rate structure reduces interest rate risk.

PROPERTY AND OPERATIONAL DISRUPTION RISK

Natural disasters or accidents may result in risk of property or operational loss.

**Risk Strategy**

UMC mitigates natural or man-made disaster risks through property damage and business interruption insurance policies. The insurance scheme balances risk management costs, insurance premiums and risk retention capacity.

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2-4-3 EMERGING SEMICONDUCTOR RISKS AND GLOBAL RISK TRENDS

Taiwan's semiconductor industry growth outpaces the global average. Driven by factors such as advanced process technology R&D, peripheral equipment and material cluster effect and the characteristics of emerging markets, the competitive advantage and growth potential of Taiwan's semiconductor industry is optimistic. Although the semiconductor market is expanding, the trend is expected to slow compared to the highly complex growth of past demand cycles. Moreover, the impact of Mainland China's national support strategies for its semiconductor industry in recent years cannot be ignored.

UMC assessment of possible emerging risks and countermeasures in the semiconductor industry.



RISK 1

Risk Description

China and the USA are engaged in a trade war as each country continues to dispute tariffs placed on goods traded between them. In April 2018, USA filed a request for consultation to the WTO in regard to concerns that China was violating intellectual property rights.

Because of the long-term trade deficit between the United States and China, and the US's doubts about China's invasion of intellectual property rights and trade secrets, coupled with China's challenge to the US-led world political and economic order. This trade war should be difficult to end in the near future, and may even evolve into a long-lasting confrontation pattern.

Impact on Operations

It will impact UMC's business or investment /cooperation project engaged with China companies due to US/China trade dispute

Countermeasures

- Besides cautiously facing business from USA and China, UMC also aggressively expands its business from Europe, Japan and other Asian countries.
- In response to business uncertainty for server, automotive and industrial applications that originally enjoyed high growth, UMC also tries to expand its opportunities in IoT, AI, etc.

UMC has also suspended any large-scale investment /cooperation projects. For possible investment /cooperation projects in the future, UMC will maintain a more cautious attitude and action plan in order to protect intellectual property and national security and to have prior inquiry and avoidance.



RISK 2

Risk Description

UMC has received from time-to-time communications from third parties asserting that its technologies, its manufacturing processes, or the use of those semiconductors by its customers may infringe upon their patents or other intellectual property rights. These assertions have at times resulted in litigation by or against the Company. In the past decade, there has been a notable increase in the number of assertions made and lawsuits initiated by certain litigious, non-practicing entities and these litigious, non-practicing entities are also becoming more aggressive in their monetary demands and requests for court-issued injunctions.

Impact on Operations

Such lawsuits or assertions may increase UMC's cost of doing business and pay huge fees in litigation cases and may potentially be extremely disruptive if these non-practicing entities succeed in blocking the trade of products and services offered by UMC. Such activities will also affect company revenue, delay new product development or harm company reputation.

Countermeasures

- Due to the high degree of competition in the semiconductor industry, patent technology is regarded as an important cornerstone. In the past decade, the number of lawsuits has grown exponentially. UMC acknowledges the importance of patent protection, so it is listed as an emerging risk of key management. UMC has taken related measures to minimize potential loss from intellectual property claims and litigation filed against the Company. These measures include: strategically obtaining licenses from certain semiconductors as needed; continued strength of its intellectual property portfolio; timely securing intellectual property rights for defensive and/or offensive protection of UMC technology and business; and collaboration of internal lawyers and external law consultants to aggressively defend against baseless litigation; and continuously strengthen the basic legal awareness of employees through training programs.

As a link in the supply chain, UMC remains aware of both emerging industry risks and the trend in global risks. Based on the Global Risk Report released each year by the World Economic Forum (WEF), UMC discerns risk trends and formulates early countermeasures for reducing risks.



ENVIRONMENT

- **Extreme weather event**

UMC Countermeasures

Refer to 2-4-5 for disaster and risk control.

- **Natural catastrophes**

UMC Countermeasures

Refer to 2-4-5 for disaster and risk control.



SOCIETY

- **Water crises**

UMC Countermeasures

- Establish UMC water risk management tools for early warning and develop coping strategies.
- Strengthen Fab 12A flood control capacity, and complete the installation of flood gates and drills at specific entrances to prevent direct losses caused by floods.



TECHNOLOGY

- **Cyberattacks**

UMC Countermeasures

- Install online defensive systems such as NG IPS, Anti-APT and WAF, and the SIEM information security management system to strengthen defense capability against attacks.

NG IPS: Next Generation Intrusion Prevention System

APT: Advanced Persistent Threat

WAF: Web Application Firewall

SIEM: Security Information & Event Management

- **Data fraud or theft**

UMC Countermeasures

- Install encryption mechanisms for computer systems to reduce the risk of information leak due to laptop loss or inappropriate use.
- Install computer endpoint protection mechanisms for recording data output to reduce the risk of information leaks due to inappropriate use.



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2-4-4 BUSINESS CONTINUITY MANAGEMENT

With rising global risk, UMC recognizes the issue of business continuity, which means providing uninterrupted services to strategic customers and key relationships, and upholding customer diversity, sound quality and uninterrupted foundry manufacturing as the highest mission for business continuity management. Since 2002, UMC has established the Business Continuity Plan (BCP) for its fabs, and became a leader in the industry in 2013 when the Hsinchu headquarters and Fab 12A were awarded the ISO 22301 Business Continuity Management System Certificate by SGS Taiwan Ltd. Under such an operation and maintenance mechanism, continuous and sophisticated evaluation ensures that in the event of a disaster or impact, the highest operational goals can be fully maintained and recovered, thereby protecting the maximum interest of customers and stakeholders. At the 2018 BCMs manager reviewing meetings, the committee approved that 8-inch fabs should gradually upgrade their site-level BCP to the ISO 22301 BCM framework to enhance automotive customer's confidence of the wafer fabrication supply chain's stability. BCMs' framework has been completely introduced into Fab 8A and 8E in 2018. Per the PDCA (Plan, Do, Check, Action) continuously improving and monitoring procedure, our customers' confidence in emergency response and disaster recovery of UMC will be further improved.

UMC Business Continuity Management Organization

The UMC business continuity management system comprises of the Business Continuity Management executive representative who is responsible for promoting management matters. The executive director periodically reviews management performance and makes decisions on business continuity management policies¹.

System Operation Goals

2018

System Operation Goals

- Develop BCMS framework for 8" fabs(two 8" fabs completed)
- Deploy Earthquake Early Warning System pilot for Fab 12A
- Establish supply chain risk map

★ 2018 System Operation Goals:Achievements

- Introduced BCM framework into two 8-inch fabs (8A&8E) successfully. Exercise has been done and countermeasures were developed for top risk.
- Completed functional test between Earthquake Early Warning System (EEWS) and specific production tools.
- Achieved 100% production information collection of material suppliers and backup suppliers.

2019

System Operation Goals

- Enhance the information security index by 7%².
- Increase Furnace quartz inventory rate up to 88% for 8 inch Fabs&98% for Fab12A³.
- No major deficiencies are found in the annual ISO 22301 BCMS third-party audit.

2020

System Operation Goals

- Identify crisis events that will have a major impact through the business continuity management system(ISO22301).
- All countermeasures are in place and drills conducted as planned.

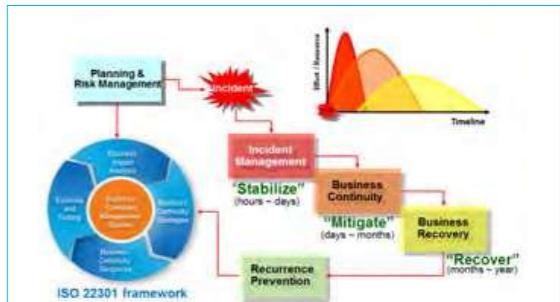
Note1: Please refer to the Risk Management section of the company website for information on policies and organization.http://www.umc.com/English/CSR/c_1.asp
 Note2: Increase score from 3.67 to 3.93 to meet well managed definition.
 Note3: Backup inventory rate higher than the requirement of MBCO (minimum Business Continuity Objective).

2018 Operational Results of Business Continuity Management

The BCMs management reviewing meeting is held annually at the end of the year or the beginning of the following year. The committee will review internal and external risks in retrospect, and explore prospective improvement plans of the BCM system. The committee chief will approve the next year's KPI to make sure that UMC's BCM system operates correctly and efficiently. For potential risks such as earthquake, fire disaster, chemical leaks, utility outage, drought and raw material shortage, apart from preparation, UMC will carry out different kinds of exercises to verify our emergency response plan and to accelerate recovery speed. The topic of 2018's drill is a simulated earthquake that happened at the Tainan Fab. The damage assumption is based on our experience of the February 6th Meinong earthquake in 2016. We practiced stakeholder's communication tactics in various aspects, including employees, suppliers, customers, investment banks and social media. In addition, production allocation plans between different fabs were also adopted this time. This drill was convened by President Chien and related executive members including CFO, CHO, the 12-inch manufacturing vice president, manufacturing resource integration vice president, etc. It demonstrated UMC's resilience in business continuity.



2018 Top Manager Crisis communication and strategy exercise



UMC BCM Framework

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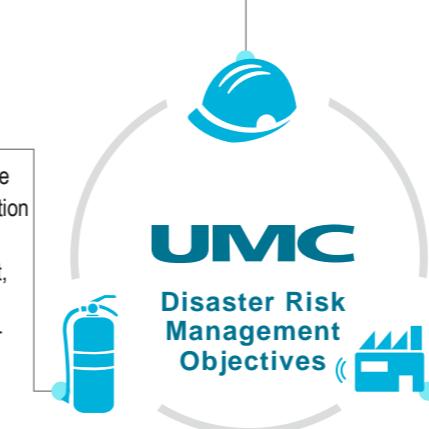
UMC fully recognizes the impact and influence of natural and man-made disasters on production and operation. Hence the company has consistently adopted an active attitude toward preventive disaster risk management, and seeks to achieve the highest standard of semiconductor industrial safety through rigorous risk engineer controls and implementation of safety regulations and norms.

Disaster Risk Management Objectives**EQUIPMENT SAFETY**

The Environmental Health and Safety Standards (SEMI-S2) for semiconductor manufacturing equipment is the primary international standard adopted by UMC for reviewing newly procured fab tools, and is the company standard. When introducing the Equipment ESH Purchasing Specifications into its procurement activities, equipment must conform to review standards before being brought into the fab and conform to inspection after installation for effective equipment safety control.

FIRE SAFETY

UMC incorporated the international standards of the US Factory Mutual Insurance Company (FM), Underwriters Laboratories Inc. (UL), the US National Fire Protection Association (NFPA), the Semiconductor Equipment and Materials International (SEMI) and other international standards into its building construction, equipment, engineering controls and risk assessment, and formulated relevant company regulations for additional requirements. UMC is the only one in the semiconductor industry company equipped with a professional fire brigade. In addition to government level fire trucks and rescue equipment, all firefighters perform professional fire disaster training regularly and possess the ability to rescue.

**EARTHQUAKE PROTECTION**

UMC actively plans and establishes sound disaster risk management and response procedures, and collaborates with internationally renowned structural consultants JENSEN HUGHES. At the beginning of the construction stage, earthquake-resistant requirements are integrated into the design concept of buildings, facilities, pipelines and production equipment. For those fabs built before 2000, continuous improvements are scheduled. The magnitude 6.6 Meinong earthquake hit Taiwan on 6 February 2016, with UMC's Fab 12A in Tainan Science Park experiencing an intensity of around 6.0. However, the damage was less than peer companies, proving the effectiveness of the anti-seismic design in UMC. Furthermore, new anti-seismic techniques such as seismic isolation platforms for production equipment and Earthquake Early Warning System (EEWS) are imported to UMC to further ensure personnel safety and reduce the potential loss of process tools and auxiliary equipment.

Triple-Star Rating system

Since 1998, UMC has introduced the Triple-Star Rating System. the international insurance company AIG has been invited to conduct audits every year, thereby continuously upgrading risk protection levels to comply with UMC's commitment of Highly Protected Risk to customers and the insurance market. The ratings of all UMC fabs are maintained at the highest score except for parts of old fabs. The major improvement plans in 2018 include: retrofitting of corrosive outdoor facilities and conducting flow tests for sprinkler heads that have been in service for more than 20 years to verify functionality.

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2-5 SUSTAINABLE SUPPLY CHAIN MANAGEMENT

UMC implements responsibility and sustainability, the key factors of corporate social responsibility, through the promotion of sustainable supply chain management. The core value of UMC's sustainable supply chain is "Sustainability and Mutual-Development". UMC pursues sustainable operation by partnering with its supply chain to achieve mutual growth. In addition to improving the value of the supply chain and building an upgraded green supply chain, we care more about creating positive influence and accelerating the development of sustainable supply chain management. The promotion and implementation of sustainable supply chain is the responsibility of the Supply Chain Management Committee which is under the Corporate Sustainability Committee. UMC requires its suppliers to follow related social responsibilities.

How We Manage

- Raise cost-leading ability
- Establish sustainable supply chain ability
- Enhance supply-chain supply ability
- Build green supply chain
- Consider eco-friendliness
- No compromise with conflict minerals
- Implement sustainable risk management
- Focus on environmental issues



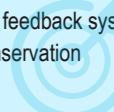
Purposes

- To protect the environment and emphasize society's obligation, labor rights, security, health and the goal of a continually developing supply chain.



Goals and Targets

- Supply chain assessment/review/management fully meets RBA requirements.
- All new suppliers sign the Supplier Code of Conduct.
- Maintain conflict-free mineral procurement
- Complete supply chain risk type of all production areas and real-time feedback system
- Promote circular economy and encourage suppliers to do energy conservation
- Execute Tier 2 critical supplier sustainable management



Related Policies

- Suppliers' Strategy and Commitment
- Suppliers' Code of Conduct



Suppliers' Strategy and Commitment



Suppliers' Code of Conduct

Applicable Entities

- UMC
- HeJian Technology (Suzhou) Co., Ltd and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits.
- Supply Chain



Major Performances

Item	Target in 2018	Conformity in 2018	Short-term Goal	Long-term Goal
Award outstanding suppliers	<ul style="list-style-type: none"> • Award outstanding suppliers for more than 6 suppliers 	<p>★ • In 2018, UMC presented the Triple R league award to a total of 19 suppliers (Outstanding result award to 10 suppliers, Good result award to 9 suppliers)</p>	<ul style="list-style-type: none"> • Presented outstanding Triple R league supplier award to more than 15 suppliers 	
Supply Chain sustainability (ESG) promotion: Circular Economy	<ul style="list-style-type: none"> • Propose 1 Circular Economy project 	<p>★ • UMC Triple R league 3-year project --> In 2018, driving suppliers to achieve a 175,000 ton reduction in carbon emission, and 50 ton reduction in waste sludge</p> <p>• Precious material waste recycling project --> Reached an accumulated NT 130M from the recycling of precious material waste in 2018</p> <p>• Reclaim Wafer reuse project --> In 2018, 52.4% of dummy wafers by using reclaimed wafers</p> <p>• Oxide Slurry SS25 recycling project --> Reached an accumulated 1,290 ton of Oxide Slurry SS25 recycling</p>	<ul style="list-style-type: none"> • Continuously promote Circular Economy projects 	<ul style="list-style-type: none"> • UMC Triple R league 3-year project : Target to drive suppliers to achieve a 390,000 ton reduction in carbon emission -- 2020 • Precious material waste recycling project: Reach an accumulated NT 664M from the recycling of precious material waste -- 2025



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Item	Target in 2018	Conformity in 2018	Short-term Goal	Long-term Goal
Ethics and anti-corruption	• 100% of the new added suppliers signed the UMC Supplier and Employee Professional Ethics Agreement	★ • In 2018, 100% of new added suppliers signed the UMC Supplier and Employee Professional Ethics Agreement, over 3000 suppliers have already signed in total.	• 100% of the newly added suppliers signed the UMC Supplier and Employee Professional Ethics Agreement	• 80% of Critical non-tier 1 (Tier 2) suppliers are to sign the supplier code of conduct -- 2025
Supply Chain Risk	• Establish risk databank	★ • Completed the supply chain risk databank and earthquake spare parts (quartz, fragile parts) management process for 2000 key raw materials (covered around 100 suppliers) • Completed the investigation of backup production fab of each supplier, and differentiation of risk type of all production areas • Furnace quartz preparation (To reach MOL 54%) • Completed 87% earthquake spare parts preparation	• Continuously update for backup production fab of each supplier and risk type of all production areas • Complete dynamic warning system of the related production areas at risk from natural disasters • Complete 91% earthquake spare parts preparation	• Complete Auto-trigger supplier system for regular recovery status updates through dynamic warning system -- 2020 • Continuously update for risk types of all production areas -- 2020 • Complete 96% earthquake spare parts preparation -- 2020
Supplier sustainability questionnaires and assessment percentage	• -Complete ESG evaluation for raw material supplier from 100% of the procurement. • -Complete ESG evaluation for equipment and facility supplier from 80% of the procurement. • -Overall ESG evaluation for more than 600 suppliers. -New suppliers' main evaluation criteria is based on estimated procurement amount above NTD one million, and suppliers who are highly related to environmental and manpower service.	★ • Completed the ESG evaluation for 100% of raw material suppliers; a total of 388 suppliers. • Completed the ESG evaluation for 80% of equipment and facility suppliers; a total of 230 suppliers. • Completed overall ESG evaluation; a total of 618 tier 1 suppliers, and a total of 61 non-tier 1 suppliers. • Totaled 203 new suppliers in 2018, and 13 suppliers have been assessed. • The subsidiaries are located worldwide, and they completed ESG evaluation from 80% of the procurement; a total of 195 suppliers (121 49 suppliers, HJTC 80 suppliers, USC 66 suppliers), and a total of 30 new suppliers (121 2 suppliers, HJTC 13 suppliers, USC 15 suppliers).	• Complete ESG evaluation for all kinds of suppliers who support production materials, and annual business amount over NTD 2M (one-time business is excluded) ** • New suppliers' main evaluation criteria is based on estimated procurement amount above NTD one million, and suppliers who are highly related to environmental and manpower service. • ESG evaluation for Critical non-tier 1 suppliers. • Continuously ESG evaluation of suppliers that constitute 80% of procurement for our worldwide subsidiaries continuously ESG evaluation for supplier from 80% of procurement	• 30% of Critical non-tier 1 (Tier 2) suppliers will be managed by supply chain assessment / audit / management -- 2025
Quantity of supplier sustainability (ESG) audit	• Complete ESG on-site audit for more than 120 suppliers	★ • Completed ESG on-site audit for 198 suppliers; 5 suppliers failed the ESG audit, and they will be monitored for improvement.	• Complete ESG on-site audit for more than 30% of tier 1 suppliers • Complete ESG on-site audit through third-party for more than 10 worldwide suppliers • Complete ESG on-site audit for more than 10 suppliers by worldwide subsidiaries	
Quantity of supplier continual management (BCM) audit	• Complete the supplier BCM management promotion; performed the ongoing risk evaluation for suppliers that accounted for 95% of procurement.	★ • Completed on-site audit of 26 suppliers	• Complete BCP on-site audit for more than 23 suppliers annually	
Conflict mineral management	• Conflict mineral investigation report • On-site audit for 3 suppliers	★ • Completed the 2018 conflict mineral investigation report (no conflict mineral were found in 13 suppliers, 9 contractors and 16 affiliated companies). • Completed on-site audit for 4 suppliers, and no misconduct was found.	• Conflict mineral investigation report • On-site audit for more than 4 suppliers	• Sustain 100% sourcing of conflict free minerals

New Supplier Evaluation: UMC evaluates new suppliers rigorously and cautiously. Therefore, only suppliers with estimated annual transaction value greater than 1 million NTD are considered for sustainability evaluation.

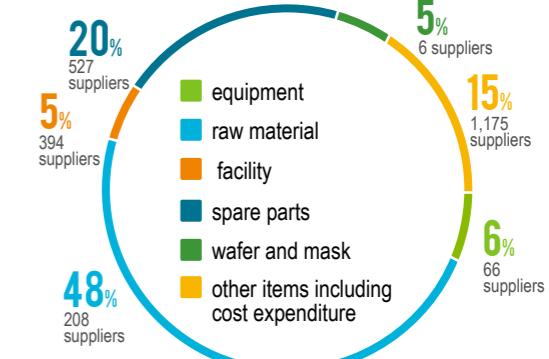
The scope of the 2019 sustainability evaluation will be extended to all material suppliers who support production. All suppliers with annual transactions of over 2 million NTD (excluding one-time transaction suppliers) are subject to the evaluation process to implement 100% of the sustainability questionnaires. It is expected that the area of the scope covered will increase significantly to cover small and medium-sized suppliers.

The disclosure of major performances will be based on the plant sites in Taiwan.

2-5-1 LOCALIZE SUPPLY CHAIN AND PROCUREMENT

When corporate social responsibility becomes the key to business continuity, UMC must fulfill increasing international expectations towards business standards in Taiwan. In 2018, UMC, including subsidiary Hejian Technology (Suzhou) Co. Ltd., and United Semiconductor (Xiamen) Co. Ltd., cooperated with more than 4,100 suppliers worldwide. The proportion of all suppliers in UMC Taiwan is as follows

Procurement localization became a key strategy adopted by UMC when looking for potential partners and suppliers. In addition to enhancing close partnerships with local suppliers, UMC hoped suppliers would provide services more efficiently, shorten delivery time and reduce carbon footprints of raw materials required through local production. UMC also provided job opportunities and promoted local socio-economic development indirectly. UMC believes that a procurement localization strategy is a key value for fulfilling corporate sustainable development and is a part of corporate social responsibility.

The proportion of all suppliers in UMC Taiwan

Status (★ Hit rate 100% / ☆ Hit rate under 100%)

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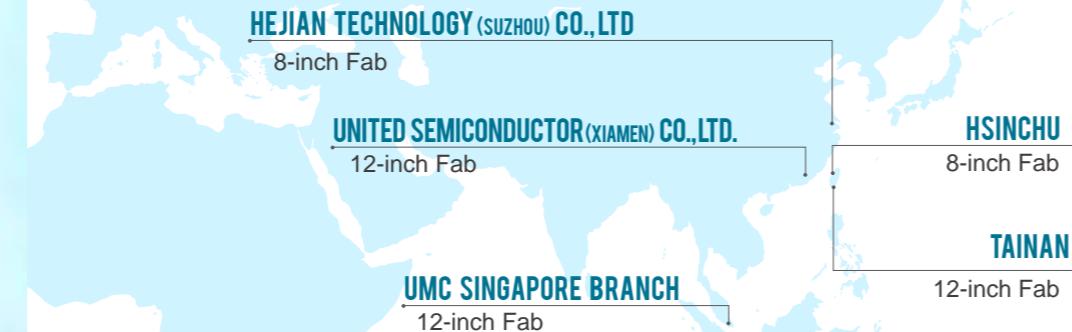
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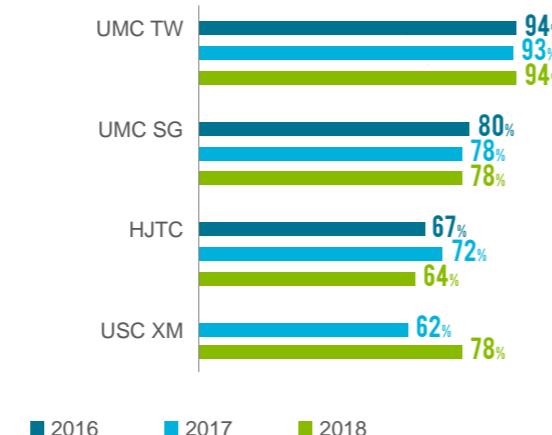
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Major UMC production bases in Taiwan are located in Hsinchu Science Park and Tainan Science Park. Overseas locations are mainly located in Singapore (UMC Singapore Branch) and Mainland China (subsidiary He Jian Technology). In addition to HeJian Technology (Suzhou) Co., Ltd. located in the Suzhou Industrial Park, UMC's manufacturing base in China also includes United Semiconductor (Xiamen) Co., Ltd. founded in 2015. United Semiconductor Co., Ltd. is a semiconductor manufacturing company, specializing in the manufacturing of 12-inch wafers.

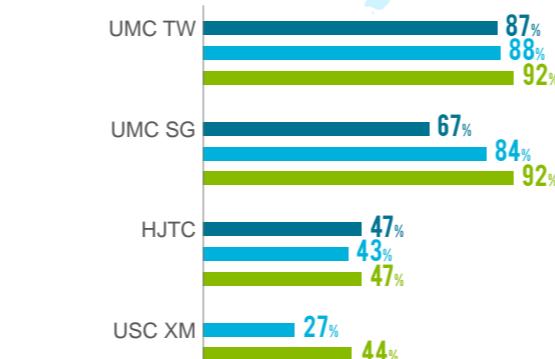


UMC applies a procurement localization strategy to all production sites. In 2018, approximately 94% of UMC's suppliers were domestic suppliers in Taiwan. Proportion of procurement amounted to a total of 92%. For the supply chain in Singapore, up to 78% of UMC's suppliers were domestic suppliers in 2018, accounting for 92% of procurement amount. Among the supply chain in China, up to 64% of UMC's suppliers are domestic suppliers for HeJian Technology (Suzhou) Co., Ltd. 47% of procurement amount is domestic. Up to 76% of UMC's suppliers are domestic suppliers for United Semiconductor (Xiamen) Co., Ltd. 44% of the procurement amount is domestic.

Percentage of Domestic Suppliers



Percentage of Domestic Procurement Amount



2-5-2 SUSTAINABLE SUPPLY CHAIN MANAGEMENT

UMC's Management Policy

- RAISE COST-LEADING ABILITY**
Integrate UMC group resources to gain the most competitive supply chain value by strategic cooperation.
- ESTABLISH SUSTAINABLE SUPPLY CHAINABILITY**
Motivate vendors to raise performance in the aspects of economy, society and environment.
- ENHANCE SUPPLY - CHAIN SUPPLY ABILITY**
Continuously advise vendors about diversified supply through local sources.
- BUILDING A GREEN SUPPLY CHAIN**
Promoting suppliers about energy conservation and carbon reduction towards a circular economy
- CONSIDER ECO - FRIENDLY**
Actively implement green procurement, pursue economic benefits and consider environmental friendliness
- NO COMPROMISE ON CONFLICT MINERALS**
Ensure products and supply chain use conflict-free minerals
- IMPLEMENT SUSTAINABLE RISK MANAGEMENT**
Focus on suppliers' energy resource use and water resources management to respond to the impact of extreme climate change on the supply chain
- FOCUS ON ENVIRONMENTAL ISSUES**
Strengthening the recycling of waste resources and working to reduce the impact of environmental pollution

UMC's commitment is disclosed on UMC's website. Please visit:
http://www.umc.com/English/CSR/c_3.asp



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UMC upholds the supplier policy of "treating suppliers as partners and guiding suppliers for long-term cooperation" to plan a comprehensive management system for suppliers. The following five standards were adopted to regulate and guide suppliers, hoping to establish a supply chain management system with sustainable development.

Five Principles of Supplier Sustainability Evaluation**EXECUTION****Policy**

- 1. "UMC Supplier and Employee Professional Ethics Agreement" & "UMC's Supplier Code of Conduct"
- 2. Meet UMC Supplier management Capability Evaluation in 6 dimensions: Quality/Finance/Price/Delivery/Service/Sustainability

Standards

- 1. All suppliers need to commit and sign (Remark A)
- 2. All suppliers are responsible for requiring next-tier suppliers to commit and sign

RISK MANAGEMENT**Policy**

- "UMC's Supplier Sustainability Evaluating Mechanism"

Standards

- 1. Domestic Suppliers audited by UMC audit team
- 2. Worldwide suppliers audited through Third-parties authorized by UMC (Remark A)

SUPPLIERS TRAINING

- Constantly offer supplier training courses
- Gradually and continuously communicate with suppliers about the direction of UMC's supply chain management

**RISK EXPOSURE & MEASURES****Policy**

- Using "UMC's Supplier Sustainability Evaluating Mechanism" to define risk level of sustainability

Standards

- Formal risk identification processes are
- 1 UMC issues ESG questionnaire to all critical suppliers (procurement amount is over 80%), including equipment suppliers, facility suppliers, spare parts suppliers and raw material suppliers etc. annually.
 - 2 ESG score below 80, we considered the suppliers to be high-risk
 - 3 Suppliers' flaw found under audit or with on-going purchase orders, we considered the suppliers to be medium risk
 - 4 We also randomly selected 30% of critical suppliers, and considered the suppliers with potential risk

COUNSEL & TRACK**Policy**

- "UMC's Supplier Sustainability Evaluating Mechanism"

Standards

- 1. Counseling during the audit
- 2. Issue audit report with flaws and improvement plan
- 3. Suppliers are consulted and need to be continuously observed in the following year.
- 4. The supplier fails to improve any flaws: UMC will reduce the business amount or even terminate the business relationship

Supplier Sustainability Evaluation - New Suppliers Selection Criteria

Currently, criteria for selecting new suppliers include



status on the Dow Jones Sustainability Index



compliance with UMC Supplier and Employee Professional Ethics and Code of Conduct



compliance with principles of open and fair competition.

UMC has always attached importance to the compliance of suppliers' employee ethics and supplier code of conduct, and adheres to the principle of open and fair competition.



Prior to 2016 (including 2016), UMC focused on the Dow Jones Sustainability Index for the production of raw materials and spare parts.

Beginning in 2017, we continued to include key equipment, facility, engineering and labor service suppliers as well as new suppliers.

In 2018, all critical suppliers supporting production-related materials were included in the evaluation.

Note: With annual procurement value of greater than 1 million NTD. Environmental or manpower-based suppliers are subject to evaluation with environment/social aspect as the major evaluation criteria. The suppliers should accept the "Supplier Code of Conduct" and sign the "Employee Code of Ethics" in order to become a supplier.

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In 2018, there were 2,376 vendors in Taiwan, and a total of 618 were evaluated as critical suppliers. As a result of the assessment, all suppliers in the environmental sector agreed to work with UMC to improve environmental protection measures such as energy, waste, hydropower resources and greenhouse gas emissions reduction. Some of the social suppliers in risk management have realized the possibility of risk management affecting the company's operations. In 2018, there were 203 new suppliers in UMC, including 13 that were evaluated by ESG (new suppliers accounted for 6% in 2018). UMC requires suppliers to comply with the company's requirements for labor, health and safety, the environment, business ethics and management systems, and fully comply with the laws and regulations of the countries in which they operate.

In 2018, 100% of the new suppliers have signed the abovementioned Codes of Ethics required by UMC. In 2018, UMC started to require its suppliers to disclose their tier-1 suppliers' information; a total of 61 suppliers were revealed. In 2019, UMC further required its suppliers to sign the code of ethics with their tier-1 suppliers and to conduct supply chain evaluations for joint promotion of corporate social responsibility.

Supplier Sustainability Evaluation- Supplier Risk Management Evaluation

UMC attaches great importance to the sustainable management of suppliers. For the requirements of sustainability, we focus on the environmental, social and corporate governance requirements of suppliers. In response to the supplier's sustainable management, UMC established the "Supply Chain Management Committee" and formulated the "Supplier Evaluation Mechanism" (or the Dow Jones Sustainability Index Selection Mechanism) to regularly manage and evaluate the improvement and tracking of vendors.

The Supplier Evaluation Mechanism is managed by critical suppliers that support production, including equipment suppliers, raw material suppliers, factory engineering suppliers, consumables and component suppliers. Each year, Q (Quality), C (Cost/Financial), D (Delivery), S (Service), S (Sustainability) are evaluated.

The "Supplier Evaluation System" set the "Evaluation Level and Response Measures" (Note 1), and incorporated the items required for sustainability management (Note 2) into the evaluation criteria according to the degree of importance. Questionnaires are sent to the suppliers annually. The responses are collected and further categorized according to the characteristics and risk of the suppliers in order to improve the guiding process.

Supplier management performance was included as an indicator item in supplier evaluations conducted by UMC. UMC requires all its suppliers to sign the "Supplier and Employee Professional Ethics Agreement," asking its suppliers to strictly follow the Codes of Conduct and social responsibility related regulations. Also, suppliers should require their own suppliers, contractors and service providers to adopt the above regulations. Suppliers should assess their supply chain regularly. The extent of suppliers' obligation will be a condition when procurement strategy is conducted. Suppliers having certifications related to environmental protection or hazardous substance management (ISO 14001, TS 16949, or QC080000) or can demonstrate capabilities in fulfilling the requirements of the EICC Code of Conduct may be provided with additional points. This incentive was provided to help guide and encourage suppliers to comply with these standards.

Level of Evaluating Supplier Sustainability and Response (Note 1)

EVALUATION SCORE

100

GOOD

Increase procurement amount.

90

SATISFACTORY

Maintain current operation, but request supplier to strengthen management mechanism.

80

NEEDING IMPROVEMENT

- Audit suppliers who scored less than 80 points in the current year, and counsel improvement.
- The Supply Chain Management Group should review procurement from suppliers who scored between 70-79 points for two consecutive years.

Below 70

SIGNIFICANT DEFICIENCY

- Audit suppliers who scored below 70 points in the current year, and counsel improvement.
- The Supply Chain Management Group should discuss terminating procurement from or canceling supplier status of suppliers who scored below 70 points for two consecutive years.

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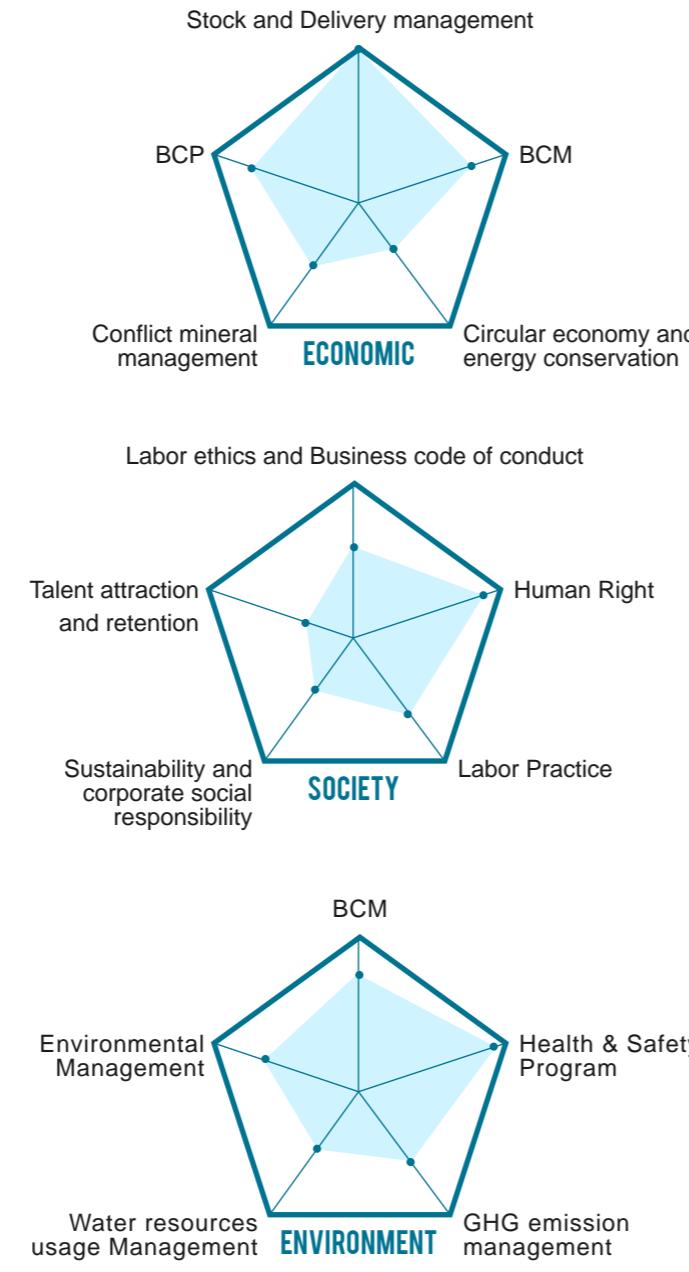
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Required Items For Supplier Suinability Evaluation^(Note 2)



Supplier Sustainability Evaluation – On-Site Audit/Improvement Guidance and Follow-Up

UMC has a supplier lack of improvement management mechanism. According to the UMC supplier risk assessment mechanism (Note 3), the company will conduct on-site audits and propose solutions for suppliers with scores that are too low and suppliers failing to fulfill contractual obligations. Following UMC's assistance and consulting, suppliers are expected to complete improvements. If the manufacturer fails to improve, UMC will continue to provide guidance while evaluating short-term suspension of the supplier or termination based on supply chain risk. Suppliers that are still unable to improve within two years will face reduced purchasing amount, suspended purchasing or cancellation as a qualified supplier according to the degree of risk of the supplier (Note 4).

Sustainable Supplier's Risk Evaluation^(Note 3)

SUPPLIER'S RISK EVALUATION ESG	HIGH-RISK SUPPLIER RISK EVALUATION / AUDIT	POTENTIAL/FLEXIBLE RISK EVALUATION
Method: UMC ESG risk evaluation questionnaire	Method: On-site audit, review flawed items Request improvement proof within the prescribed time limit Check result of improvement and continuously observe	Method: On-site audit, review flawed items Request improvement proof within limit period Check result of improvement and continuous observation
Target: Fulfill supply chain management, focusing on sustainable business plan	Target: Fulfill supply chain management	Target: Ensure suppliers' quality, delivery, service and sustainability
Applies to : Tier 1 Supplier All Tier 1 suppliers who supporting production related materials	Applies to : High-Risk Supplier Suppliers who failed in on-site audit	Applies to : All Suppliers 1. Flaw found under audit or with ongoing purchase orders Randomly selected 30% from Tier 1 suppliers
Frequency : Annually	Frequency : Periodically	Frequency : Periodically

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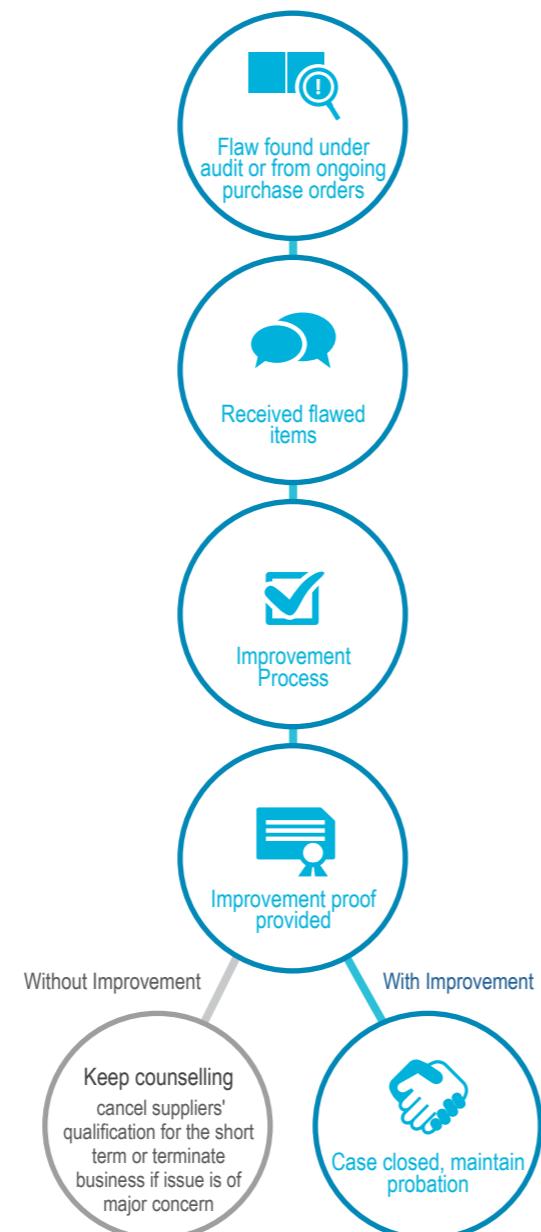
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Methods of Suppliers Failure Improvement Management^(Note 4)



Supplier Educational Training

In order to strengthen the capacity of the supply chain, UMC continued to guide the suppliers in establishing diversified and local supply capability, creating a sustainable supply chain for the suppliers. For more information on the guiding and training materials, please refer to "Creating a Sustainable Supply Chain" in this chapter.

In 2018, UMC Taiwan conducted an evaluation on its qualified diversified suppliers including suppliers for raw material, equipment, facility and spare parts and excluded suppliers with single transactions at UMC.



In 2018, UMC conducted on-site audit for suppliers on the 2017 improvement-needed list, unqualified suppliers based on the response of the 2018 questionnaire, and suppliers randomly selected from the qualified supplier list based on the response of the questionnaire. A total of 198 suppliers were audited. From the audit results, the suppliers on the 2017 improvement-needed list have all met the requirements of UMC. In 2018, only five suppliers failed to meet expectations, and guidance will be conducted for improvement.

The supplier evaluation system was applied to all UMC's overseas subsidiaries in 2018, with a total of 195 suppliers evaluated. Among the 30 new suppliers who have been selected for sustainability evaluation, only one supplier was rated as "Need Improvement." On-site audit and guidance will be conducted for improvement.

Overseas subsidiaries of UMC including HeJian Technology, United Semi and UMC Singapore.

In addition to establishing a stable sustainable supply chain with suppliers, UMC further grasps the risk management capability of the suppliers to conduct supplier evaluation on sustainable items for critical suppliers. By taking into account the interests of suppliers of different scales and the effectiveness of risk management, UMC has designed two supplier evaluation questionnaires for critical suppliers. For the top 80% of the critical suppliers, UMC uses a higher standard to inspect and determine whether it is necessary to implement BCP management and training, and to decide whether it is necessary to extend the implementation of BCP for their suppliers. We hope to continue the core value of UMC in promoting sustainable supply chain - Sustainability and Mutual-Development, triggering suppliers to voluntarily bring their suppliers to join the group for sustainability.

In 2018, the scope of supplier questionnaire evaluation included HeJian Technology and United Semi for the first time. In Taiwan, we increased the number of suppliers for on-site audits; the number of suppliers audited has increased by 8% compared to 2017. As a result, the critical suppliers of UMC who voluntarily disclosed their suppliers (tier-2 suppliers) in 2018 increased by multiples over 2017. The disclosure of critical non-tier 1(tier-2) suppliers is for UMC's operations in Taiwan only. From 2019 onwards, the disclosure of critical non-tier 1(tier-2) suppliers will include HeJian Technology, United Semi, and UMC Singapore. Starting from 2019, to strengthen the supply chain management, UMC requires its suppliers to ensure their suppliers comply with the code of ethics and implement supply chain management actions for their critical suppliers.

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80% of UMC's procurement amount

**MECHANISM FOR SUPPLIER EVALUATION**

- Review suppliers dimensions of quality/finance/price/delivery/service/sustainability
- Require environment or hazardous substance management
- Request suppliers to operate RBA
- Review past audit weakness record and PO execution weakness record

**ON-SITE AUDIT TARGET**

- Audit every three years
- Former audit result less than 70 points needs to be audit



Note: Since 2019, Tier-2 suppliers disclosure scope will include HeJian Technology (Suzhou), United Semiconductor (Xiamen) and UMC Singapore.

Statistics of suppliers' evaluation questionnaire and number of on-site audit in 2018

UMC Taiwan	HeJian Technology (Suzhou)	United Semiconductor (Xiamen)	UMC Singapore
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Number of Evaluation Questionnaires

618	80	66	49
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Number of On-site Audit Suppliers

198	0	1	0
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Number of tier-2 suppliers disclosed in 2018**2017 Tier-2 Suppliers**

19 Suppliers

2018 Tier-2 Suppliers

61 Suppliers

The number of ESG evaluations (supplier questionnaire-based evaluation) conducted from 2016 to 2018 is as follows. Since 2017, UMC has extended the types of suppliers who are subject to ESG evaluation from the original raw material suppliers to equipment suppliers, facility suppliers, and consumable and component parts suppliers. The percentage of suppliers that underwent on-site audit has increased from 9% from 2016 to 32% in 2018. It is estimated that the percentage of suppliers audited each year will reach our goal of 30%. The number of suppliers that have audited for UMC in Taiwan will continue to grow.

2016	2017	2018
------	------	------

Total suppliers receiving the questionnaire

184	573	618
-----	-----	-----

Number of suppliers been audited

16	148	198
----	-----	-----

Percentage of suppliers been audited

9%	26%	32%
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In the evaluation of sustainable suppliers, UMC not only performed evaluation on sustainability items but also carried out on-site audit, guiding suppliers to correct their faults and ensuring suppliers' risk management capabilities. Furthermore, we hope to utilize the impact of the extended supply chain to continue the core value of UMC in promoting sustainable supply chain - Sustainability and Mutual-Development, triggering suppliers to voluntarily bring their own suppliers to join the group for sustainability. The number of suppliers audited in 2018 includes suppliers on the 2017 improvement-needed list. These suppliers were audited again and their shortcomings were completely resolved. Through the implementation of supplier evaluation, the risk of suppliers can be effectively reduced, which can in turn improve the competitiveness of the suppliers.

Result of Supplier sustainability questionnaires in 2018

UMC Taiwan	HeJian Technology (Suzhou)	United Semiconductor (Xiamen)	UMC Singapore
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Total suppliers receiving the questionnaire

618	80	66	49
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Number of scores below 80 points in 2018

30	0	0	1
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Number of scores below 80 points in 2017

6	0	0	1
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Result of on-site audit in 2018

UMC Taiwan	HeJian Technology (Suzhou)	United Semiconductor (Xiamen)	UMC Singapore
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Number of suppliers on-site audited in 2018

198	0	1	0
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Number of suppliers with flaws in 2018

5	0	1	0
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Number of suppliers with flaws in 2017

6	0	0	1
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Focusing on 5 suppliers with flaws from on-site audit, the summary of flaws is as below. UMC continues to carry out suppliers' improvement plans to make sure the suppliers' competitiveness will be raised.

Risk Factor	Audit Missing
 ECONOMY	<ul style="list-style-type: none"> • Material delivery/Inventory management • Business Continuity Management (BCM) • Conflict Minerals
 ENVIRONMENT	<ul style="list-style-type: none"> • Environmental management • Greenhouse gas management • Safety and health management • Business Continuity Management (BCM)
 SOCIETY	<ul style="list-style-type: none"> • Friendly workplace • Human rights compliance • Employee's ethics policy and regulation • Sustainability and CSR
 BCP	<ul style="list-style-type: none"> • Business Continuity Status • Emergency response plan

ACTION

- UMC held 1 sharing event of supply chain sustainability for suppliers. Suppliers were required for fulfilling ESG, RBA, and risk management. A new challenge to the sustainable supply chain was also introduced during the event. 1 event will be held in Singapore in 2019.
- For safety training, a total of 54 joint conferences of suppliers and contractors were held in 2018. UMC ensures that the contractor has sufficient knowledge of environmental safety.
- In 2018, a total of 24 contractor-aligned meetings were held, which carried out safety management announcements and accident advocacy for each site.
- Targeting at specific suppliers, UMC continuously performs ESG evaluation counselling
- ESG/ BCP notions are communicated with suppliers by UMC's ESG evaluation



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The core value of UMC's sustainable supply chain is "Sustainability and Mutual-Development." UMC pursues sustainable operations by partnering with its supply chain to achieve mutual growth. In addition to the existing environmental training for the suppliers, UMC extended its supply chain management in 2018 to implement initiatives for sustainability, strengthening the guidance for local suppliers to establish sustainable supply chain capability. In order to strengthen the capacity of the supply chain, UMC continued to guide suppliers in establishing diversified and local supplying capability. To enhance the awareness of procurement personnel on sustainability initiatives and effectively implement the sustainable supply chain management, UMC held a number of educational training courses in 2018 to accelerate the development of sustainable supply chain management.

Project	Strategy	Activity	Result
Environment, safety and health education training plan for suppliers and contractors	To ensure that the contractor has sufficient knowledge of environmental safety	Training for suppliers and contractors with safety work related rules	<ul style="list-style-type: none"> Accumulated 54 training sessions held in 2018 Accumulated attendees were 3,960 in 2018 Accumulated hours for training were 7,920 in 2018
Contractor-aligned meeting	To make sure contractors are conscious of workplace safety	Routine meeting for safety management announcements and accident advocacy for each site.	<ul style="list-style-type: none"> Accumulated 24 training sessions in 2018 Accumulated attendees were 2,076 in 2018 Accumulated hours for training were 2,076 in 2018
Sustainable supply chain sharing session	Themed with "Sustainability & Co-prosperity," advocate the concept of sustainable development to suppliers	<ul style="list-style-type: none"> Advocate UMC's human-oriented sustainable conduct and co-prosperity in society Continue promoting supply chain to respond to ESG requirements Continue promoting supply chain to respond to RBA requirements Continue promoting supply chain to respond to risk management requirements New challenge to sustainable supply chain 	<ul style="list-style-type: none"> Accumulated 1 sharing session held in 2018. 40 suppliers attended, including equipment suppliers, raw materials suppliers, parts and components suppliers and facility suppliers 1 sharing session for UMC Singapore in 2019, 1 sharing session for USCXM in 2020
Sustainable supply chain management training for buyers	Promote sustainable advocacy to be carried out for routine procurement operation. To understand the trend of global business sustainable development	<ul style="list-style-type: none"> Internal employee training curriculums: Buyer's knowledge-RBA execution Supply chain management of green procurement Business Continuity Planning (BCP) of supply chain management 	<ul style="list-style-type: none"> How ESG responds to DJSI requirement Conflict mineral management Supplier audit experience sharing <ul style="list-style-type: none"> Accumulated 6 training curriculums held in 2018: rate of attainment was 100% 1 curriculum-Editing CSR report with "GRI Standards Guideline" in 2019
Counseling local suppliers to improve	Enhance suppliers' abilities and productivity; lower workplace safety accidents	<ul style="list-style-type: none"> Modify bypass installation (Focus on: poor tool uptime) Improve inside components (Focus on: Corrosion issue) Expand production line (Focus on: capacity shortage) 	<ul style="list-style-type: none"> A total of 3 suppliers were counselled in 2018 (2 for parts and components, 1 for accessory tool) Uptime exceeded 99% Workplace safety accident decreased Capacity of these suppliers increased by 5 times
Suppliers localization	Create local employment opportunities to promote local prosperity	<ul style="list-style-type: none"> Expand production line in Taiwan 	<ul style="list-style-type: none"> A total of 2 suppliers expanded production lines in 2018; 19 job opportunities were created 1 supplier plans to expand production lines in 2019 and create 20 job opportunities
Second source implementation	Lower risk of raw material shortage	<ul style="list-style-type: none"> Evaluate and select qualified suppliers 	<ul style="list-style-type: none"> 6 new suppliers were implemented in 2018

Building Green Supply Chain and Promoting Circular Economy

UMC believes that green supply chain is an important part of the implementation of the corporate sustainability blueprint. We continue to make good use of UMC's influence as the leader in business to urge suppliers in joining the circular economy. The circular economy project includes four sub-projects (see the following table). In 2017, UMC took the initiative to launch the Triple R Major League project. In 2018, the number of suppliers participating in the Triple R Major –League projects has increased by 30% as compared with that in 2017. This suggests that the influence of UMC on suppliers in discussion and activity promotion is quite significant, bringing more suppliers to join the development of green supply chain. The circular economy is an industrial economy which is friendly to the environment. While UMC continues to take sustainability initiatives for its suppliers, internal self-development was also emphasized by UMC. In 2018, the benefits of UMC's precious material waste recycling project reached a new high of 130 million NTD, and the percentage of reclaimed wafer usage was increased to 52.4% from 51.7% in 2017. Moreover, the total amount of oxide slurry (Oxide Slurry S225) recycled has reached 1,290 tons.



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Project	Propose	Activity	Result
Triple R league	Through quantifiable target set by suppliers, to promote energy saving and circular economy execution and upgrade the green supply chain.	<ul style="list-style-type: none"> • Suppliers set quantifiable targets; UMC checks the targets through scoring • Hold sharing sessions for different sectors to exchange knowledge • Hold annual award ceremony to encourage excellent suppliers 	<ul style="list-style-type: none"> • First-year award ceremony held in 2018 (for 2017), 26 suppliers were awarded • 37 suppliers joined in 2018, an increase of 11 suppliers over 2017 • Carbon emission saving was 175,000 tons in 2018 • Sewage sludge saving was 50.6 tons in 2018 • For more details about UMC's Triple R League project please visit http://www.umc.com/English/CSR/c_3.asp • Target to drive suppliers to achieve a 390,000 tons reduction in carbon emission -- 2020
Precious material waste recycling	Sell leftovers and scraps to reuse/recycle businesses to decrease waste and reuse resources effectively	<ul style="list-style-type: none"> • Evaluate licensed waste disposal contractor • By systematization control of recycling, collect the waste in volume to sell to qualified contractors 	<ul style="list-style-type: none"> • Reached an accumulated NT 100M annually from the recycling of precious material waste since 2013 • In 2018, the benefits of UMC's precious material waste recycling projects reached a new high of 130 million NTD, due to rising wafer unit price and strong NTD appreciation • Reach an accumulated NT 100M from the recycling of precious material waste in 2020 • Reach an accumulated NT 600M from the recycling of precious material waste in 2025
Reclaim wafer reuse	The more that UMC uses reclaimed wafers and recycles, the less likely UMC purchases dummy wafers	Authorize suppliers to process reclaimed wafers to ensure dummy wafers reach the best condition to be reused in UMC	<ul style="list-style-type: none"> • Accumulated reclaimed wafer procurement quantity was 392,798 pcs in 2018 • Wafer usage was increased to 52.4% from 51.7% in 2018
Oxide Slurry SS25 recycling	Reuse slurry and decrease waste water treatment	Through a slurry recycle system to collect used slurry, UMC authorized suppliers to formulate and reuse during the manufacturing process	<ul style="list-style-type: none"> • The total amount of oxide slurry (Oxide Slurry S225) recycled reach 1,290 tons

Consider Eco-friendliness With The Supply Chain

Project	Propose	Activity	Result
Eco Echo award (supplier's response)	As a driving force for ecological environmental conservation, UMC rewards excellent conservation plans through its Eco Echo award. UMC appeals to suppliers to sponsor this project	<ul style="list-style-type: none"> • Select from an open audition of domestic green groups to encourage excellent conservation plans by providing cash prizes • Appeal to suppliers with the same concept to sponsor this activity 	<ul style="list-style-type: none"> • Raised NTD 3 million for the award in 2018 • 9 suppliers sponsored in 2018, including Lam Research, 3M, BASF, Hermes Epitek, Unimicron, Hueng Luei Process, Edwards, Faraday, Whatech • 5 winners won the Eco Echo award in 2018; for details please visit: http://www.umc.com/chinese/news/2018/20181221.asp
Green procurement	Targeted at green products, UMC promotes green procurement from the origin of the product to conserve resources and protect the environment	<p>Green procurement index:</p> <ul style="list-style-type: none"> • Domestic: Category no. 1 to no. 3 green-marked products, including Energy Label, Water Label, Green Building Material, Carbon Footprint Label, Carbon Label • Foreign: green-marked products originated from countries having agreement with Taiwan, Energy Star, FSC, PEFC 	<ul style="list-style-type: none"> • An accumulated amount of NT 100 million in 2018 • An accumulated amount targeting NT 100 million in 2019 • Awarded for green procurement in 2018 (from Environmental Protection Administration, Executive Yuan) • Awarded for green procurement in 2018 (from Hsinchu City government) • Awarded for green procurement in 2018 (from Tainan City government)

Fulfill Social Responsibility, Develop UMC's Influence

Project	Propose	Activity	Result
Tier 2 critical supplier management	Critical supplier (which is UMC's Tier 2 suppliers) are required to sign the Supplier Code of Conduct and to be subject to supply chain management	<p>Announcement was disclosed through the e-Procurement platform (platform for suppliers):</p> <ul style="list-style-type: none"> • Required critical suppliers (UMC's Tier 2 supplier) to sign the Supplier Code of Conduct • Required critical suppliers (UMC's Tier 2 suppliers) to be subject to supply chain management 	<p>In 2025:</p> <ul style="list-style-type: none"> • 80% of critical suppliers (UMC's Tier 2 supplier) are required to sign the Supplier Code of Conduct • 30% of critical suppliers (UMC's Tier 2 supplier) need to be managed by supply chain management
Support seminar of "Corporate Social Responsibility Link With Trade"	Promote concept of corporate social responsibility to more businesses and apply to sustainable supply chain management	UMC presented in the seminar: <ul style="list-style-type: none"> • UMC's CSR idea and promotion status • UMC's practice of sustainable supply chain management 	<ul style="list-style-type: none"> • Attended to seminar of "Corporate Social Responsibility Link With Trade" held by Bureau of Foreign Trade in 2018, shared UMC's experience with different sectors



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2-5-3 CONFLICT MINERALS MANAGEMENT

In its conflict minerals management, UMC has been conducting supplier evaluation and obtaining supplier signatures since 2009 to guarantee non-conflict minerals and ensure that products from suppliers are not in violation of conflict minerals guidelines. To date, all suppliers have returned assurances of non-conflict minerals in all of their products.

According to the finalized statutes and provisions in Section 1502 of the Dodd-Frank Wall Street Reform and Consumer Protection Act enacted by the US Securities and Exchange Commission on August 22, 2012, Specialized Disclosure Reports must be completed every May.



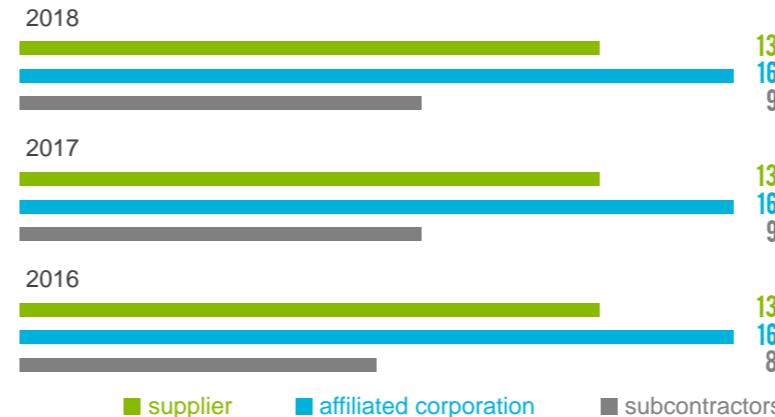
UMC CONFLICT MINERALS MANAGEMENT MEASURES

- Establish internal investigation for the company (including subsidiaries) and investigation mechanism for suppliers.
- Establish annual periods for investigating operations and controlling operations.
- Establish and consolidate investigation data, and store in data bank.
- Retention of survey data to demonstrate legal compliance and due diligence.
- Vendor transparency and availability of information for evaluation is one of the company's conditions for transacting with the vendor.

In 2018, UMC conducted a survey for suppliers whose products contain 3T1G. Investigations on conflict minerals were carried out for a total of 38 suppliers, including 13 suppliers, 9 contractors (suppliers providing packaging and testing services), and 16 UMC subsidiaries.

Results of Recent Surveys

Conflict Minerals



UMC expects every business in the supply chain to uphold these principles. Clear objectives have been established with relevant guidelines and tools to help suppliers enhance the effectiveness of their efforts in improving the society and the environment. UMC also collaborated with other companies in the industry to promote various projects, encouraging employees to incorporate corporate social responsibility into procurement decisions as well as supplier management procedures. In addition, UMC also voluntarily applied to join CFSI (Conflict-Free Sourcing Initiative) in Q1 of 2016. Suppliers were also requested to actively monitor foundries and mines that were lacking relevant certification to undergo Conflict-Free Smelter Program (CFSP) or other equivalent and independent third party's audit program inspections. To ensure transparency in the entire supply chain, UMC also voluntarily performed on-site audit of 3 suppliers for their origin of supplies, making sure that the supply chain does not contain conflict mineral supplies in 2017.

In 2017, the results of the use of tin, tantalum and tungsten (3TG) in UMC's various fabs did not result in any minerals sourced from conflict areas or countries. In order to comply with the US Dodd-Frank Act and to implement corporate social responsibility, UMC added a "conflict-free mineral" label on its product packaging to declare that its products did not use conflict minerals, effective from April 1, 2018. Other sites (USCXM/HeJian/Fab 12i) will be announced separately. UMC issued an official statement on the My UMC website on March 1, 2018.

2-5-4 RESPONSIBLE BUSINESS ALLIANCE AND UMC SUPPLIER & EMPLOYEE PROFESSIONAL ETHICS AGREEMENT

UMC has followed the Code of Conduct - Responsible Business Alliance, RBA Version 6.0. Besides self-evaluation, UMC also requested its suppliers to comply with EICC regulations via the Supplier & Employee Professional Ethics Agreement. The purpose of the Agreement is not only to allow suppliers to understand clearly UMC's requirements regarding code of conduct, but also to deliver the message that suppliers should obey EICC as well as local laws. Furthermore, the agreement also ensures that the operation of suppliers and their upstream partners must comply with the intention and spirit of the EICC.

For further information about RBA, please refer to <http://www.responsiblebusiness.org/>



For further information about RBA,

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2.8 MILLION KWH RENEWABLE ENERGY GENERATION

UMC has completed the installation of a 4,335 kWp solar energy system, which is expected to generate up to 2.8 million kWh of electricity each year. The installation capacity is the highest among Taiwan's wafer fab industry.



90% WASTE RECYCLING

The amount of reused waste was 35,053 metric tons, which is a gain of more than NT\$35 million from recycled resources.

51% REDUCTION IN UNITS OF FLUORINATED GREENHOUSE GAS EMISSIONS.

Achieved the objective for reducing emissions by 51%. Reductions in fluorinated greenhouse gas emissions were equivalent to 1,285,000 tons of CO₂e. Gas replacement measures also achieved savings in raw material procurements of over NT\$ 20 million.

3.15 MILLION TONS OF RECYCLED WATER USAGE

In Singapore, UMC's use of recycled water (Newater) reached 3.15 million tons, accounting for 94% of Fab12i's total water use of 3.35 million tons, thus reducing the impact on local water resources.



100% CERTIFICATION

All UMC fabs have passed the ISO 14064-1 greenhouse gas emissions certification, the ISO 14001 environmental management certification, and the QC 080000 Hazardous Substance Process Management Certification.

3 MILLION TOTAL PRIZE MONEY FOR UMC ECO ECHO AWARD

UMC invested NT\$ 3 million in rewarding excellent and innovative eco preservation proposals. Various projects were successfully completed, totaling more than 20,000 participants in the Eco Echo Award activities.

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CH4 Common Prosperity**Appendix****Major Material Environmental Topics**

There were three major categories of material environmental topics in 2018: (1) Greenhouse Gas Emissions and Energy Use (2) Water use (3) Waste

Indicator	2018 Goal	Compliance for 2018	2019 Goal	Long-Term Goal
GREENHOUSE GAS EMISSIONS AND ENERGY USE				
Greenhouse Gas Emissions	<ul style="list-style-type: none"> • Reduce fluorinated greenhouse gas emission intensity by >40% 	● Fluorinated greenhouse gas emissionintensity was reduced by 51%	<ul style="list-style-type: none"> • Reduce fluorinated greenhouse gas emission intensity by >51% 	Goals for 2025 <ul style="list-style-type: none"> • 30% absolute reduction of fluorinated greenhouse gas emissions compared to 2010. • Reduce fluorinated greenhouse gas emissions per unit of product by 55%. • Reduce total greenhouse gas emissions per unit of product by 5% compared to 2010.
Electricity consumption.	<ul style="list-style-type: none"> • Promote Green2020 Reduction Plan to reduce electricity consumption of each unit by 6% 	● Additional reduction of 57,127 Mwh of electricity consumption for the year, reaching the annual targeted goal.	<ul style="list-style-type: none"> • Promote Green2020 Reduction Plan to reduce electricity consumption volume of each unit by 8%. 	Goal for 2025 <ul style="list-style-type: none"> • Reduce electricity consumption per unit of product by 15% compared to 2015.
WATER USE				
Water consumption	<ul style="list-style-type: none"> • Promote Green2020 Reduction Plan to reduce water consumption of each unit by 6% 	● Additional reduction of 228,000 tons of water consumption for the year, reaching the annual targeted goal.	<ul style="list-style-type: none"> • Promote Green2020 Reduction Plan to reduce water consumption of each unit by 8% 	Goal for 2025 <ul style="list-style-type: none"> • Reduce water consumption per unit of product by 15% compared to 2015.
WASTE				
Waste generation	<ul style="list-style-type: none"> • Promote Green2020 Reduction Plan to reduce waste production volume of each unit by 6% 	● Additional reduction of 1,790 tons of waste generation for the year, reaching the annual targeted goal.	<ul style="list-style-type: none"> • Promote Green2020 Reduction Plan to reduce waste production volume of each unit by 8% 	Goal for 2020 <ul style="list-style-type: none"> • Reduce waste per unit of product by 10% compared to 2015.

Note 1: The various annual indicators are included in the company's and Corporate Sustainability Committee's KPI (Key Performance Indicator) and policy development, integrated with major company policies, and continually reviewed and improved.

Note 2: Green2020 Reduction Plan uses 2015 as the base year. The calculation was conducted by using the statistical data of 2015 as the basis.

Note 3: The target scope for waste disposal are the fabs in Taiwan. Currently, the fab in Singapore is limited by local regulations and the local processing plant, and targets cannot be set according to Taiwan's fabs.

● Compliant

● Non-compliant



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Environmental Information

The summary information disclosed in this section includes UMC Headquarters and wafer fabs in Taiwan and Singapore.

Number of sites that are certified by the ISO 14001

8

Percentage of the company's total worksites that are certified

100%

INPUT WAFER 354 TON		OUTPUT WAFER 339 TON	
Energy		Greenhouse Gas Emission	
<ul style="list-style-type: none"> • Total Energy Consumption 2,738 1000MWh • Electricity 2,534 1000MWh • Renewable Energy 2.88 1000MWh • Natural Gas 201 1000MWh 		<ul style="list-style-type: none"> • Scope 1 /Direct Greenhouse Gas Emissions 596 1000 ton CO₂e • Scope 2 /Indirect Greenhouse Gas Emissions 1,365 1000 ton CO₂e • Scope 3 Greenhouse Gas Emissions (+) please refer to page 73 1,968 1000 ton CO₂e 	
Materials		Water	
<ul style="list-style-type: none"> • Raw Materials 81 1000ton 		<ul style="list-style-type: none"> • Total Water Usage 48,623 1000 m³ • Total Water Intake 15,818 1000 m³ • Surface Freshwater 0.00 1000 m³ • Underground Water 0.00 1000 m³ • Salt Water 0.00 1000 m³ • Tap water 14,907 1000 m³ • Rain/Condensate Water 911 1000 m³ • Purified Water 17,169 1000 m³ • Water consumed per unit of production 78.6 m³/wafer-m² 	
Paper		Fuel	
<ul style="list-style-type: none"> • Paper Consumption 0.03 1000ton 		<ul style="list-style-type: none"> • Natural Gas 29,092 1000 m³ • Diesel 0.41 1000 m³ • Coal 0.00 1000 ton 	
Environmental Protection Capital and Expense Cost		Other Air Pollutant Emissions	
<ul style="list-style-type: none"> • Expense cost 3,669 millions • Capital cost 653 millions 		<ul style="list-style-type: none"> • Nitrogen Oxide (NOx) 105.6 ton • Sulphur Oxides (SOx) 9 kg • Volatile Organic Compounds (VOCs) 47.3 ton • Ozone-Depleting Substances (ODSs) 0 ton 	
Spills of hazardous materials		Waste Water	
		<ul style="list-style-type: none"> • Number of spills 0 • Amount of spills 0.00 ton 	
Fines			
		<ul style="list-style-type: none"> • Number of environmental fines paid 0 • Total amount of fines paid 0.00 millions 	



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3-1 CLEAN PRODUCTION

Currently, environmental issues are a major issue of business sustainability among stakeholders. To alleviate ecological deterioration, reduce the greenhouse effect and slow global warming, UMC's environmental protection policies aim to minimize the consumption of resources and create minimum waste. Therefore, the company continues to enhance its technology, self-regulate and introduce high-performance pollution control technology and equipment to achieve environmental symbiosis, shared prosperity and sustainable global development.

How We Manage

- Introduce management systems and accreditations that are environmentally relevant
- Endorse construction of green factories and buildings
- Advocate for resource productivity enhancement initiatives
- Bring in and develop environmentally-friendly technology, reinforce source reduction of waste and pollution prevention
- Promote environmental education

Goals and Targets

- Obtain relevant environmental management accreditation for all fabs, maximizing utilization of resources
- Continue to reduce negative impact of production on the ecological environment, maintaining zero environmental accidents
- Increase employees' knowledge of environmental protection and "green living"

Purposes

Minimize resource and energy consumption in product lifecycle



Applicable Entities

- 1. UMC
- 2. HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits

Relevant Policy



Environmental Protection Policy

3-1-1 GREEN FACTORIES AND BUILDINGS

Using past promotional experience and success of its departments in source reduction, recycling and reuse, UMC employs outside green building and ecology experts and collaborates with relevant academic programs to plan and construct green buildings that are consistent with the US LEED and domestic EEWH standards. In 2010, the company participated in the Green Factory Promotion Alliance, which integrates industrial, governmental and academic forces, to help the government formulate a green building and clean production evaluation system for developing Green Factory standards for Taiwan. In 2012, the company's new fab in Tainan Science Park and over 17-year old Fab 8A in Hsinchu Science Park were awarded the 1st Green Factory logo by the Industrial Development Bureau. Moreover, Fab 8A was the first 8-inch foundry facility in the nation to receive the award.

UMC Future Plans for Green Building and Green Fab

Designs for new fabs will adhere to green building, green factory and smart building principles.



Existing fabs will undergo green building and green factory assessments, and green design and construction will be gradually incorporated.



ENVIRONMENTAL MANAGEMENT SYSTEM	Issuing Agency	Range
ISO 14001 Environmental Management System	DNV-GL	Entire UMC and its subsidiaries HJTC and USC
BUSINESS CONTINUITY MANAGEMENT SYSTEM		
ISO 22301 Business Continuity Management System	SGS	UMC Headquarters, Fab 12A and Fab 12i
GREEN PRODUCT CERTIFICATIONS		
IECQ HSPM QC 080000	DQS-UL	Entire UMC and its subsidiaries HJTC and USC
Sony Green Partner	Sony	Entire UMC and its subsidiary HJTC and USC
EPD	DNV-GL	UMC Fab 12A and Fab 8A
Carbon Footprint Verification on Integrated Circuit Wafers	DNV-GL	UMC Fab 12A, Fab 8A and Fab8E
ISO 14046 Water Footprint Verification on Integrated Circuit Wafers	DNV-GL	UMC fabs in Taiwan
ISO 14051 Material Flow Cost Accounting Verification	DNV-GL	UMC Fab 8A
GREENHOUSE GAS EMISSIONS VERIFICATION		
ISO 14064-1 Greenhouse Gas Emissions Verification	DNV-GL, SGS	Entire UMC and its subsidiary HJTC



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Status of UMC's fabs



LEED OF THE UNITED STATES

Gold Level

- Fab 12A P3&4
- USC
- Fab 12A P5&6



SMART ARCHITECTURE OF INDUSTRIAL DEVELOPMENT BUREAU, MINISTRY OF ECONOMIC AFFAIRS

Diamond Level

- Fab 12A P5&6
- Fab 12A P5&P6 Office Building



EEWH-GREEN ARCHITECTURE OF INDUSTRIAL DEVELOPMENT BUREAU, MINISTRY OF ECONOMIC AFFAIRS

Gold

- Fab 12A P3&4

Diamond Level

- Fab 12A P5&6

Qualified Level

- Fab 8A
- Fab 8F
- Fab 8S



GREENFACTORY OF INDUSTRIAL DEVELOPMENT BUREAU, MINISTRY OF ECONOMIC AFFAIRS

- Fab 12A P3&4

- Fab 8A

- Fab 8S



CLEAN MANUFACTURING ASSESSMENT SYSTEM CERTIFICATION OF INDUSTRIAL DEVELOPMENT BUREAU, MINISTRY OF ECONOMIC AFFAIRS

- All 200mm fabs and Fab 12A in Taiwan

Note: In 2019, Fab 12A II (the new plant) will apply for clean manufacturing assessment system certification and green factory.

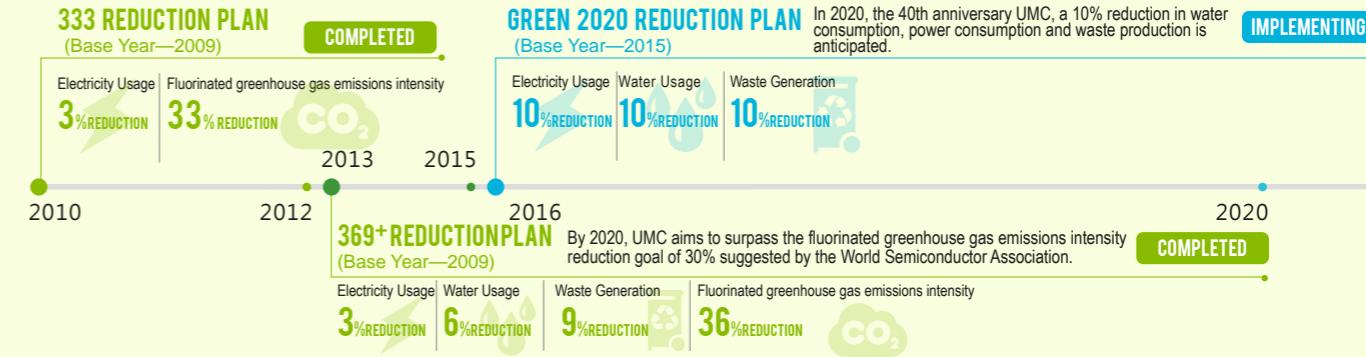


In 2018, the Fab 12A P5/6 OB Building (Office Building) was nominated for Smart Building by the Ministry of the Interior.

3-1-2 ENERGY RESOURCE PRODUCTIVITY IMPROVEMENT PLAN

To improve energy resource productivity and reduce greenhouse gas emissions, UMC recently promoted various reduction measures and set targets for each stage.

UMC Energy Resource Improvement Status



Note 1: The base year for the 369+ and Green 2020 plans to reduce the intensity of fluorinated greenhouse gases is 2010.

Note 2: For the Green 2020 reduction plan, please refer to <http://www.umc.com/English/news/2015/20150420.asp>

Status of UMC's "Green 2020 Reduction Plan"



ELECTRICITY USAGE

2018 Goal

Cumulative 6% reduction

2018 Implementation Status

Annual goal achieved

Reduction Measures

- Smart Optimization (Innovation): Optimize operation of the Industrial 4.0 Chiller.
- Performance improvement: Replace industrial water tower, replace yellow light tube area with LED and IE4 motors.
- Optimize supply conditions: CDA inverter air compressor, HV inverter control, MAU outlet temperature reduction.



WATER USAGE

2018 Goal

Cumulative 6% reduction

2018 Implementation Status

Annual goal achieved

Reduction Measures

- CMP & ALK water recycling.
- Install SAC processing flow to LDI production water (additional RO unit).



WASTE GENERATION

2018 Goal

Cumulative 6% reduction

2018 Implementation Status

Annual goal achieved

Reduction Measures

- Reduction of waste sulfuric acid and waste phosphoric acid (through source reduction or as a pollution control equipment agent)
- Reduction of waste solvents (through lifetime extension)
- Reduce calcium fluoride / calcium phosphate sludge (expand dryer, waste phosphoric acid outsourcing treatment).

Note: The reduction goal of 2018 is determined based on the statistical data of 2015.

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2018 Results

ECONOMIC BENEFITS



Water consumption reduction

- Savings of NT\$ **5.7** million



Power consumption reduction

- Savings of NT\$ **131.39** million



Waste reduction

- Savings of NT\$ **6.9** million

ENVIRONMENTAL BENEFITS



Water consumption reduction

- Additional water savings: **228,000** tons



Power consumption reduction

- Additional power savings: **57,127** Mwh
- (**31,648** tons of CO₂e)



Waste reduction

- Additional waste reduction: **1,790** tons

Note 1: In 2018, the Company's subsidiary HJTC reduced power by an additional 2,213 MWh, and the subsidiary USC reduced power by an additional 1,148 MWh.

Note 2: In 2018, the Company's subsidiary HJTC reduced water by an additional 76,591 tons.

Note 3: In 2018, the Company's subsidiary HJTC reduced waste by an additional 95 tons, and the subsidiary USC reduced waste by an additional 717 tons.

3-1-3 AIR POLLUTION CONTROL

UMC air pollution control strategies involve using high-performance equipment to treat exhaust gas from rational contaminants to reduce the emission of air pollutants to a level that complies with (or less than) the government's environmental stipulations. Test results over the years showed that UMC air pollutant emission is less than the emission standard set by the EPA. UMC categorizes waste gas from manufacturing processes into acidic exhaust, alkaline exhaust, volatile organic exhaust and general exhaust.

Acidic and alkaline exhaust

- Stage 1: Installed abatement equipment on tools to treat toxic, flammable, and fluorinated greenhouse gases.
- Stage 2: After end treatment by a central exhaust treatment system, gas is released into the atmosphere via a stack.



Volatile organic compounds

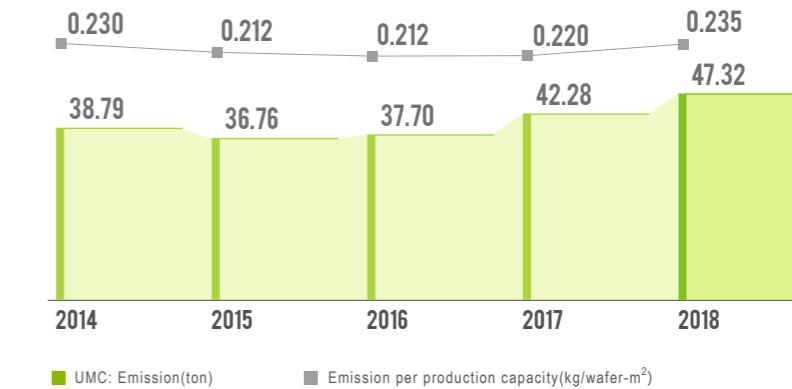
- Volatile organic compounds exhaust (Solvent Exhaust) is treated using VOC Zeolite carousel wheels, which treat and release gases using low temperature adsorption and high temperature desorption.



Total Hydrocarbon Reduction

In 2018, the efficiency of UMC's volatile organic compounds (VOC) treatment was maintained at an average of 94.6%, which exceeded the 90% legal standard. Total emission of hydrocarbon pollutants was 47.3 tons / year, which was a reduction of 836 tons / year. The emission per production capacity was 0.235 kg/wafer-m².

UMC Volatile Organic Compounds Emissions



Other Air Pollutant Emissions

UMC uses natural gas and only a small amount of low sulfur diesel fuel. Based on regular stack inspection and air pollution expense calculation, estimated nitrogen oxide (NOx) and sulfur oxide (SOx) emissions in 2018 are listed in the table below.



UMC
9

HJTC
405

USC
57



UMC
105.6

HJTC
1.1

USC
2.2



3-1-4 PROMOTING THE "GREEN" CONCEPT

Message from chairman of the Corporate Sustainability Committee

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Every year, UMC organizes the Environmental Protection Festival and promotes green concepts within the company. The theme for the 2018 UMC Green Festival was Green Life. Through various types of green activities, UMC hopes to enhance green awareness among its employees and inspire them to incorporate green awareness into their daily life. In addition, elements of the UMC Eco Echo Award were integrated into the event. On April 27th, during the week of 422 World Earth Day, UMC launched the Green Market and 3rd Eco Echo Award Ceremony. Events on that day included premiering the ECO ECHO Corporate Sustainability Documentary, the Triple-R Grand Alliance Excellent Supplier Award Ceremony and eco conservation lectures. In addition, green vendors and NGOs were invited to set up stalls at the daily life green market hosted at UMC headquarters for employees to practice green life by purchasing green products. In addition to environmental promotion activities during the Environmental Protection Festival, the theme of green living was incorporated into this year's environmental education curriculum, including waste sorting, green diet and green transportation. Physical and online audio-visual teaching modes were used to promote green concepts to every UMC employee.

In 2018, UMC invited numerous domestic social enterprises to participate in the Environmental Protection Festival and green market. Received the Buying Power Award from the Ministry of Economic Affairs for the procurement of social enterprise products.



Premiering the ECHO Corporate Sustainable Documentary on World Earth Day



Summary of activities and achievements during the Environmental Protection Festival.

EARTH DAY EVENT CSR FILM PREMIERE

UMC's latest 2018 CSR film was premiered on Earth Day for participants to appreciate UMC's past journey in corporate social responsibility. In addition, in line with the Green Living theme in the Environmental Protection Festival, green products were made available to employees for purchase. The event attracted about 800 participants.

ECO-TOUR: JHUBEI LOTUS TEMPLE WETLAND : CHANGHUA COUNTY DAYOU COMMUNITY

In collaboration with the Society of Wilderness, which won the 2nd Eco Echo Award, and the Changhua County Dayou Community Development Association, tours were conducted respectively at the JhubeiLianhua Temple Wetland and the Changhua County Dayou Community. Professional guides and introduction of the Eco Echo Award winning project helped participating employees understand local ecology and the eco-protection concepts in the Eco Echo Award winning project, thereby increasing their awareness of environmental protection. A total of 55 employees participated in the event.

GREEN SUSTAINABILITY FORUM

Lecturers from the Society of Wilderness were invited to speak on Energy Saving Green Life and Green Living Map to help employees select energy-saving items in daily life, cultivate energy-saving perspective and actions, and understand the eco-related ecology, culture and facilities in their hometown. About 128 participated in the activity.

GREEN THUMB

Horticultural experts were invited to teach employees about pot planting. The indoor plants are like a natural air purifier. They are not only beautiful, but also greenify the offices, save energy and reduce carbon. A total of 118 employees participated in the activity.

COFFEE CUP REDUCTION ACTIVITIES

A survey showed that coffee products were the most frequently purchased items by employees. However, every daily cup of coffee means another single use waste. To encourage employees to reduce single use garbage output, this event encouraged employees to use eco-cups for their drinks by giving lottery tickets to those who use eco-cups. The event totaled 3,200 participants.

ENVIRONMENT PROTECTION KNOWLEDGE COMPETITION

The competition was centered on two major themes, UMC Environmental Protection Knowledge and General Environmental Protection Knowledge. The fun competitions helped employees increase their correct knowledge of environmental protection, gain a deeper understanding of the company's environmental actions, and apply environmental education to their daily life. A total of 18 teams competed, totaling 72 participants.

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CH4 Common Prosperity**Appendix****Eco Echo Award Program**

In response to environmental issues that concern the public, UMC began organizing the UMC Eco Echo Award in 2016. Through the Eco Echo Award program, UMC expands partnerships and media cooperation, discusses needs with communities and non-profit organizations, and encourages ecology protection organizations to propose specific environmental sustainability and groundbreaking programs for the purpose of supporting local green and land sustainability action plans in Taiwan.

Implementation Outcome of Winning Projects in the Second Eco Echo Award Program

In the 2018 Eco Echo Award program, the joint focus of participating organizations and UMC employees influenced issues of concern and helped protect local ecologies in Taiwan.

Various projects were successfully completed, totaling more than **20,000** participants in the Eco Echo Award activities.

Conservation, survey, environmental education and promotion of carnivorous plants in Taiwan (Society of Wilderness)

For many years, the Society of Wilderness has engaged in the conservation of carnivorous plants in JhubeiLotus Temple Wetland, and promoted carnivorous plant awareness. Through theEcoEcho Award program, more than 40 distribution points in Taiwan for carnivorous plants were surveyed. About 706 participants were involved in improving and maintaining the original habitat. Collaborating with the UMC Environmental Protection Festival events, the Society also conducted 10 educational sessions in elementary and middle schools in Hsinchu County, and conducted 21 sessions on the conservation of Taiwan's native carnivorous plants so that the public can learn about Taiwan's native carnivorous plants and habitats, and understand the importance of biodiversity.

Environmental Education Program on Campus Tessaratoma papillosa Control (Wild Bird Society of Keelung)

The Wild Bird Society of Keelungis committed to environmental education in all schools and communities in Keelung. To protect Taiwan Golden-rain trees in Keelung school campuses from the parasitic Tessaratoma papillosas and their threat to school children, the Society implemented the Tessaratoma papillosa Control educational project through the Eco Echo Award program.In addition, lecturertraining was conducted on campuses, resulting in 16 seed instructors. Another 60 sessions of environmental education promotion activities were also conducted, totaling 13,254 participants.

Tales of Fishermen Along Provincial Highway 6 (Taiwan Cetacean Society)

In the Tales of Fishermen Along Provincial Highway 6 project, stories along the coast of Taitung were collected. Six local fishermen were interviewed, 10 fish markets surveyed, and 11 stories were written. With the ocean in Cheng Kung as the educational base, a workshop for job stories was conducted and 4 picture books were completed. In addition, 14 sessions of promotional activities were held to dialogue with local residents, totaling about 2,644 participants.

Voice of the Wetland-Chouchai Wetland Sound Monitoring and Education Project (Wetlands Taiwan)

As announced by IUCN, soundscape is the next generation of environmental health indicator. Therefore, through the Eco Echo Awards program, soundscape monitoring for winter, spring and summer was conducted to understand the impact of human noise on wetland organisms and the relationship between soundscape and environmental changes. In addition, biological indicators were combined with soundscape indicators to provide practical information for environmental monitoring and materials for environmental education. Two sessions of soundscape education and experiential activities were conducted, totaling about 50 participants. Understanding the recent or immediate natural soundscape of wetlands or recordings of extreme soundscape helped strengthen public participation in and bring attention to the conservation of the Chouchai Wetland.

DayouBiochar -Green Farming Village (Changhua Ta-Yu Community Development Association)

Dayou Community is committed to environmental education, friendly farming and its community-based industry, Golden Biochar Rice. Through the Eco Echo Award program, Dayou promoted three key themes: friendly use of natural materials for friendly farming, environmental education with the elderly as teachers, and low carbon mileage food farming education. The community has also produced 566 kg of biochar, and conducted 28 sessions of forums totaling 1,345 participants. In addition, 10 elderly residents have been trained as lecturers, and food farming environment education was conducted in 2 elementary and middle schools, totaling about 6,280 participants. 14 food farming experience camps were organized, totaling about 459 participants. The community also collaborated with UMC and participated in the EnvironmentalProtection Festival events.

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Ocean environment classroom-[Mahi-mahi in the Pacific Ocean] event promotion.



Jhubei Lotus Wetland tour.



Food farming experiential education camp.



Lecture on campus about Tessaratoma papillosa control.



Chouchai Wetland soundscape workshop.

The 3rd Eco Echo Award Entries

In the 2018 Third Eco Echo Award, a total of 19 groups submitted entries. 41,000 votes were cast online, and 5 groups were selected. (The 2nd Eco Echo Award had 14 entries and over 30,000 votes cast)

Widespread Impact

Participating groups and projects



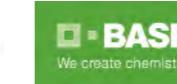
Lam Research



3M



Edwards



BASF



Hermes-Epitek



Unimicron Technology Corporation



HuengLuei Process Industry Co.



FARADAY



Wholetech System Hitech Limited



For details of the Eco Echo Award, please visit the website

Winning groups and projects



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3-2 CARBON ASSET MANAGEMENT

Energy use not only consumes the earth's resources, but also produces carbon dioxide that causes greenhouse gas emissions. In recent years, temperature rise in the earth's surface has caused the melting of polar ice, rising sea level and decreasing land. The frequency and intensity of abnormal climate changes such as changing ocean current patterns, changing rainfall patterns, floods, droughts and storms have increased. These climate changes caused by global warming have directly or indirectly impacted natural ecosystems. In the face of global climate change and dramatic changes in the ecological environment, UMC has been actively drafting environmental protection goals in various stages in recent years to respond to energy and greenhouse gas management issues. The company has set specific implementation plans and gradually promoted them.

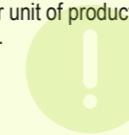
How We Manage

- Low-carbon design process
- Energy efficiency optimization
- Installing high efficiency fluorinated greenhouse gas abatement capabilities in new tools
- Adopting green building standard for new buildings
- Carbon partnerships with customers and suppliers
- Complete carbon footprint inventory for all fabs
- Investing in green technology industry



Goals and Targets

- Improve efficiency in energy use, reduce electricity consumption per unit of product by 10% in 2020, by 15% in 2025 (with 2015 as the base year).
- Implementation of the Fluorinated Greenhouse Gas Reduction Program, emissions intensity reduction by 36% in 2020 and by 55% in 2025 (with 2010 as the base year).
- Reduce total greenhouse gas emissions per unit of product by 5% in 2025 (with 2010 as the base year).



Purposes

Climate change mitigation and adaptation



Relevant policies



UMC Climate Change Policy, Environmental Protection Policy

Applicable Entities

- 1. UMC
- 2. Hejian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits
- 3. UMC's supply chain



3-2-1 RISKS AND OPPORTUNITIES

UMC is actively attuned to the risks and new impact that climate change may bring. UMC has constructed the UMC Climate Change Risk Assessment based on multiple data points: the Fifth Assessment Report (AR5) published by the Intergovernmental Panel on Climate Change (IPCC), the government's downscaling scenario projection for identifying potential physical hazards caused by climate change, the ISO 14090 Adaptation to Climate Change and the assessment procedure in the UK Climate Impact Programme (UKCIP).

Based on policies and regulations, market and technological changes, reputation, and physical risks, UMC also conducts climate change risk analysis and develops response practices to reduce the potential impact.

4. ADAPTATION AND MONITORING

Based on the assessment outcome, risks and opportunities were identified and made adaptation or monitored accordingly.

1. SCENARIO PROJECTION COMPILATION

Scenarios are collected from IPCC-AR5 and corresponding data simulated by government.



2. TOOL CONSTRUCTION

The ISO 14090 and the assessment procedure in the UK Climate Impact Programme (UKCIP) were used as reference for constructing the assessment tool.

3. RISK ASSESSMENT

Convene relevant department supervisors for risk assessment and ranking.



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Risk Dimension:



TRANSITIONAL PHYSICAL



POLICY AND LEGAL

Potential Risks

- Carbon tax, energy tax
- Product labeling and disclosure.
- Greenhouse gas emissions permit and reporting, cap and trade schemes.

UMC's Response

- Lower carbon emission voluntarily.(As of 2017, UMC has 3.023 million tons of reduction credits approved by the EPA)
- Continue to inventory greenhouse gas emissions and product carbon footprint.



TECHNOLOGY

Potential Risks

- Need for low carbon products and services
- Commitment to investment in new technology

UMC's Response

- New fab meets IEEE (Institute of Electrical and Electronics Engineers) requirements



MARKET

Potential Risks

- Products that are less eco-friendly will be eliminated because of changing consumer demands.

UMC's Response

- Promoting the product life-cycle analysis and certification.
(UMC has passed carbon footprint / water footprint certification, and participated in the LCA to go project to help customers acquire information on their products' carbon footprint with minimal time and resources)



REPUTATION

Potential Risks

- Changes in customer preferences.
- Bad reputation brings about negative feedback.

UMC's Response

- According to UMC's current status, the company proceeds with current greenhouse gas responses (no significant risks).

TRANSITIONAL PHYSICAL



SHORT-TERM

Potential Risks

- The intensity and frequency of natural disasters caused by typhoons and torrential rain prevent employees from going to work, may cause damage to fab facilities, and may disrupt energy supply.

UMC's Response

- Incorporate wind loads standard into fab specifications. Wind resistance design of the fab must be 120% of local highest wind speed.
- Install flood gates for specific entrances and exits in Tainan Fab 12A, which is in a flood potential area, and upgrade protection level to the 500-year flood control standard. In the new Fab 12A_II buildings, the base of the 1st floor is more than 2 meters higher than the perimeter roads to fully protect against flooding risk.
- Promoting business continuity management system. Strengthen resilience and adaptability in climate-related and natural disasters.
- Globalize fabs and supply chains.

LONG-TERM

Potential Risks

- Rising sea level from global warming may lead to inland flooding, resulting in reduced clean water sources, water shortages and abnormal infrastructure damage to fab facilities.

UMC's Response

- Incorporate location considerations into future site selection.
(UMC fabs are not located on coastal areas. The Hsinchu fabs are located on a hilly area with a higher terrain and no flood risk).
- Implementing effective water-saving measures.
Expanding water recycling and reuse to lower the demand for water.
Establish a water contingency plan. Implement water conservation and water truck schedule operations according to the extent of water limitation in the Science Park.

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On the other hand, UMC also takes into account its core technology and human resources when seeking opportunities to enhance its operational competitiveness in terms of resource efficiency, energy sources, products/services, markets and goodwill.

UMC Responses

RESOURCE EFFICIENCY

- Respond to government-promoted policies to reduce and increase the operational efficiency of tools, equipment and fabs as a whole.**
In addition to promoting the voluntary Green2020 program to conserve energy and reduce carbon emissions, UMC also participates in the Industrial Development Bureau's voluntary greenhouse gas reduction information platform to exchange innovative practices with the industry and seek management and technological methods for reducing cost, improving efficiency and optimizing process.
- Develop the Emission Reduction Methodology for Semiconductor Industry Fluorinated Greenhouse Gases and N₂O Abatement Technology, and apply for carbon credits.**
UMC plans to apply for GHG Offset Project in 2019, according to Taiwan's voluntary GHG reduction incentive program to apply for carbon credits.

ENERGY SOURCE

- Layout green energy industry and add business models.**
In addition to investing in the green energy industry, UMC has applied to change its to include advising and consultation services for energy and energy conservation technologies to further expand operation and increase profit source.
- Install solar power systems and apply for renewable energy certification.**
In addition to continuous energy efficiency improvement, UMC also responds actively to governmental renewable energy policies by implementing renewable energy in its fabs. The company has also listed solar power systems as a standard design in new fab construction. As of 2018, a 4,335 KWp capacity solar power system has been constructed, and is expected to generate up to 2.8 million KWh per year. Application for renewable energy certification has been submitted in 2018.

PRODUCT/ SERVICE

- Promote LCA project to reduce carbon in the overall supply chain**
More and more customers are concerned about problems caused by climate change and are making specific requests. In addition to annual GHG emissions and carbon footprint inventory, UMC has participated in the EU LCA To Go project to provide customers with a tool to quickly and easily access carbon footprint information. Using product life cycle assessment, more reduction opportunities are identified to create expert wafer solutions that meet market trends and customer green product design needs, thereby enhancing the competitiveness of UMC and its customers.
- Introduce business continuity management plan and verification**
Customers are gradually emphasizing the climate resilience capability of suppliers. UMC promotes business continuity plans in its fabs and has implemented the ISO 22301 business continuity management system verification to ensure that in case of a disaster, UMC has recovery and resiliency capability for meeting and restoring the highest operational targets, thereby providing uninterrupted service to customers.
- Continue innovation to develop advanced technologies, providing customers with chips that are faster and more energy efficient**
In upcoming years, UMC will continue to develop advanced process technologies with lower power consumption, including 22nm technology that exhibits a 20% power reduction and 14nm technology with 50% power reduction. In addition, UMC also provides ultra-low power consumption of 55/40 nanotechnology to provide future ultra-low power uLP eNVM and MRAM technology in response to future IoT, Wearable Devices and Cloud Applications. Automotive Electronics, which are expected to be effectively delivered to innovative green and energy efficient product applications, will contribute 60% revenue share in the next 3 years.

MARKET

- Obtain energy conservation, high efficiency and low carbon patents**
To date, UMC has a total of 12,991 patents that provide UMC's manufacturing process with comprehensive and powerful barriers to protect its intellectual property. Of the 12,991 patents, which contain multiple items related to energy-saving, high-efficiency, low carbon patents, UMC has also significantly increased the patent quality of its key technologies to stay competitive. We continue to strengthen customer service and our competitive advantage, while generating profits for the corporation.

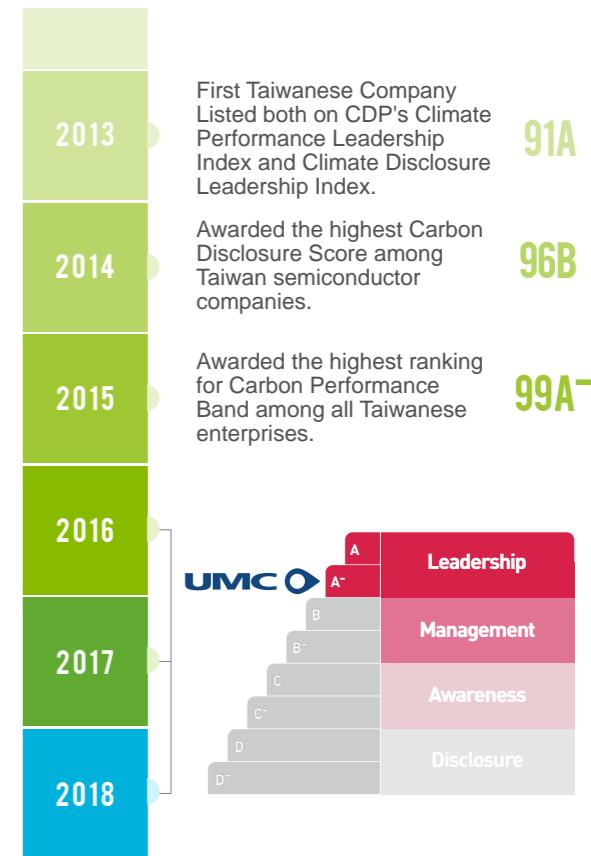
REPUTATION

- Fulfill corporate social responsibility, cooperate with governments, the public and global operating partners to realize the commitment to environmental sustainability**
Currently, UMC is actively cooperating with suppliers to promote the 3R League Project and the Green Awards initiative for resource recovery, reuse and reduction. The company also conducts external promotions in GHG reduction and ecological conservation.
- In addition to meeting customer requirements for product manufacturing, UMC also participates in the initiatives of industrial unions and associations. By offering its practical industrial experience and feedback, UMC hopes to facilitate the development of sound and feasible policies and regulations by the government and relevant institutions.**

Carbon Disclosure and Communication

Apart from representing the TSIA (Taiwan Semiconductor Industry Association) in the discussion meeting of the WSC (World Semiconductor Conference) every year, UMC also actively participates in various types of domestic and international discussions and exchanges, sharing experiences in carbon management. UMC has been invited to participate in the carbon disclosure project of the international CDP organization since 2006, now going strong for 13 consecutive years. Furthermore, it has worked on the disclosure of the above-mentioned results on carbon risks and opportunities and management-related information to the public. In 2018, UMC's carbon exposure was awarded the Level 4 Leadership (A-) score; and has received this leadership performance award for 3 consecutive years since 2016.

Yearly Progress in CDP Evaluation



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Carbon Assets and Carbon Trading

From 2013 to 2014, UMC supported the EPA early reduction project and acquired a carbon reduction allowance of 3.02 million tons. In 2014, a 2 million ton carbon trading deal was signed with Dragon Steel. This was the first carbon trading transaction recognized by the EPA and marked an important milestone for the carbon trading market in Taiwan. Revenue obtained from this carbon trading transaction was wholly used by UMC to establish the UMC Eco-Echo Ecological Conservation Hope Project that was exclusively dedicated to environmental protection, promoting environmental protection measures, and contributing towards environmental sustainability.

In 2018, UMC's application for Emission Reduction Methodology for Semiconductor Industry Fluorinated Greenhouse Gases and N2O Abatement Technology was reviewed and approved by the Environmental Protection Administration and published on Taiwan's Greenhouse Gas Registry (platform). At this stage, UMC has also planned to apply for GHG Offset Project in 2019, according to Taiwan's voluntary GHG reduction incentive program to apply for carbon credits. UMC estimates it can build 10 years of carbon assets totaling more than 1.5 million tons.

Internal Carbon Pricing

UMC has a state-of-the-art 12-inch wafer fab in Singapore. The Singapore government announced that it will introduce a carbon tax from 2019 onwards, making it the first country in Southeast Asia to promote this measure.

In Taiwan, there are additional sub-laws to the Greenhouse Gas Reduction and Management Act and a revised draft of the Renewable Energy Development Act that stipulate fines for GHG emissions exceeding the total controlled amount, and either mandatory green electricity certification purchase or payment for inadequate proportion of green electricity use.

At present, UMC has transformed the carbon emissions into potential carbon costs based on the analysis of the carbon risk scenarios of each fab, and has actively carried out a phased greenhouse gas reduction plan. The measures for the use of clean energy include the reduction of raw materials, setting of high-efficiency greenhouse gas breakdown equipment, etc., and building solar energy systems. The company takes an aggressive stance in reducing the impact of carbon emissions and taxes, enhancing its operational competitive advantage. In addition, UMC has organized inter-fab competitions such as the Green Fab Award and the Green Innovation Award to encourage plants to implement energy-saving and carbon reduction measures. Bonus incentives are available to business units and individuals which have achieved good results in reducing carbon emissions.

C3-2-2 GREENHOUSE GAS INVENTORY

In accordance with inventory guidelines defined by domestic and international organizations such as the ISO14064-1 and GHG Protocol, UMC established its greenhouse gas inventory standard mechanism. The company regularly inventories the greenhouse gas emissions of all its fabs each year to fully determine the status of its greenhouse gases and verify the effectiveness of their reduction.

SCOPE 1 DIRECT GHG EMISSIONS

- Direct GHG emissions occurring from sources that are owned or controlled by the company (i.e., sources within the organizational boundary). For example, emissions from combustion of fuel in owned or controlled vehicles.

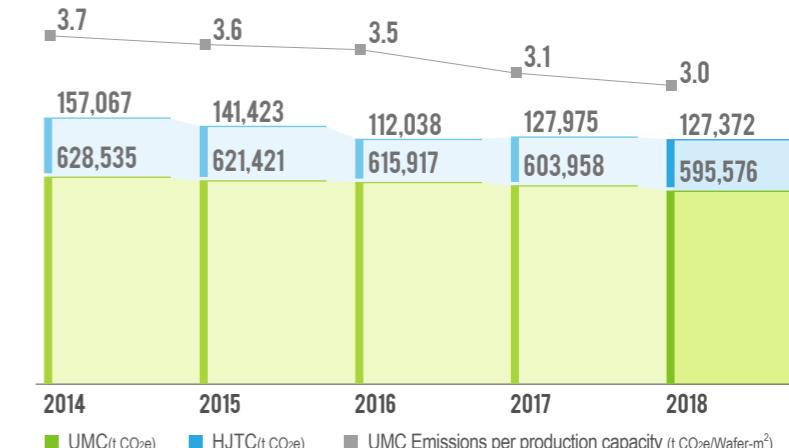
SCOPE 3 OTHER INDIRECT GHG EMISSIONS

- Other indirect GHG emissions occurring as a consequence of the activities of the company, but generated from sources not owned or controlled by the company.

SCOPE 2 ENERGY INDIRECT GHG EMISSIONS

- Indirect GHG emissions occurring from the generation of purchased electricity (heat/cool, steam and fossil fuel derived energy products) consumed by the company.

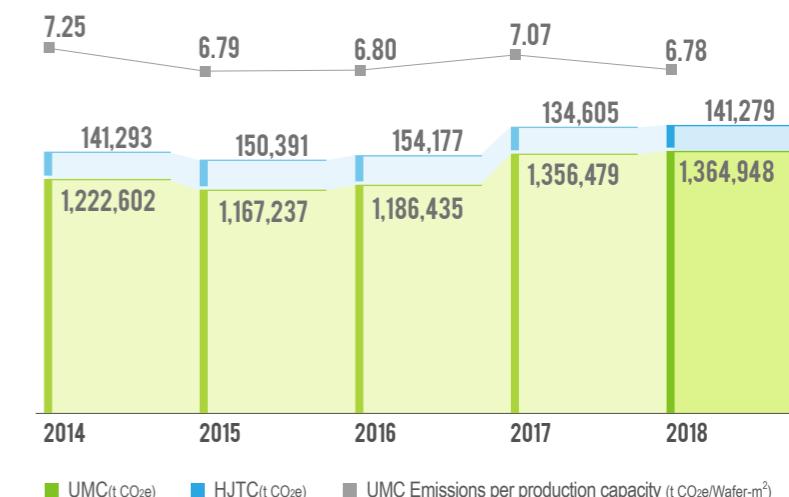
Direct (Scope 1) GHG Emission and Emissions per Wafer Area



Note 1: In 2018, the overall emissions per wafer area for UMC and its subsidiary HJTC were 3.14 t CO₂e/Wafer-m².

Note 2: In 2018, the total emissions of UMC's subsidiary USC were 13,585 t CO₂e; data has not been verified by a third party.

Scope 2 Indirect GHG Emissions and Emissions per Wafer Area



Note 1: In 2018, the overall emissions per wafer area for UMC and its subsidiary HJTC were 6.54 t CO₂e/Wafer-m².

Note 2: In 2018, the total emissions of UMC's subsidiary USC were 16,257 t CO₂e; data has not been verified by a third party.

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In 2015, UMC began referencing carbon footprint calculation methods and technical documents provided by WRI and WBCSD for inventory checks, in order to estimate scope 3 GHG emissions listed in the following. UMC also passed DNV-GL verification, making us the first semiconductor company in Taiwan to complete scope 3 GHG emission verification.

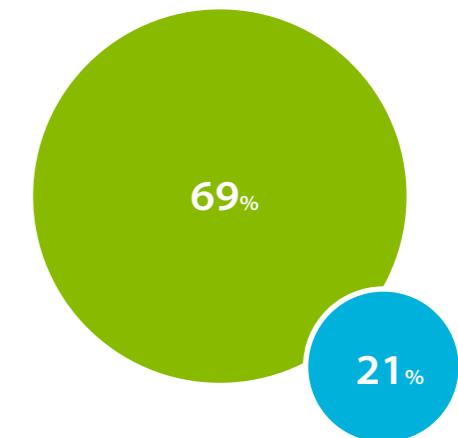
GHG Emissions (t CO ₂ e)			
PURCHASED GOODS AND SERVICES	2017	651,779	YoY
Boundary: Upstream (cradle-to-gate) emissions of 85% (by weight) of purchased goods	2018	651,388	-0.1%
FUEL-AND-ENERGY-RELATED ACTIVITIES	2017	361,671	YoY
Boundary: Upstream emissions of purchased fuels (diesel and NG) and electricity	2018	303,390	-16.1%
WASTE GENERATED IN OPERATIONS	2017	215,991	YoY
Boundary: Transportation of 85% (by weight) of purchased goods	2018	205,697	-4.8%
WASTE GENERATED IN OPERATIONS	2017	872	YoY
Boundary: Transportation and disposal or treatment of waste.	2018	726	-16.7%
BUSINESS TRAVEL	2017	521	YoY
Boundary: Transportation of employees for business-related activities	2018	728	+39.7%
EMPLOYEE COMMUTING	2017	14,733	YoY
Boundary: Transportation of employees (in vehicles operated by the Company and employees)	2018	14,515	-1.5%
DOWNTREAM TRANSPORTATION AND DISTRIBUTION	2017	2,594	YoY
Boundary: Transportation of products sold by the Company	2018	3,202	+23.4%
DOWNTREAM LEASED ASSETS	2017	0	There were no cases during the reporting period.
Boundary: Operation of assets owned by the Company	2018	0	
INVESTMENTS	2017	506,564	YoY
Boundary: Operation of investments: Wavetek/Microelectronics Corporation, NexPower/Technology Corp., and Hejian Technology/(Suzhou) Co., Ltd., United Semiconductor	2018	544,478	+7.5%
CAPITAL GOODS	2017	463,374	YoY
Boundary: Upstream (cradle-to-gate) emissions of 85% (by weight) of purchased goods	2018	243,649	-47.4%
TOTAL	2017	2,218,099	YoY
	2018	1,967,773	-11.3%

3-2-3 GREENHOUSE GAS REDUCTION AND ENERGY MANAGEMENT

Results of UMC's carbon footprint and greenhouse gas inventory found that carbon emissions from manufacturing is the primary source of carbon footprint, and that the main sources of the process emission are fluorinated greenhouse gases (F-GHGs) and electricity, which account for about 90% of UMC overall greenhouse gas emissions. Therefore, F-GHGs and electricity reduction are UMC's priority.

UMC's Primary Sources of Greenhouse Gas Emissions

Greenhouse gases from electricity providers during the generation of electricity for the company's operations.

CO₂

Greenhouse gas generated by the use of F-GHGs during the company's manufacturing process.

CF₄, C₂F₆, C₃F₈, C₄F₈, C₅F₈, SF₆, NF₃, CHF₃, etc.

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CH4 Common Prosperity**Appendix****Fluorinated Greenhouse Gas Reduction**

In addition to carbon reduction each year, UMC established the Fluorinated Greenhouse Gas Reduction Taskforce in 1999 to promote greenhouse gas reduction. Moreover, the company set greenhouse gas reduction goals for the various phases of the program, and currently, the reduction program is in Stage 3. UMC shall continue to implement F-GHGs reduction projects. F-GHGs reduction in 2018 reached 1.28 million tons, which was a 51% reduction compared to 2010. Such results showed that UMC managed to achieve Phase 3 objectives ahead of schedule. UMC has already attained the reduction goal for 2020, which is 30% lower than 2010 levels, as stipulated by the World Semiconductor Council. At this stage, UMC has integrated with international trends and has cooperated with national policies to formulate reduction goals for 2025.

Reduction Plans and Objectives for Each Phase for F-GHGs**Long term Goal/term Goal**

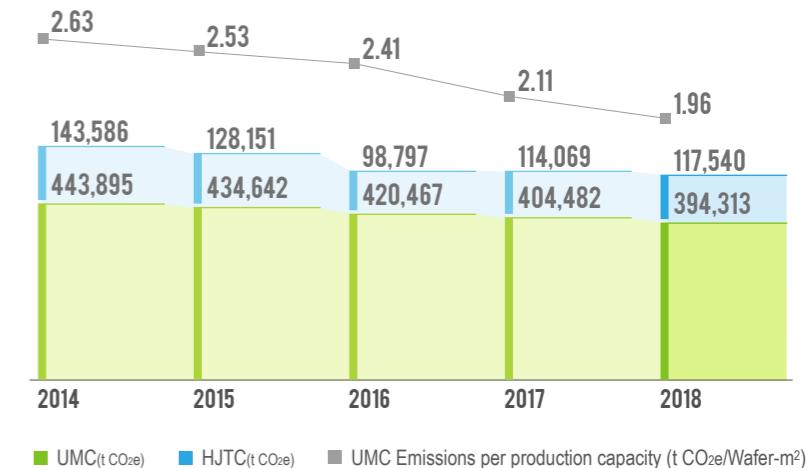
Compared to 2010, reduce unit fluorinated greenhouse gas emissions by **36%** in 2020.

Compared to 2010, reduce unit fluorinated greenhouse gas emissions by **55%** in 2025.

Compared to 2010, **30%** absolute reduction of fluorinated greenhouse gas emissions in 2025.
(Production capacity increased by 1.36 fold)

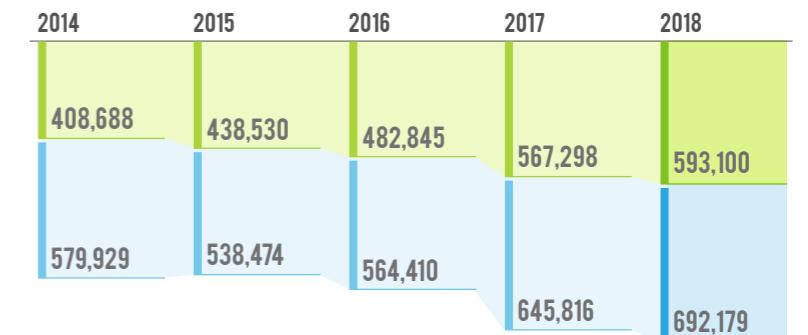
2018 Actual Reduction**51%**

36%
(Production capacity increased by 1.33 fold)

Fluorinated Greenhouse Gas Emissions

Note 1: In 2018, the overall emissions per wafer area for UMC and its subsidiary HJTC was 2.22 tCO₂e/Wafer-m².

Note 2: In 2018, the total emissions of UMC's subsidiary USC was 2,672 t CO₂e; data has not been verified by a third party.

F-GHGs Reduction Results

■ Prevention equipment reduction result (ton CO₂e)

■ C₃F₈->C₄F₈ gas replacement reduction result (t^{on} CO₂e)

Note 1: The area to promote the emission preventive (reduction) equipment includes all fabs. The reduction efficiency was calculated based on the difference between greenhouse gas emissions before and after the treatment by the emission preventive (reduction) equipment.

Note 2: The area to promote C₃F₈/C₄F₈ gas replacement includes all 8" fabs. The reduction efficiency was calculated based on the difference of greenhouse gas warming potential and the difference of equipment utilization rate.

Note 1: In 2018, the scope-1 GHG emissions per unit of product were down about 42.9% compared to 2010.

Note 2: If production capacity increases by 1.33 fold in 2025 compared to the base year 2010, the F-GHG emissions reduction target is equivalent to 40%.

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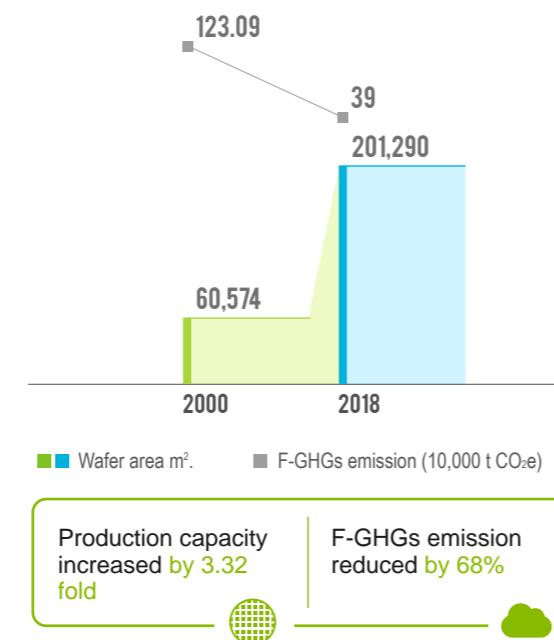
3-4 Waste Management

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Appendix

UMC's overall production capacity and F-GHGs emission in 2000 and 2018



F-GHGs Reduction Practice



All new equipment shall be installed with a high performance local scrubber for N₂O and F-GHGs.



All new CVD equipment in new facilities shall utilize NF₃ gases

F-GHGs reduction in 12-inch fabs

All UMC's 12-inch fabs, including Fab 12A ,Fab 12A's new phases, Fab 12i and the fab of subsidiary USC have adhered to UMC's F-GHGs reduction practices. Based on the Institute of Electrical and Electronics Engineers (IEEE) 1680.1: 2018 standard, the total F-GHGs reduction rate for entire fabs has exceeded the required 75%.

Energy Management

Currently, to conserve energy, UMC is targeting electricity and natural gas, and promotes the implementation of energy management in its offices and public areas with promotional activities, education and training to cultivate a mindset and habit of energy conservation and greenhouse gas emission reduction among its employees.

Vision

Enhance energy efficiency to minimize impact on the earth as a result of energy use.



Organization

Through the CS Committee's company-wide carbon reduction goals and development plans, coordinate/ integrate departmental energy saving and carbon reduction strategies and programs. Hold regular committee meetings to review the implementation outcome, and continue to introduce energy conservation technologies and implement energy efficiency improvement programs in relevant facilities.



Measures

Fab 8A introduced ISO 50001 management system standards with systematic procedures and PDCA-based continuous improvement approaches. This model was promoted in other fab sites as well.



Goal

Electricity consumption reduction goal : Reduce electricity consumption per unit of product by 10% in 2020 and by 15% in 2025
Natural gas consumption reduction goal: A reduction of 5.5% in 2019



Results

Reduced electricity consumption by 2.24% in 2018
Natural gas reduction by 1.14% in 2018



(Using 2015 as the base year)

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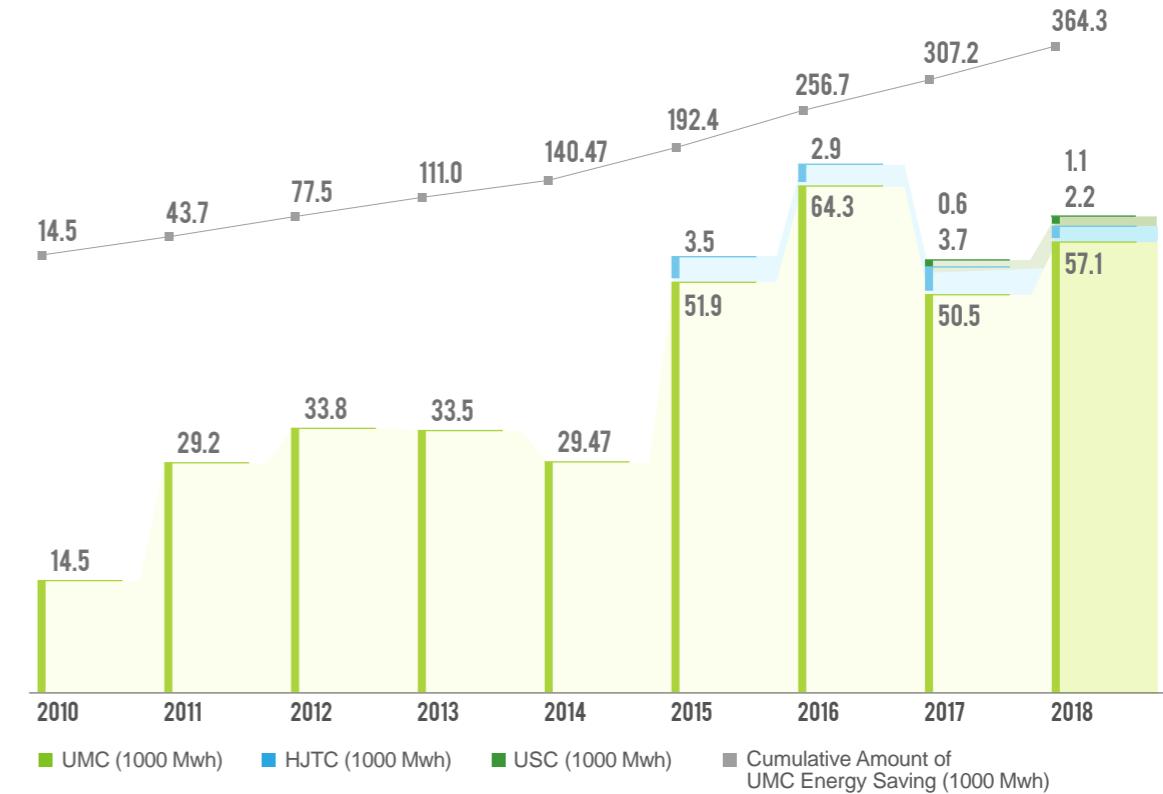
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**Major Energy Conservation Measures in 2018**

- ELECTRICITY**
- Change online UPS to offline UPS
Implementing Fab : 12A,12i,8A, 8D ,8E,8F,8S,HJTC
 - Illumination energy saving
Implementing Fab : 12A, 12A II,
12i , 8A, 8D, 8E, 8F, 8S, HJTC, USC
 - Make-up Air Unit energy conservation
Implementing Fab : 12A,12A II,12i ,8F,USC
 - Compressed gas energy conservation
Implementing Fab : 12A,12A II,12i,8D,8E,8F,8S,USC
 - Cold water system energy conservation
Implementing Fab : 12A,12A II,12i,8A,8D,8F,8S
 - Process cooling water energy conservation
Implementing Fab : 12A,8E
 - Production machine energy conservation
Implementing Fab : 12A,12A II,12i,8A,8D,8E,8F,8S,HJTC
 - Energy saving measures for water treatment systems
Implementing Fab : 12A,8E
 - Add high temperature heat pumps
Implementing Fab : 12A/8A
 - L/S TPU modifies to ULF
Rising Heat Pump efficiency
VOC operating parameters adjusted for optimization
Implementing Fab : 12A
- NATURAL GAS**

UMC's Historical Electricity Saving Performance Statistics**Total energy conservation in 2018**

1.CO₂ emissions are calculated using the electricity coefficient of 0.554 Kg CO₂e / KWh.

2.The information above does not include energy savings for HJTC and USC.

3.For newly added improvements, performance was only calculated for 12 months.

4.The gas conservation amount estimated by the energy conservation measure is a theoretical amount. The CO₂ emission coefficient of the 2006 IPCC fixed and mobile resource (gas) and gas calorific value from the various local fabs are also incorporated into the carbon emission calculation.

5.The gas carbon equivalent for Taiwan's fabs = 1.879 KgCO₂/M³.

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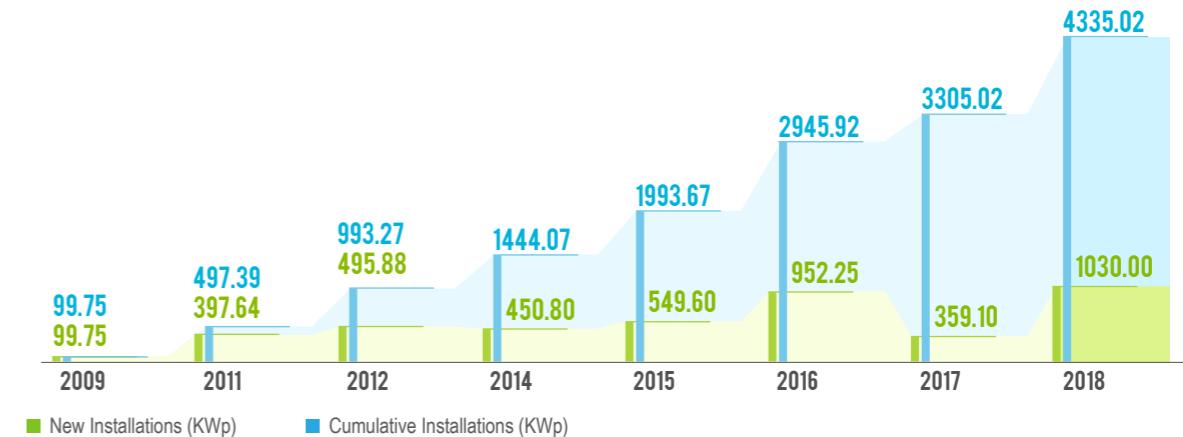
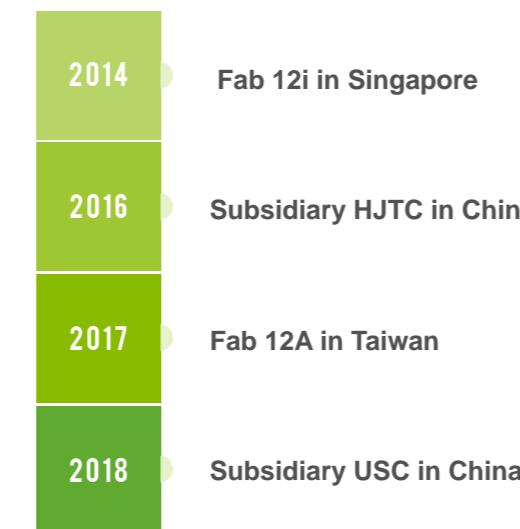
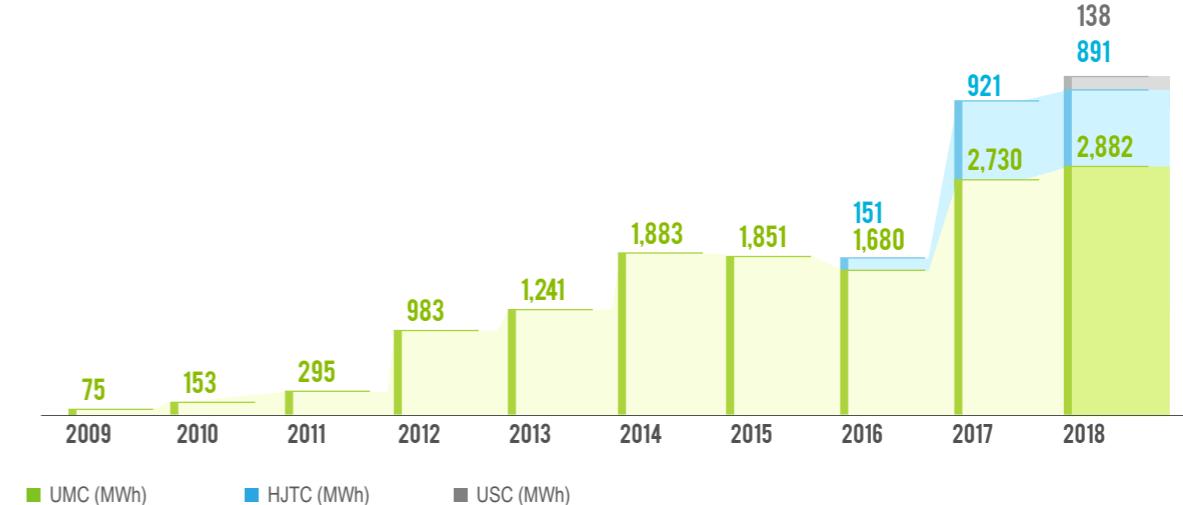
3-5 Green Product

CH4 Common Prosperity**Appendix****Promotion of Renewable Energy**

Aside from UMC's ongoing energy efficiency improvement efforts, it is also actively setting up renewable energy sources in the fab, and has listed solar energy systems as a new fab standard design and construction project.

UMC has completed the installation of the 4,335 KWp solar energy system, which is expected to generate up to 2.8 million KWh of electricity each year. The installation capacity is the highest among Taiwan's wafer industry, thereby fully demonstrating UMC's commitment to green energy and full support for clean energy.

In October 2018, UMC's two solar power generators in Fab 12A, installed in cooperation with the government's renewable energy policy, were reviewed and approved by government and third-party power survey agencies. UMC continues to pursue renewable energy certifications, and obtained 31 such certifications between October and December 2018.

Total installed capacity of Solar Energy System**Newly Installed Solar Energy System in Recent Years****Solar Energy Output in Recent Years**

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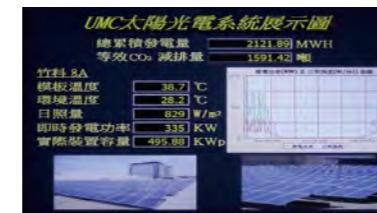
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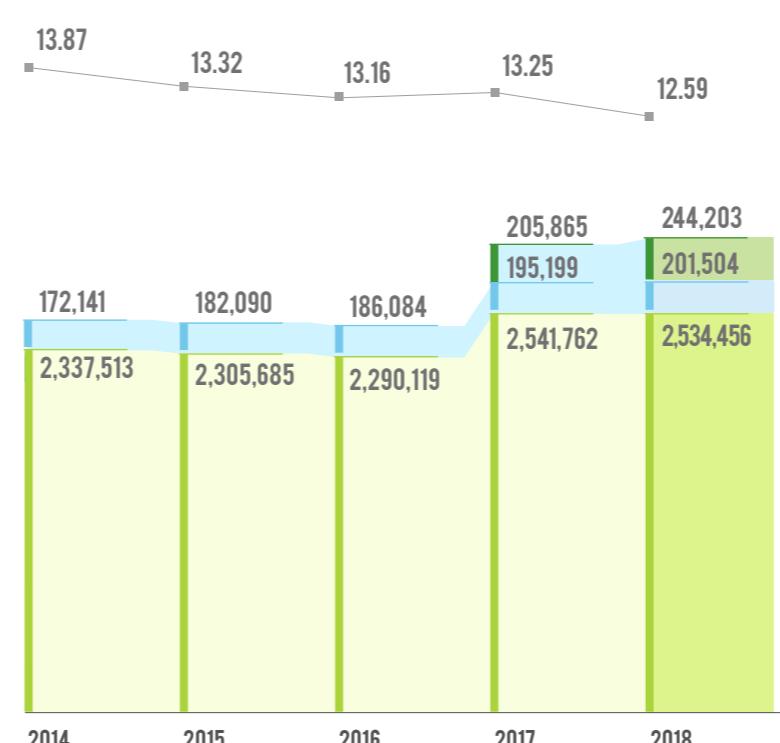
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Photo of Solar Energy System

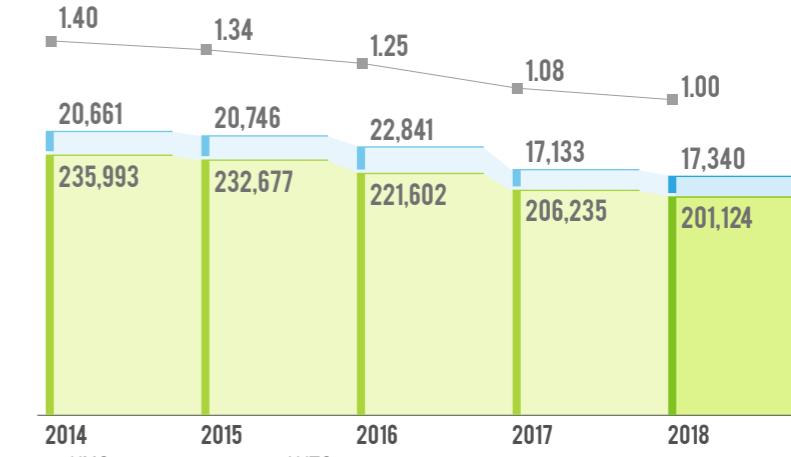


UMC Statistics on Electricity Consumption over the Years



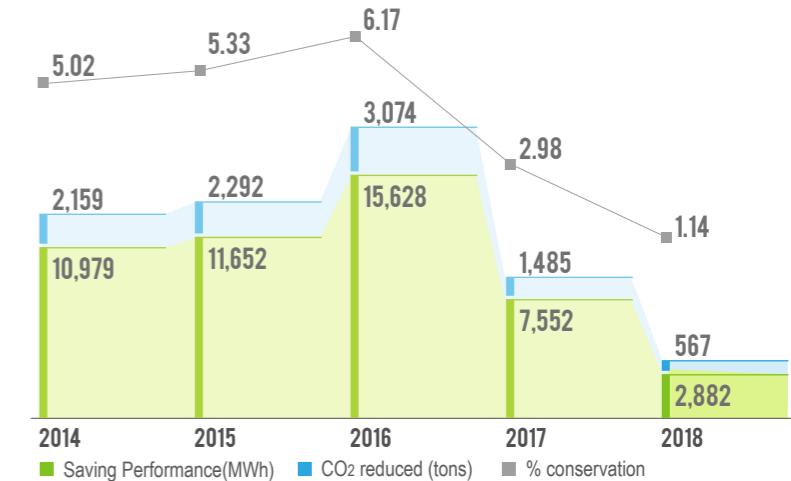
1. In 2018, the overall energy intensity for UMC and its subsidiary HJTC +USC was 12.53 MWh /Wafer-m².

UMC Statistics on Natural Gas Consumption over the Years



Note 1: In 2018, the overall energy intensity for UMC and its subsidiary HJTC was 0.95 MWh /Wafer-m².(The unit gas calorific conversion coefficient is calculated according to the calorific value provided by the local gas suppliers of each fab.)

UMC's Historical Natural Gas Saving Performance Statistics



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Energy Conservation Plans for 2019

Energy saving plans shall cover about 306 energy saving measures such as the complete introduction of equipment energy saving features, provision of inverters, replacing online uninterruptible power supplies (UPS) with offline UPS systems, and ice water system energy saving measures. Reduction goals

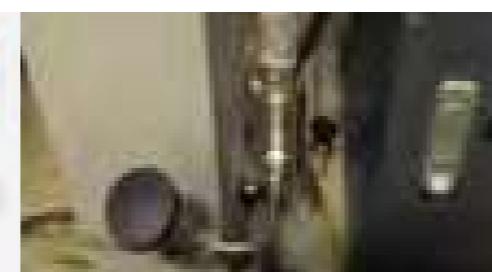
for 2019 are 47,000 MWh, which would be equivalent to carbon dioxide emission reductions of about 26,038 t CO₂e.



UMC shall continue to promote heat recycling and energy saving projects for high temperature heat pumps, which are expected to reduce nature gas consumption



by 13,992 MWh, equivalent to carbon dioxide emission reductions of about 2,752 t CO₂e.



UMC

ECO.ECHO.ENDLESS LOVE TO THE EARTH

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3-3 WATER RISK MANAGEMENT

Recent climate changes have led to severe fluctuations in precipitation with more frequent floods and droughts. External stakeholders are also increasingly concerned about issues related to water resources. To respond to complex water resource issues on a timely basis and effectively integrate prevention steps, consumption reduction, contingency response, and other management concepts, UMC has successfully completed water risk factor identification and response measures. The UMC Water Resource Management Policy and Commitment was announced in 2015 to serve as our highest guiding principles for water resource management.

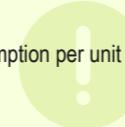
How We Manage

- Introduce a water risk management system
- Develop and utilize diverse water sources
- Use active management indicators to promote water conservation

- Cooperate with supply chains to reduce water footprint
- Provide open and transparent water information
- Widely promote water education

Goals and Targets

Improve water efficiency; reduce water consumption per unit of product by 10% in 2020, by 15% in 2025.
(With 2015 as the base year)



Relevant Policy



UMC Water Management Policy, Environmental Protection Policy



Environmental Protection Policy

Applicable Entities

- 1. UMC
- 2. HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits



3-3-1 WATER RISKS AND OPPORTUNITIES

Identifying Water Risk Factors and Response

TRANSITIONAL



POLICY AND LEGAL

Potential Risks

- Regulations and control for wastewater quality / water discharge quantity
- Water charges

UMC's Response

- Participate in government, unions and association seminars to share practical experience and advice
- Implement wastewater source diversion to enhance quality of wastewater
- Continue to assess new wastewater treatment technology
- Upgrade production efficiency to reduce water consumption and improve water recovery

Potential Risks

- Commitment for new technology investment
- Consumers, customers, investors and other parties of interest require companies to provide green products and expand their influence through the supply chain to indirectly eliminate excessive water-consuming commodities.

UMC's Response

- Promote analysis and certification of environmental impact on product lifecycle as well as promote source reduction.
(UMC has passed water footprint certification and continues to promote water saving projects)

Potential Risks

- Changes in customer preferences
- Bad reputation brings about negative feedback

UMC's Response

- Will continue to proceed according to UMC's current direction for water risk response (No significant risk)

PHYSICAL



SHORT-TERM



LONG-TERM

Potential Risks

- The intensity and frequency of natural disasters caused by typhoons may prevent employees from going to work, may cause damage to fab facilities, and may disrupt energy and raw materials supply.
- Change of water source resulting in the change of water quality.

UMC's Response

- Improve flood potential and risk assessments
- Promoting business continuity management system
- Globalize fabs and supply chain

- Assess suppliers' water risk
- Water quality risk assessment was conducted

Potential Risks

- Rising sea level from global warming may lead to inland flooding, resulting in reduced clean water sources, water shortages and abnormal infrastructure damage to fab facilities.

UMC's Response

- Reduce pressure of water demand by increasing water recovery and reuse
- Use limited water resources efficiently
- Evaluate and introduce new water sources
- Water Risk Management Tool Development
- Incorporate location considerations into future site selection.
- Establish a water contingency plan



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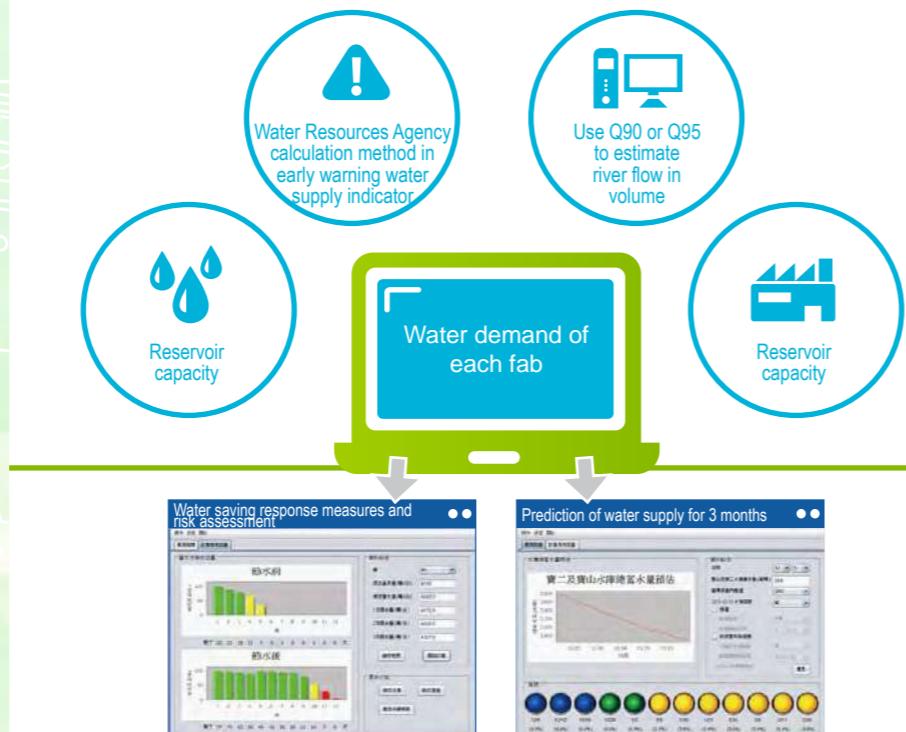
Water disclosure and communication

Since 2017, UMC has been invited to participate in the CDP water disclosure project. To date, the company has been awarded the highest rating for Taiwan's enterprises for two consecutive years, with (A-) rating in 2017 and (B) rating in 2018.

Water Risk Management Tool Development

With regard to the water resource issue, besides the continuous implementation of water saving measures, UMC has collaborated with the Department of Bioenvironmental Systems Engineering, National Taiwan University in 2015~2016 to develop the "Water Shortage Warning and Decision Support System for UMC's fabs in Hsinchu Science Park and Southern Science Industrial Park." A seasonal (3 months) water shortage warning system was established to simulate the warning system used in the Water Resources Agency, MOEA. In addition, the seasonal broadcasting data from the Central Weather Bureau was incorporated into the system to offer water supply predictions. With this tool, UMC's fabs will know in advance about any possible water shortages. By combining with UMC's water shortage response measures, operation risk can be significantly reduced.

System Framework



Water Resources Sharing and Social Participation

In addition to internal water resource assessment and management and active promotion of water conservation, UMC also serves as a representative in industrial unions/associations. The company cooperates with the government and industrial peers in water resources communication and exchange counseling through the following mechanisms:



Water resources communication meetings convened by the Water Resources Agency and manufacturer's associations.



Increased water resources adjustment and coordination by manufacturers and the Water Resources Agency during dry season.



In cooperation with the Water Resources Agency's promotion of reclaimed water construction, UMC plans to use reclaimed water.



Establish a communication platform meeting with the Water Resources Agency to meet future water supply and demand.

Exchange and Counseling with Industry Peers

UMC has participated in the establishment of water conservation coaching in the Science Park annually since 2002. As of 2018, it has conducted a total of 189 cases and coached more than 80 companies, sharing the company's valuable experience in water conservation with industry peers to reduce the demand for water resources. For example, in 2018, the potential quantity of water saved after coaching was 290,000 tons/year. In 2017, UMC carried out water conservation coaching and tracked the performance of 10 companies, realizing savings of 82,000 tons of water.

3-3-2 FAB WATER SOURCE

UMC uses water risk assessment tools developed by the World Resources Institute (WRI), and cooperates with Taiwan's water resource distribution to identify the current proportion of fabs located on water scarce regions and further develop water risk management strategies.

UMC's Main Water Source for Each Fab

WATER SCARCITY^(NOTE1)-LOW

HSINCHU SCIENCE PARK 8A , 8D , 8E , 8F , 8S

Water Source
Baoshan Reservoir/Baoshan II Reservoir/Longen Dam
In addition to the existing water supply, the Shimen Reservoir and Yonghe Mountain Reservoir provide support mechanisms. Each year before the dry season, the Water Resources Agency convenes meetings to discuss the coming water risk to minimize the risk of water shortage.

CHINA SUZHOU Subsidiary HJTC

Water Source
The main water sources for Suzhou's Taihu Lake are the Suixi in Tianmu Mountain in Zhejiang Province, and Jingxi in Yili Mountain in Jiangsu Province
Taihu Lake has a water storage capacity of 2.72 billion tons, and is an abundant water source that provides stable water supply.

CHINA XIAMEN Subsidiary USC

Water Source
Jiulong River/Tingxi Reservoir
The Jiulong River has a water volume of 446 cubic meters per second, and the Tingxi Reservoir has a storage capacity of 48.45 million cubic meters; these abundant water resources ensure a stable water supply.

WATER SCARCITY MODERATE ▶ LOW^(NOTE2)

SINGAPORE 12i

Water Source
Singapore Newater reclaimed water
Newater reclaims and treats public waste water for reuse, and hence has a more stable source of water supply with lower risk.

WATER SCARCITY^(NOTE1)-MODERATE-HIGH

TAINAN SCIENCE PARK 12A , 12All

Water Source
Nanhua Dam / Zengwen Dam
Water is mainly supplied by the Nanhua Reservoir. Between November and May of the following year is the annual dry season, and the Water Resources Agency regularly reviews risks and schedules water supplies when necessary.

Note: The WRI (Water Resource Institute) Aqueduct Tool is used to assess water risk.

Note 2: The WRI (Water Resource Institute) Aqueduct Tool is used to confirm that Singapore is categorized as moderate water scarcity. Analysis shows Fab 12i plant derives 94% of its total water from Newater's recycled water, so water risk has been modified to low level.



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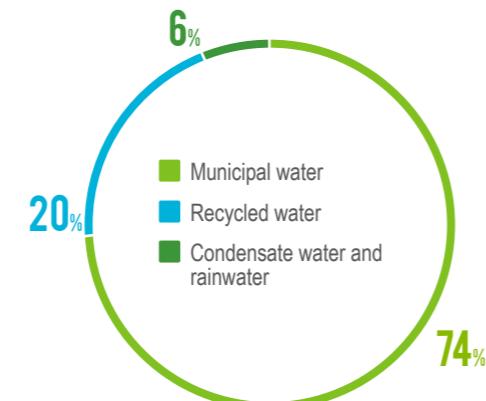
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CH4 Common Prosperity**Appendix****Using Recycled Water**

When Fab 12i in Singapore was being built, recycled water (Newater) was introduced in the production of 12-inch wafers (non-livelihood water). The fab used more stable recycled water (Newater), and increased its HF treatment system for discharge quality of fluoride ion < 15ppm, at same time strengthening the classification management of the source of the machine, and controlled sulfates to <1000ppm. On the other hand, the status of using recycled water has been evaluated in UMC's Taiwan fabs in areas where water resources are relatively depleted.

In 2018, the company's use of recycled water reached 3.15 million tons, accounting for 94% of Fab 12i's total water use of 3.35 million tons. In the future, the fab in the Southern Taiwan Science Park will work in conjunction with the completion of the government's recycling system, performing incremental testing before full utilization, to increase the amount of recycled water used and reduce the impact on local water resources.

Total water withdrawal of UMC is broken down below

Review and analysis showed that UMC and Subsidiary fabs use less than 5% of the water in their respective regions, and hence have no significant impact on water resources.

UMC			
Hsinchu Science Park	Regional water consumption (Note 1) 0.54million tons/day	UMC water consumption (Note 2) 16,400tons/day	Impact of UMC consumption 3.03%
Tainan Science Park	Regional water consumption (Note 1) 0.82million tons/day	UMC water consumption (Note 2) 15,700tons/day	Impact of UMC consumption 1.91%
Singapore	Regional water consumption (Note 1) 0.45million tons/day	UMC water consumption (Note 2) 8,800tons/day	Impact of UMC consumption 1.95%

HJTC			
China	Regional water consumption (Note 1) 1.1million tons/day	UMC water consumption (Note 2) 5,600tons/day	Impact of UMC consumption 0.51%

USC			
China	Regional water consumption (Note 1) 1.72million tons/day	UMC water consumption (Note 2) 4,500tons/day	Impact of UMC consumption 0.26%

Note 1: Fabs in Hsinchu Science Park, Tainan Science Park, China Suzhou: provided by water company.Singapore fab: Based on PUB website information.

Note 2: Water meter readings are recorded daily, and based on average monthly water usage, annual water consumption is calculated.

Water Quality Risk Control

Before entering the fabs, water is first tested with pH devices and continuously monitored with a conductivity meter to ensure stable quality. During the pure water production process, each unit of the water production facility is equipped with an inspection instrument which is connected to SPC in order to ensure the quality of the water.

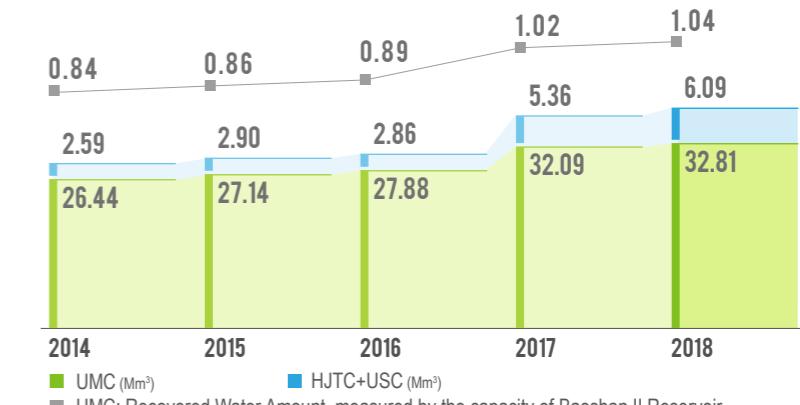
3-3-3 WATER CONSERVATION DURING MANUFACTURING

UMC's first principle of water consumption is designing a water conservation process, followed by recovering water for reuse and implementing highly efficient water management. To effectively reduce water resource consumption, all three principles must be integrated. In addition to conserving water, the company also actively participates in the Science Park Administration's water management indicator formulation and annual manufacturer water conservation counseling and technology exchanges. To ensure a secure water supply, the company also participates in the Water Resources Agency's water shortage contingency measures for water source stabilization and eutrophication. Impacted by global climate change, UMC strives to promote energy conservation and carbon reduction activities, and includes them in its management policy. Hence water conservation and improvement activities are ongoing to provide further opportunities for company growth.

Percentage and Total Volume of Water Recycled and Reused

According to the continuous improvement of the new Green 2020 water-saving plan, the water saving capacity was 228,000 tons in 2018 (accounting for 1.5% of municipal water usage in 2018), which is equivalent to saving benefits of NTD 5.7 million for that year. For subsidiary HJTC, water saving capacity was at 76,000 tons in 2018, translating to benefits of approximately RMB 28,000, accounting for 3.7% of municipal water usage in 2018.

As shown in the diagram below, in 2018, UMC company-wide recovered water totaled 32.8 million tons, which is equivalent to conserving 1.04 of Baoshan II Reservoir :

UMC and its Subsidiaries HTJC/USC Water Conservation in the Last 5 Years

Note 1: In 2018, total recycled water of UMC, including its subsidiary HJTC and USC was equivalent to conserving 1.24 of Baoshan II Reservoir.

Note 2: In 2018, Fab 8N and Fab 12X overall recovered water amounted to 5.36 million tons, which was equivalent to 0.17 of Baoshan II Reservoir.

Note 3: Baoshan II Reservoir is the main water source for the Science Park. Its full water storage capacity is 31,471,800 tons (Source: Ministry of Economic Affairs Water Resources Agency February 2018 Water Storage Report).

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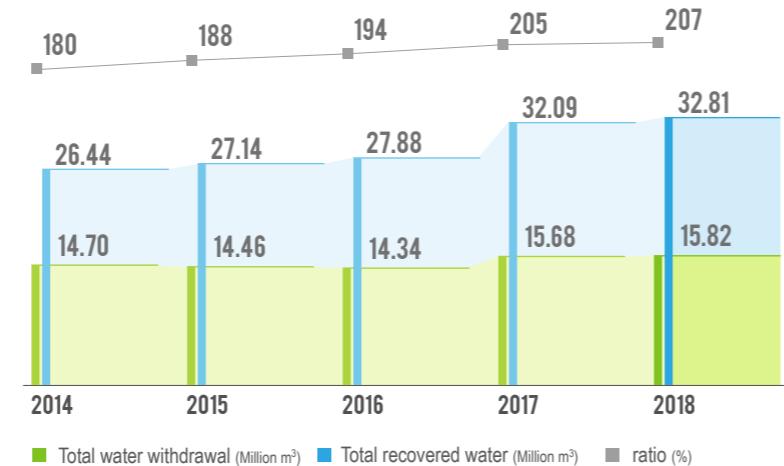
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Due to its past promotion of water conservation, reduction and recycling measures, and its high recovery rate in the manufacturing process, UMC's current water recovery has exceeded the newly increased total water withdrawal. Total water recovery and reuse could reach more than 200% of water withdrawal.

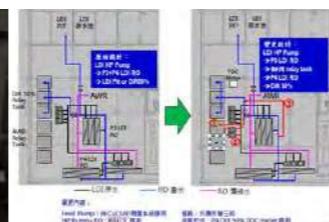
Percentage of Water Recovery and Reuse to Total Water Withdrawal



Note 1: Amount of recovered water is calculated using cumulative flow meter or floating flow meter.
 Note 2: Total water withdrawal includes municipal water + condensate water and rainwater.
 Municipal water: Water meter readings are recorded daily, and based on average monthly water usage, annual water amount is calculated.
 Condensate water and rainwater: Annual water amount is calculated using flow meters and estimates.
 Note 3: The information above includes Fab 12A's second plant since 2017.



CMP and alkaline drain water reuse



Low conductivity drain increase RO membrane

New Improvement Measures and Outcomes in 2018

CMP AND ALKALINE DRAIN WATER REUSE

Implementing Fab subsidiary HJTC

Amount of Conserved Water

76,591 tons

LOW CONDUCTIVITY DRAIN INCREASE RO MEMBRANE

Implementing Fab 12A

Amount of Conserved Water

57,809 tons

INCREASE ACID WASTE RECLAIM SYSTEM (PLANT 2)

Implementing Fab 12A

Amount of Conserved Water

35,011 tons

LOW CONDUCTIVITY DISCHARGE, CONCENTRATE RECYCLE BY RO MEMBRANE

Implementing Fab 12A II

Amount of Conserved Water

21,900 tons

PURIFY CMP RECLAIM SYSTEM

Implementing Fab 8D

Amount of Conserved Water

15,982 tons

REUSE MMF BACK WASH WATER

Implementing Fab 12A II

Amount of Conserved Water

11,016 tons

CMP RECLAIM WATER REUSE TO CENTRAL SCRUBBER

Implementing Fab 8S

Amount of Conserved Water

9,955 tons

INCREASE BACK SIDE GRADE SYSTEM

Implementing Fab 12A II

Amount of Conserved Water

9,855 tons

UPGRADE CONDUCTIVITY BASE OF AWR SYSTEM FOR INCREASE QUANTITY

Implementing Fab 12A II

Amount of Conserved Water

7,300 tons

ALKALINE RESIN BED RINSE WATER REUSE

Implementing Fab 12A

Amount of Conserved Water

6,420 tons

PH METER SAMPLING WATER RESUSE OF CATION RINSE BED

Implementing Fab 12A II

Amount of Conserved Water

3,087 tons

OTHERS

Amount of Conserved Water

49,933 tons

Note: Only 12 months of performance are included for the new improvement items. Only outcomes from 2018 are included in multi-year plans.

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UMC Fab 12i Wins Singapore's Watermark Award

Johnson Liu, director of UMC Fab 12i, said



"We are proud to be recognized for our efforts in sustainable manufacturing through Singapore's Watermark Award. This distinction follows upon our recent winning of Singapore's National Water Efficiency Award in November, 2017 and underscores the effectiveness of UMC's industry-leading water conservation measures."

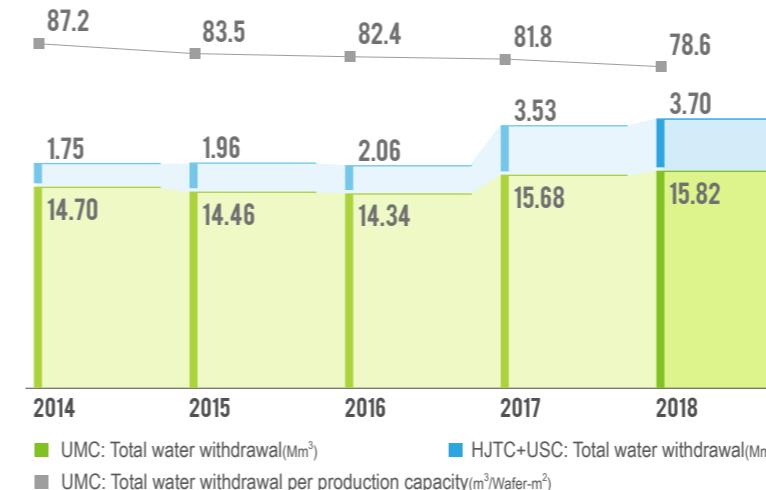
Note: The Watermark Awards was introduced to recognize individuals as well as organizations for their outstanding contributions and commitment to protect and raise awareness of Singapore's precious water resources.

Total Water Withdrawal

UMC strives to improve its water conservation and increase its water efficiency and value, and reduce the environmental impact on water sources, reduce water consumption replenishment, and use municipal water as the primary source, supplemented by condensate water and rainwater.

In 2018, total water usage in UMC amounted to 15.8 million tons, which included public water, condensate water and rainwater.

UMC and its Subsidiaries HJTC/USC Total Water Withdrawal in the Last 5 Years.



Note 1: In 2018, the overall water withdrawal per wafer area for UMC and its subsidiaries HJTC /USC was 82.1 m³/Wafer·m².
 Note 2: 2018 UMC municipal water consumption: 14,907,000 tons; condensate water and rainwater: 911,000 tons.
 Note 3: 2018 HJTC and USC municipal water consumption: 3,674,000 tons; condensate water and rainwater : 28,600 tons.

A breakdown of total water withdrawal of UMC in 2018

All areas

Areas with water stress
(fabs in Tainan Science Park)

WATER WITHDRAWAL BY SOURCE (MEGALITERS)

• Surface water + Groundwater + Seawater + Produced water (total)

0 | 0

• Condensate water and Rainwater (total)

911 | 322

• Third-party water (total)

14,907 | 5,712

• Freshwater ($\leq 1,000 \text{ mg/L}$ Total Dissolved Solids)

14,907 | 5,712

• Other water ($> 1,000 \text{ mg/L}$ Total Dissolved Solids)

0 | 0

• Total third-party water withdrawal by withdrawal source

Surface water
14,907 | 5,712

Groundwater + Seawater + Produced water (total)
0 | 0

TOTAL WATER WITHDRAWAL (MEGALITERS)

15,818 | 6,034

Note: The source of third-party water all came from surface water which was provided by a water company.

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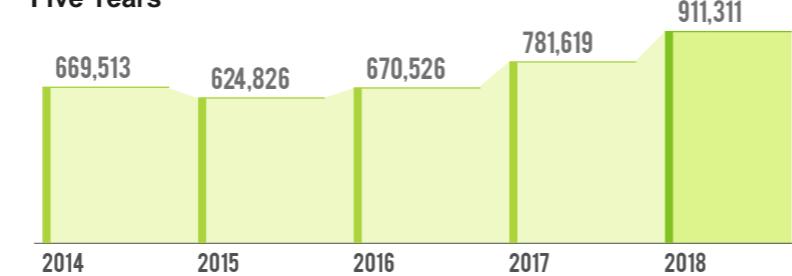
3-3 Water Risk Management

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CH4 Common Prosperity**Appendix****Condensate Water and Rainwater**

Condensate water and rainwater are precious natural water sources, but are easily subjected to seasonal climate changes, and therefore account for only 5% of total water consumption. If efficiency can be improved, the environmental impact on water sources can be reduced.

UMC Condensate Water and Rainwater Recovery in the Last Five Years

Note: The information above includes Fab 12A's second plant since 2017.

UMC and Its Subsidiaries HJTC/USC Deionized Water Consumption in the Last 5 Years.

■ UMC: Deionized water consumption (Mm³)

■ HJTC and USC: Deionized water consumption (Mm³)

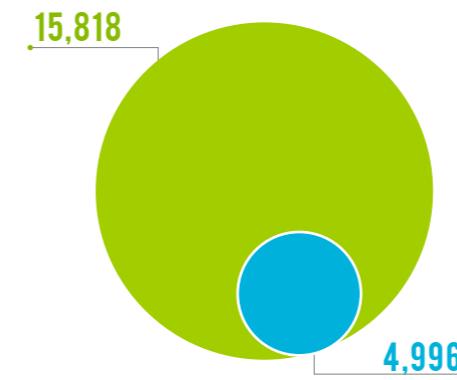
■ UMC: Deionized water consumption per production capacity (m³/Wafer-m²)

Note 1: The information above includes Fab 12A's second plant since 2017.

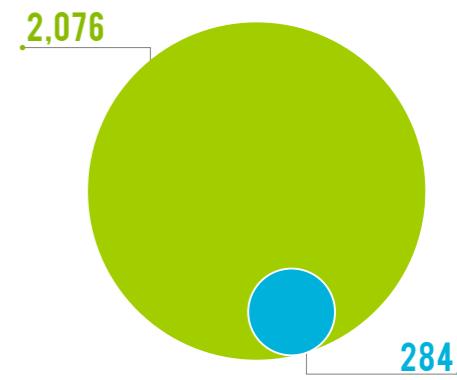
Note 2: In 2018, the overall deionized water consumption per wafer area for UMC and its subsidiaries HJTC/USC was 86.7 m³/Wafer-m².

Water Consumption**UMC and its Subsidiaries HJTC/USC Water Withdrawal and Consumption in 2018 (megaliters)**

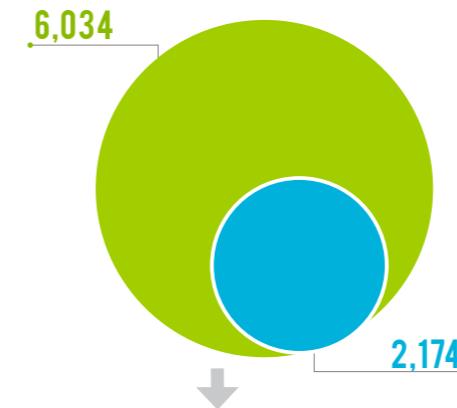
UMC - All areas



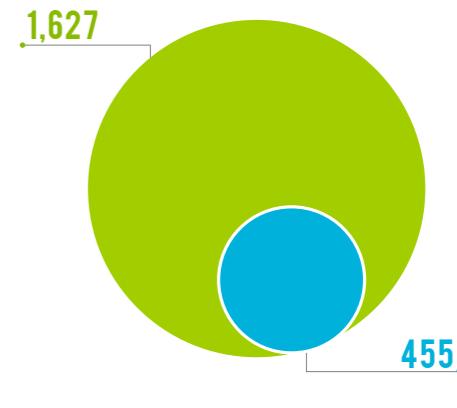
HJTC



UMC-Areas with water stress (fabs in Tainan Science Park)



USC



The total water withdrawal and water consumption of facilities in areas with water stress in 2018.
(fabs in Tainan Science Park)

	Process related Facilities	Living related Facilities	Total
Water withdrawal	Surface water + Groundwater + Seawater + Produced water (total) Third-party water (total) Condensate water and Rainwater (total)	0 5,513 322	0 199 0
Water consumption	Total water consumption	2,044 130	2,174

Note: Water consumption=Total water withdrawal - Total water discharge

■ Total water withdrawal

■ Water consumption

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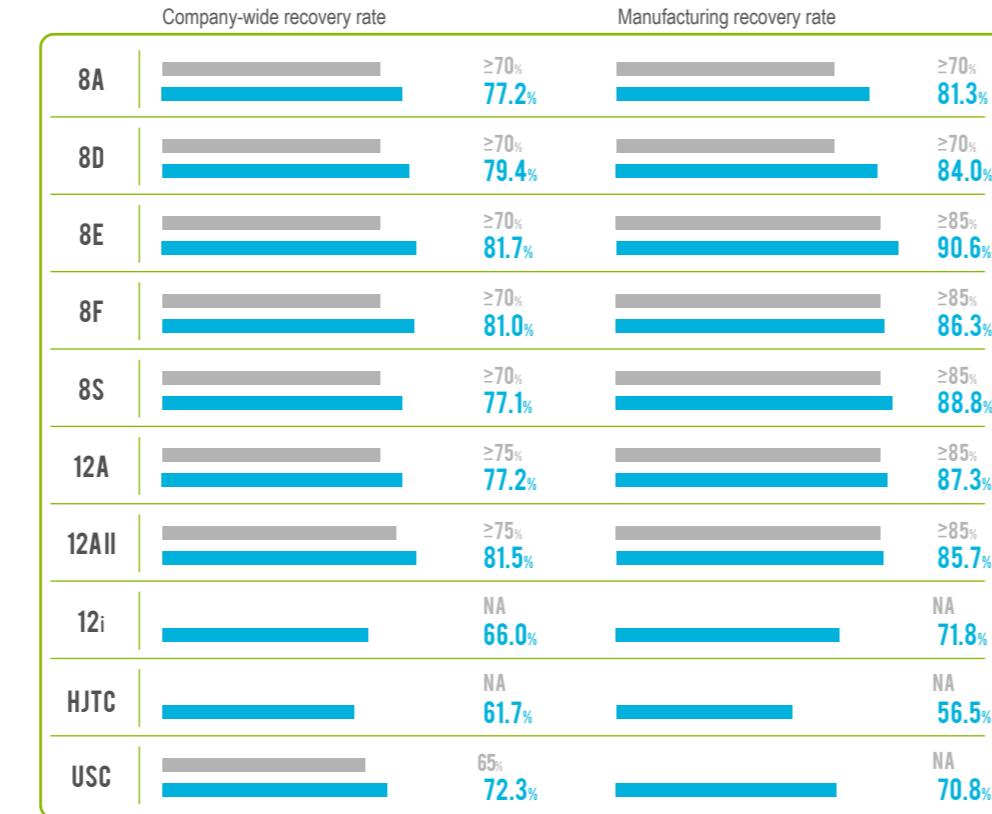
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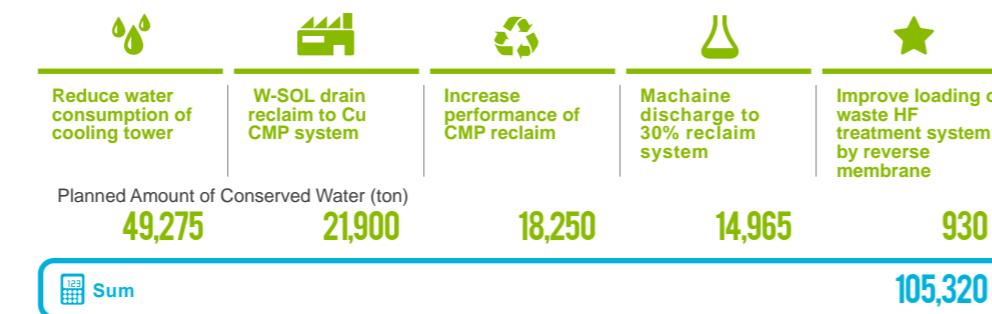
CH4 Common Prosperity**Appendix****Company-wide Recovery Rate and Process Recovery Rate**

Despite the various operation schedules of UMC's fabs, the water recovery rate still outperformed the standard regulated by the Science Park



Note: When no local standard is available (NA), fabs will be installed with basic recycling equipment.

■ Standard ■ Actual

Water Conservation Improvement for 2019**3-3-4 WATER POLLUTION CONTROL**

Among process reduction, waste diversion and categorization, the priority in UMC's water pollution control strategies are process source reduction, waste liquid diversion, followed by categorization. In its new fab areas, there are up to 27 categories of wastewater diversion, which are further divided into solvent-based and high or low flash point for resource recovery or incineration while inorganic acids are reused. For multiple re-use, wastewater is categorized according to characteristics to maximize water resource efficiency and simplify wastewater composition. Finally, wastewater is treated in the fab's wastewater treatment facilities according to the control standards of the Science Park Administration before being discharged into the science park sewage systems. For real-time monitoring and response, equipment for continuous monitoring of water quality (pH, fluoride ion concentration) and water quantity are installed, and SPC management is adopted for self and early prevention to ensure that the quality of water discharged into park sewage complies with control regulations. In addition, the Science Park Administration conducts monthly unscheduled and random quality inspection of water discharged by the different companies to reaffirm the quality of discharged water.

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CH4 Common Prosperity**Appendix****Wastewater Treatment**

To fulfill our corporate social responsibilities, UMC has continued to invest in the R&D of wastewater treatment technologies. In recent years, we introduced advanced ammonia nitrogen wastewater treatment techniques to reduce pollution burdens of water bodies.

Nitrogen wastewater treatment techniques' setup status of each fab

Setup Year : 2018

Site:8A/ 8D

Technologies

Stripping + Sulfate scrubber ▶ Final product

Ammonium sulfate

Setup Year : 2017

Site:8F / 8S

Technologies

Electrolysis ▶ Final product

Nitrogen gas & Hydrogen gas

Setup Year : 2016

Site:12A

Technologies

Thin film separation + sulfate scrubber ▶ Final product

Ammonium sulfate

Setup Year : 2016

Site:12A II / USC

Technologies

Catalyst dissociation ▶ Final product

Nitrogen gas

Setup Year : 2006

Site:HJTC

Technologies

Stripping + Sulfate scrubber ▶ Final product

Ammonium sulfate

UMC and its subsidiaries HJTC/USC Wastewater Discharge**UMC and its subsidiaries HJTC/USC Wastewater Discharge**

Location	Discharge Amount (10,000 tons/day) Note 1	Treatment Department	Current Treatment Amount (10,000 tons/day) Note 2	Discharged into drainage area	Impact (%)
HSINCHU SCIENCE PARK					
8A/8D/8E/8F/8S	1.17	Hsinchu Science Park Administration sewage treatment plant	10.7	Ke-Ya River	10.9%
TAINAN SCIENCE PARK					
12A II	1.06	Tainan Science Park Administration sewage treatment plant	9.25	Yanshuei River	11.4%
SINGAPORE -INDUSTRIAL RE-USE					
12i	0.73	Public Utilities Board (PUB)	80	South China Sea	0.91%
CHINA SUZHOU					
HJTC	0.49	Suzhou Industrial Park, Hua Yan Water Ltd.	90	Wusong River	0.54%
CHINA XIAMEN					
USC	0.32	Xiamen City, Xiang-an (Ma Xin) sewage treatment plant	5	Dongkeng Bay	6.4%
Note1: -Hsinchu Science Park fabs, Tainan Science Park fabs, HJTC and USC: Water meter readings are recorded daily, and based on average monthly water usage, annual water consumption is calculated. -Singapore fab: Based on daily record & accumulation					
Note2: -Hsinchu Science Park fabs, Tainan Science Park fabs : Ministry of Science and Technology Statistics and Data Bank -Singapore fab: Based on PUB website information -HJTC: Suzhou Industrial Park, Hua Yan Water Ltd. sewage treatment plant -USC: Xiamen City, Xiang-an (Ma Xin) sewage treatment plant					

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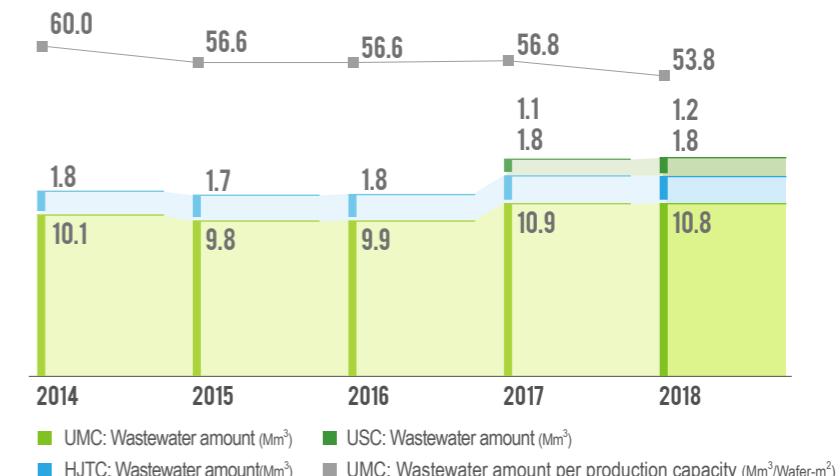
The breakdown of the water discharged to all areas and to all areas with water stress in 2018.

UMC Water Discharge (megaliters)	All areas	Areas with water stress (fabs in Tainan Science Park)
WATER DISCHARGE BY DESTINATION		
• Surface water + Groundwater + Seawater (total)	0	0
• Third-party water (total)	8,146	3,860
• Third-party water sent for use to other organizations (Singapore Newater)	2,675	0
TOTAL WATER DISCHARGE		
• Surface water + groundwater + seawater + third-party water (total)	10,821	3,860
WATER DISCHARGE BY FRESHWATER AND OTHER WATER		
• Freshwater ($\leq 1,000 \text{ mg/L}$ Total Dissolved Solids)	0	0
• Other water ($> 1,000 \text{ mg/L}$ Total Dissolved Solids)	10,821	3,860
WATER DISCHARGE BY LEVEL OF TREATMENT		
• No treatment	0	
• Treatment level- Secondary treatment (in accordance with Hsinchu Science Park management standards).	4,286	
• Treatment level- Secondary treatment (in accordance with Tainan Science Park management standards).	3,860	3,860
• Treatment level- Secondary treatment (in accordance with Singapore's governmental emission standards).	2,675	

Note 1: Wastewater from each of UMC fab is pre-treated before being discharged into local wastewater treatment plants. No wastewater is directly discharged into receiving water bodies.

Note 2: Singapore's Newater uses wastewater from UMC's Fab 12i as source water.

UMC and Its Subsidiaries HJTC/USC Wastewater Discharge Amount in the Last 5 Years.



Note: In 2018, the overall wastewater amount per wafer area for UMC and its subsidiaries HJTC /USC was 58 m³/Wafer-m²

Ammonia Wastewater Improvement

In responding to the addition of new wastewater pollutants, namely ammonia and Tetramethylammonium Hydroxide (TMAH), for regulation by the Science Industrial Park Administration Bureau, UMC from 2013 to 2015 has promoted the reduction of ammonia and source materials containing TMAH developer in Hsinchu and Tainan fab areas. In 2018, each fab continued to implement the target items of various projects. Based on the amount used in 2012, the reduction rate was more than 50%. UMC's fabs in Southern Science Industrial Park installed ammonia wastewater treatment system in 2015. As a result, the ammonia concentration in discharged water passed the sewage pollutant regulating standard of the Science Industrial Park.-

Project Benefits:

Economic Benefit: annual operating cost is reduced by about NT\$48 million in cost of nitrogen raw materials. After 2018, wastewater charges paid to the Science Park Administration can be reduced by about NT\$ 180 million per year.

Environmental Benefit: Through ammonia source reduction, ammonia concentration in the wastewater is reduced by 28% to 63%.

Current Status and Future Goals: After reduction at the source, UMC has also added a wastewater ammonia nitrogen treatment system to improve Stage Two ammonia nitrogen wastewater. With the addition, it is expected that all fabs will no longer need to pay an ammonia nitrogen wastewater treatment fee. In 2018, the installation was completed in Fab 8A and Fab 8D in Hsinchu Science Park, and a higher economic and environmental performance is expected.

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3-4 WASTE MANAGEMENT

The problem of waste has become a heavy burden on the environment in recent years. It also poses a threat to the environmental hygiene of our daily lives, and it represents huge costs to enterprise, government, and society in general in terms of clean-up treatment. If not managed properly, as soon as there are costs to pay for damage arising from environmental pollution, the costs of recovery are even greater. To deal with waste management issues, UMC has been vigorously planning implementation programs of various orientations in recent years which are progressively being promoted.

How We Manage

- Promote process technology improvement and source management measures to reduce raw material use and waste output
- Collaborate with global operating partners to recycle resources for waste recycling and reuse
- Introduction and development of environmentally friendly technologies, reinforcement of pollution prevention capabilities
- Auditing and guidance of waste management companies

Goals and Targets

- UMC
- Implementing the Green2020 project to reduce waste generation by 10%
- Maintaining zero environmental accidents and pollution
- UMC Taiwan
- Landfill rate of less than 1%
- Greater than 98% recycling for liquid waste
- 100% resource recycling for acid-base liquid waste

Purposes

- Promoting the circular economy to
- maximize resource efficiency
- Reducing the impact and harm of production on the ecological environment

Relevant Policy



Environmental Protection Policy

Applicable Entities

- 1. UMC
- 2. HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits
- 3. Waste clearance, disposal and reuse organizations

3-4-1 SOURCE REDUCTION

UMC's ultimate waste management goal is zero waste using the strategy of total waste reduction and waste-to-resource. By improving process technology, raw material source reduction and other source management measures, waste output is reduced to achieve waste reduction.

In 2018, UMC's total waste output was 38,826 metric tons (not including routine office waste), and waste output per unit production capacity was 193kg / m², which is a reduction of 7.5% compared to 2017.

In 2018, UMC's overall production of hazardous waste amounted to 22,966 metric tons, and the per unit production capacity of hazardous waste output was 114kg/m², representing a decrease of 5.4% from 2017.

In 2018, UMC's reduction plans and measures resulted in a total waste reduction of 1,790 metric tons, as shown in the table below.

2018 Waste Reduction Measures and Performances

Reduction of waste sulfuric acid and waste phosphoric acid (through source reduction or as pollution control equipment agent)	1,128.5 TONS	Reduce calcium fluoride / calcium phosphate sludge (expand dryer, waste phosphoric acid outsourcing treatment)	315 TONS	Reduction of waste solvents (through lifetime extension)	111 TONS	Reduction of waste phosphoric acid (through lifetime extension)	80 TONS
Reduction of ammonium sulfate (through source reduction)	57 TONS	Reduction of copper sulfate (through lifetime extension)	51 TONS	Reduction of BOE (replaced by DHF)	34 TONS	Other reductions (reduce VOC cleaning waste, reduce grinding empty drums and residual liquid, photoresist and targets).	14 TONS

TOTAL AMOUNT OF REDUCTION

1,790 TONS



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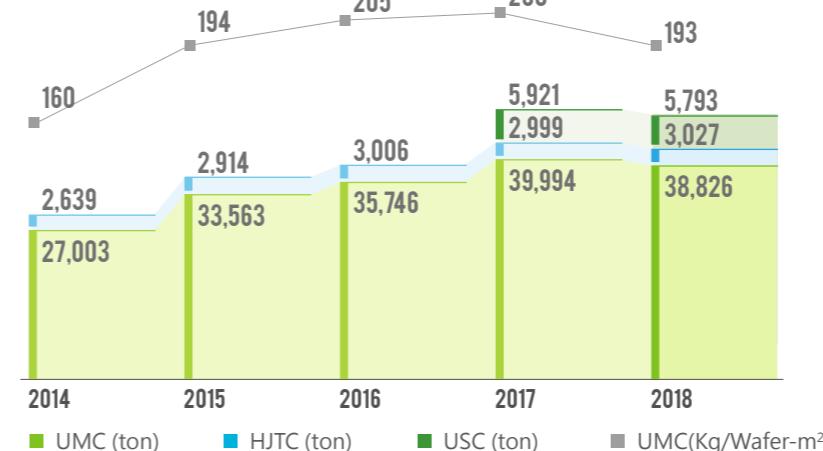


With regard to waste reduction in the Green2020 Reduction Plan, the waste production volume per unit of all UMC's 8" fabs (including HJTC) was 101.3kg/m², which is a reduction of 18.2% compared with 2015 (123.9 kg/m²). The waste production volume per unit of all UMC's 12" fabs was 250.0kg/m², which is a reduction of 15.3% compared with 2015 (295.2 kg/m²).

Waste reduction measures expected to be promoted in 2019

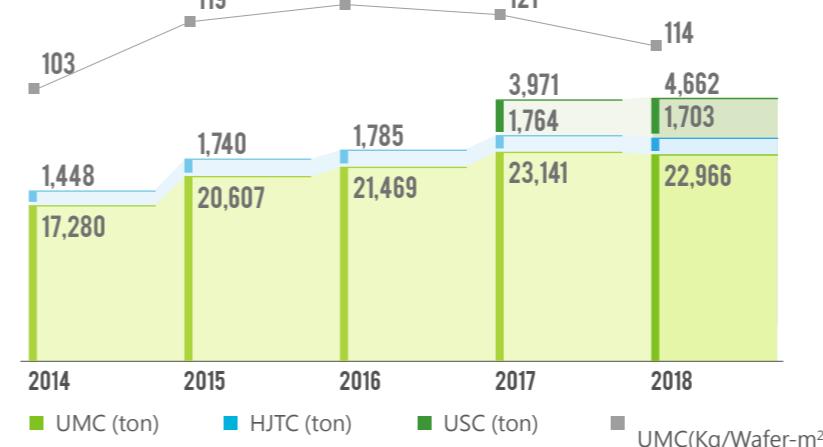
- Continuous reduction of IPA and NMP sources to reduce waste solvent output.
- The newly installed ammonia nitrogen wastewater treatment equipment replaces purchased industrial grade waste sulfuric acid with waste sulfuric acid to reduce waste sulfuric acid output.
- Optimize ammonia nitrogen treatment system to reduce ammonium sulfate production.
- Extend the life of spare parts to reduce scrap output.

2014-2018 Total Waste Generation



Note: In 2018, the overall waste generation per wafer area of UMC and its subsidiaries HJTC/ USC was 200 Kg / Wafer-m²

2014-2018 Hazardous Waste Generation



Note: In 2018, the overall hazardous waste generation per wafer area of UMC and its subsidiaries HJTC/ USC was 123 Kg / Wafer-m²

3-4-2 PROMOTION OF THE CIRCULAR ECONOMY

In addition to reducing waste from the manufacturing source, UMC continues to promote recycling and reuse in place of existing end-of-pipe control to turn waste into resources, subsequently creating three advantages: waste reduction, waste disposal energy and cost reduction, creating a positive waste-to resource ratio.



CONVERSION OF IN-PLANT RESOURCES

In 2018, UMC promoted the in-fab use of waste diluted sulfuric acid as an ammonia-nitrogen wastewater treatment or air pollution prevention and control equipment agent, after the acid has had its hydrogen peroxide removed from it. In this way, we reduced our total production output of waste sulfuric acid by approximately 4,265 metric tons, and also reduced our purchases of industrial-grade sulfuric acid by approximately 4,265 metric tons. The total economic benefit was NT\$18.60 million.



CONVERSION OF OFF-SITE RESOURCES

The amount of off-site waste recycled by UMC in 2018 was 35,053 metric tons, and waste re-use for the year reached 90%. Hazardous waste reused amounted to 21,833 metric tons, a hazardous waste re-use rate of 95%. Revenue from the recycling of renewable resources in 2018(fabs in Taiwan) was approximately NT\$35 million.

Basel Convention hazardous wastes definition: All UMC waste is treated domestically.

In the future, UMC will continue to actively collaborate with waste management companies/raw material suppliers to research and develop new waste recycling methods and goals.

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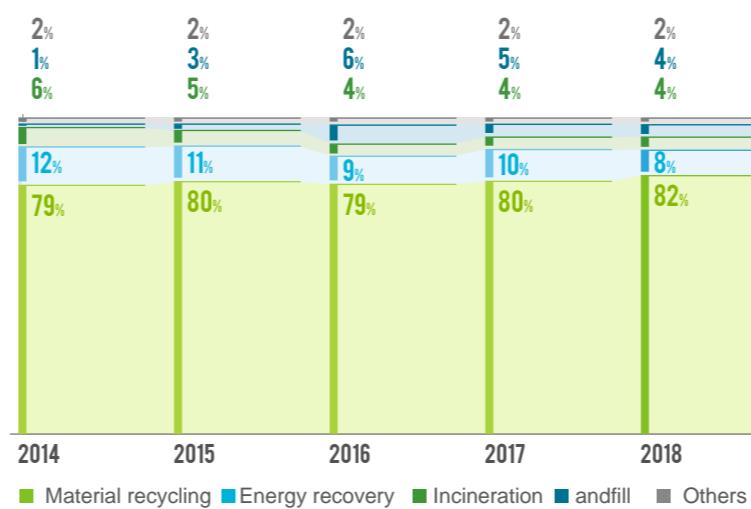
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List of major waste recycling resource in 2018

- Receptacle**
Cleaned by recyclers for re-use.
- Solvent**
Converted to chemical grade raw material through distillation / extraction by chemical factories.
- Sulfuric Acid**
Collected by recyclers and diluted into industrial grade sulfuric acid, or re-made into poly aluminum chloride or sulfate.
- Calcium fluoride sludge**
Supply to cement companies as cement additive.
Collected by recyclers and made into artificial fluorite for use as solvent by steel mills.
- Copper sulfate**
Collected by recycler and used electrolysis to recover copper, which is re-made into copper plates, copper sulfide or copper sulfate.
- Phosphate**
Collected by recyclers and re-made into industrial grade phosphoric acid or biological nutrients.
- Mixed Hardware**
Collected by recyclers to extract the heavy metals or recover other metals.
- Photo Mask**
Collected by recyclers, cleaned to remove patterns, and renewed as photo masks or made into optical materials.
- Lead Acid Battery**
Collected by waste disposal vendors to recover raw lead and waste plastic materials.
- Recycling Category**
Scrap paper, scrap aluminum, aluminum foil, plastic bottles and scrap plastics are collected by recyclers for re-use.
- Resin**
Collected by recyclers, classified and cleaned and used as second grade resin for ion exchange.
- Fluorescent Lamp**
Collected by recyclers for reusable fluorescent powder and metals.
- Wood**
Recycled as raw material for wood products.
- Waste solvent**
Collected by the supplier to be remade into coating thinners or banana oil mixtures.
- Ammonium sulfate**
Collected by the supplier to be remade into industrial grade ammonium sulfate that could be used as welding flux, leather goods, electroplating solutions, and dyes.

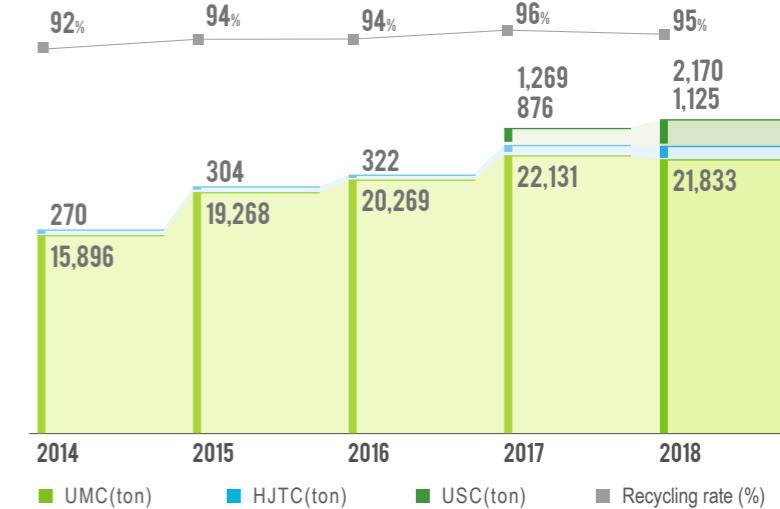
UMC Waste Recycling Trend



Note 1: Other waste recycling methods include solidification, overseas treatment and chemical treatment.

Note 2: Energy Recovery means that waste solvent or waste wood were recycled as an auxiliary fuel.

2014-2018 Hazardous Material Recycling Status



Note: In 2017, the overall recycling rate of UMC and its subsidiaries HJTC / USC was 86%.

2014-2018 Recycling Status



Note: In 2018, the overall recycling rate of UMC and its subsidiaries HJTC/ USC was 84%.



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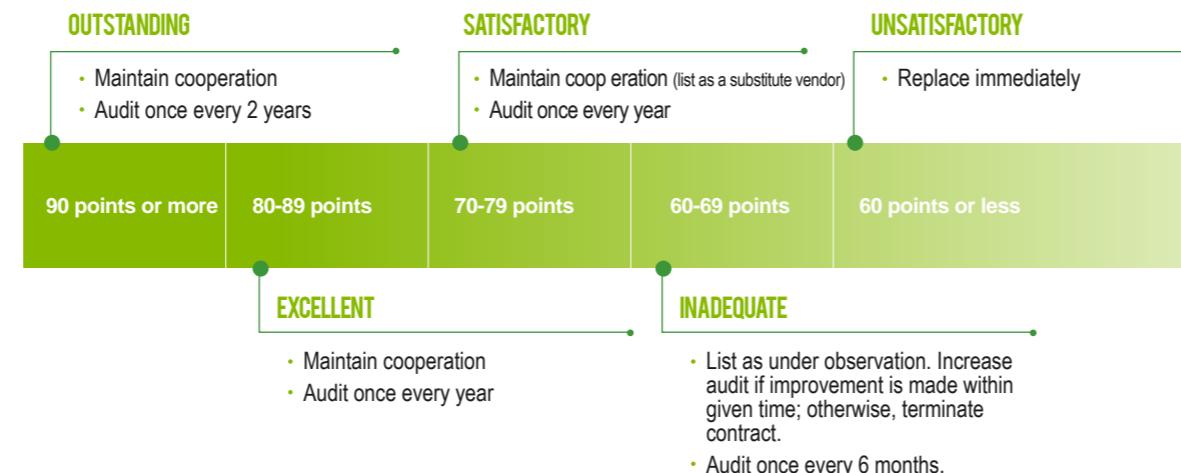
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3-4-3 PROPER WASTE DISPOSAL

UMC conducts on-site audit of its waste clearance/disposal/reusevendors mainly to inspect their management, storage areas, treatment facilities management and pollution control, site safety management and operating conditions (including sales flow of recycled products). Based on the evaluation result, the company determines whether to maintain cooperation or increase the frequency of audits. The table below shows the results of the audit and subsequent follow-up:

In 2018, UMC completed audit of 71 waste manufacturers. Audit results show that except for one vendor rating Inadequate (already counseled and improved) and one rating Unsatisfactory (already terminated partnership), all other vendors rated Excellent or above.



Suppliers offering waste processing and recycling services were encouraged to retain proper records for the overall process for final accountability of waste processing and recycling procedures. These records could then be provided to source customers or government agencies to conduct effective inspection and prevent any case of intentional violations or environmental pollution. In 2016, UMC participated in the "High-Tech Industry Waste Cleaning Supplier Assessment Project" held by TSIA and TTLA and shared the results of the assessment. Those suppliers with outstanding performance were announced on the Industry Association website. In 2017, UMC signed the Self-regulation Convention on the Clean-up and Reuse of Waste in the High-tech Industry initiated by the Taiwan Semiconductor Industry Association. In the same year, we cooperated with the association to arrange a visit to UMC to verify that the waste management operations in our fabs were in compliance with the self-regulation convention. As part of the 2018 TSIA, TTLA and TOSIA Vendor Waste Cleanup Vendor Evaluation Team, the Industrial Technology Research Institute served as 3rd party consultant. Together with source manufacturers, on-site assessment and guidance were conducted on 22 waste disposal or reuse organizations for evaluation and certification.

Established the UMC Waste Removal and Transportation GPS virtual vehicle fleet monitoring system

UMC has reinforced the management and control of commissioned waste disposal processes to ensure that waste is properly delivered to the relevant disposal or reuse organizations. We cooperated with a GPS system manufacturer to develop UMC's waste disposal and transportation GPS virtual vehicle fleet monitoring system. In 2017, priority was given to introducing clean-up and transportation vehicles dealing with waste of concern (including waste solvents, waste sulfuric acid, waste effluent sludge, waste phosphoric acid, copper sulfate, ammonium sulfate, waste containers, and so on) into the system to carry out monitoring and management of removal and transportation processes.

- 1. 100% monitoring of all removal and transportation trucks replacement of traditional manual vehicle checks.
- 2. Real-time monitoring during removal and transportation, with immediate notification of abnormalities superior to current regulatory GPS systems, in which the production end is only able to query tracking after the event.
- 3. Daily checking, so that when there are abnormalities the company is required to explain the reasons this lets the waste management company know that the production source end is being monitored at any time and reduces the probability of illegal activities.



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3-5 GREEN PRODUCT

In addition to our dedication in providing core products with market competitiveness to meet our customers' demands, as a citizen of the Earth, UMC has also taken on the responsibility of developing green products with efforts in cherishing resources and protecting the environment starting from the source. In addition to reducing resource consumption and unnecessary pollution during the production process, we have gone one step further to acquire green factory certification to be a good green role model.

How We Manage

- In addition to complying with all applicable laws, regulations and standards, we have applied even higher standards for ourselves with the priority of replacing hazardous substances.
- We will promote green purchasing with proper management of hazardous substances within the production process starting from the source.
- Independent Green Chemical Product Research and Development
- Our product designs are heading towards slim and compact sizes to reduce material consumption, yet they also feature high performance and low power consumption.
- We will promote reduction of greenhouse gas emissions, saving of energy and resources, and reduction of waste generated during the production process.
- We will promote the recycling and reuse of raw materials and product packaging materials.

Purposes

Providing green products that are hazardous substance free with low environmental impact



Goals and Targets

Continuously promote the plan of hazardous substance replacement, energy reduction and environmental impact assessment.



Relevant Policies



Hazardous substance free policy

Environmental protection policy

Applicable Entities

- 1. UMC
- 2. HJTC, USC, which are UMC subsidiaries selling and manufacturing integrated circuits



Green product considerations at each stage

CHOICE OF RAW MATERIALS OR COMPONENTS

Implementation plan

Putting recycled materials to use, promoting the reuse of raw materials used in production processes, and independently developing green chemicals to promote chemical products that contain no harmful substances and are recyclable.

Implementation in 2018

Significant amount of reclaimed wafers were used. In 2018, 52.4% of the dummy wafers used were replaced by reclaimed wafers. In 2018, reutilization of slurry particle was promoted to recycle 1,290 tons of slurry particles.

In 2018, the first green chemical product independently researched and developed by UMC officially came on production lines in Fab 12i, resulting in cost savings of approximately NT\$40 million.

DIRECT OPERATIONS, PRODUCTION&MANUFACTURING

Implementation plan

Promote clean production, reduce the use of hazardous substances

Implementation in 2018

The Green 2020 Reduction Plan was promoted to reduce water consumption, electricity consumption and waste generation.

(Please refer to the Clean Production Section for more details on performances and achievements)



DISTRIBUTION, STORAGE AND TRANSPORTATION

Implementation plan

Reuse the package materials from raw materials and some products in order to reduce the demand for such materials and the generation of waste.

With regards to product delivery strategy, by considering the location of customers and the amount of products that can be transported by the available carriers, UMC adopts common-route delivery rather than frequent, small and un-routine delivery modes.

Implementation in 2018

In 2018, the recyclable package materials used reached 79,200 kgs.



USE PHASE - OPERATION AND SERVICING/MAINTENANCE

Implementation plan

Develop environmentally friendly, low power consumption advanced process chips

Implementation in 2018

UMC applied its 28nm process to produce energy efficient and IoT application ICs. Its 14nm process was adopted in 2017 for mass production.



END OF LIFE MANAGEMENT

Implementation plan

Maintain the uniformity of ICs and products

Implementation in 2018

UMC is a wafer foundry and not an end product manufacturing company. Wafers are mainly made of silicon material, which is homogeneous. Therefore, the material can be easily recycled and disposed of.



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3-5-1 HAZARDOUS SUBSTANCE MANAGEMENT

Through the QC 080000 Hazardous Substance Management System, UMC ensures that its products not only comply with the EU list of controlled substances (such as the EU RoHS) and global chemical regulations and standards, but also meet customer needs. Several years ago, UMC established the inter-departmental Hazardous Substances Process Management committee (HSPM committee) to enhance the effectiveness of green product management.



HAZARDOUS SUBSTANCE FREE POLICY

By instilling employee awareness and ensuring control and technological upgrades in design and production, the company produces Hazardous Substances Free Control products that meet regulations and customer demands, thereby fulfilling its duty as a global citizen to protect the environment and human health and safety.



HAZARDOUS SUBSTANCE FREE GOALS

1. No products were disposed of as a result of regulation violation or customer demand.
2. Zero VOC and zero violation.

Hazardous Substances Process Management Committee Organizational Chart



UMC Response to Global Standards and Trends on Hazardous Substance Management

EU Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Directives (EU RoHS)

- Able to comply with the requirements

Halogen-free Requirement

- Able to comply with the requirements

EU Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals. (EU REACH)

- Able to comply with the requirements

EU Waste of electrical and electronic equipment (WEEE)

- These regulations do not directly apply to UMC as UMC manufactures semiconductor chips which are not end products.
- The end product dealer is the one responsible for recycling end products containing semiconductor components which are discarded as waste after use.

Persistent Organic Pollutants, POPs

- UMC led the industry to achieve the elimination of PFOS, PFOA and PFOA-related chemicals.

UMC Hazardous Substances Management

UMC HAZARDOUS SUBSTANCES MANAGEMENT			
Dedicated to green supply chain promotion	Constructed a system for evaluating raw materials	Established a procedure for procuring green raw materials	About 400 controlled chemical substances listed
			Hazardous Substances Process Management committee

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CH4 Common Prosperity**Appendix****Hazardous substance replacement plan****Usage reduction project and objectives for PFOS, PFOA, and PFOA related chemicals**

In response to domestic and international concerns regarding persistent organic pollutants (POPs) such as PFOS, PFOA, PFOA related substances, etc., an autonomous replacement plan was reached in December 2017. UMC led the industry to achieve PFOA-related free operations. At present, UMC has taken a more active attitude to expand the inventory of less hazardous short-chain PFASs, and also banned the use of short-chain PFASs for new raw materials, while further evaluating the replacement project of existing materials.

Perfluoroalkyl substances (PFASs) are stable synthetic chemicals that have been widely used in various household products and industrial processes for the past 50 years due to their water and oil resistance properties, such as non-stick coatings, food packaging, clothing, upholstery, carpets and personal care products, including perfluorooctanesulfonates (PFOS) and perfluorooctanoic acid (PFOA), two such long-chain substances (greater than or equal to eight carbons).

According to tests conducted by the US Environmental Protection Agency, (PFOA) can remain in the human body for up to four years, and animal experiments have confirmed that such compounds can cause cancer, and small amounts of perfluorooctanoic acid residues are also found in many American general populations. The compounds contained in PFOS are persistent in the surrounding environment and can easily accumulate in humans and animal tissues, causing poisoning and potential respiratory problems in the human body.

Green Chemical Product R&D Program

Many of the special cleaning chemicals required for semiconductor manufacturing processes are designed and imported from large foreign companies. Due to the restrictions of trade secrets, it is difficult for users to understand the whole picture, and this leads to a degree of difficulty whether to reduce the usage amount or to recycle. Plus, these cleaning chemicals contain more than a few harmful substances; the impact they have on the environment and safety is in dire need of improvement. Therefore, several years ago, UMC started to work on a series of green chemical research and development programs. Given the premise of environmental friendliness, we have directly designed new green chemical products to replace these imported chemical products, thus achieving not only consumption reduction, recycling and reuse, and environmental friendliness, but also strong R&D capability.

After years of hard work, we have finally obtained excellent results. In 2018, UMC was successful in developing a completely new type of green chemical using a biodegradable and friendly chemical substance, which not only saves on consumption, but also greatly reduces harmful substances, thereby achieving the goal of being environmentally friendly. This new green chemical product has also officially come on production lines in Fab 12i, and has been applied to 40nm production processes, saving NT\$40 million on costs.

In the future, UMC will continue to develop green chemical research and development programs, researching and developing new green chemicals in new processes to achieve the goals of consumption reduction, recycling and reuse, and environmental friendliness. It is expected that in 2019, research and development of a new green chemical product that can be recycled and reused will be completed, and that in 2020, the research and development of a number of new green chemical products will be able to be completed.

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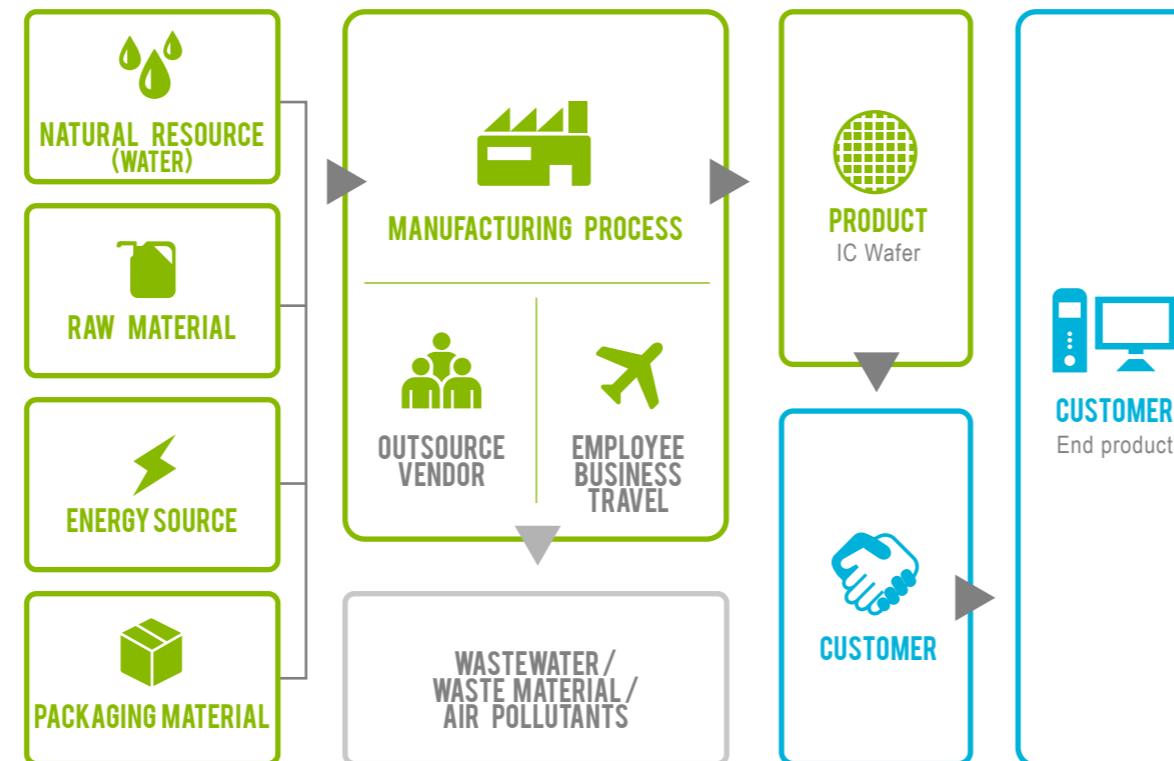
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3-5-2 PRODUCT ENVIRONMENTAL IMPACT ASSESSMENT

Since 2005, UMC has fully implemented LCA in all its fabs. Comprehensive cradle-to-gate (UMC shipment) inventoried items include energy, raw materials and environmental pollutant emissions. Using the Simapro software, results of the entire supply chain and manufacturing inventory are analyzed for environmental impact. Attention is kept on the environmental impact of the company's products, and improvements in management of the environmental management system are made accordingly. The results of the 2018 UMC Environmental Impact Assessment include 11 indicators of carcinogen, respiratory organism, respiratory inorganic substance, climate change, radiation, ozone layer, ecotoxicity, acidification/eutrophication, land use, mines, and fossil fuel. Among them, there are 2 indicators in which the environmental impact at the production stage is greater than the raw material stage. This will serve as the reference for constant improvement of the environmental management system of our company.

Diagram of Semiconductor Product Lifecycle Concept



Results of 2018 Environmental Impact Assessment(8-inch representative fab)

Carcinogen

Respiratory Organism

Respiratory Inorganic Substance

Climate Change

Radiation

Ozone Layer

Ecotoxicity

Acidification/Eutrophication

Land use

Mines

Fossil fuel

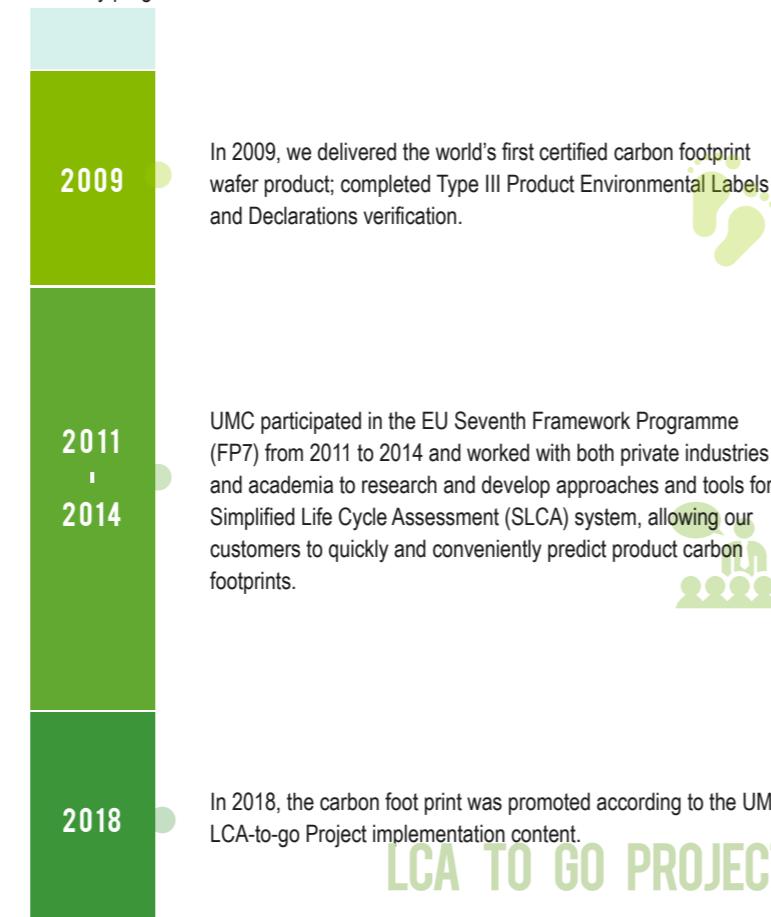
■ Raw material stage ■ Production Stage

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CH4 Common Prosperity**Appendix****Carbon Footprint**

As an upstream industry, providing customers with quality environmentally friendly products that comply with environmental protection regulations has always been one of the most important UMC operational philosophies. UMC strives to implement a comprehensive carbon management plan. In addition to its internal greenhouse gas emissions inventory and verification, the company also promotes the carbon footprint inventory program.

**Water Footprint**

UMC recognized the importance of water as a natural resource very early on. Water resources are particularly important in Taiwan due to its mountainous topography, heavy rainfall along the mountain slopes, dense population, and extensive industrial and commercial developments. UMC complies with the Business Water Footprint Accounting standards developed by Water Footprint Network, an international NGO. In 2010, we completed business water footprint verification for our 8-inch and 12-inch wafer fabs and identified that water usage during direct processing was greater than that of the indirect supply chain. Blue water and gray water were the main sources of water used. In 2015, UMC began working with our suppliers to complete ISO 14046: Water Footprint Assessments of various products manufactured by UMC plants. In 2018, the water footprint inventory was launched throughout the company in accordance with the new standard, and third-party verification was implemented in the representative fab.

THE RESULT OF 2018 INVENTORY

Water usage / wastewater generation
of UMC **90%**

while suppliers were responsible **10%**

FUTURE DIRECTIVES

- Continue to improve water usage efficiency (WUE) within the fabs, and reduce both water usage / wastewater generation to directly reduce water footprint of our products.
- Work with suppliers to improve overall WUE of the entire supply chain to achieve joint water conservation and protect our planet.



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4 COMMON PROSPERITY



95% SATISFACTION WITH HEALTH PROMOTION ACTIVITIES.

To implement a total of 26 health promotion projects in 2018. The total number of people served was 71,759 and the overall satisfaction rate was 95%.



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100% HOLISTIC HEALTH MANAGEMENT PROGRAM.

Created a safe working environment, and protected health and work-life balance of employees.

All fab sites in Taiwan received the "Self-Certification Health Promotion Badge" from Bureau of Health Promotion, Department of Health, Executive Yuan.

0 LABOR DISPUTES

Actively promoted harmonious labor relations to reduce the likelihood of labor conflict. In 2018, there was no case of labor dispute.

26,321 NUMBER OF BENEFICIARIES

In 2018, UMC invested a total of 7,158 hours in terms of volunteer work, with more than 26,321 beneficiaries.



<5 ON THE ANNUAL EICC LABOR / ETHICS RISK INDEX.

In 2018, the EICC labor /ethics risk index was less than 5.



63% REDUCTION IN WORKPLACE ACCIDENTS

17 fewer accidents compared to the reference basis (the year of 2011) and achieved a savings of NT\$ 54.06 million in potential asset loss.

In 2018, the disabling injury frequency rate was 0.13, and disabling severity rate was 0, which were much lower than the semiconductor industry average.

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Appendix**Major Material Social Topics**

There were three major categories of material social topics in 2018: (1) Occupational Safety and Health (2) Employment (3) Training and Education

Indicator	2018 Goal	Compliance for 2018	2019 Goal	Long-Term Goal
OCCUPATIONAL SAFETY AND HEALTH				
Number of incidents company-wide	<ul style="list-style-type: none"> • 0 major or serious incidents • ≤ 13 minor incidents 	<ul style="list-style-type: none"> ● 0 major incidents, 1 serious incident (UMC had an electrical related incident. The company has strengthened the implementation of workplace hazard notification and agreement for contractors; UMC will continue to propose countermeasures to prevent the recurrence of related types of accidents in 2019.) <p>10 minor incidents across the company</p>	<ul style="list-style-type: none"> • 0 major or serious incidents • ≤ 11 minor incidents 	Goals for 2025 <ul style="list-style-type: none"> • 0 major or serious incidents • Reduce number of incidents by 88% compared to 2011.
Disabling Frequency Rate (FR) Disabling Severity Rate (SR)	<ul style="list-style-type: none"> • Perform better than the 3-year average Disabling Frequency Rate (FR) for semiconductor manufacturing. • Perform better than the 3-year average Disabling Severity Rate (SR) for semiconductor manufacturing. 	<ul style="list-style-type: none"> ● UMC's Disabling Frequency Rate (FR) was 0.13, which is far below the 3-year average of the semiconductor industry (0.58). UMC's Severity Rate (SR) was 0, which is far below the 3-year average of the semiconductor industry (13). 	<ul style="list-style-type: none"> • Perform better than the 3-year average Disabling Frequency Rate (FR) for semiconductor manufacturing. • Perform better than the 3-year average Disabling Severity Rate (SR) for semiconductor manufacturing. 	Goals for 2025 <ul style="list-style-type: none"> • Perform better than the 3-year average Disabling Frequency Rate (FR) and Disabling Severity Rate (SR) for semiconductor manufacturing and reduce by 25% compared to 2020 goal.
EMPLOYMENT				
Organizational identity and cohesion	<ul style="list-style-type: none"> • Strengthen employee activity and cohesion. Introduce employee engagement survey. The coverage rate in the first year of the survey was 70%. 	<ul style="list-style-type: none"> ● Achieved 80.8% coverage in employee engagement surveys. 	<ul style="list-style-type: none"> • Strengthen company cohesion and identity. • 70% coverage in employee engagement surveys. 	Goals for 2025 <ul style="list-style-type: none"> • 80% coverage in employee engagement surveys.
Strengthen diversity of communication mechanisms to ensure harmonious labor relations.	<ul style="list-style-type: none"> • 100% achievement in communication • Feedback closure rate for employee opinions: 100% 	<ul style="list-style-type: none"> ● Annual targeted goal was reached. Each health occupational index was implemented. We were awarded the '2018 Global Views Magazine CSR Award' - Electronic Technology Group Model award. Listed as DJSI global component for 11 consecutive years. 	<ul style="list-style-type: none"> • Maintaining an open and transparent communication channel to promote employer-employee harmony. • 100% achievement in communication. • Feedback closure rate for employee opinions: 100% 	<ul style="list-style-type: none"> • Maintaining 100% achievement in communication. • Feedback closure rate for employee opinions: 100%.
Ensure compliance with the spirit and standards of international human rights.	<ul style="list-style-type: none"> • Full implementation of the Labor Standards Act and compliance with the RBA Code of Conduct to ensure adherence to the spirit of international human rights standards. • 100% achievement rate in RBA labor/code of conduct training. • <5 on the annual RBA labor / ethics risk index. 	<ul style="list-style-type: none"> ● A dedicated RBA organization has continued to support the spirit and conventions for human rights. Results of quarterly reviews showed zero incidents of ethical violations. 100% achievement in RBA labor/code of conduct training. In 2018, the RBA labor / ethics risk index was less than 5. 	<ul style="list-style-type: none"> • Ensure compliance with the spirit and standards of international human rights. • 100% achievement in RBA labor/code of conduct training. • Promote RBA spirit to subsidiaries. 	<ul style="list-style-type: none"> • Continue to review compliance with relevant labor laws each quarter. • Each fab completes and scores more than 90 points on the Responsible Business Alliance Code of Conduct assessment survey. • Establish an internal audit mechanism. Complete audit and make improvements on schedule.
TRAINING AND EDUCATION				
Training for professionals with potential,	<ul style="list-style-type: none"> • 94% completion rate in annual training programs. 	<ul style="list-style-type: none"> ● Achieved 94.3% completion rate in annual training programs. 	<ul style="list-style-type: none"> • 94.5% completion rate in annual training programs. 	Goal for 2025 <ul style="list-style-type: none"> • 100% completion rate in annual training programs.
Quality improvement and innovation team(QIT). Independent goal achievement rate by each Fab/Division	<ul style="list-style-type: none"> • Achievement rate $>90\%$ for goals independently set by each Fab/Division 	<ul style="list-style-type: none"> ● Achieved 102.6% achievement rate for goals independently set by each Fab/Division. 	<ul style="list-style-type: none"> • Achievement rate $>90\%$ for goals independently set by each Fab/Division, 	<ul style="list-style-type: none"> • Maintaining achievement rate $>90\%$ for goals independently set by each Fab/Division,
Knowledge Management (KM)	<ul style="list-style-type: none"> • 90% achievement in reading penetration. • 70% achievement in writing penetration. • 20% achievement in three-star KM document*. 	<ul style="list-style-type: none"> ● Achieved 91.8% in reading penetration. Achieved 73% in writing penetration. Achieved 23.3% in three-star KM document*. 	<ul style="list-style-type: none"> • 90% achievement in reading penetration. • 70% achievement in writing penetration. • 20% achievement in three-star KM document*. 	Goal for 2025 <ul style="list-style-type: none"> • Achieve upper-middle level in KM reading rate, writing penetration rate and 3-star KM document ratio.

Note 1: Three-star KM document: Refers to KM document with large contribution and approved for inter-department sharing.

Note 2: The various annual indicators are included in the company's and Corporate Sustainability Committee's KPI (Key Performance Indicator) and policy development, integrated with major company policies, and continually reviewed and improved.

● Compliant

● Non-compliant

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4-1 LABOR RIGHTS

Given the trend in internationalization, enterprises should not only protect the basic employment and labor rights of workers, but should also strengthen the relationship among employees with diverse backgrounds and avoid differential treatment.

UMC supports and respects relevant international labor and human rights standards. Through cooperation with suppliers and customers, the company promotes relevant standards in international human rights, and hopes that the overall supply chain can create a harmonious and inclusive working environment to enhance competitiveness and promote economic development.

How We Manage

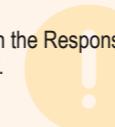
- Establish the RBA Committee, develop relevant policies and performance goals, follow up on implementation, and conduct regular assessments and reviews.
- Establish labor communication and complaint channels, and conduct engagement surveys to understand employee needs.
- Survey of suppliers' degree of compliance in execution of RBA code, and on-site auditing

Goals and Targets**2020**

- Each fab completes and scores more than **90** points on the Responsible Business Alliance Code of Conduct assessment survey.
- 70%** coverage in employee engagement surveys.
- Continue to ensure fair treatment of employees and compliance with laws and regulations.

2025

- Each fab completes and scores more than **90** points on the Responsible Business Alliance Code of Conduct assessment survey.
- 80%** coverage in employee engagement surveys.
- Continue to ensure fair treatment of employees and compliance with laws and regulations.

**Purposes**

- Comply with international regulations and standards to protect employee rights.
- Ensure that various systems are set and implemented so that there is no differential treatment on account of gender, race, religion, political position or marital status.

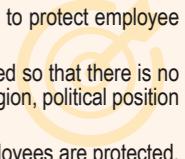
Ensure that the employment and labor rights of employees are protected, and create harmonious and inclusive operational benefits to enhance the competitiveness of UMC.

Applicable Entities

- UMC
- HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits

4-1-1 HUMAN RIGHTS

UMC supports and respects the standards of international labor rights, and in light of this spirit, UMC has developed the UMC Code of Conduct. All employees are expected to comply with this code in their daily tasks and operations to ensure the sustainable growth and development of the Company. Subsidiaries, joint ventures, suppliers, customers and other entities with operational and development partnerships with UMC are expected to jointly fulfill their corporate social responsibilities and promote economic, social, environmental and ecological balance and sustainable development.

UMC Code of Conduct follows:**Responsible Business Alliance, RBA****The OECD Guidelines for Multinational Enterprises****International Labor Office Tripartite Declaration of Principles****UN Universal Declaration of Human Rights****The UN Global Compact**

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Appendix**RBA Committee**

To ensure a safe working environment and the basic labor rights of supply chain enterprises in the global electronics industry, UMC established the RBA Committee in 2013 to address issues pertaining to labor, health and safety, environment, ethics and management systems. The RBA Committee defines the tasks, authority and responsibilities of its members, develops relevant policies and performance goals, follows up on implementation, and conducts regular assessments and reviews. The committee also initiates annual review of internal systems to ensure compliance with the latest RBA guidelines and thorough implementation of the Code of Conduct for the electronics industry. Furthermore, through the RBA-Online official website, further risk assessments of fabs are conducted to avoid potential risks.



Note : Please refer to the ISO 14001 & OHSAS 18001 management systems and the UMC Environmental Safety and Health Management Committee operations for environment, health and safety.

In addition to the internal self-inspection mechanism, UMC also accepts Validated Assessment Process (VAP) by a third party RBA commissioned by customers. Through the perspective of an external audit, further improvement for the management system can be identified. In 2018, UMC continued to improve its VAP results. We strengthened our current internal operation processes and integrated our RBA management system while conducting RBA internal audits and make a corrective action plan according to the findings in order to achieve full VAP scores. At the same time, UMC's spirit of compliance with the RBA can be conveyed to subsidiary groups to jointly protect human rights and ensure corporate social responsibility. UMC conducts an annual RBA Compliance Survey and field audits for suppliers. Suppliers are required to comply with RBA standards on labor, health and safety, environment, ethics, management systems, and other measures. Instruction is offered on RBA concepts, and programs for a relevant management system are formulated. Furthermore, to enhance employee knowledge of RBA standards, UMC has incorporated RBA guidelines into the training courses for new employees. Online self-test training is also conducted annually for all employees, and as of 2018, training and relevant tests have been completed in Taiwan and Singapore. At the same time, UMC will promote the spirit of compliance with RBA to its subsidiaries, including HeJian and United Semi, review compliance and issue a statement, and focus on establishing further management plans to protect human rights and ensure corporate social responsibility.

UMC RBA COMMITTEE TASKS

- Promote RBA labor, business ethics and management system.
- Develop and approve policies and performance goals for labor, business ethics and management system.
- Ensure that labor, business ethics and management systems comply with local RBA regulations.
- Discuss and approve priorities for RBA labor, business ethics and management system implementation plans.
- Track and assist in implementation of RBA labor, business ethics and management system plans.
- Regularly assess and review RBA labor, business ethics and management system committee reports.

2018 RBA IMPLEMENTATION OUTCOME

- 100% of new staff training and annual online training completion for the RBA labor / ethics.
- Number of cases of ethics non-violation in the quarterly reviews.
- No case of local government review as a result of human rights issues.
- Scored less than 5 on the annual RBA Labor / Ethics Risk Threat Index (Note 1).
- Conduct annual internal audit of RBA, implement the corrective action plan for findings in time.
- RBA SAQ is conducted by each facility with low risk of 90 points above.
- Fab 12A and Fab 12i conducted RBA Validated Assessment Process (VAP) and closure audit. The audit reports are officially published on RBA-Online.

Note1:Safety Risk Threat Index = Self-Rating Outcome Level (1-5) x Self-assessment Possibility Level (1-5); Higher scores on the index indicate higher risk.

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Appendix**2017-2018 Risk Assessment**

	2017		2018	
	SAQ	VAP	SAQ	VAP
Fab 12A	94.0	178.2	92.5	200
Fab 12i	92.3	149	91.8	200
Fab 8A	92.8		91.0	
Fab 8C	92.6		92.1	
Fab 8D	93.6		91.8	
Fab 8E	93.0		92.5	
Fab 8F	92.9		91.3	
Fab 8S	92.6		92.2	

SAQ
Full Score is 100
Low Risk ≥85 **Medium Risk** ≥65 & <85 **High Risk** <65

VAP
Full Score is 200

Human Rights Promotion

UMC places great emphasis on promoting RBA labor and business ethics policies. Through the company employee handbook and regular employee compliance inspections, the core content of labor, ethics and integrity, child labor, labor relations, forced labor, working hours and non-discrimination principles are emphasized. To protect labor rights and ensure that each employee receives fair humane treatment and respect, the "Complaints and Disciplinary Measures for Workplace Sexual Harassment Prevention" is compiled to provide a complaint channel and safeguard the rights and interests of women employees. In 2018, 100% of employees had a total of 8,524.5 hours of training in human rights.

In addition to protecting basic labor rights, UMC implements major operational changes in accordance with relevant regulations such as Taiwan's Labor Standards Act, Singapore's Employment Act and China's Labor Contract Law.

UMC's Focus in Core Human Rights Issues and Management Foreign employees and female employees**Core Issues (Risk Assessment)**

- Human Rights (High)
- Equality (Medium)
- Anti-discrimination (Low)
- Forced Labor (Low)

Impact Assessment

- Establishment of an RBA committee within the Human Rights Commission to regularly review human rights-related issues.
- Through internal auditing, management procedures prohibiting forced labor and review of complaints channels.

Management Objectives for 2018

- Regular online testing of human rights/ethics issues through the RBA Committee.
- Regular announcement of such measures as gender equality and sexual harassment prevention on the company's homepage.
- Promotion and implementation of internal control procedures that demonstrate principles of non-discrimination in the Company's personnel appointment procedures.
- Utilization of management procedures prohibiting forced labor, supervision that various procedures are in accordance with standards during appointment periods, and establishment of a zero-tolerance policy for forced labor.

Actual Circumstances Achieved in 2018

- RBA labor/ethics new recruits and an online training rate of 100% for the year.
- Each of UMC's fabs completed RBA SAQ and had SAQ ratings of over 90 points.
- The Company's home page completed each quarter's promotion portal reminder.
- 100% of new employee labor contracts were signed.

Management Objectives Set for 2019

- To maintain an annual RBA labor/ethics for new recruits and an online training rate of 100%.
- To maintain completion of RBA SAQ and SAQ ratings of over 90 points for each of UMC's fabs.

 Suppliers**Core Issues (Risk Assessment)**

- Conflict minerals (Low)
- Child labor (Low)
- Forced labor (Low)
- Working hours (Medium)
- Health and Safety (Low)

Impact Assessment

- Surveys of suppliers' degree of compliance in execution of RBA code, and on-site auditing

Management Objectives for 2018

- Increase in the number of companies qualified with respect to conflict mineral production.
- Ensuring no use of child labor among suppliers.
- Requiring that suppliers establish complete work regulations that are in accordance with RBA.
- Requiring 100% completion of auditing of high-risk suppliers.

Actual Circumstances Achieved in 2018

- Completed the 2018 conflict mineral investigation report (no conflict mineral were found in 13 suppliers, 9 contractors and 16 affiliated companies).
- 100% of suppliers confirmed that no child labor was used.
- 100% of suppliers established complete work regulations in accordance with RBA.
- 100% (30 companies) completing high-risk supplier auditing.

Management Objectives Set for 2019

- To increase the number of suppliers subject to on-site auditing by 10%.
- To require that Tier 2 suppliers be in compliance UMC's code of conduct.

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Appendix**UMC's Focus in Core Human Rights Issues and Management****Customers****Core Issues (Risk Assessment)**

- Privacy (Medium)

Impact Assessment

- Regularly receive customer ratings of degree of satisfaction

Management Objectives for 2018

- Cooperating suppliers and clients should sign confidentiality contracts requiring mutual protection of confidential information.
- UMC internally formulates confidential information/ data management methods, and customer information is handled by specially dedicated units.

Actual Circumstances Achieved in 2018

- Cooperating suppliers and clients have now all signed confidentiality contracts requiring mutual protection of confidential information.
- All confidential information/ data management has regulations and actual management methods; all customer information is now handled by specially dedicated units.

Management Objectives Set for 2019

- All employees, suppliers and clients will need to sign confidentiality contracts requiring mutual protection of confidential information.
- UMC will internally formulate confidential information/ data management methods; all customer information will be handled by specially dedicated units.

Entire workforce**Core Issues (Risk Assessment)**

- Ethics and integrity (High)

Impact Assessment

- Carrying out compliance with laws and regulations and risk assessment of business ethics standards, through annual self-evaluation operations.

Management Objectives for 2018

- Regularly checking compliance with HR-related laws and regulations, to ensure that we are meeting legal requirements.
- Using regular education and training to continue enhancing evidence of occupational ethics cognition and learning among both directors and employees.

Actual Circumstances Achieved in 2018

- Beginning in 2018, regular quarterly checking of compliance with HR-related laws and regulations was carried out.
- 100% of employees' occupational ethics and regulatory compliance education and training for the year was carried out.

Management Objectives Set for 2019

- To maintain regular quarterly checking of compliance with HR-related laws.
- To maintain annual employee occupational ethics and regulatory compliance education and training at 100%.

Core Issues (Risk Assessment)

- Industrial relations (Low)

Impact Assessment

- Utilize quarterly labor meetings, quarterly company-wide forums and reviews of various complaints channels..

Management Objectives for 2018

- Convening regular, quarterly labor-relations meetings, and quarterly pan-Company forums
- Processing and closing 100% of appeal cases.

Actual Circumstances Achieved in 2018

- 36 labor relations committee meetings and four Company forums were held in 2018.
- 100% of appeal cases were processed and closed.

Management Objectives Set for 2019

- To convene regular quarterly labor relations committee meetings and quarterly pan-Company forums.
- To process and close 100% of appeal cases.
- To introduce company-wide degree of engagement surveys

Community Residents & Indigenous people**Impact Assessment**

- No core issue(The fabs are located in technology industrial parks with no community Residents or Indigenous people within the proximity)

For relevant information, please refer to the UMC Code of Conduct on the company website

http://www.umc.com/English/CSR/c_4.asp

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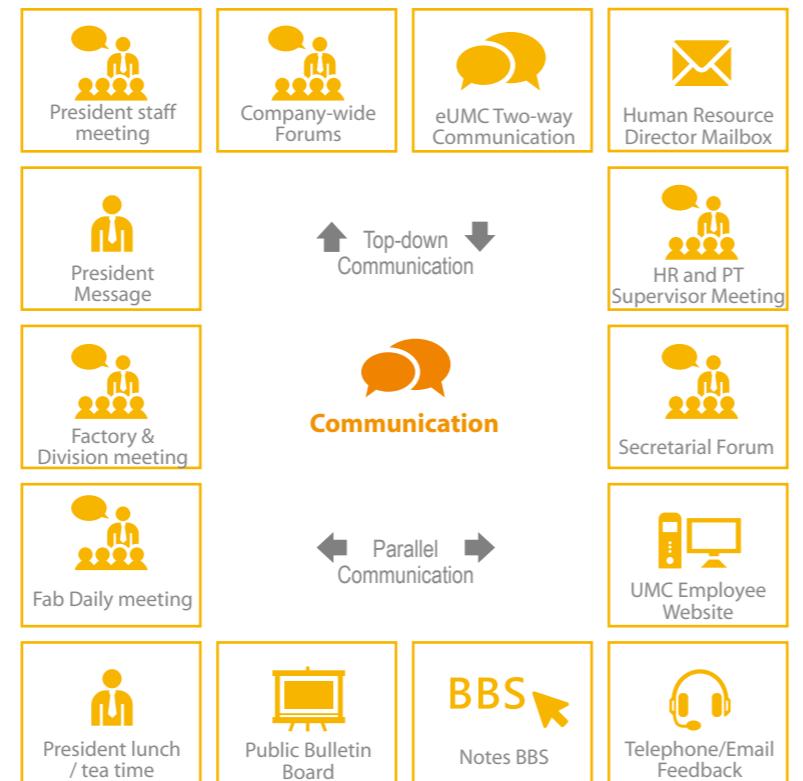
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4-1-2 EMPLOYER-EMPLOYEE COMMUNICATION

Channels of Communication

Employee compensation and welfare have always been a top priority of UMC. UMC takes an active role in the training of skilled professionals, fulfilling labor laws, protecting the rights and interests of UMC employees, and building a transparent and enjoyable work environment. Communication channels such as employer-employee meetings, departmental meetings, conferences (management conferences and colleague conferences) as well as mail boxes were employed to achieve the goals of providing extensive communication channels to effectively solve any problem that may arise. The employees' rights to freedom of association shall be based upon those prescribed by local laws. UMC respects the right of employees to choose whether or not to exercise rights without intervention or interference. HeJian Technology Company (HJTC) also established a comprehensive and diverse selection of communication channels in order to respond immediately, properly and positively to employee requests.

Important UMC Communication and Complaint Channels:**Number and Frequency of Communication Channels**

	Quantity			Notes
	2016	2017	2018	
UMC				
Company-wide conferences	4	4	4	Interactive, videoconference for 6 sites spanning multiple countries and regions hosted by the President himself, allowing UMC colleagues and external parties to review the latest company policies, directives, and performance. Once every quarter. Implemented after the investor conference.
Fab and Departmental communication meetings (including Singapore)	63	69	69	Share overall operational performance as well as developmental highlights of the fabs and departments with all employees. Held every 6 months by each fab and department.
Secretary Conference	8	8	8	The Human Resource (HR) department shall collect key topics and discuss them with the Secretariat. The Secretariat shall then discuss key issues of the meeting with fellow employees to achieve bidirectional communication. Hsinchu Science Park / Southern Taiwan Science Park Secretariat Conference (4 times each).
Employer-employee meeting	32	36	36	The HR department shall delegate colleagues and employees familiar with relevant regulations to organize and assemble a multi-departmental and multi-functional inquiry team. The team shall follow-up on specified meeting topics and facilitate subsequent improvements for building harmonious employer-employee relationships. Once per quarter; held in 9 fabs.
Welfare committee meeting	4	4	4	The employee welfare activities as well as the usage of welfare funds shall be described to the welfare committee member delegated by each fab / site in the meeting every quarter. Once per quarter.
HeJian Technology (HJTC)				
Employee conference	12	12	12	Any problems encountered by the employee such as questions during work or challenges in the work place may be raised in the meeting. The supervisor or responsible owner shall provide an answer for the employee. Once every month.
Union-employee conference	12	12	12	Communication and discussions with union members on employee welfare and employer-employee topics. Once every month.
Newcomers Forum	7	7	Non conducted	One month after new employees are hired, a Newcomers Forum is held by the General Manager to increase communication and interaction among new employees. Once a month (Postponed due to less than 10 participants for the current month)
<p>To optimize and expand the advantages of real-time communication, UMC integrated and established the Communication Area—a platform dedicated to employee communication. The site content includes the Human Resource Director Mailbox, fraud and sexual harassment complaints, e-Suggestions for feedback, company-wide information forum, BBS message boards, IT information service mailbox, industrial safety mailbox, all kinds of forums, and UMC's website so that the various communication channels in the various operational bases can be integrated into a single platform for effective communication and promoting harmonious employer-employee relations. To protect the human rights of fellow employees, UMC also takes measures to protect the identity of employees who raised complaints or were affected by various issues to ensure the freedom and confidentiality of employees who submitted petitions. Among the various communication channels, the e-Suggestion feedback platform is most frequently used, and in 2018, 481 employee comments were received with 100% of the feedback responded to and resolved.</p>				

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The "UMCWe Website" is an external website (internet) platform freely accessible to employees. Through this interactive communication platform, families, prospective employees, integrated benefits, associations and participating businesses are linked to strengthen the interaction between the organization and employees.

Employee work engagement, satisfaction and activity cohesion surveys

UMC has always adhered to a people-oriented spirit by regarding UMC employees as the company's most important asset. Therefore, caring about employees, listening to their feedback and making corresponding improvements are important to the company. In the past, UMC has analyzed employee satisfaction. However, in line with international trends, UMC has decided to collaborate with experts and consultants and introduced the Employee Work Engagement Survey at the end of 2018. The survey was administered to all UMC employees in Taiwan and Singapore, and targeted coverage rate was set at 70%. The survey outcome was reported in early 2019. Results indicate a coverage rate of 80.8% and an employee work engagement rate of 75.1%. The target coverage rate for 2020 has been increased to 80%. Based on the survey outcome report, actual employee needs and willingness to remain are better understood.

Description of work engagement survey

This questionnaire contains 5 major categories measuring 9 dimensions of job satisfaction and 1 dimension of employee commitment, totaling 64 question items.



Work engagement survey outcome

Survey Coverage Rate		Work Engagement Index		
Target	Actual	Male	Female	Overall
70%	80.8%	75.6	74.5	75.1

Surveys utilized by UMC can be largely divided into regular surveys, project-focused surveys, or targeted surveys designed for specific issues. The current survey system employed by UMC is relatively diverse and targets different goals and objectives. Specialized survey systems were employed to ensure that authentic responses from the employees could be collected to initiate effective improvements.

Category of surveys



Regular

HR satisfaction surveys & work engagement surveys (once every year), health check-up satisfaction survey.



Project-focused

Team cohesion project satisfaction survey, communication (and communication platform) satisfaction survey, and organizational climate surveys designed and implemented for targeted organizations.



Specific events

Event / topic-based surveys: Family Day, Parent-Child Day, and Art Season satisfaction surveys, activity cohesion surveys, training and development satisfaction surveys, and plant site affairs satisfaction surveys designed for various administrative and supporting services.

The opinions and feedback obtained through the different types of surveys mentioned above enable managers to accurately determine areas for improvement and effective solutions to employee issues.

HR satisfaction surveys were also used in project investigations that cover the aspects of employee hiring, remuneration and welfare, employee relations, fab site services and safety, HR services, training and development, logistics and commercial services. Semi-open questionnaires were used to collect survey responses from the entire employee population. Questionnaire items included quantified assessments as well as open-ended Q&A where employees can provide their own responses. Establishing a diverse selection of communication channels will help UMC to ensure the rights of employees to express their own opinions while ensuring the successful communication of internal feedback and opinions. Employees may also select their preferred mode of communication to express their views and ideas, thereby achieving the ultimate objective of communication.

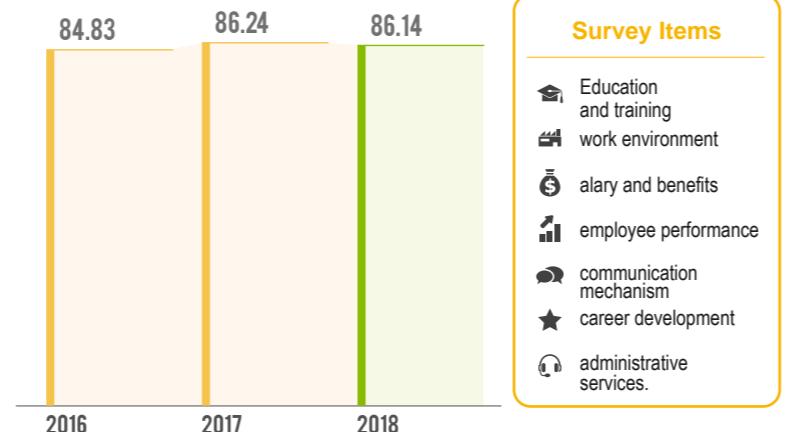
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Appendix**Implementation of HR Satisfaction Survey**

Note: Overall employee satisfaction is based on employee response to the open-ended questionnaire items on overall employee satisfaction (1-100 points). The overall average is calculated by dividing total scores with the number of respondents.

Family Day Activity Satisfaction and Cohesion Index Surveys

	2016	2017	2018
Overall average score for activity satisfaction			
♂ Male	85.95	87.61	89.79
♀ Female	83.84	86.39	87.18
Activity cohesion index			
♂ Male	88.76	87.73	91.94
♀ Female	85.34	86.57	89.43
Total Average	87.19	87.27	90.78

Note: Activity Satisfaction and Cohesion Index are calculated by surveying the annual Family Day, which has the highest employee participation and is the most representative.

Comprehensive Appeal and Employee Support Systems and Channels

To achieve effective communication and resolution of issues between UMC and its fellow employees, UMC established the aforementioned communication platforms as well as the following channels and systems for employee appeals. Employees are allowed to independently decide whether or not to exercise employee rights prescribed by statutory regulations. UMC does not intervene or interfere with employees' freedom of association.

Appeal systems and channels provided by UMC include:**Appeal channels for employees of every rank and case**

Report of sexual harassment and unfair treatment: 31995

CHO E-mail: (Send an email report directly to CHO)

CSR **CSR@UMC.COM**

Employee Relationship (ER Service) Hotline 12885

Fraud and Ethics Violation Reporting: whistleblower@umc.com

This e-mail will automatically forward messages to ADT Division Director, HR Division Director, IPLA Director, and Audit Committee. External reporting hotline: 0800-024-399 (toll free number)

Whistleblower Hot Lines: 03-5782258 · EXT 31425

Information Security and Confidentiality Protection Complaint: Infosec@umc.com

In addition to establishing a comprehensive set of communication channels and platforms, UMC shall continue to improve upon the effectiveness of communication channels and carry out projects to enhance communication of key topics and information throughout the company, ensure the comprehensiveness and depth of communications, and strengthen global communication capacities for every employee. A total of 152 formal and large scale conferences were held in 2018 to effectively communicate key topics involving UMC's business. The diverse and comprehensive selection of UMC's communication systems were used to effectively assess employees' voice and handle employee issues. Although Taiwan's laws stipulated the rights of employees to freely organize themselves into unions, no requests to organize unions have been received by UMC as a result of the aforementioned measures. However, unions have been established in HJTC. Conferences, departmental meetings, and opinion mail boxes were also used as a means to communicate with fellow employees. UMC did not receive any formal charges related to labor affairs in 2018.

Number of Grievances Received in 2018

	2016	2017	2018
The total number of grievances filed through the mechanism			
Human rights issues	9	6	7
Labor affairs	15	22	14
The number of grievances that were addressed			
Human rights issues	9	6	7
Labor affairs	15	22	14
The number of grievances that were reviewed			
Human rights issues	6	5	5
Labor affairs	12	11	14
The number of grievances that were officially undergoing judiciary proceedings			
Human rights issues	0	0	0
Labor affairs	0	0	0
The number of grievances that were resolved			
Human rights issues	9	6	6
Labor affairs	15	21	14

Note 1: Scope of human rights: includes issues such as sexual harassment, illegal violations, and forced labor.

Note 2: Scope of labor affairs: includes issues such as hourly wage & salary, occupational safety, educational training and promotion/benefits.

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4-2 RECRUITMENT AND CULTIVATION

In an age of rapidly evolving trends, competition in the technology industry has become unprecedentedly fierce. Recruiting and cultivating outstanding talent has become an important consideration in improving corporate competitiveness. UMC defines the competency bases of various occupational levels in accordance with its training and development models. At the same time, through the integration and application of Company resources, we make no distinction with respect to the gender of our employees but rather provide a comprehensive and diversified learning environment based on job category, thereby utilizing thoroughgoing and sound education and training to achieve the goal of recruiting and cultivating professional expertise.

How We Manage

- Provision of excellent working environments and competitive overall salaries and benefits
- Formulation of a complete education and training system and organization providing comprehensive and diverse learning environments
- Carrying out industry-academia cooperation programs and campus talent cultivation

Goals and Targets

Goals for 2020

- 95% completion rate in annual training programs.
- Provide comprehensive training program to attract and retain talents. Achieve retention rate of 91.3% for medium and high performing talents.
- Improve quality and quantity of human resources supply, develop market competitiveness of talents, and achieve talent fit rate of 80%.
- 100% completion rate in improvement programs for low-performance employees.

Goals for 2025

- 100% completion rate in annual training programs.
- Provide comprehensive training program to attract and retain talent. Achieve retention rate of 91.5% for medium and high performing talents.
- Improve quality and quantity of human resources supply, develop market competitiveness of talents, and achieve talent fit rate of 85%.
- 100% completion rate in improvement programs for low-performance employees.

Purposes

- Attracting, retaining, and motivating outstanding employees
- Carrying out a full range of course training that improves the skills and expertise of employees and dovetails with employee career planning
- Raising the quality and effectiveness of training, cultivating talent that meets the developmental needs of the organization, thereby ensuring the sustainable growth of the Company

Applicable Entities

- UMC
- HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor (Xiamen) Co., Ltd., which are UMC subsidiaries selling and manufacturing integrated circuits

4-2-1 HUMAN RESOURCE

Human Resource Distribution

By the end of 2018, the total number of formal employees at UMC, including China subsidiaries HJTC and USC was 18,929. This figure included 1,958 supervisors, 9,316 engineers, 544 managers, 7,105 technicians, and 6 administrators. The working population within the company can be divided into 2 categories by type of employment, namely formal employees (98.5%) and non-formal employees, which include contract personnel as well as dispatched personnel delegated by external vendors to provide services in UMC (1.5%). Formal employees can be further subdivided according to the type of their contracts, namely non-regular contracts (94.9%) and periodic contracts (about 5.1%) (NOTE: periodic contracts refer to labor contracts for foreign technicians). Non-formal employees include contract personnel (39.7%) and dispatched personnel delegated by external vendors to provide services in UMC (60.3%). Non-formal positions were offered to temporarily stand in for employees taking maternity / paternity leaves. These positions will be kept open for the said employees when they return to UMC. For work area distribution, almost 73.0% of employees work in the primary business location in Taiwan. For age distribution, 68.0% of the total employee population within the company was between 30 and 50 years of age. The overall average age was 35.5 years old.

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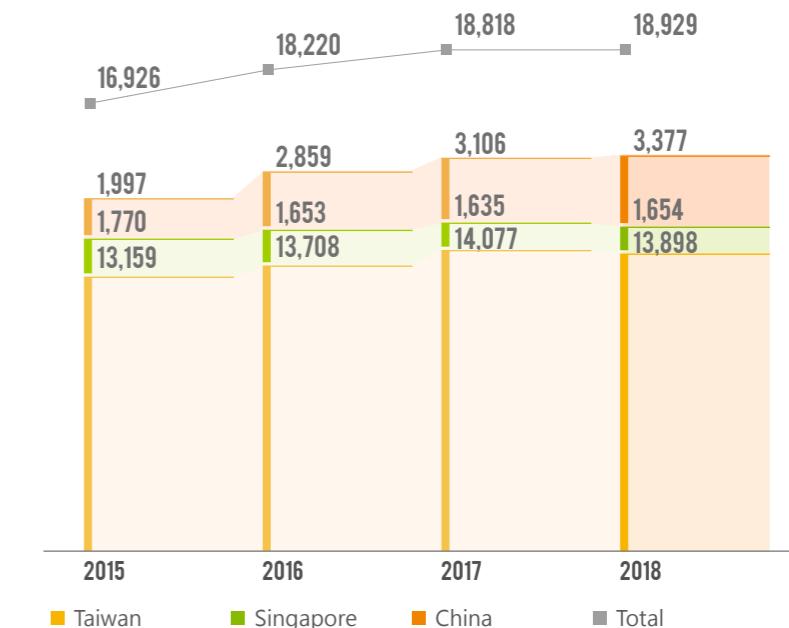
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		Male	Female	Total
		No. of People (Percentage)	No. of People (Percentage)	No. of People (Percentage)
	Engineering staff	7,413 (79.6%)	1,903 (20.4%)	9,316 (49.2%)
	Executive staff	1,717 (87.7%)	241 (12.3%)	1,958 (10.3%)
	Technicians	1,331 (18.7%)	5,774 (81.3%)	7,105 (37.5%)
	Office staff	3 (50.0%)	3 (50.0%)	6 (0.0%)
	Managerial staff	99 (18.2%)	445 (81.8%)	544 (2.9%)
	Formal employees	10,563 (55.8%)	8,366 (44.2%)	18,929 (98.5%)
	Contract or temporary staff	83 (71.6%)	33 (28.4%)	116 (0.6%)
	Dispatched staff	41 (23.3%)	135 (76.7%)	176 (0.9%)
	Taiwan	7,719 (55.5%)	6,179 (44.5%)	13,898 (73.4%)
	Singapore	1,068 (64.6%)	586 (35.4%)	1,654 (8.7%)
	China	1,776 (52.6%)	1,601 (47.4%)	3,377 (17.8%)
	Under 30	2,869 (57.3%)	2,141 (42.7%)	5,010 (26.5%)
	30-50	7,044 (54.7%)	5,833 (45.3%)	12,877 (68.0%)
	Above 50	650 (62.4%)	392 (37.6%)	1,042 (5.5%)

Note 1: Job Category, Job Site and Age are formal employees, while the category of Type of employment is all working population.
 Note 2: Ratio of male and female is calculated by the same type, while the total ratio is calculated by type.

The trend of total formal employees in UMC including China subsidiaries HJTC and USC during 2015-2018

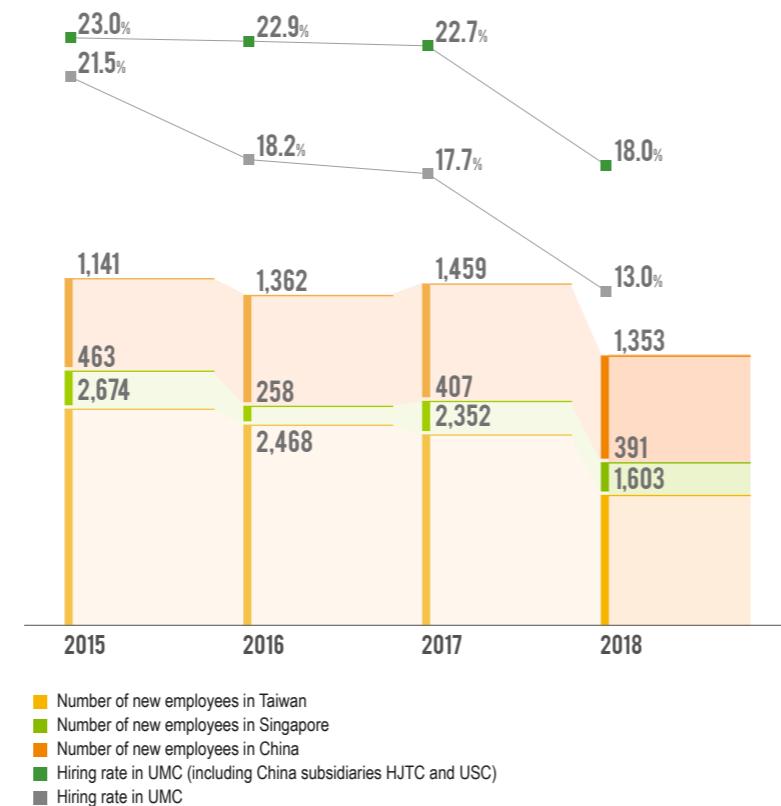
Note: The Full Time Employees of UMC in the past:14,929 people in 2015; 15,361 people in 2016;15712 people in 2017;15,552 people in 2018

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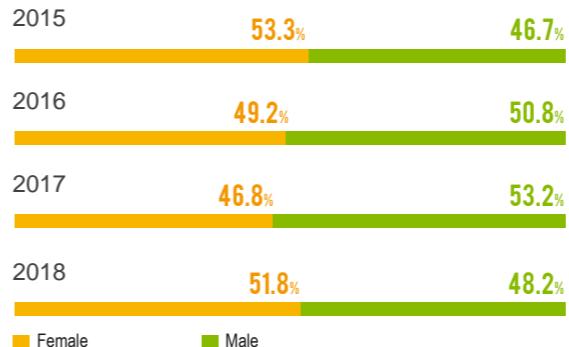
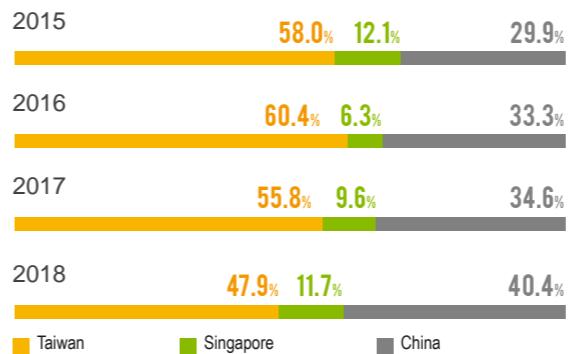
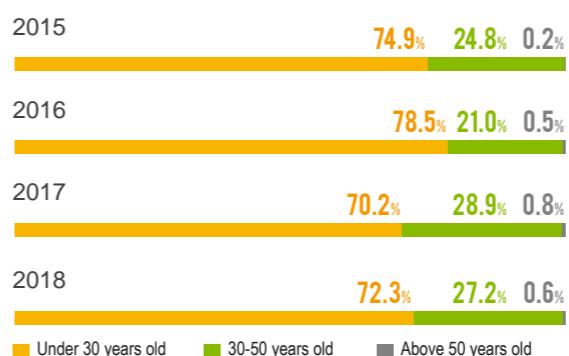
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Appendix**New Employee**

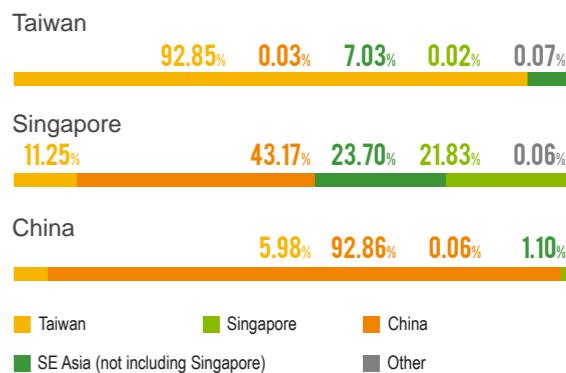
In 2018, the company hired a total of 3,347 new employees. The gender, region and age distributions are shown below:



Note: Annual employee hiring rate refers to the total number of newly hired employees / average number of existing employees (sum of employees from the previous December and at the end of each month in the current year / 13).

New Formal Employees - Gender**New Formal Employees - Region****New Formal Employees - Age****Local Employment**

To fulfill social responsibility and create sufficient jobs for local residents, the staff at UMC's headquarters in Taiwan comprised of 92.9% local employees as of 2018, and among these, 99.3% of the high level management is locally hired. Since Singapore is ethnically diverse, 23.7% of the employees and 40.0% of the high level management are locally hired, while in the semiconductor wafer fab in China, 92.9% of the staff and 4.0% of the high level management are locally hired.

Formal Employee - Country

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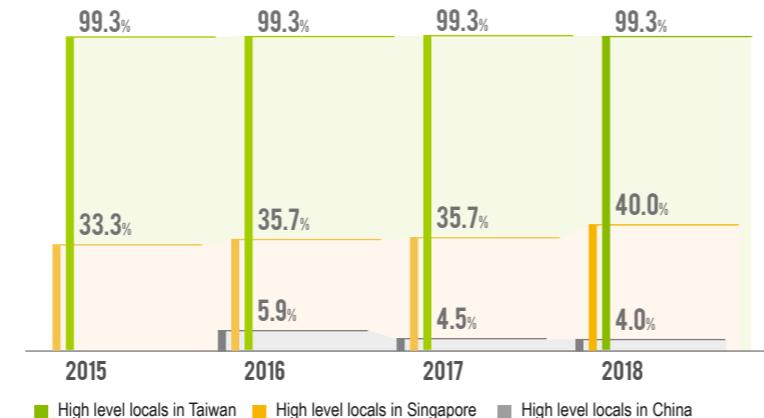
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Proportion of locally hired high level managers from 2015-2018

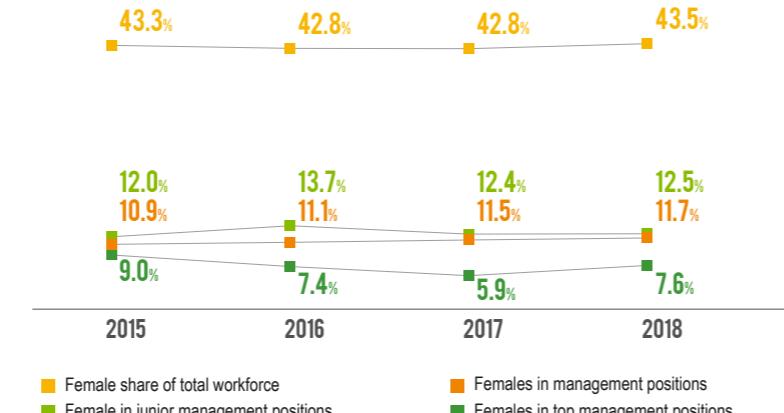


Note: High level directors are defined as Level 1 directors (including deputy directors) and above.

Note: Locally hired refers to employees who are nationals of the main operating location/region.

Female Workers in UMC

All percentage of females in management positions increased in 2018 compared to the previous year, mainly because UMC also pays attention to female workers' promotion and development. In view of the characteristics of the semiconductor industry, there are more male managers and professional engineers in UMC. Meanwhile, managerial staff and technicians are mainly females.

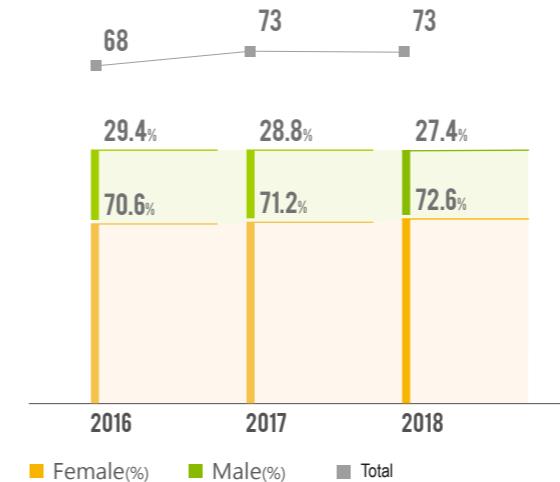


Note : Junior management positions include first line manager; top management positions include two levels away from the President.

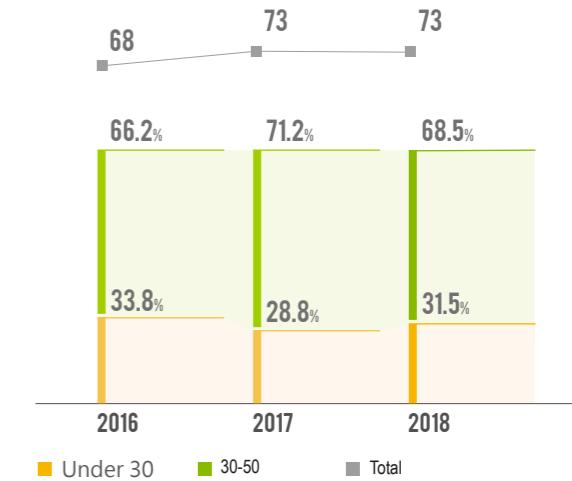
Hiring of Aboriginal

UMC respects the unique culture of minorities and gives aboriginal employees a ceremonial leave for eight hours a year which could be flexibly used as their own leave hours. By the end of 2018, UMC's headquarters in Taiwan had a total of 73 aboriginal employees. In terms of gender, 27.4% are males and 72.6% are females. In terms of age, 31.5% are under 30 years old, while 68.5% are 30-50 years old.

Hiring of Aborigines - Gender



Hiring of Aborigines- Age



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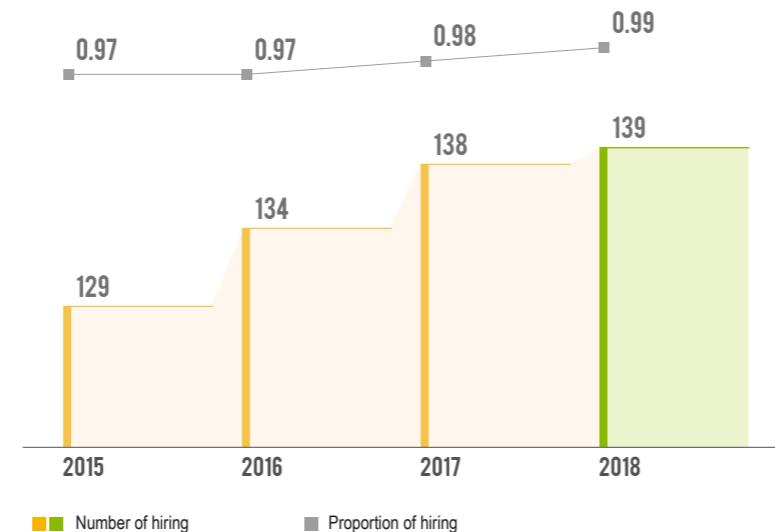
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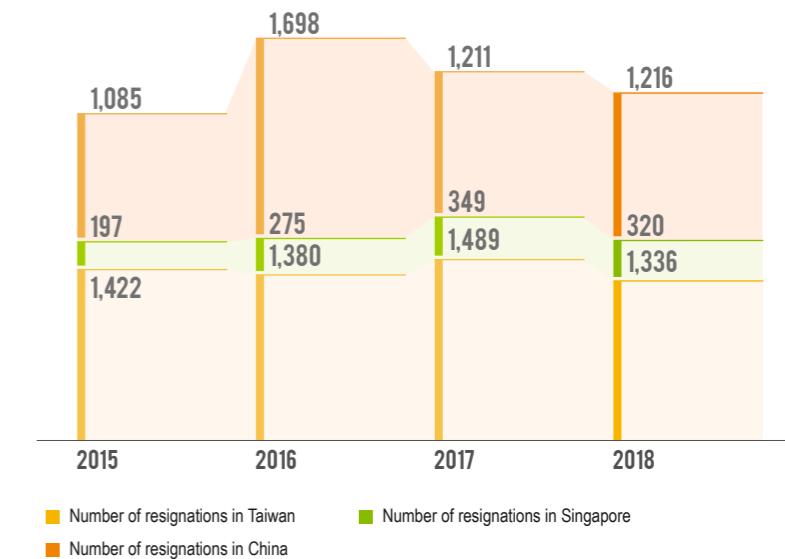
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Appendix**Employment of People with Disabilities**

UMC's headquarters in Taiwan supports the employment of people with disabilities, and has established channels for hiring people with disabilities. Through the Student Ambassador Project, people with disabilities such as physical handicap, visual impairment, hearing impairment, functional loss in vital organs and chromosomal abnormalities are hired. By the end of 2018, UMC headquarters in Taiwan employed a total of 139 employees with disabilities. In terms of Taiwan's hiring laws, the company continues to actively evaluate its internal job expansion and strives toward hiring people with disabilities adequately.

UMC Disability Hiring**Employee Turnover Rate**

In 2013, the HJTC semiconductor wafer fab in China joined UMC as a subsidiary. In 2015, United Semiconductor in China also joined as a subsidiary. From 2015-2018, UMC, including China subsidiaries HJTC and USC, has an employee turnover rate of 16.8% due to the higher turnover rate of direct labor in China (UMC parent's turnover rate was 11.2%). When employees apply for resignation, they are individually interviewed by their director and Human Resource Department to understand their reason(s) for resignation. In addition, through assessment of their individual expertise and offers of adjustment in work content, workplace location or internal transfer, attempts are made to retain employees. Human Resource Department also maintains regular contact with employees who have resigned, and opportunities are provided for those who wish to return to their employment.



Note: Annual employee turnover rate refers to the total number of employees who resigned / average number of existing employees (sum of employees from the previous December and at the end of each month in the current year / 13).

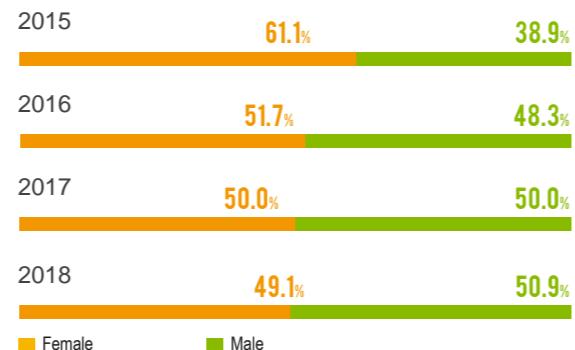
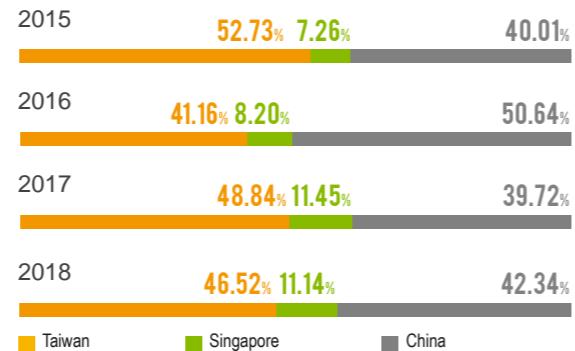
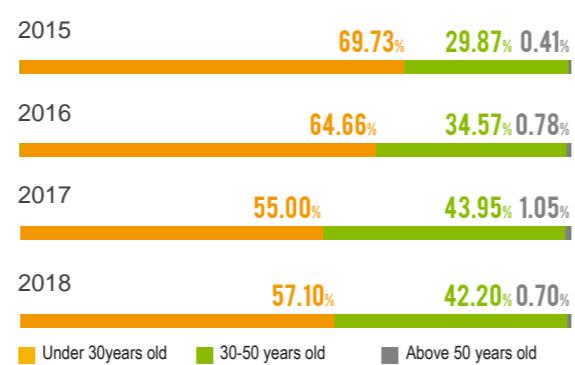
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Appendix**Formal Employee Resignation - Gender****Formal Employee Resignation - Region****Formal Employee Resignation - Age****Parenting Leave**

In 2018, a total of 399 female employees applied for maternity leave in UMC (including China subsidiaries HJTC and USC). Of these, 97.2% returned to their original positions after their leave while those who did not return voluntarily resigned to take care of family needs. In addition, 523 male employees applied for paternity leave in accordance to the Act of Gender Equality in Employment, and of these, 99.4% returned to their original positions after their leave.

In Taiwan, according to the Act of Gender Equality in Employment, employees may apply for parenting leave without pay. When their contract expired in 2018, a total of 94 female employees returned to their positions, indicating a return rate of 74.0% after parental leave. 22 male employees returned to their positions, indicating a return rate of 75.9% after parental leave. The work situation of those who returned after parenting leave was observed, while those who did not return after their unpaid parenting leave expired had continuing family needs that required them to voluntarily resign. From 2017-2018, 93.7% of female employees and 90.0% of male employees that took unpaid parenting leave returned to work.

2018 Parental Leave

Female		Male		Total
2018 The total eligible number for parental leave(A)				
800		1,243		2,123
2018 The actual number of parental leave(B)				
150		32		182
2018 Application rate for parental leave (B/A)				
17.0%		2.6%		8.6%
2018 The total number of end of contract for parenting leave (C)				
127		29		156
2018 The total number returning from parenting leave (D)				
94		22		116
2018 Return rate after parenting leave (D/C)				
74.0%		75.9%		74.4%
2017 The total number returning from parenting leave (E)				
111		10		121
2017 One year retention rate after return from parenting leave (F)				
104		9		113
2017 The number of returning from parenting leave and retention rate (F/E)				
93.7%		90.0%		93.4%

Note : Parenting leave is the labor right of Taiwanese Act of Gender Equality in Employment. Employees in Singapore and China are not eligible for parental leave.

Note : Maternity Leave includes Taiwan, Singapore, and China.

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Appendix

UMC has always regarded its employees as an important asset, and hopes that by providing a competitive overall compensation and benefit package, excellent talent will be attracted to join the UMC team and work together to achieve operational goals and contribute to UMC profits.

Compensation and Benefit Policy

UMC's employee compensation is based on educational level, performance and market value. Employees are not subjected to differential treatment because of gender, race, religion, political position or marital status. UMC employees worldwide enjoy the compensation and benefits which are in line with or superior than all applicable local laws and regulations which include minimum wage, overtime, social insurances, pension regulation and other mandatory benefits.

Performance-oriented Remuneration System

UMC offers salary adjustment, differentiated bonus / employee compensation system (^{Note}) and stock remuneration (employee stock option certificate and treasury shares) based on individual performance, job responsibilities and future development potential to attract, keep and motivate outstanding employees. The company also actively joins remuneration surveys of well-known worldwide enterprises to ensure that the overall remuneration offered by UMC is competitive in the market.

Note: Please refer to the Company Constitution for the Employee Remuneration System

Basic Salary and Annual Total Compensation for Male and Female Employees

	Management level ^{Note1}	Non-management level	Technicians	Management level	Non-management level	Technicians ^{Note2}
BASE SALARY	TAIWAN			SINGAPORE		
	Male	1	1	1	1	1
ANNUAL TOTAL COMPENSATION	Female	0.95	0.97	1.00	0.95	1.04
	Male	1	1	1	1	1
	Female	0.92	0.96	1	0.94	1.02

Note 1: The data for non-management level is calculated on the basis of the engineer category.
Note 2: Technicians shall be calculated on the basis of the local technicians.

Leave policy is superior to the Labor Standards Acts

UMC offers a comprehensive and superior leave policy.



UMC employees in Taiwan enjoy additional flexible leaves, and there are gentle reminders regularly to encourage employees to enjoy their leave time to achieve a better work-life balance. Special leave issued for contract employees are based upon the requirements of the Labor Standards Act. UMC encourages fellow employees to actively contribute towards public charity, and has established the UMC Science and Culture Foundation. Employees can make use of volunteer leave and participate in the company's charity activities during working hours. In 2018, the Taiwan Labor Standards Act was revised and the number of national holidays was reduced from 19 days to 12 days. However, UMC continues to offer an additional 7 days of special holidays.



According to law, maternity leave will be provided at half-pay if the employee's period of service is less than 6 months. To provide better care to newly hired female employees, UMC instead gives full-pay for the said employees.



To provide support to fellow employees, UMC offers funeral leave welfare that is superior to that prescribed by the Labor Standards Act. Colleagues whose great grandparents, great grandparents-in-law, or grandparents-in-law have passed away shall be given a funeral leave of 24 hours at full-pay.



Overseas semiconductor foundry plants, such as the China subsidiaries HJTC and USC, are also provided with paid annual leave that are superior to those prescribed in the local Regulations of Paid Annual Leave of Employees. UMC Singapore provides newly hired employees with 14 days of leave in their first year which is better welfare compared to the minimum length of 7 days prescribed by the Singaporean government. Contract or temporary staff who have worked in UMC for 3 months shall also be entitled to these types of leave by the proportion of their length of services.

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Appendix**Comprehensive Insurance and Retirement Policy**

UMC provides insurance coverage that is consistent with local laws and regulations to ensure the basic rights and interests of employees. In accordance with the law, the company headquarters in Taiwan also provides labor insurance (including Employment Insurance) and national health insurance. In addition, UMC provides employees with additional group insurance, including life insurance, major illness insurance, health insurance, accident insurance, cancer insurance, and travel insurance for overseas business trips to ensure the work and life security for its employees. The company also provides a selection of group insurance for employee families so that employees can work with peace of mind.

Over 50% of fellow employees chose to include their spouse and family members into UMC's group insurance to provide their family an additional layer of protection with more economical expenses. UMC also provides an insurance company service office inside the company, allowing colleagues to make inquiries on insurance services and apply for claims. Furthermore, the company regularly posts e-newsletters on insurance benefits, and introduces information on insurance and compensation rights so that employees are clearly aware of their actual insurance content and benefits.

Retirement Benefits Plan

UMC complies with local statutory regulations and systems related to retirement to safeguard the retirement rights of our employees. In Taiwan, the Labor Standards Act was used as the basis to stipulate regulations for the calculations and payment rules of retirement pensions. Every regular employee in Taiwan participates in the relevant pension plans. Following the old pension system under the Labor Standards Law, the employer is required to deduct at least 2% of a worker's total monthly wage and set aside this amount as a reserve fund for said worker's pension payments. In addition, at the end of each year, a review of pension allocation will be conducted to estimate the amount of pension that will be paid by those eligible for retirement by December 31 of the following year to ensure that the balance of the special account is sufficient to pay. For the provision of post-retirement welfare and expenses, please refer to the company's annual report of 2018 on page 255.

Since July 1, 2005, the Labor Pension Act was effective and it is a defined contribution plan. According to the regulations, the company has to contribute a certain percentage of salary to an individual labor pension account. Employees may select to keep applying the pension regulations prescribed by the Labor Standards Act or switching to the new pension systems applicable to the Labor Pension Act while also maintaining their previous pension seniority. For the provision of post-retirement welfare and expenses, please refer to the company's annual report of 2018 on page 255.

When employees apply for retirement, the company not only provides pension application service, but also awards a medal to show appreciation for their long term effort and contribution. In addition, they are also awarded "UMC Lifetime Membership," which offers a selection of healthful and interesting activities for retirement living.

In order to facilitate retired or terminated employees to obtain great help resources, UMC provides exit interviews to ensure that they can access appropriate care and a clear channel to receive assistance smoothly. In addition, the company provides severance pay for dismissed employees in accordance with local laws and regulations, and also related employment service channel information.

**4-2-3 EDUCATION AND TRAINING****UMC Comprehensive Learning Environment**

At UMC, education and training is not limited to classroom instruction or promotion of training courses. Through the integration and use of company resources, employees are provided with a full learning environment.

**Education and Training Committee**

In order to earnestly implement the policies of education and training, UMC has established a company-wide "Education and Training Committee" composed of education and training officers from various departments to improve the quality of training for all employees of the company. In line with corporate policy, the company conducts a company-wide training needs survey every year and creates an annual training plan for the competency analysis of supervisors and associates. The Education and Training Committee holds conferences to review training operations every quarter.

To encourage colleagues to serve as lecturers, the committee conducts selection activities of outstanding company-wide instructors each September. Through the improvement of the Education and Training Committee system, we will implement the company's principles and talent training to achieve effective company training system compliance.

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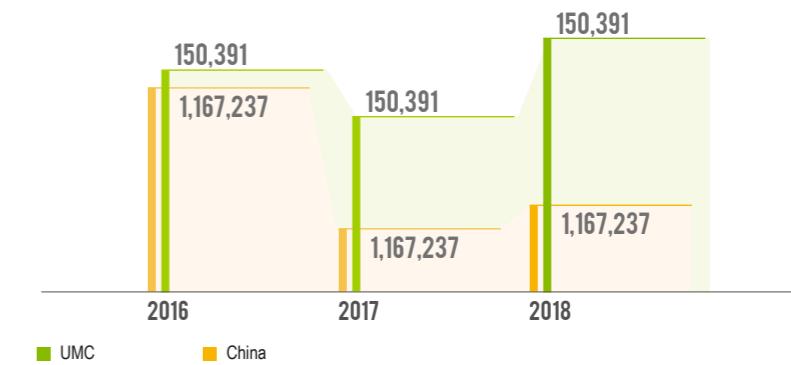
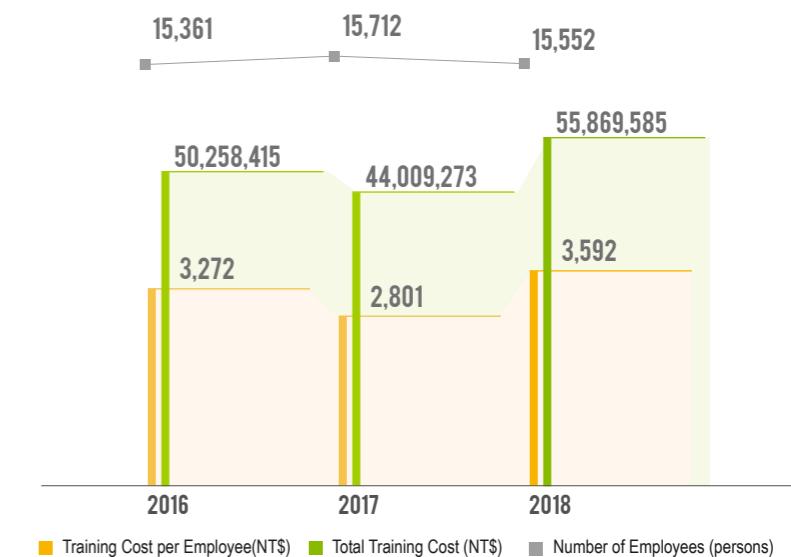
Appendix

In terms of professional training, we offer complete technical training curriculum. For managerial training, different training programs are designed for different levels of directors. For language, language proficiency tests and courses are offered according to job descriptions and positions. In terms of departmental and inter-departmental On-the-Job Training (OJT), the Education and Training Committee's downward education and training orientation allows department directors and their employees to fully participate in the planning, implementation and learning assessment. Moreover, the diversity of self-learning and development channels, such as e-Learning, creates an atmosphere of mutual peer learning, development and team cooperation, thereby forming a comprehensive environment for learning, sharing and innovation.

In 2018, UMC organized up to 9,071 training courses, with a total number of 381,421 training (persons) hours and 342,566 participants. The total cost of training was NT\$ 55,869,585, and satisfaction level with the various courses was more than 94%, gradually increasing with each year.

Course Satisfaction

	2016	2017	2018
Total Number			
Number of courses	9,859	9,703	9,071
Total number of participants	272,098	260,802	342,566
Average Value			
★ Training Satisfaction - Overall Satisfaction	93.3%	93.9%	94.8%
● Training Satisfaction - Satisfaction with Instructor	93.3%	93.4%	94.6%
■ Training Satisfaction - Satisfaction with teaching materials	93.2%	93.7%	94.6%
◆ Training Satisfaction - Beneficial to work	93.5%	94.1%	94.6%

Average Employee Training Cost

In terms of average education and training hours for the various job levels, comprehensive education and training are provided for different categories of job responsibilities and levels of employees.

UMC & its China subsidiaries : HJTC and USC

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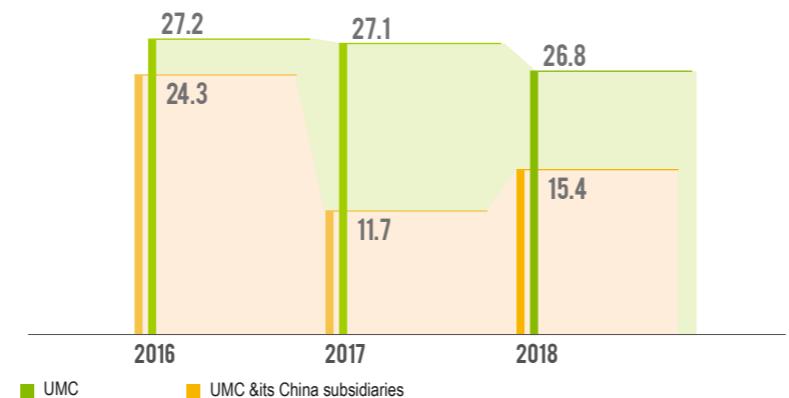
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Appendix**UMC Average Training Hours for Various Job Levels**

Training Time (Hours)	Number of Participants (Persons)	Average Training Time (Hours)
DIRECTOR LEVEL		
36,599	1,707	21.4
INDIRECT LABOR (NON-DIRECTORLEVEL)		
328,409	8,376	39.2
DIRECT LABOR		
64,901	5,469	11.9

Average Employee Training Hours

For gender issues, UMC upholds the principles of gender equality and offers equal training opportunities with the purpose of providing professional training for each job grade and function. Most direct employees are women so their training would be largely focused upon technical courses such as machine operation. Hence, average training hours for female employees in UMC are slightly shorter than that of male employees. -

Average Gender Equality Training Time

Training Time (Hours)	Number of Participants (Persons)	Average Training Time (Hours)
Male Employees		
295,558	8,787	33.6
Female Employees		
120,721	6,765	17.8

Other types of courses for continuing personnel cultivation and training are based on company guidelines and operational plans.

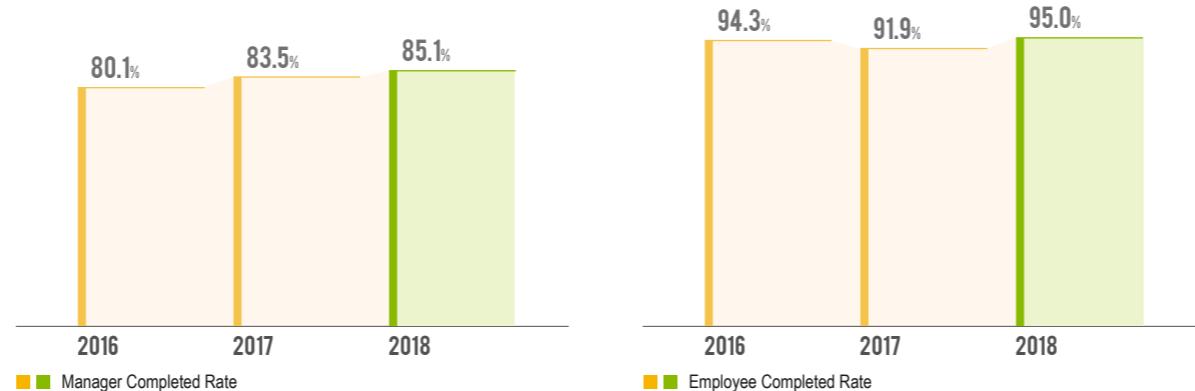
Management Competence Training - Development Plans for Supervisors of Various Levels.

In terms of personnel training and development, UMC defines the managerial competency required for the various levels of directors. Core and professional competencies are also defined for general employees so that they clearly understand the required core competencies for each level of job responsibility. To design the internal training curriculum, UMC conducts a company-wide training needs survey in the fourth quarter of each year, and plans corresponding development courses based on the professional needs of supervisors and employees. In addition to required training to help employees achieve job performance, employees can also prepare for their career planning and development by participating in other training courses based on their personal needs and future development plans.

Furthermore, to fulfill the company's core values, the philosophy and spirit of "accountability" is thoroughly instilled. UMC first introduced the course titled "The 7 Habits of Highly Effective Managers" in 2011. In 2012, this course was further expanded to include "The 7 Habits of Highly Effective Employees." Course contents are constantly promoted and established so that the 7 Effective Habits have become a common language between UMC managers and employees. All supervisors and employees recruited in 2017 completed these courses in the 1st Quarter of 2018 in order to benefit from course-related data. From 2016 to 2018, the overall training completion rate improved steadily and the standard was maintained. In 2018, a new version of the 7 Effective Habits posters was printed and posted in all department offices to promote and cultivate the 7 Habits throughout the Company. Descriptions of the courses are as follow.

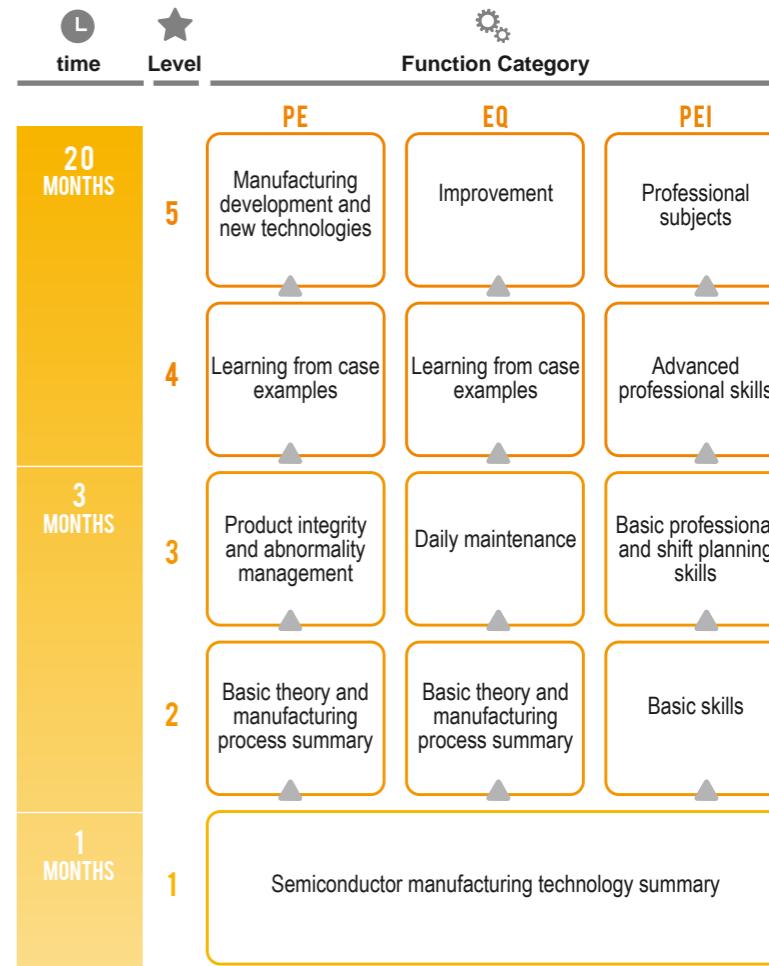
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Appendix**2016-2018 completion rates for “The 7 Habits of Highly Effective Managers” and “The 7 Habits of Highly Effective Employees” courses****Training Poster****Technical Training for Engineers**

UMC fully realizes that outstanding technicians are the key to enhancing advanced technology and sustaining a company's growth. Therefore, based on the professional needs and competency inventory of the various engineering departments, technical training curriculum are planned, and through a solid system of technical training, the overall professional standard of our engineers and quality of engineering manufacturing are enhanced.

Based on the job need of each employee, learning maps are formulated. Through the control and statistics mechanism in the training system, the training courses and hours required by each employee are ensured for specific training effectiveness. To provide more learning resources for each employee, blended professional courses were designed in 2018. New versions of online courses were also created to provide more interactive learning resources for employees.



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Appendix**Convenient e-Learning Platform**

In addition to the various professional skills and management courses, UMC has set up an e-Learning platform to provide employees with a convenient and easy environment for spontaneous learning. Information channels allow for convenient lesson preview and review, and together with effective and diverse in-class learning, the cultivation of knowledge and skills is steady and in-depth, thereby sustaining learning interest and exploration of new knowledge.

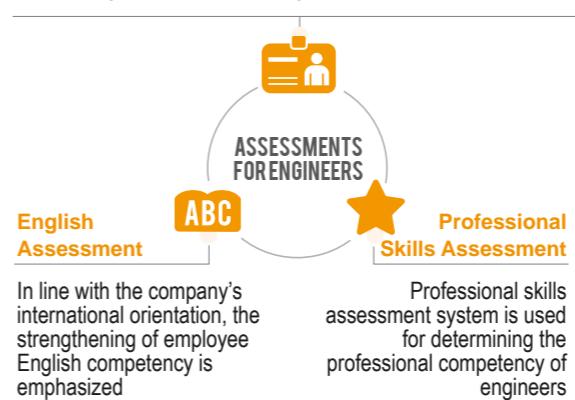
Learning Platform**Technical Skills Inventory**

UMC is a world-class corporation, and in line with international trends, has established a basic and rigorous system for both qualitative and quantitative skills assessment. In terms of strengthening English ability, demand for quality manufacturing, and increasing the professional knowledge of engineers, both internal and external evaluations such as TOEIC English assessment, Technical Skill Inventory and Statistical Process Control (SPC) are used to effectively evaluate the required core competencies of employees and increase production quality to meet and satisfy various customer needs worldwide. For example, in the 3-6-9 SPC Principle, those who fail assessments are not allowed to operate machinery, and are affected in other matters such as promotion.

In 2018, the Taiwan completion rate for the SPC training was 99%, and the completion rate for Singapore was also 99%.

Assessment System**SPC Assessment**

In line with fab demand for manufacturing quality, engineers' understanding of SPC is emphasized

**Assessments for engineers****01CATEGORY**

- Categorize according to facility, manufacturing and product

**02CONTENT**

- Basic/Operations
- Advanced/Learning from case examples
- Connection with various tasks/Crisis management ability

**03 STANDARD (QUARTERLY SKILLS ASSESSMENT)**

- 7-10: Instructor
- 5-6: Independent operation
- 3-4: Completion of task through telephone instruction
- 0-2: Continuing learning required

**04METHOD**

- Oral and written tests

SPC :3-6-9 SPC Principle**Courses (Knowledge)**

New employees must complete SPC training courses within 3 months

**Test (Knowledge)**

New employees must complete the SPC written test within 6 months

**Practice (Application)**

New employees must complete SPC practice within 9 months

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Appendix**Training for Diverse Cultures**

Since employees from different countries are employed, training courses have been provided using different languages to help employees quickly settle into the UMC culture and gain familiarity of corporate policy and systems. Additionally, cultural descriptions and festivities are also regularly provided when celebrating traditional Chinese holidays to help foreign employees enjoy local festivities. To improve linguistic skills of foreign employees, routine language courses are offered at UMC, along with regular language skills tests and bonus policies.

Introduction for Newly Hired Staff

To help newly hired employees quickly settle into UMC's environment, gain familiarity in corporate policy and regulations, and shorten learning time, senior personnel or supervisors are appointed as employee mentors when newly hired staff report to their posts. Training is given directly at the job posting to achieve effective on-the-job training (OJT). These instructions also cover routine activities and various specialized fields. A Newly Hired Staff Instructor System was established throughout the entire company. This system includes a training schedule, discussion forms with various supervisors, and feedback surveys. Instructors must complete all instruction procedures within 3 months after newly hired employees report to their post.

Corporate Culture Orientation Program for New Employees

To help new employees quickly integrate and shorten learning time, the learning organization particularly emphasizes new employee training to highlight the goals of "Recruit Talent, Cultivate Talent,

Retain Talent" in education and training. In particular, "the involvement and support of department directors is the only way to motivate successful education and training." Each director is committed to enhancing the employment and development of new employees, and through the comprehensive UMC new employee training program supplemented by a mentor system, new employees quickly acquire professional skills and develop an appropriate work attitude. In addition to completing required courses, new employees also participate in the orientation program for new employees. The program integrates the organizational characteristic of team building, namely capability and agility. Classes pertaining to company vision, strategies and competitiveness are personally taught by high level executives, and workplace stress management and positive thinking courses are also provided to help new employees quickly integrate into the corporate culture.



Team Building

In 2018, 13 sessions of the new employee orientation program were conducted, and a total of 602 new employees completed training. (The above figures refer to indirect labor in Taiwan, and include formal employees and dispatched staff).

**Transition Assistance Program for Employees who are Retiring or Leaving**

To ensure good channels for assistance, the Company interviews employees who are retiring or leaving employment to provide appropriate care and specific channels to facilitate assistance. In addition, the Company provides laid-off employees with severance pay and employment service information in accordance with the Labor Standard Acts.

UMC Training Effectiveness

To ensure training effectiveness, UMC has set training performance indicators such as course completion rate, annual program completion rate, SPC implementation success rate, key talent retention rate, per capita output value and other values. These values are converted into UMC's standard scores to represent training outcome. The UMC training results are 79.5 points in 2016, 81.1 points in 2017 and 84.8 points in 2018. The goal is 88 points for 2020 and 95 points for 2025.

UMC Training Effectiveness - Learning Assessment Model and Item Comparison

Learning Assessment Model	Item Description
LEVEL 5 ROI Assessment	1. Per capita output value (million dollars / NT)
LEVEL 4 Outcome Assessment	2. Key talent retention rate (%)
LEVEL 3 Behavioral Assessment	3. New employee turnover rate (%)
LEVEL 2 Learning Assessment	4. SPC Implementation Success Rate (%)
LEVEL 1 Response Assessment	5. Course learning average test score (Points)
	6. Annual training program completion rate (%)
	7. Average overall course satisfaction (%)
	8. Average overall instructor satisfaction (%)
	9. Course completion rate (%)

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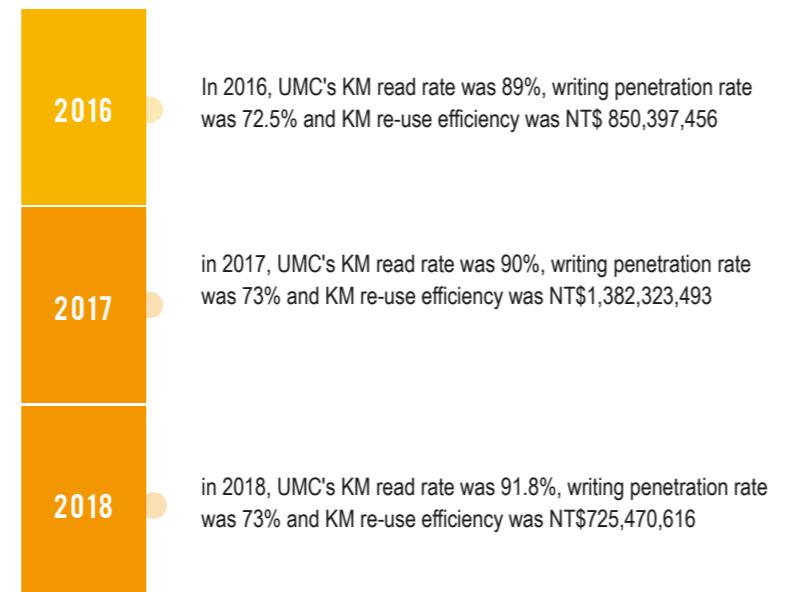
Appendix**Quality Improvement & Innovation Team (QIT)**

To achieve departmental goals, fulfill Company policies and strengthen daily management, the Company conducted QIT activities. 142 improvement teams were established in 2016, 92 teams in 2017, and 116 teams in 2018. The training activities are aimed at helping employees find solutions to problems and enhancing innovative breakthroughs and teamwork ability.

Knowledge Management (KM)

To promote knowledge management, retain UMC's core knowledge and cultivate a knowledge sharing team and learning environment, the company has established a knowledge bank sharing platform. Taking into account both knowledge and confidentiality protection, accessibility control is implemented according to the level of confidentiality.

Knowledge documents are categorized as one star, two stars, three stars or four stars according to their level of comprehensiveness and contribution.



indicating steady growth in overall indicators and maintenance at the upper-middle level.

**4-2-4 CULTIVATING PROSPECTIVE TALENTS**

To fulfill the ideal of promoting semiconductor research and technical development, and strengthening UMC's global competitiveness by providing the corporation with a source of outstanding and quality talent, UMC is committed to maintaining forward-looking collegiate relationships. In 2018, UMC focused on 2 major orientations in its collegiate relationships: (1) Positioning outstanding R&D talent, and (2) In-depth development of talent from technical colleges. In addition, university-industry collaboration and prospective talent programs are two major directions of development.

UMC continued to strengthen business-education partnerships in 2018. In addition to existing practical programs for semiconductor technologies in key institutions, a collaboration project was also implemented to sponsor full-time instructors for the MS Degree Program and credit courses on Nano-Integrated Circuit Engineering offered by National Cheng Kung University (NCKU). A series of brand image development activities such as paper discussions, career sharing, practical collaborations, and exhibits of semiconductor products were scheduled, with more than 3,500 individuals participating in paper discussions in 2018. These measures enhanced the academia's support and recognition of UMC and gave a comprehensive demonstration of a successful business-education partnership.

In terms of campus talent cultivation, the Prospective Talent Program (PTP) has been expanded to increase the cultivation of talent on campuses. Since 2013, a total of 4,140 candidates have been recruited, of which 1,934 are still in school. In 2018, Advanced Intelligent Elite Development Program (AIED) has been launched, and 1,149 students have participated in this program.

Through a series of activities and courses, close interaction is maintained with prospective collegiate talent to promote their identification with UMC. By establishing a close relationship and pre-appointments, the program effectively connects UMC with target students. At the same time, the PTP also effectively markets the corporate image of UMC and exerts considerable influence on campuses and communities, thereby ensuring future R&D prospects for UMC in advance.

2018PTP Awards Ceremony Group Photo



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Appendix**UMC Prospective Talent Program methods****DOMESTIC AND OVERSEAS SUMMER INTERNSHIP PROGRAMS**

In 2018, a total of 32 interns were recruited. The program continues to select high-quality talent to intern at major departments in domestic and overseas UMC facilities. The interns are guided by designated instructors so that through actual practice and involvement in existing UMC projects, they can experience the workplace culture. At the same time, this program effectively allows for closer interaction between prospective collegiate talents and UMC teams, thereby enabling mutual learning and growth through these close exchanges.

**COLLEGIATE TALENT DEVELOPMENT PROGRAMS**

Exclusively designated for students, this program offers forums, internships and corporate mentoring to help students gain awareness and sensitivity toward the semiconductor industry. In addition, participation in UMC benefit events allows students to visit the fabs and provides opportunities to advance their understanding of UMC's global operations, corporate culture and a healthy workplace.



In 2018, Advanced Intelligent Elite Development Program (AIED) has been launched, and 1,149 students have participated in this program. (PTP) has been expanded to increase the cultivation of talent on campuses. Since 2013, a total of 4,140 candidates have been recruited, of which 1,934 are still in school.

COLLEGIATE CAREER PLANNING FORUM / INSTRUCTOR PROGRAM

UMC has conducted career planning seminars and career coaching programs in its recent collaboration with key schools. Based on professional insight of future trends and career instructor's assessment of student characteristics and knowledge, career plans are recommended to help students find suitable career paths. With National Cheng Kung University as an example, 7 career coaching programs have already been implemented. Each batch has over 200 participants from the university and the program still continues to this day. In addition, practical resume writing advice is offered to help new graduates highlight and market themselves, and capture the attention of companies and executives.

**VISIT BY FACULTY AND STUDENTS FROM TARGET DEPARTMENTS**

In 2018, about 1,347 faculty and students from target schools visited UMC so that students could gain an early understanding of the semiconductor industry work environment. Interaction and exchanges with employees also allow students to better understand the direction of their future learning and employability.

**Furthering vocational and technological universities - Industry-university collaboration for engineers****CORPORATE INTERNSHIP PROGRAM**

UMC collaborates with vocational and technological universities by providing lecturers to share their practical knowledge to reduce the gap between academic and practice. The program also offers career counseling seminars for many vocational and technological college students and provides them with career planning recommendations.

**GUIDANCE BY INDUSTRY EXPERTS**

This program offers 1-year internships for students going into their senior year in collaborating colleges. In addition to facilitating the absorption of theoretical knowledge, the program trains students in actual industrial settings, thereby increasing their competitiveness. From 2013-2018, 176 interns were accepted.

Experience Sharing**Former Equipment Intern & Current UMC Employee - Wei, Chia-hao**

When I was a freshman, I always dreamed of interning at UMC. Thus motivated, I fought hard for the opportunity, and eventually my dream came true. I was accepted as an intern! I felt very fortunate to be one step ahead of others in having contact with the industry while I was still a student.

Since my home is in Malaysia and I am alone in Taiwan, it is inevitable that I was unfamiliar with the life here.

However, my department supervisor and colleagues took very good care of me, and made me feel welcomed and cared for.

I am now an engineer, and an indispensable IT talent in the department.

For all this, I am very grateful to UMC for nurturing and cultivating me!

If Supervisor Huang had not given me the opportunity at that time, I would not have the achievements I have today.

**Former PTP member & current UMC employee - Huang Ya-hsin**

First of all, I want to thank UMC for giving me the opportunity to become a part of this big family and experience its unity, warmth, enthusiasm and passion.

The knowledge in the semiconductor industry is diverse and complex, and not always easily understood from books or the news. When I was a student, I learned about the development in the industry through various lectures conducted by UMC's PTP. I learned about the Company operations through instructor-student discussions, and better understood the value that the company placed on employees through conversations with my instructors. Moreover, from the lectures and events during the PTP Certificate Awards Ceremony, I saw the passion of the company. These activities guided me to toward specific workplace orientations.

As a new graduate, I was somewhat anxious. However, I am thankful that when I was still in school, UMC maintained close contact with the campus, which reduced my fears and helped me make the necessary preparations for transitioning into the workplace. For students who want to become familiar with the workplace environment in advance, the PTP is truly a beneficial channel.



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HEALTH AND SAFETY WORKPLACE

4-3-1 HEALTHY WORKPLACE

Comprehensive Health Care Program

UMC believes that healthy employees are an important cornerstone for the success of the company and pays close attention to the physical and mental health of its workers and their families. Its "Comprehensive Health Care Program" continued to broaden in 2018. To ensure employee health and prevent occupational diseases, the 2018 Health Service Management Plan was formulated according to the Enforcement Rules of the Occupational Safety and Health Act and the 2017 Fav Health Management Plan Effectiveness and Review.

Moreover, these activities and measures create a high-quality workplace and foster a spirit of camaraderie among the workers. UMC continues to work towards making the work environment safe, protecting the health of its workers, and furthering work-life balance.

In addition to dedicated efforts in building a quality and engaging workplace, UMC also referenced the latest amendments to the Occupational Safety and Health Act to initiate a series of activities to promote and improve upon ergonomic factors, health protection for female workers, and overwork-related conditions to protect and support our fellow employees. Extensive planning and preventive surveys were carried out to assess employee requirements, physical health, and mental states from multiple perspectives. Efforts for promoting Healthy Workplace concepts were aimed at improving support and recognition from employees and external agencies as well as encouraging the recruitment and retention of skilled professionals to achieve the final goal of enhancing personal and corporate performance.



Stress-free Workplace: Focusing on Work Environment Safety

In 2018, UMC continued its efforts to build a safe and stress-free work environment and was planning and implementing a series of measures that were either compliant or superior to statutory regulations governing employee welfare, education, training, retirement, and other employer-employee issues. Management systems and safe environments were established to eliminate all risk factors in the work place to achieve the Safe UMC objective in a comprehensive manner.

Preventing Overwork

To achieve a LOHAS workplace and provide a well-proportioned work-life balance, UMC adopted the Occupational Safety and Health Act in 2015 by taking the initiative to identify and assess the issue of overwork. To prevent employee overwork, the labor contract between each UMC employee and the Company is in accordance with local laws and regulations. The contract stipulates that employee overtime must be voluntary, and the company stipulates that excessive work hours are not permitted.

Overwork Prevention Items



Questionnaire

Based on the outcome of the overwork questionnaire, psychological stress questionnaire and other surveys, initiative is taken to address employee physical and mental health.



Health Examination

- A survey on overwork issues was initiated in 2018, and at the same time, relevant plans were discussed and developed with on-site physicians.
- Health guidance and follow-up management are arranged for those at risk for overwork.
- On-site physicians provide guidance and conduct health education.



Control of Work Hours

- Automated leave management: Using the automated system, an effective alert mechanism was installed to control work hours and excessive overtime. Overtime alerts are set at a more stringent limit than required by existing regulations. When overtime hours approach the limit set by the Company, the alert mechanism is activated. A reminder is simultaneously sent to the supervisor and employee so that reasonable human resource and work arrangements can be made.
- Since 2010, monthly reminders are sent to employees who have unused vacation hours, and supervisors are urged to schedule leave for their subordinates.
- In 2018, 7 days of special flexible vacation time continue to be given beyond the requirements of the Labor Standards Act.



Soft Advocacy

- Advocated through labor-employee meetings, secretarial forums and other large scale meetings.
- Conducted a series of lectures on overwork, and incorporated it into annual key tasks.
- Provided exclusive supporting measures for UMC Recreation Center, UMC Institute Activity Center and LM dormitory.
- Organized activities such as trips, inter-factory fun, sports and massage services by visually impaired massage therapists.



Outcome Description

- In 2018, 12,021 employees in UMC fabs in Hsinchu Science Park and Southern Taiwan Science Park received health checkup and completed a workload survey.
- In 2018, healthy diet lectures, departmental group education lectures, 3-high metabolic syndrome prevention lectures and abnormal case management were implemented. Employees at high risk are followed up on and educated individually. Participation rate is 100% for Fab 8E and Fab 8F; 82% for Southern Taiwan Science Park; and 80% for UT, Fab 8C and Fab 8D.

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Appendix

As a benchmark company, UMC shoulders the important responsibility of national science and technology development in a highly competitive and rapidly changing industrial environment. While pursuing profit, we also deeply believe that "only through the dedication of employees can UMC sustain development, and only happy and healthy employees can create UMC vitality." According to the Enforcement Rules of the Occupational Safety and Health Act and the 2017 Fab Health Management Plan Effectiveness and Review, UMC formulated the 2018 Stable Profit at No Loss Health Investment Self-Management Plan as the key focus for the year. As many as 26 projects were planned, including annual health promoting events, themed lectures, annual health checkups, various tests, stress management and consultation activities. Different themes and educational focus in each quarter, such as maternal protection, healthy weight, stress management and improving unfavorable test outcomes, coupled with the abnormal workload and over-fatigue prevention in the Occupational Safety and Health Act, are implemented to protect employee health. Moreover, in 2018, Fab 8AB, Fab 8S and the Southern Taiwan Science Park Fab were awarded healthy workplace certification.

**Focus and key outcomes in the 2018 Stable Profit at No Loss Health Investment Self-Management Plan health promotion events.****Q1****MATERNAL PROTECTION**

To increase maternity registration rate, mothers may present their Maternal Care Handbook at the Health Center to receive a small gift. From January to June, a Parental Toolkit platform is released each month to provide pregnancy, postpartum and childcare information.

Key Outcome

- Received a total of 325 Likes and 15,898 Reads from employees in UMC fabs in Hsinchu and Southern Taiwan Science Parks.
- A total of 15,898 from UMC fabs in Hsinchu and Southern Taiwan Science Parks participated. Overall average satisfaction was 97.5%, which achieved the targeted goal and showed an increase of 1.8% compared with 95.7% in the previous year.

Q2**SELF-WEIGHTLOSS**

Provide the latest weight loss information. Designed weight loss Monopoly games to encourage daily weight loss goals, exercise habits and healthy eating habits.

Key Outcome

- A total of 73 participated in the weight loss program.
- Satisfaction was 96.2%.

Q3**STRESS AND OVERFATIGUEPREVENTION**

The excessive workload group showed a high Framingham Risk Score and high stress and fatigue index. Life guidance was provided to cultivate positive habits to reduce the Framingham Risk Score.

Key Outcome

- A total of 1977 participated. Satisfaction was 95.53%.

Q4**IMPROVING UNFAVORABLE TEST FINDINGS IN 3-HIGH RISK GROUPS**

An Individualized Healthcare program was established for employees with abnormal test findings to help them better understand their own physical condition. Relevant information on the abnormal findings were provided through consultation with in-house physicians, return clinic visits, seminars and personal feedback.

Key Outcome

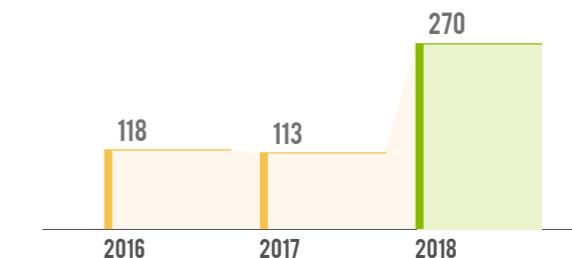
- A total of 73 participated.
- Satisfaction was 96.2%.

Employee Assistance Program · EAP

(1)Collaborated with Taiwan Lifeline International to provide employees with free counseling services.

In 2003, UMC introduced the "Employee Assistance Program" (EAP) to provide free counseling services to help employees relieve physical and psychological stress. Individual counseling and confidentiality mechanisms are provided to help employees resolve physical and psychological issues. Each employee has access to 6 free sessions per year, paid for by the company, and for those with special needs, additional assistance is provided by the company's professional counseling group.

In 2018, service was provided to 270 employees.

**Number of employees receiving assistance in 2016-2018**

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Appendix**(2) Active prevention and outreach:**

Psychological education and training for the Employee Relations Department, Human Resource Service (Account) Department and supervisors.

 Established the Employee Relations Department and Human Resource Service (Account) Department.

 The Human Resource Department has established the Employee Relations Department and Employee Human Resource Service (Account) Department to actively reach out to employees and intervene in case of abnormal situations.

 Employee Care Seed Training]: Continued to plan and organize education and training courses in "Employee Psychological Care--Assistance, Management and Practice for the Manager" to enhance the sensitivity of supervisors toward the psychological condition of employees.

 The company integrated a mechanism for employee care.

 In recent years, we have been diligently integrating and reconstructing the mechanism to help employees return to their job after recovering from physical or mental illness or injury. With cooperation between professionals and relevant departments, methods and supporting measures, employees are provided with a more worry-free workplace where they are given attentive care and necessary assistance.

(3) Relaxation Platform

 The company's internal website has a support platform offering employees diverse channels for relieving stress and providing counseling and information, such as Call IN I Hear You, Hot Let's Talk, Reassurance e-Newsletter, Relaxation Shopping, and Discovery of the Heart.

 From time to time, meditative articles, book and movie reviews, and essays are posted to help employees relax during their free time so that they can calmly deal with the challenges from work, interpersonal relationships, parenting and family life. In 2018, we continued to optimize the health center platform to provide employees with services such as activity registration, health information, relaxation corner, self-assessments and health activities.

**Expanding Health Concept, Outreach to Employee Dependents.**

UMC conducts annual health examinations, and offers check-up items that exceed government regulations.

UMC also has a Health Self-Management Program that is tailored for employees. Professionals are designated to follow-up with employees with health abnormalities, including arranging for regular follow-up appointments and providing health education information. Comprehensive records of employee health indicators are kept, and health examination results are categorized and managed for healthcare follow-up. To help employees manage their health history, the Company's eHR system was integrated in 2010 to construct an electronic health examination management platform and database where employees can assess their health examination results and compare their health history. The system also provides relevant health education materials for employees to learn to self-manage their health. As of 2018, UMC's information divisions integrated their existing systems to establish a new Healthcare System exclusively for employees. Employees can immediately check their health checkup report and medical staff consultation information online. The new system improved the medical team's daily care list and care rate to create a comprehensive healthy workplace.

Employees who are special operations inspectors are assigned for case management and tracking. In addition, health promotion activities targeting common health abnormalities are organized to provide care and safeguard employee health. UMC also hires on-site doctors to provide health consulting services for employees. Preventive services such as special examinations and out-of-pocket vaccinations are also offered to help employees take initiative in creating a healthy lifestyle. Moreover, UMC also safeguards the health of employees' families and organizes annual health examinations and massage services for them. Such health care services for both employees and their household create a win-win situation of a harmonious society and family.

In 2018, a total of 12,021 employees received medical examinations, and satisfaction was 93.4%. To provide convenient and quality services for employee families, hospital checkups were made available for families. The program was well received and will continue to be implemented.



Note: Satisfaction rate was determined through a five-point scale questionnaire (very satisfied, satisfied, neither satisfied nor dissatisfied, dissatisfied, and very dissatisfied). It is calculated by dividing the number of people who checked satisfied or above by the total number of respondents.

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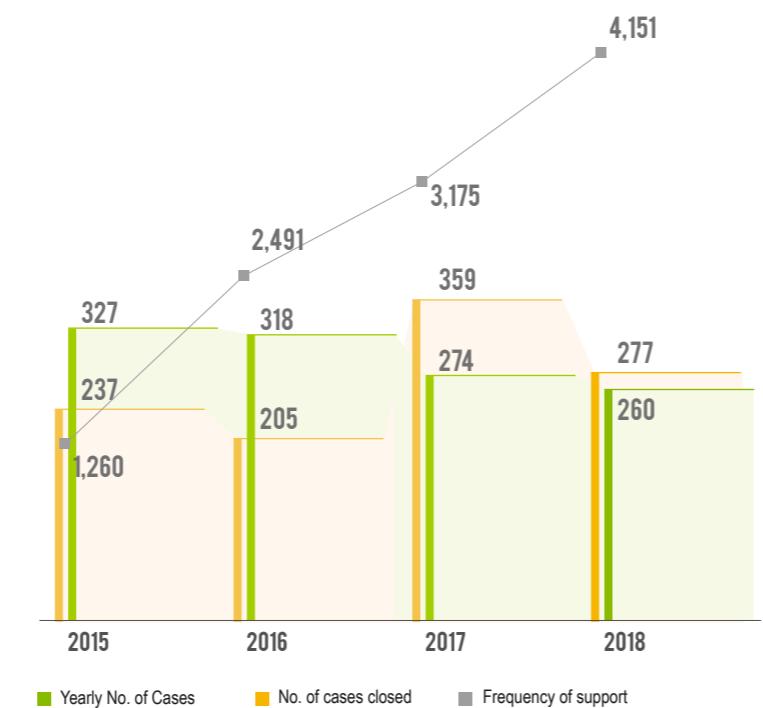
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Appendix**Maternity Health Protection**

UMC places great importance on motherly care and breastfeeding, and has implemented extensive measures to provide breastfeeding mothers with a safe and comfortable environment. Breast pumping rooms were also established in various fabs for female employees.

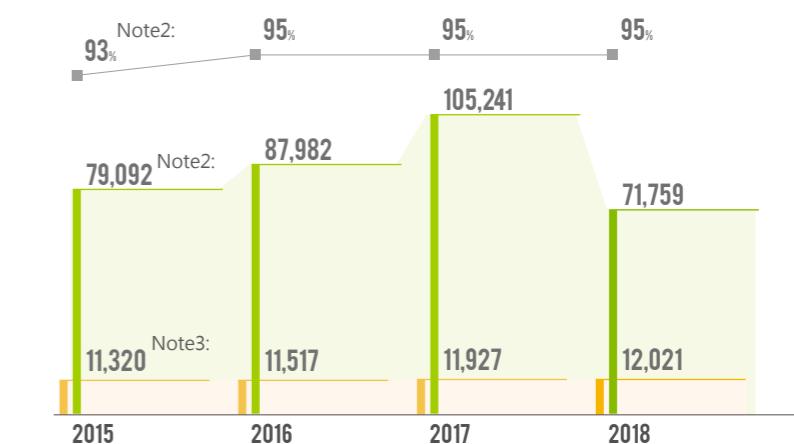
Injury and Illness Care

Employee physical and psychological well-being and those involved in traffic incidents are followed up by telephone and e-mail contacts from a nurse from the health center, and appointments with house doctors are arranged if necessary. Continuing care and psychological support is provided to help employees return to work as soon as possible, and psychological support is strengthened for unclosed cases from 2011–2014. In terms of return to work following physical or psychological injuries and illnesses, support mechanism and case management procedures are formulated, and with the assistance of house doctors and nurses, relevant department directors, and personnel and legal departments, recovery/work distribution is facilitated to return physically or psychologically disabled employees to the workplace.

Number of injury and illness cases and frequency of support provided in 2015-2018**Establishing a Comprehensive Healthy Workplace**

The UMC Health Center implemented a total of 26 health promotion projects in 2018. The total number of people served was 71,759 and the overall satisfaction rate was 95%.

According to the number of people participating in the health promotion activities at health centers from 2016 to 2018, various activities such as the annual medical examination and massages by the visually impaired showed high participation levels, indicating that workers have more health awareness and are making it more of a priority. These efforts have also been widely acknowledged by the general public. In 2018, Global Views Monthly awarded UMC the Vision Model Award for the Electronics Group for UMC's CSR Survey. Moreover, all UMC fabs obtained the "self-certified health promotion badge" from the Health Promotion Administration, Ministry of Health and Welfare. These recognitions represent UMC's efforts in creating a healthy workplace for everyone.

**Key Results of Health Promotion Activities from 2016 to 2018**

■ Number of individuals served in health promotion activities

■ Total satisfaction for health promotion activities

■ Number of individuals subject to yearly health examinations

Note 1: Scope of calculations does not include Fab 12i.

Note 2: Number of individuals served in yearly health examinations only included general health examinations.

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Appendix**Dedication to Public Charity and Social Responsibility**

UMC is also dedicated to charity activities, and introduced massage services provided by those with visual impairments in both Hsinchu Science Park (HSP) and Southern Taiwan Science Park (STSP). These services not only provide employment opportunities for the disabled, but also professional massage services to help ease discomfort and improve physical and mental health of fellow employees. UMC employees also support blood donation drives held multiple times every year, helping to save the lives of other people.

In 2018, UMC organized a total of 14 blood drives which had more than 914 employee participants, collecting and donating about 1427 bags of blood.

**LOHAS Workplace: Emphasis on Work-Life Balance**

UMC believes that employees are its most important asset, and that having healthy and happy employees is key to high productivity in a corporation. In addition to providing a safe and healthy working environment, an employee oriented LOHAS workplace that integrates benefits, vitality and public service is created. Through a diversity of activities, creativity and vitality are nurtured in the work and lives of employees.

Site Events for Building Team Identities

UMC held a series of activities to celebrate its anniversary in 2018. Nintendo Switch races and team competitions were organized. It is hoped that the Switch Mario Kart racing, which is currently most popular with engineers, can add elements of fun and celebration. Inter-fab team competitions will continue to be held. It is hoped that positive competition between different fab sites will help build employee identity and cohesiveness, reduce opposition to new internal measures, and create high performing and effective teams.



Snapshots of switch E-sports competition



Snapshots of team competition

**Family Cohesion**

UMC emphasizes work-life balance, and in addition to focusing on employees, UMC also reaches out to their families. UMC arranges activities within specific themes which are appropriate for employees and their families to participate in. In 2018, the scale of Family Day was expanded to enhance non-financial incentives and achieve a sense of welfare. For the first time, Family Day was held at a park so that employees and their families can enjoy a different fun UMC atmosphere. Planning family day activities effectively promotes team spirit and reinforces company recognition by family members. A monthly movie is selected by employees for family movie time where movies are shown in the fab after work, and art festivals are held that are open to employee families. UMC hopes to support employees as well as their families to relieve employee stress and ensure their physical and mental health. At the same time, employee families may also become involved with UMC, get to know UMC and continue to support the employees in their diligent contributions toward the company.

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2018 UMC "Theme Park" Family Day Activity

Club Activities

Content

2018 Performance

► UMC Club events

- UMC clubs can generally be classified into 6 types, namely ball games, sports, public service, music and dance, arts, and business investment.
- Through the club assessment system, clubs with excellent performance receive subsidies for their operating expenses.
- 27clubs (Taiwan)
- 2 rounds of selection - a total of 15 excellent social groups will be provided with support in each round.
- 2,239 club members (Note)

★ UMC recreational facilities and services (UMC Center / UMC Park/ UMC Hill)

- Quality Recreation Center in Hsinchu for employees and their families.
- Dormitory in Tainan with integrated recreational facilities.
- Each site (8E, 8F, 8S, 12A) provides fitness equipment for employees.
- Recreation Center in Hsinchu : 220 thousand visitors in 2018
- The UMC recreation centers serves over 636 people per day.

► Diversity of employee activities

- Organized regular Easy Travel, Family Day, and Art Festival.
- "Theme Park" Family Day Activity was held in 2018.
- Routine screening and playing of popular movies every month
- 568people participated in the Easy Travel program
- 19,000 people participated in UMC Family Day
- 2,241 people participated in the Art Festival

Note: Does not include one-time or temporary club members

Social Group Photographs



UMC Recreational Facilities



Hsinchu Science Park UMC Activity Center



Tainan Science Park UMC Activity Center



5-star gym



Multi-purpose basketball and badminton court

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In terms of arts and culture activities, UMC's "2018 UMC Art Fest" was the company's most important arts and culture event of the year. Art is drawn closer into the lives of employees through 3 events held respectively in July through September 2018. The respective event themes were Performing Arts, Theme Lectures and Life and Culture. In addition to inviting well-known performers, writers and lecturers, other activities such as movie appreciation, travel sharing, coffee time and handicraft courses were organized for employees to experience life aesthetics. Large scale art performances were also brought in to provide UMC employees with different artistic horizons and peer sharing. The activities encourage employees to experience diverse art forms and incorporate them in their daily lives. Not only does this enhance the quality of life, but it also achieves the ideal of "Work-Life Balance."

Events planned for 2018 were designed to highlight the core value of Customer (and Employee) Focus upheld by UMC. Activities were also based upon UMC Extreme Art organized in previous years. 2018 UMC Extreme Art included a total of 14 art events which were attended by about 2241 individuals. The choice of activities were based upon recommendations from fellow employees and proved to be both enriching and well-received by the entire company.



4-3-2 SAFE WORK ENVIRONMENT

Any form of safety or health risk may result in serious economic and social losses for the company, compromising its competitiveness. Consequently, UMC aims for zero disaster and is committed to the company's steady development while making safety a priority.

How We Manage

- Meet or exceed the requirements of industry safety laws, aiming for zero disaster.
- Promote the safety and health management system to ensure safety and health performance.
- Use advanced safety and health technologies to improve safety.
- Implement prevention management and auditing systems to ensure the safety of the work environment and operations.
- Make it a responsibility for personnel of all levels to prevent accidents.
- Conduct safety and health education and advocacy; encourage active participation in safety and health activities.

Purposes

To achieve the goals of zero disaster and zero damage.

Groups that Promote

Safety and health committees within the whole company.

Goals and Targets

- 2018 Goal:
≤13 minor incidents.
- 2020 Goal:
Reduce number of incidents by 67% compared to 2011.
Perform better than the 3-year average Disabling Frequency Rate (FR) for semiconductor manufacturing
Perform better than the 3-year average Disabling Severity Rate (SR) for semiconductor manufacturing.
- 2025 Goal :
Reduce number of incidents by 88% compared to 2011.
Perform better than the 3-year average Disabling Frequency Rate (FR) for semiconductor manufacturing , and reduce by 25% compared to 2020 goal.
Perform better than the 3-year average Disabling Severity Rate (SR) for semiconductor manufacturing, and reduce by 25% compared to 2020 goal.

Relevant Policy



Safety and Health Policy

Applicable Entities:

- UMC
- HJTC (HeJian Technology (Suzhou) Co., Ltd.) and USC (United Semiconductor (Xiamen) Co., Ltd.), which are UMC subsidiaries selling and manufacturing integrated circuits
- All workers whose work and/or workplace is controlled by UMC, HJTC or USC.



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Appendix**Safety and Health Organization**

UMC in Taiwan has a company-wide safety and health committee that meets every quarter, chaired by the Associate Vice President. The Board comprises a total of 9 labor representatives elected from respective fabs, who account for 33% of the 27-member committee. Each fab also has its respective safety and health committee. In the Singapore fab, the safety and health committee is set up in accordance to local regulations, and in compliance with the law, its number of employee representatives is greater than the number of director representatives. The company's subsidiaries HJTC and USC have both established a safety and health committee that meets every quarter.

Safety and Health Management Focus

The Company's safety and health management framework is based on the management spirit of the Occupational Health and Safety Assessment Series, hereinafter referred to as OHSAS 18001. The Plan-Do-Check-Action framework is incorporated into the health and safety management system for activities, products and services of the company's fabs in Taiwan and branch in Singapore. The same health and safety management system is also instituted in the company's subsidiaries, HJTC and USC. The key health and safety management focus in the Company's OHSAS 18001 Certificate is available on UMC's website:



The company's OHSAS 18001 certificate is available on UMC's website

Creating a corporate culture of occupational safety for everyone

Any safety and health risks could result in major economic or reputational loss for a company, and undermine its competitiveness. UMC builds its safety and health management on inherent safety, and actively establishes a corporate culture of mutual assistance to create "work safety for everyone." It is hoped that the result of safety and health management promotion can be reflected in the operating outcome.

In 2018, the key implementation projects include the

"SAFETY PRIORITY" CULTURE PROMOTION

The company president personally pledged: "Safety first. Safety is above production." Senior executives signed environmental safety and safety policies and commitments to consolidate consensus. Level Two equipment and fab supervisors are required to increase weekly on-site management to reinforce workers' safety knowledge and awareness. Level Three supervisors are required to focus on the integrity and compliance of high-impact operations procedures / regulations through smart monitoring approaches such as closed-circuit television (CCTV) and issue early warning and correction to non-complying employees. These measures are instituted to incorporate Safety First into every item of production, construction and operations to ensure that employees do not neglect safety for speed. The ultimate goal is for employees to be Safe at Work, Return Home Happy and continue to reduce disabling injury frequency rate (FR) and Disabling Injury Severity Rate (SR).

Hazard Identification and Risk Assessment

UMC conducts hazard identification and risk assessment for routine and non-routine operations, including:

**Hazardous workplace assessment**

UMC's fabs are inspected according to Hazardous Workplace Review and Inspection Rules as category A workplaces. The hazardous workplaces are evaluated by process safety assessment personnel who are trained and qualified in safety and health.

**Process and activity safety and health risk assessment**

The safety and health risks of processes and activities are evaluated by personnel who are trained and qualified in safety and health identification. The personnel assess the severity and frequency of risks, calculate safety and health risk indicators, and compile a list of major safety and health risks for improvement.

**Identifying engineering risk using FMEA**

Using Failure Mode & Effect analysis (FMEA), engineering risks are identified before construction and communicated with relevant personnel.

The Company also has a category of Extraordinary Operations that includes operations that are unanticipated, special, not implemented for over a year, or have no specified procedures. Before implementing an extraordinary operation, FMEA must first be conducted to systematically review any problems that may arise during the execution of the extraordinary operation. Through the risk assessment, preventive countermeasures are formulated and reported to the fab manager before the operation can proceed. During the construction, the construction authority must lead the site control, with the safety personnel assisting with management and supervision.

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Appendix**Hazard notification**

To prevent accidents, UMC uses routine inspection systems to detect anomalies early, prevent potential hazards in the operating environment, and enhance the safety and health of the operating environment. All hazards found during inspections are recorded in the computerized inspection and reporting system, and are classified and managed according by occupational safety personnel. Improvement tracking is performed by the computer system. In case of any immediate workplace danger, workers can call the emergency contact person to notify the occupational safety personnel. Without jeopardizing the safety of other employees, workers can stop their operations and retreat to a safe place, and will not be penalized by the company.

High-risk job and occupational disease management

Local regulations in Taiwan, mainland China and Singapore stipulate that employees in identified high risk equipment and factory operations, such as those exposed to noise, ionizing radiation, dust, organic solvents, and specific chemical substances must undergo special health check-ups and health management based on a health check grading system. In 2018, the outcome of a required special health check showed no Level 4 work related cases. UMC provides health check-up items and check-up targets above and beyond those stipulated to fulfill the company's responsibility toward its employees. Through a comprehensive health risk grading management system and early discovery in high-incidence groups, the two-pronged approach of improvement at the source and health care at the end has created a healthier and more comfortable working environment.

An occupational health care mechanism is developed for employees ill from suspected work-related problems. A health care team comprising of labor health physicians, the Health Development Section of the Human Resources Division and the Risk Management and Health and Safety Department is formed to determine cause and propose improvement measures. As of 2018, there were 5 such cases (an increase of 1 case in 2018).

UMC is committed to protecting employee health, and has also established 3 lines of defense to protect the confidentiality of personal health-related information:

- I. The company's medical staff is licensed in medical care and subject to the laws and regulations for medical personnel.
- II. Contracts with partner hospitals clearly stipulate the confidentiality obligations of both parties.
- III. The company has formulated the Potential Workplace Related Chronic Injury Notification and Investigation Regulations to protect employee privacy. Therefore, all documents pertaining to the Potential Workplace Related Chronic Injury Notification are classified as Confidential.

UMC encourages workers to effectively and promptly report suspected workplace related illness so that relevant departments can take immediate improvement and preventive measures against occupational diseases. Such employees will not be subjected to any favorable or unfavorable treatment.

Consultation and communication with employees

UMC values employee communication and participation. The safety and health labor representatives approach in Taiwan's Occupational Safety and Health Act authorizes employees to select labor representatives approved by the labor-management meeting. The representatives may participate in quarterly Occupationally Safety Committee meetings, revision of work safety and health code, investigation of incidents, monitoring of operations environment, and decisions on safety and health issues. Penalties for employee violations and the procedure for nominating labor representatives are jointly discussed in labor-management meetings. Any safety and health related issues are also discussed in the labor-management meetings to achieve consensus.

The company also actively communicates with other non-employee workers. In addition to assessing qualified contractors and formulating the Environmental Safety and Health Contract for contractors to sign, the contract provides contractors with information pertaining to their working environment, hazard factors and relevant safety and health regulations. All incoming construction workers are also required to receive UMC's Environmental Safety and Health Education and Training for Contractors and all incoming contractors are required to complete the Contractor Workplace Hazard Notification and Agreement Meeting.

Moreover, a comprehensive e-application system for construction has been installed for effective control of construction applications and management before, during and after a project. In addition to assigning on-site overseers and conducting a daily toolbox talk, contractors are also required to have their responsible departments conduct on-site supervision and their occupational safety personnel conduct inspection from time to time during the construction to ensure that all operations are in compliance with safety regulations.



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Appendix**Safety and health education and training**

To enhance worker safety awareness and prevent disasters, the UMC provides ongoing education, training and promotion. By cultivating their emergency response ability and safety knowledge, and strengthening their competence, accidents from unsafe behavior are reduced. The company includes contingency response, required certifications, safety and health management system maintenance, special operations safety, and oversees into annual training plans.

In addition to planned training courses, other education and training are arranged according to specific incidents or major failings. For example,

in 2018, the Safety Mindset 4.0 Course was added to enhance the company's behavior-based safety (BBS) culture. A total of 2,063 classes were taught 2018, and 101,739 participants were trained.



An E-learning course is also provided so that workers can acquire safety and health knowledge without being limited by the course schedule of physical classes.

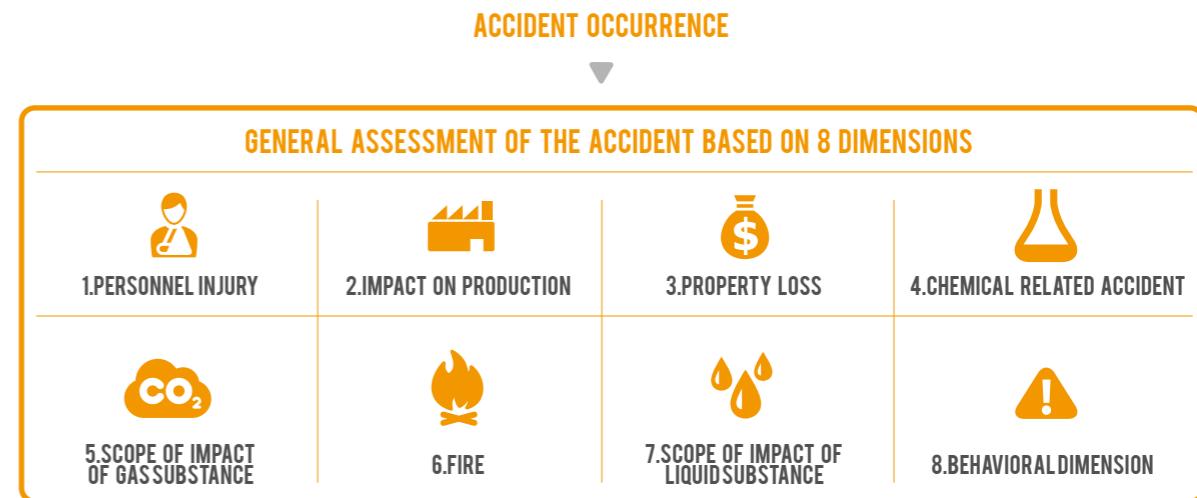
UMC sets annual education and training plans according to key needs. Overall consideration is given to general training and specific issues pertaining to occupational hazards, dangerous activities, or dangerous situations.

At the same time, in the event of accidents and outside incidents, announcements or lectures are immediately arranged to help employees understand their rights and protect themselves. Lectures on safety management and the role of supervisors are also conducted to help supervisors understand their responsibility for employee safety. Hence the foundation of the education and training is to jointly improve safety.

Accident investigation and analysis

UMC underscores the importance of immediate notification, rigorous investigation and recurrence prevention of each accident. Therefore, the company has formulated the Accident Notification and Investigation Regulations to govern the procedures for accident notification, investigation and improvement. In addition, for systematic records and efficient control of accident notification/investigation/improvement, a computer system for accident notification and investigation has been installed to achieve instant transmission and storage of accident information. After each accident, based on the accident cause and improvement measures proposed by the fab in which the accident occurred, in-plant inspections are conducted in all fabs to prevent a recurrence.

The company also conducts a comprehensive assessment of the accident according to 8 dimensions, and quantifies the accident into major, severe, minor, false alarm or abnormal categories for more objective evaluation of the accident management performance.



FURTHER ASSESSMENT OF EACH DIMENSION. CATEGORIZE THE ACCIDENT ACCORDING TO SCORES AND ASSIGN A LEVEL.

ABNORMAL	FALSE ALARM	MINOR	SEVERE	MAJOR
Less than 10 points	10 points or above	20 points or above	60 points or above	100 points or above

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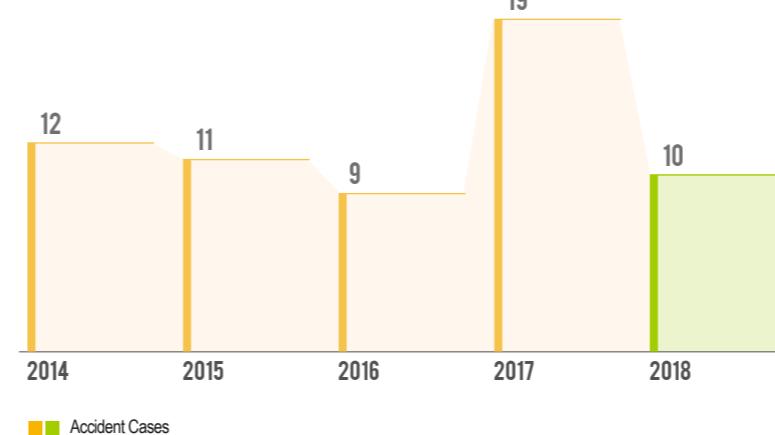
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Appendix**Accident Management**

UMC remains committed to reducing the number of industrial accidents. In 2018, the goal was to reduce the number of accidents by 30% (compared with 2012), and reduce the number minor accidents to ≤ 13 .

To effectively achieve the accident management objectives, the main focus is Safety First. At the beginning of the year, each fab proposes a prevention plan and continues to undertake the 2017 Safety Mindset 4.0 activities. A specific theme is formulated for employee e-learning promotion throughout the company. In addition, the causes of accidents are dynamically analyzed at different time points during the year, and countermeasures proposed. Examples of these countermeasures include Comprehensive Tank Car Hazard Prevention, Safety First Posters & Banners, Zero Accident Awards Announcement, Changes in the Contractor Hazard Notification & Agreement, Introducing Safety Supervision and Auditing for Full-time Outsourced Human Resource and ESH Inspection for Key High-risk Operations.

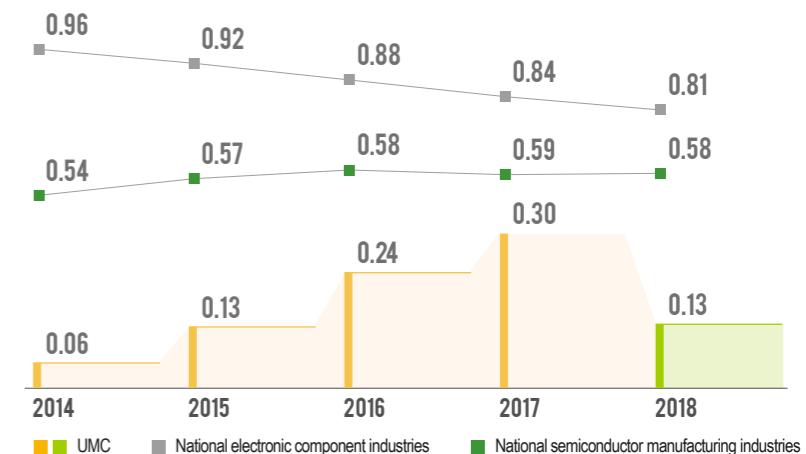
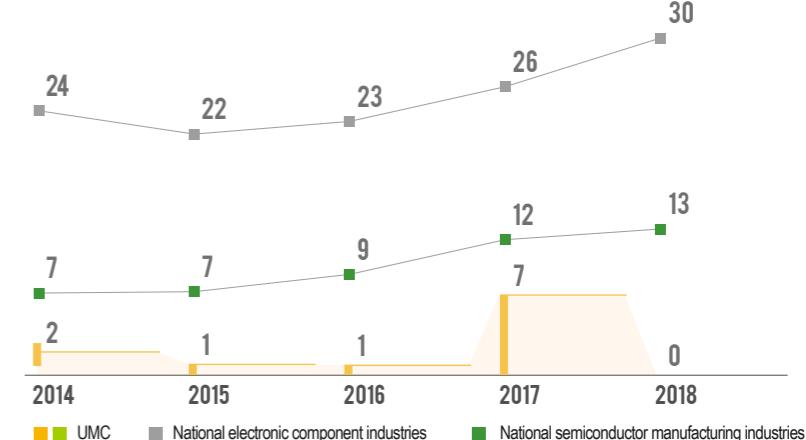
In 2018, the reduction goal was achieved, with 10 counts of minor accidents. Analysis showed that of these accidents, 3 were chemical contact related, 2 were impact related, 2 were cut related, 2 were fire related, and 1 was electric shock related. Analysis of injuries in 2015-2018 indicates that the two main causes of accidents at UMC were walking and chemical contact related. Therefore in 2019, the company will continue to focus on Safety First and promote Walking Safety and Chemical Operation Safety in its Behavior-Based Safety (BBS) culture. Furthermore, the company has set a mid and long-term accident management target of reducing the number of accidents by 88% in 2025 compared with 2011, and continue working toward zero accident.

Accident Cases from 2014 to 2018

Note: UMC scores and classifies accidents according to injuries cause by people, production impact, financial loss and involvement of chemical substances, range of impact, fire, or problems due to employee behavior. Not all accidents result in human injury.

Occupational Disaster Management

In 2018, UMC's Disabling Frequency Rate (FR) was 0.13 and Severity Rate (SR) was 0, which are far below the 3-year average of the semiconductor industry (according to data provided by the Department of Statistics of the Ministry of Labor). UMC will continue to promote disaster reduction programs and move towards zero disasters.

Disabling Frequency Rate (FR)**Disabling Severity Rate (SR)**

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Appendix

 TAIWAN		 SINGAPORE		 CHINA (HJTC)		 CHINA (USC)	
UMC Employees	Non-employee Workers	UMC Employees	Non-employee Workers	Subsidiary HJTC Employees	Non-employee Workers	Subsidiary USC Employees	Non-employee Workers
13,061	1,495	1,711	645	2,219	393	1,114	491
25,235,917	4,365,296	3,745,107	1,884,728	4,334,556	1,147,752	2,355,450	1,432,720
 No. of people							
 Total No. of work hours							
 No. of people with disabling injuries	3	3	1	0	2	0	0
 No. of lost days due to disability	18	360	5	0	121	0	0
 No. of reportable injuries	8	7	2	0	2	0	0
 No. of work related deaths	0	0	0	0	0	0	0
 Occupational Disease Rate (ODR)	0	0	0	0	0	0	0
 Injury Rate (IR)	0.02	0.14	0.05	0	0.09	0	0
 Lost Day Rate (LDR)	0.14	16.49	0.27	0	5.58	0	0

Note: There were no third party illnesses, injuries, disabilities or deaths caused by UMC operations.

Note: There were no third party illnesses, injuries, disabilities or deaths caused by HJTC operations.

Note: There were no third party illnesses, injuries, disabilities or deaths caused by USC operations.

Definition of Terms

- **Non-employee workers:** Refers to non-employees whose work and/or workplace is controlled by the company. The daily average number of such workers in the fabs is calculated by dividing the total number of workers in the year by 365.
- **Third party:** Refers to non-employees or contracted personnel
- **Work Hours:** Refers to the actual number of work hours put in by current employees or non-employees. The number of hours worked by non-employee workers is calculated at eight hours per person per day.
- **Number of people with disabling injuries:** Refers to the number of deaths, permanent disability, permanent total or partial disability or temporary total disability due to occupational injuries.
- **Number of lost days due to disability:** Refers to the total number of days lost as the result of injury from a single accident. Calculated as the number of days when the injured person is temporarily (or permanently) unable to resume work, but excludes the day of injury or the day when work is resumed. Includes the number of days elapsed (including Sundays, holidays or company rest days) and the number of inability to work days following return to work as a result of the injury.
- **Number of reportable injuries:** Refers to the number of work related injuries that resulted in death, job loss, impairment or transfer, emergency treatment or more, loss of consciousness, or major diagnosis by a physician.
- **FR =** Number of people with disabling injuries $\times 1,000,000 /$ Total number of work hours [per million work hours].
- **SR =** Number of lost day due to disability $\times 1,000,000 /$ Total number of work hours [per million work hours].
- **ODR =** Total number of occupational diseases $\times 200,000 /$ Total number of work hours [per 200,000 work hours].
- **IR =** Number of reportable injuries $\times 200,000 /$ Total number of work hours [per 200,000 work hours].
- **LDR =** Number of lost days due to disabling injuries $\times 200,000 /$ Total number of work hours [per 200,000 work hours].

Other prevention measures and safety and health impact pertinent to company operations, products or services.

Through procurement management and management of changes, UMC further eliminates hazards and reduces health and safety risks, thereby preventing safety and health impact on the company's operations, products or services.



PROCUREMENT MANAGEMENT

UMC's procurement safety and health regulations are incorporated into the operational specifications of the Procurement Department. In addition to requiring material vendors to comply with domestic regulations on labeling, production and shipping, the company also regularly audits suppliers to prevent abnormal supply due to safety and health incidents.



CHANGE MANAGEMENT

To avoid safety and health risks and environmental impact from changes in personnel, machinery, materials, methods and environment, UMC has established management measures for changes. Measures such as formal application procedure, approval procedure, implementation of necessary safety assessments, relevant personnel notification/training, and necessary technology information are in place to reduce potential risks.

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Semiconductor fabs often use a large variety of gases and chemicals while clean rooms tend to be large, enclosed spaces, leading to higher risk of fires. Fire prevention measures used in these facilities also differ from those traditionally employed. In April 1999, UMC established a high tech Fire Brigade under the Group Risk Management & Environmental, Safety and Health Division, making us the only electronics company with a dedicated fire brigade in Taiwan. The Southern Taiwan Science Park (STSP) Fire Brigade of UMC was officially founded in 2013, which is responsible for safeguarding and performing emergency rescues within the STSP plant sites. In 2017, we assisted our joint venture United Semi (Xiamen) to establish their fire brigade.

Fire fighters in the Brigade serve 2-year terms. 2018 was the 20th year for the UMC fire brigade. Personnel composition included 13 full-time fire fighters and 93 members delegated to specific tasks. Most fire fighters and members of the brigade hold Master's degrees and are skilled in semiconductor processes, making the UMC Fire Brigade the best educated firefighting team in Taiwan. We have trained hundreds of fire fighters who still work at UMC and still contribute their skills in emergency response.



4-3-3 UMC FIRE BRIGADE

Professional Skill Training

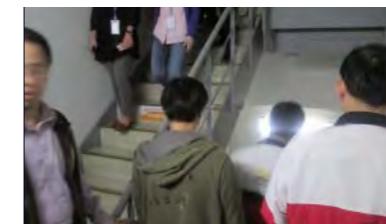
Professional firefighting training: Training themes focus on basic orientation training for new recruits which would then be followed by strategy and tactical training. Every new member must undergo professional disaster relief training and examination which would include professional disaster rescue for simulated fires and response skills to oxidation disasters. In order to improve and maintain firefighting skills and professional competencies of Brigade members, practical training and exercises were carried out regularly every month in order to improve disaster response abilities. During their term in the UMC Fire Brigade, members will participate in both organizational and external rescue missions.

Emergency response training for fellow employees: UMC also organizes emergency response training for the entire company to educate and improve employees' knowledge of safety, protection, and emergency response skills. Practical exercises and examinations including various training courses, building safety evacuation drills, and unannounced day-time / night-time / theme-based fire drills were implemented to establish the concepts of fire prevention, fire safety, and disaster response within the minds of every employee , at the same time employees can gain valuable experience.

In 2018, foreign employees received firefighting training. Eleven training sessions were conducted, totaling 962 participations. Foreign employees are required to receive the same training and acquire basic contingency response ability.



In addition, the Company organizes an ERT Competition from time to time to enhance employee contingency response ability through positive exchanges and competitions.



Evacuation drills



Firefighting demo



Chemical disaster handling



Notification alarm drills



Descent device operation



Equipment handling instruction

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4-4 COMMUNITY SERVICE

4-4-1 COMMUNITY SERVICE PARTICIPATION

“People orientation, co-existence with the environment and shared social prosperity”



are the most important elements of UMC's vision in sustainability policies. UMC upholds the spirit of social co-prosperity and shall contribute its fair share towards social development. Under the leadership of UMC Science and Culture Foundation, more and more employees have started to take notice of the importance of community services, and have begun to take an active role in volunteer activities which initiated positive development within UMC. Our growing positive influence would help external agencies recognize UMC while providing assistance to more of those who need help, generating a growing positive feedback cycle that expands from within.

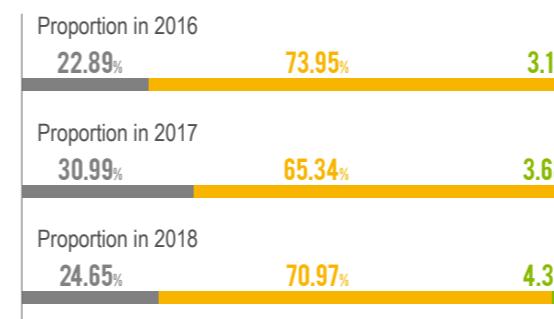
LBG Model

To effectively quantify the benefits brought about by community services, UMC referred to the community investment assessment system established by London Benchmark Group (LBG). Investment time, cost, material donations, and management expenses were carefully recorded to evaluate the positive benefits brought about by these investments. Outputs of community services include reductions in cost, generation of benefits, and intangible influences such as positive corporate image, becoming a benchmark of corporate social responsibility (CSR), establishing positive value systems amongst school children, and helping to compensate for the inadequacy of educational resources for school children living in remote areas.

Category and Sums of Community Service Investments from 2016 to 2018

Cost in 2016 (Proportion)	Cost in 2017 (Proportion)	Cost in 2018 (Proportion)
34,594,654 (31.48%)	42,540,366 (39.60%)	31,450,287 (35.93%)
⌚ Time contributions		
3,143,182 (2.86%)	3,146,761 (2.93%)	3,146,761 (3.59%)
♥ Material donations		
36,885,426 (33.56%)	24,264,597 (22.59%)	24,778,251 (28.31%)
管理水平		
35,270,282 (32.09%)	37,479,434 (34.89%)	28,156,412 (32.17%)
>Total		
109,893,544 (100.00%)	107,431,158 (100.00%)	87,531,711 (100.00%)

Proportion of Community Service Investments from 2016 to 2018 (Unit: NT\$)



- Charitable donations
- Social Participation
- Encouraging commercial activities

In addition to the Spreading the Seeds of Hope Project that was initiated in 2005, UMC also mobilized other agencies such as the UMC Science and Culture Foundation, UMC LOHAS Education Foundation, UMC Fire Brigade, and employee societies and clubs in 2018, using their different skills to target and identify the best means of investing in community services. In 2018, UMC employees provided a total of 7158.5 volunteer hours. Charitable donations and the number of beneficiaries also grew significantly and the latter grew to over 26,321 individuals. These results demonstrate continued growth of human resources and kindness of UMC volunteers offering services to the needy throughout Taiwan.

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Appendix**UMC Community Service Participation and Number of Beneficiaries**

2016	2017	2018
Charitable Donations Note 1		
More than NT\$36 million	More than NT\$44 million	More than NT\$32 million
No. of beneficiaries		
More than 16,142 people	More than 27,161 people	More than 26,321 people
Total employee volunteer hours Note2		
More than 9,220 hours	More than 9,220 hours	More than 7158.5 hours

Note1: This table only includes projects carried out by the Science and Culture Foundation, UMC LOHAS Education Foundation, and societies and clubs as well as employee donations.

Note 2: Includes volunteer leave and holiday service hours.

UMC Community Service Department

The UMC Science and Culture Foundation and the UMC LOHAS Education Foundation are UMC's two major foundations. In addition, UMC has also instituted the UMC Fire Brigade. All social involvement and actions are mutually supporting, forming the major force behind UMC's social citizenship in caring for the disadvantaged. Through the integration of UMC resources, employees contribute diligently to society to create a more secure and warmer community.

In 2018, more and more societies and clubs in UMC took the initiative to be a part of community services, including musical groups such as and Ukulele Club, UMC Hsinchu Science Park Drum Team,sports category Tai-chi Club, service category Candlelight Club, Energy Conservation Club and others.The efforts of these groups are growing to become a positive and significant force in promoting community services.

Three Major Social Welfare Groups in UMC**UMC Science and Culture Foundation**

- Develop education for the disadvantaged - "Spreading the Seeds of Hope Project"
- Life education - "Love Storyteller Club"
- Parent Child Education - sponsorship for Whatever Makes Sense for Voice of IC Teacher Hung Lan

1996

UMC Fire Brigade

- Assist in industrial park and community disaster rescue
- Promote fire safety in elementary schools

1999

UMC LOHAS Education Foundation

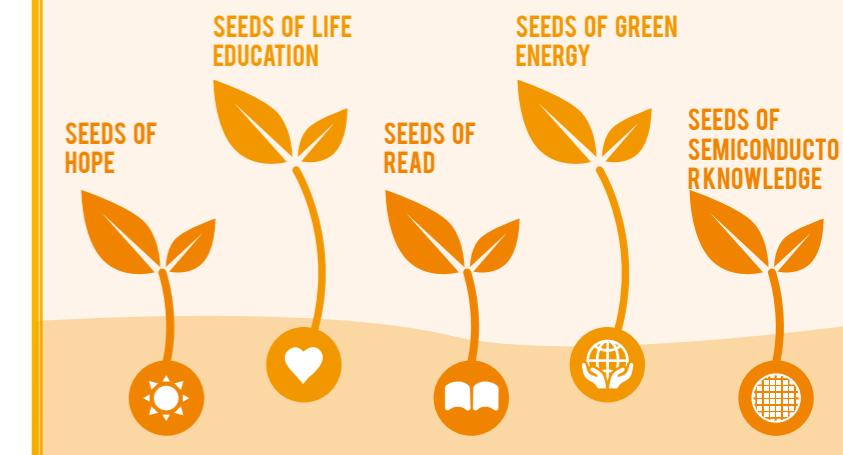
- Promote sports – Open the UMC Park Activity Center to disadvantaged groups
- Provide UMC tours to university students
- Education for the disadvantaged – Provide basic literacy skill training for new residents (foreign spouses) and expatriates

2009

Community Service Project - "Spreading the Seeds of Hope "

UMC is committed to enhancing the education of school children from disadvantaged families, and has continued implementing the "Spreading the Seeds of Hope" educational assistance program for school children from disadvantaged families. We hope that corporate strength can be used to remedy the imbalance in educational resources.

Since 2005, the company has allocated NT\$160 million to tutoring programs for school children from disadvantaged families, and with the support of UMC, more than 6,100 school children have continued in their studies, thereby fulfilling the mission of "Spreading the Seeds of Hope."



In 2018, in addition to investing in the "Seeds of Hope" educational assistance project for disadvantaged school children, the program also focused on cultivating "Life Education", "Reading Promotion", "Green Energy" and "Basic Science and Technology Talent" to promote a new wave of nurturing that is founded on spiritual, learning, environmental and basic technological perspectives. In addition, the company also realizes that corporate social responsibility cannot be fulfilled only by the company itself, but should involve the joint efforts of employees. It is only through practical personal involvement that individual efforts can unite into a significant strength that becomes a new momentum for Taiwan's growth.

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Appendix**UMC Community Service Participation and Number of Beneficiaries**

Implementation	Results in 2018	Effects
SEEDS OF HOPE - EDUCATIONAL ASSISTANCE FOR CHILDREN FROM DISADVANTAGED FAMILIES		
<ul style="list-style-type: none"> After-school counseling Reading class Ethics class Long-term care Organizing festivals and events 	<ul style="list-style-type: none"> 3590 service hours at the UMC Afterschool Center, National University of Tainan Sponsored the Nantou Karate Association Served 103 disadvantaged children 	<ul style="list-style-type: none"> Volunteers would help provide children with correct perspectives to prevent delinquency, using quality education to bring them out of their impoverished background. Sponsorship is provided to Nantou Karate Association to train karate students, helping underprivileged students to regain confidence and become aware of their strengths.
SEEDS OF LIFE EDUCATION - PROMOTING LIFE EDUCATION		
<ul style="list-style-type: none"> Assembling Life Education Volunteer Team Regular visits to remote villages and juvenile delinquents 	<ul style="list-style-type: none"> Organized 2 sessions of Traffic Safety Seminar activities at the House of Miracles. Sponsored the Whatever Makes Sense show provided by Voice of IC Dr. Hung Lan. Provided a total of 11 Ukulele community service performances by the Ukulele Society. Regular visit youths at Chengjiheng High School for 10 times. 	<ul style="list-style-type: none"> Made regular visits to youths living in remote villages to convey the message of positive life education in order to help them realize the truth meaning of the living and the purpose of life. Interacting with youths living in the House of Miracle to build a correct system of values.
SEEDS OF READ - NATIONAL READING MOVEMENT		
<ul style="list-style-type: none"> Reading seminars Reading promotion 	<ul style="list-style-type: none"> Organized 4 reading seminar courses to train storytelling volunteers. Storytelling volunteers visited remote villages and support school children there. Sponsored newspaper reading education of Mandarin Daily News for schools that lack resources. Organized 10 reading events in remote elementary schools to benefit a total of 500 schoolchildren. 	<ul style="list-style-type: none"> School children appreciating the fun of learning through various activities.
SEEDS OF GREENENERGY - PROMOTING ENVIRONMENTAL EDUCATION AND CULTIVATING GREENENERGY TECHNOLOGY TALENTS		
<ul style="list-style-type: none"> Implementing environmental conservation activities 	<ul style="list-style-type: none"> Invested in the UMC Eco-Echo Conservation Project. Organized seminars and green market events to promote the concepts of earth friendliness In 2016, started the Green Award program with Global Views Monthly; the program will continue annually. 	<ul style="list-style-type: none"> Improve awareness for the importance of environmental protection amongst fellow employees and students, and promote the concept of environmental protection to more individuals so that it becomes the responsibility and way of life of every individual.
SEEDS OF SEMICONDUCTOR KNOWLEDGE - CULTIVATING HIGH TECHNOLOGY TALENTS IN TAIWAN		
<ul style="list-style-type: none"> Industry-academia classes for the semiconductor industry Creative R&D projects Other business-education partnerships Campus Cultivation Project 	<ul style="list-style-type: none"> Industry-academia classes for the semiconductor industry jointly run by the company and 3 universities. Initiated multiple R&D projects in multiple universities and secured relevant patents. Opened industry-academia classes attended by a total of 408 students. 	<ul style="list-style-type: none"> Cultivated future talent in the semiconductor industry so that young students could achieve in-depth understanding of semiconductor-related knowledge and technology during their school years.

Cultivation and Training of Professionals with Management Potential

In addition to supporting training efforts for high tech professionals, UMC is also leading the way in supporting professionals with management potential. The UMC Business Management Thesis Award was established in 2010 and started offering monetary donations to the Award in 2011 to help further training programs for potential management professionals, encourage academia and industry exchange, achieve effective integration of management practice and theory, and contribute towards sustainable corporate management. In 2018, a sum of NT\$ 3 million was invested into the award.

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4-4-2 PROMOTION OF UMC VOLUNTEER CULTURE

Volunteer Services

While focusing upon business growth, UMC is also actively contributing towards community work and social participation. To encourage fellow employees to participate in community service, employees are allowed to apply for official leave and partake in various volunteer services. Under the guidance of the UMC Science and Culture Foundation, the spirit of voluntarism in UMC has begun to spread beyond volunteer teams to include the entire employee population.

In 2018, our community service clubs provided a total of 124 outreach activities to disadvantaged groups

Active donations and participation in community services by UMC employees demonstrate their initiative, kindness, and selfless contributions as well as the importance that UMC places upon building a volunteer culture.

To provide employees with greater freedom, UMC not only encouraged employees to participate in various community work and social activities, but also employed comprehensive social group assessment systems to encourage company societies to engage in charity work as well. Societies that attained excellent results were provided with additional funding to support both social group activities as well as community participation.

During annual scheduling of events, social groups would be invited to provide support according to the nature and purpose of the event. Many activities were made possible through the assistance and participation of social group members, and these measures help create an inseparable link among community work, corporate-wide event planning and social groups to encourage employees to engage in social work.

The following provides details of the events performed by various societies within UMC:

Services provided by various societies in 2018

	Volunteer services	Beneficiaries
 SERVICES	Candlelight Club	Sessions held 98
	<ul style="list-style-type: none"> • Offering companionship at the House of Miracles • Services provided at Ren'ai Children's Home • Services in remote villages • Initiating love charity drives • Charity sales activities jointly held with the foundation 	<ul style="list-style-type: none"> • Underprivileged students • Underprivileged senior citizens • Environmental protection
 MUSIC GROUPS	Energy Conservation Service Team	Sessions held 12
	<ul style="list-style-type: none"> • To assist social welfare agencies with energy conservation and carbon reduction. 	<ul style="list-style-type: none"> • Underprivileged students
 SPORTS CLUBS	Ukelele Club	Sessions held 11
	<ul style="list-style-type: none"> • Services for children living in remote areas • Ukulele instructions for children living in remote areas • Charity performances 	<ul style="list-style-type: none"> • Underprivileged students
 PARTNERS	UMC Hsinchu Science Park Drum Team	Sessions held 2
	<ul style="list-style-type: none"> • Charity performances 	<ul style="list-style-type: none"> • Underprivileged senior citizens
	Tai Chi Club	Sessions held 1
	<ul style="list-style-type: none"> • Donation and care activities at a senior home center 	<ul style="list-style-type: none"> • Underprivileged senior citizens
	Pao Shih Elementary School, HsinHsing Elementary School, , Ta Tu Elementary School, Nan He Elementary School, St. Theresa Opportunity Center, Hsinchu Blind Welfare Association, World Vision, Homeless Foundation, St. Joseph Social Welfare Foundation and Shih Guang Educational and Nursing Institution. Hsinchu Veterans Home; Hsinchu JianGong Community; No. 16 Park; 4 Villages of Erlin; Changtai Home for the Disabled in Xinhua, Tainan; Aiheng Training Center for Mental Retardation-- Man Fair Sheltered Workshop in Hsinchu; Hualien Mennonite Hospital; Hualien Prison; Hsiangyuan Home; Dahu Elementary School; Hsinchu Huashan Middle School; St. Joseph Social Welfare Foundation; Shih Guang Home in Xinpu; Eden Social Welfare Foundation; Child Welfare League Foundation; HwaGuang Home for Development Disabilities; Chang'an Senior Center; Renai Workshop; Aiheng Sheltered Workshop; Good Shepherd Social Welfare Foundation; Yellow Ribbon, Guide Dog Association etc.	



Snapshots of Volunteer Services



Certificate of Gratitude

Service Reflection UMC Tai Chi Club President Kelvin Fu

The body ages over time, just like leaves turn yellow and fall. Those with physical and mental disabilities are more prone to aging, and they are slower than the average person. In addition to cultivating healthy habits among its members, the Tai-chi Club is also fully committed to helping disadvantaged populations. The Club committee launched the UMC Love in HwaGuang charity drive, where 24 employees donated a total of NT\$ 37,600. Through UMC's donation to HwaGuang Home, we hope that disadvantaged populations everywhere can also feel the warmth. Together, let us take the lead in public welfare and put corporate social responsibility into concrete actions.



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4-4-3 UMC SCIENCE AND CULTURE FOUNDATION

The UMC Science and Culture Foundation continues to promote community service, and currently, its focus is on long-term educational assistance. Promoting the "Spreading the Seeds of Hope Program," the Foundation funds the company's collaboration with universities in Hsinchu and Tainan. The universities provide classrooms and employ part-time instructors to provide free remedial tutoring to students who are economically disadvantaged.

In 2013, in response to the diversified learning needs of the newly instituted 12 year education policy, the Foundation integrated with community resources to establish the "UMC Sacred Heart Learning Center" in Hsinchu. To date, more than 40 professionals comprising of teachers and students from National Tsing Hua University and National Chiao Tung University, engineers from the Hsinchu Science Park and professionals from various disciplines have joined the tutoring and volunteer team. In addition to supporting the existing remedial tutoring, they also help students develop a positive learning attitude and appropriate values.

Since 2013, the Foundation has supported Tainan remedial classes with the National University of Tainan. Efforts have been further expanded to include elementary schools in remote villages in order to provide services for underprivileged children living there. Teaching development projects with National University of Tainan have been initiated to help train more teachers capable of providing teaching services for underprivileged children living in remote locations.

Other community services by the Foundation are listed below:



EDUCATION FOR THE DISADVANTAGED

Program Spreading the Seeds of Hope

Activity Content

The "Spreading the Seeds of Hope—Educational Assistance for Children from Disadvantaged Families" program was launched during UMC's 25th Anniversary Celebration to commit corporate resources to improve the education of school children from disadvantaged families. The program offers tutoring to school children from disadvantaged families in Hsinchu and Tainan.

Outcome

Provided a total of 750 hours of remedial classes to 120 students in 2018.



UMC DRUMCLUB

Program UMC Drum Club

Activity Content

In July 2013, UMC's former CEO Yen mobilized employees in Hsinchu and Southern Taiwan to form the Drum Club to reciprocate to society through the theme of "Make Friends Through Drums, Move Through Love." In addition, the personal involvement of the CEO helped motivate a spirit of volunteerism.

Outcome

A total of 35 moving charity performances were given to 25,000 audiences in the last 2 years.



VOLUNTEER ACTIVITIES

Program Storytelling volunteers

Activity Content

Encouraged employees to become storytellers and lead reading activities in Bao Shih elementary school in Hsinchu County. Through a diversity of themes and mediums, extra-curricular cultural materials are used to motivate children to read.

Outcome

A total of 18 sessions were conducted, totaling about 300 participants.



LIFE EDUCATION

Program UMC Love storyteller club

Activity Content

After the 2009 Typhoon Morakot Disaster, UMC sent 600 people to help clean up disaster areas in Pingtung. In the days following the disaster, employees formed the "UMC Love Storyteller Club" to harness their strength, and gave musical performances in Pingtung, Hsinchu, Tainan and other areas.

Outcome

Gave 68 performances in 10 years. Through the performances, life education messages were delivered to a total audience of more than 20,000 people.



PARENT EDUCATION

Program IC Voice—"Be Reasonable" program by Teacher Hong Lan

Activity Content

UMC sponsors the IC Voice radio program, "Be Reasonable" by Teacher Hong Lan to promote correct educational perspectives.

Outcome

The sponsored program is in its 10th year since its beginning in 2009.

Letter Writing Volunteers

Activity Content

The Children and Families Fund adopted school children on behalf of the Foundation. In addition, employees volunteered to write letters to the adopted children to reach out and give encouragement. Such a simple friendship links the chain of love and hope.

Outcome

A total of 110 children were adopted through Children and Families Fund.

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- 4-1 Labor Rights
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4-4-4 SERVING THE COMMUNITY WITH CORE PROFESSIONAL SKILLS

The UMC Fire Brigade offered to join government fire rescue units in fire rescue efforts and provide professional assistance so that disasters could be handled smoothly to minimize property loss and environmental impact. In 2018, we were also invited by different government departments to participate in large-scale drills in Hsinchu and Tainan to gain training experience and teach participating members advanced response skills when responding to toxic chemical disasters and industrial fires. In addition, UMC Fire Brigade coordinated with the UMC Culture and Education Foundation to conduct safety education in elementary schools to instill a sense of disaster prevention into the community's consciousness and practices. The brigade also worked with the company's energy conservation and safety teams to conduct fire safety consultation and inspection.

Community Fire Education

Provided fire safety education to elementary school students

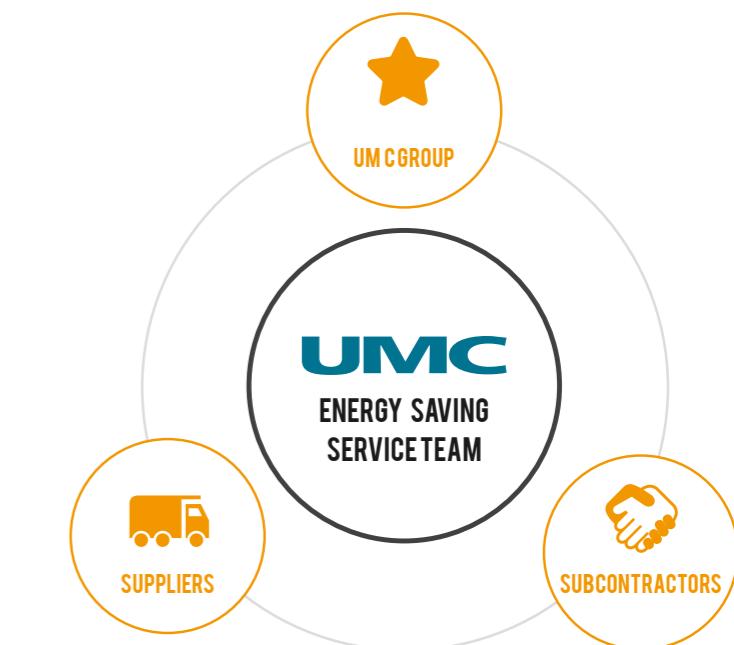


Disaster Support and Rescue

Assisted with accident response and rescue in Hsinchu /Tainan Science Parks and their nearby communities.



The “Energy Saving Service Team” was established in 2016. With the parent company as the core platform, UMC works together with the “value chain” (subsidiaries, vendors, and subcontractors). As of 2018, it has provided assistance to dozens of social welfare organizations for the disadvantaged, hoping to make them sustainable for a better society and to help these organizations conserve energy and reduce carbon emissions. The services include energy conservation and safety counseling, technical information on energy resources and engineering improvement so that disadvantaged populations may also enjoy living a life of energy conservation and carbon reduction.



Energy Conservation / Carbon Reduction/ Green Energy / Environmental Protection/ Water Conservation/ Fire Prevention





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UMC Energy Saving Service Team Solutions to Issues

United Nations Sustainable Development Goals (SDGs)



Good Health and Well-being

Provided fire prevention and home safety counseling, promoted care quality.



Educational Quality

Assisted with improving teaching environment and educational quality.



Clean Water and Sanitation

- Provided water management technology to improve water conservation and water sanitation.
- Assisted with maintenance to improve environmental comfort and health.



Affordable and Clean Energy

- Provided energy-saving technology to improve the efficiency of resource use.
- Integrated the resources of the Group to provide green energy technology (solar energy, LED).

The Paris Agreement



Help mitigate climate change

Shared energy-saving experience, and introduced green energy environmental technology to help welfare institutions reduce energy consumption and greenhouse gas emissions.



Assist with adaptation to climate change

Exchanged energy-saving knowledge to increase resource management capability. Assisted with improving engineering hardware or energy management tools to enhance adaptability to environmental changes.

Domestic Assessment for Aging, Disability, and Hearing Impaired



Improve the work quality of social welfare providers

Provided energy-saving counseling to welfare institutions to promote sustainable operations so that the money saved may be used for workplace improvement and service capability of the workers.



Improve the living environment of care recipients

Provided infrastructure counseling and improvement (water, electricity, fire prevention) to improve the living environment of care recipients and ensure fire safety.

Public Benefit Assessment

Looking at the contributions made by the volunteers of the energy conservation team from 2016 through 2018 in terms of manpower, time, and infrastructure, UMC estimates that the overall economic value generated in the society and the environment reached NT\$9 million, while CO₂ emissions were reduced by approximately 370 tons.

Implementation Results of the UMC Energy Conservation Team



INVESTMENT

Labor Cost	663,750	NT\$	Economic benefit	9,127,435	NT\$
Construction Cost	1,949,479	NT\$	Environmental and social benefits	-370	Tons of CO ₂
Total	2,613,229	NT\$	Total	9,127,435	NT\$



OUT PUT

Statistical Scope: Service Involvement and Output of the Energy Conservation Service Team from 2016 to 2018

Labor cost: Cost of volunteer participation (NT\$500 / hour).

Construction cost: Cost of improving hardware.

Economic benefit: Cost of energy saved in operations.



Staff from Mennonite Hospital visiting UMC



Helping to diagnose boiler energy conservation at Hualien Prison



Helping Hsiangyuan with electrical safety

Other Reports:



Good deeds from UMC:



UMC's professional help in Mennonite Hospital development:

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APPENDIXI:JOINT VENTURES AND SUBSIDIARIES

The ventures of the company and its affiliated enterprises include wafer manufacturing, electronics, optoelectronics industry, investment, insurance and trading industries. In 2018, over 95% of revenue was generated by UMC's integrated semiconductor manufacturing operations, and the remainder generated by the new business department for research and manufacturing of solar energy and new generation light-emitting diodes.

This report is based on the results of the differentiation between each of Chapter One's substantive sustainability topics, and provides the following separate descriptions based on the category of the subsidiary company and the nature of its industry.

The two sales and production entities of HeJian Technology (Suzhou) Co., Ltd. and United Semiconductor(Xiamen) Co., Ltd. are both integrated circuit manufacturing and sales subsidiaries of UMC, and their relevant information is disclosed together with information on UMC in each chapter.

The two manufacturing category subsidiary companies of Wavetek and NexPower have promoted management of various sustainable issues in accordance with the UMC Code of Conduct. In 2018, there were no significant fines for violating relevant laws and regulations for either company, nor was there any forced labor, human rights complaints or incidents of corruption. Please refer to the following websites for relevant environmental management system certification promotion circumstances.



Wavetek



NexPower

For information on the economic performance and financial affairs of each subsidiary and for information on other subsidiaries, please refer to the relevant information on affiliated enterprise organizations on page 166 of our 2018 Annual Report.



Reference URL

APPENDIXII:UNITED NATION GLOBAL COMPACT COMPARISON TABLE

Category	10 Principles	Related CSR Report Section	Page(s)
Human Rights	Businesses should support and respect the protection of internationally proclaimed human rights. Make sure that they are not complicit in human rights abuses.	4-1 Labor Rights	p100
		2-5 Sustainable Supply Chain Management 4-1 Labor Rights	p48 p100
Labor	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4-1 Labor Rights	p100
	The elimination of all forms of forced and compulsory labor.	4-1 Labor Rights	p100
	The effective abolition of child labor.	4-1 Labor Rights	p100
	The elimination of discrimination in respect of employment and occupation.	4-1 Labor Rights	p100
Environment	Businesses should support a precautionary approach to environmental challenges. Undertake initiatives to promote greater environmental responsibility. Encourage the development and diffusion of environmentally friendly technologies.	3 Environmentally Friendly Management 3 Environmentally Friendly Management 2-2 Innovation Management 3-5 Green Product	p60 p60 p33 p93
Anti-Corruption	Businesses should work against corruption in all its forms, including extortion and bribery.	2-1-5 Code of Ethics and Anti-Corruption	p30

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	Location	Page number/or URL	Note/Omission	External Assurance
Organizational profile				
102-1 Name of the organization	About UMC	p6		●
102-2 Activities, brands, products, and services	About UMC	p6		●
102-3 Location of headquarters	About UMC	p6		●
102-4 Location of operations	About UMC	p6		●
102-5 Ownership and legal form	About UMC	p6		●
102-6 Markets served	About UMC	p6		●
102-7 Scale of the organization	About UMC 2-2-2. Business Performance	p6 p36	For more information, please refer to the 2018 Annual Report (page 166).	●
102-8 Information on employees and other workers	4-2-1 Human Resource	p107		●
102-9 Supply chain	2-5 Sustainable Supply Chain Management	p48		●
102-10 Significant changes to the organization and its supply chain	2-5 Sustainable Supply Chain Management	p48	No significant changes occurred during the reporting period.	●
102-11 Precautionary Principle or approach	2-1-4 Internal Audit 2-4 Risk and Crisis Management	p30 p43		●
102-12 External initiatives	2-5 Sustainable Supply Chain Management 3-2 Carbon Asset Management 4-1-1 Human Rights	p48 p69 p100		●
102-13 Membership of associations	About UMC	p6		●
Strategy				
102-14 Statement from senior decision-maker	Message from chairman of the Corporate Sustainability Committee	p1		●
102-15 Key impacts, risks, and opportunities	1-2 Communication with Stakeholders 2-2-2 Business Performance 2-4 Risk and Crisis Management 3-2 Carbon Asset Management 3-3 Water Risk Management	p13 p36 p43 p69 p80		●
Ethics and integrity				
102-16 Values, principles, standards, and norms of behavior	2-1-5 Code of Ethics and Anti-Corruption	p30		●
102-17 Mechanisms for advice and concerns about ethics	2-1-5 Code of Ethics and Anti-Corruption	p30		●

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	Location	Page number/or URL	Note/Omission	External Assurance
 Governance				
102-18 Governance structure	1-1 Sustainable Development Strategy and Organization 2-1-1 Board of Directors	p9 p26		●
102-19 Delegating authority	1-1 Sustainable Development Strategy and Organization	p9		●
102-20 Executive-level responsibility for economic, environmental, and social topics	1-1 Sustainable Development Strategy and Organization	p9		●
102-21 Consulting stakeholders on economic, environmental, and social topics	1-1 Sustainable Development Strategy and Organization	p9		●
102-22 Composition of the highest governance body and its committees	2-1-1 Board of Directors	p26		●
102-23 Chair of the highest governance body	2-1-1 Board of Directors	p26		●
102-24 Nominating and selecting the highest governance body	2-1-1 Board of Directors	p26		●
102-25 Conflicts of interest	2-1-1 Board of Directors	p26		●
102-26 Role of highest governance body in setting purpose, values, and strategy	1-1 Sustainable Development Strategy and Organization	p9		●
102-27 Collective knowledge of highest governance body	2-1 Company Governance	p25		●
102-28 Evaluating the highest governance body's performance	1-1 Sustainable Development Strategy and Organization 2-1 Company Governance	p9 p25		●
102-29 Identifying and managing economic, environmental, and social impacts	1-1 Sustainable Development Strategy and Organization	p9		●
102-30 Effectiveness of risk management processes	1-1 Sustainable Development Strategy and Organization	p9		●
102-31 Review of economic, environmental, and social topics	1-1 Sustainable Development Strategy and Organization	p9		●
102-32 Highest governance body's role in sustainability reporting	1-1 Sustainable Development Strategy and Organization About This Report	p9 p2		●
102-33 Communicating critical concerns	1-1 Sustainable Development Strategy and Organization	p9		●
102-34 Nature and total number of critical concerns	1-1 Sustainable Development Strategy and Organization	p9		●
102-35 Remuneration policies	2-1-2 UMC Functional Committee	p28		●
102-36 Process for determining remuneration	2-1-2 UMC Functional Committee	p28		●
102-37 Stakeholders' involvement in remuneration	2-1-2 UMC Functional Committee 4-2-2 Compensation and Benefits	p28 p113		●
102-38 Annual total compensation ratio	2-1-2 UMC Functional Committee	p28		●
102-39 Percentage increase in annual total compensation ratio	2-1-2 UMC Functional Committee	p28		●
 Stakeholder engagement				
102-40 List of stakeholder groups	1-2 Communication with Stakeholders	p13		●
102-41 Collective bargaining agreements	4-1 Labor Rights	p100	No employee labor unions were formed before the end of the reporting period. No employee to sign a collective agreement.	●
102-42 Identifying and selecting stakeholders	1-2 Communication with Stakeholders	p13		●
102-43 Approach to stakeholder engagement	1-2 Communication with Stakeholders	p13		●
102-44 Key topics and concerns raised	1-2 Communication with Stakeholders	p13		●

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	Location	Page number/or URL	Note/Omission	External Assurance
Reporting practice				
102-45 Entities included in the consolidated financial statements	About UMC Appendix I: Joint Ventures and Subsidiaries	p6 p143		●
102-46 Defining report content and topic Boundaries	1-2 Communication with Stakeholders	p13		●
102-47 List of material topics	1-2 Communication with Stakeholders	p13		●
102-48 Restatements of information				●
102-49 Changes in reporting	About This Report	p2		●
102-50 Reporting period	About This Report	p2		●
102-51 Date of most recent report	About This Report	p2		●
102-52 Reporting cycle	About This Report	p2		●
102-53 Contact point for questions regarding the report	About This Report	p2		●
102-54 Claims of reporting in accordance with the GRI Standards	About This Report	p2		●
102-55 GRI content index	Appendix III: GRI Content Index	p144		●
102-56 External assurance	About This Report	p2	Appendix V: Assurance Statement	●

Material Topic

⌚ 201 Economic Performance	Management Approach	2-2 Innovation Management	p33	
201-1 Direct economic value generated and distributed		2-2-2 Business Performance 4-2-2 Compensation and Benefits	p36 p113	For more information, please refer to the 2018 Annual Report (page 179). ●
201-2 Financial implications and other risks and opportunities due to climate change		3-2 Carbon Asset Management	p69	●
201-3 Defined benefit plan obligations and other retirement plans		4-2-2 Compensation and Benefits	p113	●
201-4 Financial assistance received from government				For more information, please refer to the 2018 Annual Report (pages 231). ●
⌚ 204 Procurement Practices	Management Approach	2-5 Sustainable Supply Chain Management	p48	
204-1 Proportion of spending on local suppliers		2-5 Sustainable Supply Chain Management	p48	●
挥手 205 Anti-corruption	Management Approach	2-1-5 Code of Ethics and Anti-Corruption	p30	
205-1 Operations assessed for risks related to corruption		2-1-5 Code of Ethics and Anti-Corruption 4-1-1 Human Rights	p30 p100	●
205-2 Communication and training about anti-corruption policies and procedures		2-1-5 Code of Ethics and Anti-Corruption 4-1-1 Human Rights	p30 p100	●
205-3 Confirmed incidents of corruption and actions taken		2-1-5 Code of Ethics and Anti-Corruption	p30	UMC has established the 'Code of Ethics for Directors and Officers' as basis for their compliance. Training is also planned for each period of directorship. ●



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302 Energy	Management Approach	3-2 Carbon Asset Management	p69	
302-1 Energy consumption within the organization		3-2-2 Greenhouse Gas Inventory	p72	
302-2 Energy consumption outside of the organization		3-2-2 Greenhouse Gas Inventory	p72	
302-3 Energy intensity		3-2-3 Greenhouse Gas Reduction and Energy Management	p73	
302-4 Reduction of energy consumption		3-2-3 Greenhouse Gas Reduction and Energy Management	p73	
302-5 Reductions in energy requirements of products and services		2-2-3 Investment to Enhance Competitiveness	p37	
		3-2-3 Greenhouse Gas Reduction and Energy Management	p73	
		3-5 Green Product	p93	
303 Water and Effluents (GRI Standards 2018)	Management Approach	3-3 Water Risk Management	p80	
303-1 Interactions with water as a shared resource		3-3-1 Water Risks and Opportunities	p80	
303-2 Management of water discharge-related impacts		3-3-4 Water Pollution Control	p86	
303-3 Water withdrawal		3-3-2 Fab Water Source	p81	
		3-3-3 Water Conservation During Manufacturing	p82	
303-4 Water discharge		3-3-4 Water Pollution Control	p86	
303-5 Water consumption		3-3-3 Water Conservation During Manufacturing	p82	
305 Emissions	Management Approach	3-1 Clean Production 3-2 Carbon Asset Management	p63 p69	
305-1 Direct (Scope 1) GHG emissions		3-2-2 Greenhouse Gas Inventory	p72	
305-2 Energy indirect (Scope 2) GHG emissions		3-2-2 Greenhouse Gas Inventory	p72	
305-3 Other indirect (Scope 3) GHG emissions		3-2-2 Greenhouse Gas Inventory	p72	
305-4 GHG emissions intensity		3-2-2 Greenhouse Gas Inventory	p72	
305-5 Reduction of GHG emissions		3-2-2 Greenhouse Gas Inventory	p72	
305-6 Emissions of ozone-depleting substances (ODS)				Ozone-depleting substances were not used or emitted during the reporting period.
305-7 Nitrogen oxides (NO _x), sulfur oxides (SO _x), and other significant air emissions		3-1-3 Air Pollution Control	p65	
306 Effluents and Waste	Management Approach	3-3 Water Risk Management 3-4 Waste Management	p80 p89	
306-1 Water discharge by quality and destination		3-3-4 Water Pollution Control	p86	
306-2 Waste by type and disposal method		3-4 Waste Management	p89	
306-3 Significant spills				No spills occurred during the reporting period.
306-4 Transport of hazardous waste		3-4 Waste Management	p89	
306-5 Water bodies affected by water discharges and/or runoff		3-3-4 Water Pollution Control	p86	
307 Environmental Compliance	Management Approach	3-1 Clean Production 2-1-6 Legal Compliance	p63 p31	
307-1 Non-compliance with environmental laws and regulations		2-1-6 Legal Compliance	p31	No non-compliance with environmental laws and regulations occurred during the reporting period.
308 Supplier Environmental Assessment	Management Approach	2-5 Sustainable Supply Chain Management	p48	
308-1 New suppliers that were screened using environmental criteria		2-5 Sustainable Supply Chain Management	p48	
308-2 Negative environmental impacts in the supply chain and actions taken		2-5 Sustainable Supply Chain Management	p48	

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 401 Employment	Management Approach	4-2 Recruitment and Cultivation	p107		
401-1 New employee hires and employee turnover		4-2-1 Human Resource	p107		
401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees		4-2-2 Compensation and Benefits	p113		
401-3 Parental leave		4-2-2 Compensation and Benefits	p113		
 402: Labor/Management Relations	Management Approach	4-1 Labor Rights	p100		
402-1 Minimum notice periods regarding operational changes		4-1-1 Human Rights	p100		
 403 Occupational Health and Safety (GRI Standards_2018)	Management Approach	4-3-2 Safe Work Environment	p129		
403-1 Occupational health and safety management system		4-3-2 Safe Work Environment	p129		
403-2 Hazard identification, risk assessment, and incident investigation		4-3-2 Safe Work Environment	p129		
403-3 Occupational health services		4-3-2 Safe Work Environment	p129		
403-4 Worker participation, consultation, and communication on occupational health and safety		4-3-2 Safe Work Environment	p129		
403-5 Worker training on occupational health and safety		4-3-2 Safe Work Environment	p129		
403-6 Promotion of worker health		4-3-2 Safe Work Environment	p129		
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships		4-3-2 Safe Work Environment	p129		
403-8 Workers covered by an occupational health and safety management system		4-3-2 Safe Work Environment	p129		
403-9 Work-related injuries		4-3-2 Safe Work Environment	p129		
403-10 Work-related ill health		4-3-1 Healthy Workplace 4-3-2 Safe Work Environment	p122 p129	There is no case of legally defined occupational disease during the reporting period. For the number of cases of mental and physical health related problems in employees, please refer to the Section 4-3-1 of the Healthy Workplace chapter.	
 404 Training and Education	Management Approach	4-2 Recruitment and Cultivation	p107		
404-1 Average hours of training per year per employee		4-2-3 Education and Training	p114		
404-2 Programs for upgrading employee skills and transition assistance programs		4-2-3 Education and Training	p114		
404-3 Percentage of employees receiving regular performance and career development reviews		4-2-3 Education and Training	p114		
 405 Diversity and Equal Opportunity	Management Approach	4-2 Recruitment and Cultivation	p107		
405-1 Diversity of governance bodies and employees		4-2-1 Human Resource	p107		
405-2 Ratio of basic salary and remuneration of women to men		4-2-2 Compensation and Benefits	p113		
 406 Non-discrimination	Management Approach	4-1 Labor Rights	p100		
406-1 Incidents of discrimination and corrective actions taken		4-1-1 Human Rights	p100	None for discriminatory incidents.	
 407 Freedom of Association and Collective Bargaining	Management Approach	4-1 Labor Rights	p100		
407-1 Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk		4-1-1 Human Rights	p100		

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	408 Child Labor	Management Approach 4-1 Labor Rights	p100		
	408-1Operations and suppliers at significant risk for incidents of child labor	4-1-1 Human Rights	p100		
	409 Forced or Compulsory Labor	Management Approach 4-1 Labor Rights	p100		
	409-1Operations and suppliers at significant risk for incidents of forced or compulsory labor	4-1-1 Human Rights	p100		
	412 Human Rights Assessment	Management Approach 4-1 Labor Rights	p100		
	412-1Operations that have been subject to human rights reviews or impact assessments	4-1-1 Human Rights	p100		
	412-2Employee training on human rights policies or procedures	4-1-1 Human Rights	p100		
	412-3Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening			No significant investment agreements and contracts were signed during the reporting period.	
	414 Supplier Social Assessment	Management Approach 2-5 Sustainable Supply Chain Management	p48		
	414-1New suppliers that were screened using social criteria	2-5 Sustainable Supply Chain Management	p48		
	414-2Negative social impacts in the supply chain and actions taken	2-5 Sustainable Supply Chain Management	p48		
	418 Customer Privacy	Management Approach 2-3 Customer Service	p40		
	418-1Substantiated complaints concerning breaches of customer privacy and losses of customer data	2-3-1 Protecting Customer Assets	p40	There were no cases during the reporting period.	
	419 Socioeconomic Compliance	Management Approach 2-1-6 Legal Compliance	p31		
	419-1Non-compliance with laws and regulations in the social and economic area	2-1-6 Legal Compliance	p31		
	★ Others: Innovation Management	Management Approach 2-2 Innovative Management	p33		
	Innovative new products and technologies	2-2 Innovative Management	p33		

Secondary Topic

	301 Materials			
	301-1 Materials used by weight or volume	3-5 Green Product	p93	
	301-2 Recycled input materials used	3-5 Green Product	p93	
	301-3 Reclaimed products and their packaging materials	3-5 Green Product	p93	
	413 Local Communities			
	413-1Operations with local community engagement, impact assessments, and development programs	3-1-4 Promoting the "Green" concept 4-4 Community Service	p66 p136	
	413-2Operations with significant actual and potential negative impacts on local communities	3-1-4 Promoting the "Green" concept 4-4 Community Service	p66 p136	

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	Location	Page number/or URL	Note/Omission	External Assurance
416 Customer Health and Safety				
416-1Assessment of the health and safety impacts of product and service categories	3-5-1 Hazardous Substance Management	p94		●
416-2Incidents of non-compliance concerning the health and safety impacts of products and services	2-1-6 Legal Compliance	p31	No non-compliance with laws and regulations occurred during the reporting period.	●
Others: Customer Service				
Improving Service Quality and Customer Satisfaction	2-3 Customer Service	p42		●
Others: Chemical Use				
Hazardous substance management and reduction outcome	3-5-1 Hazardous Substance Management	p94		●

APPENDIX IV : ISO 26000 INDEX

	Core Subjects and Issues	Related CSR Report Section	Page(s)
Organizational governance	Decision-making processes and structures	1-1 Sustainable Development Strategy and Organization 2-1 Corporate Governance	p9 p25
Human rights	Due diligence Human rights risk situations Avoidance of complicity Resolving grievances Discrimination and vulnerable groups Civil and political rights Economic, social and cultural rights Fundamental principles and rights at work	2-5 Sustainable Supply Chain Management 4-1-1 Human Rights 2-5 Sustainable Supply Chain Management 4-1-1 Human Rights 2-1 Corporate Governance 4-1-1 Human Rights 2-1-5 Code of Ethics and Anti-Corruption 4-1-1 Human Rights 4-1-2 Employer-employee Communication 4-1-1 Human Rights 4-4 Community Service 4-1-1 Human Rights 4-4 Community Service 4-1 Labor Rights	p48 p100 p48 p100 p25 p100 p30 p100 p104 p100 p136 p100 p136 p100
Labor practices	Employment and employment relationships Conditions of work and social protection Social dialogue Health and safety at work Human development and training in the workplace	4-2 Recruitment and Cultivation 4-1-1 Human Rights 4-3 Healthy and Safe Workplace 1-2 Communication with the Stakeholders 4-1-2 Employer-employee Communication 4-3-1 Healthy Workplace 4-3-2 Safe Work Environment 4-2-3 Education and Training	p107 p100 p122 p13 p104 p122 p129 p114

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 Core Subjects and Issues		Related CSR Report Section	Page(s)
The environment	Prevention of pollution	3-1 Clean Production 3-2-3 Greenhouse Gas Reduction and Energy Management 3-3-4 Water Pollution Control 3-4-3 Proper Waste Disposal	p63 p73 p86 p92
	Sustainable resource use	3-1 Clean Production 3-2-3 Greenhouse Gas Reduction and Energy Management 3-3-3 Water Conservation During Manufacturing 3-4-2 Promotion of the Circular Economy	p63 p73 p82 p90
	Climate change mitigation and adaptation	3-2 Carbon Asset Management 3-3 Water Risk Management	p69 p80
	Protection of the environment, biodiversity and restoration of natural habitats	3-1-4 Promoting the Green Concept	p66
Fair operating practices	Anti-corruption	2-1-5 Code of Ethics and Anti-Corruption	p30
	Responsible political involvement	UMC did not provide any political donations in the reporting year.	
	Fair competition	4-1-1 Human Rights	p100
	Promoting social responsibility in the value chain	2-5 Sustainable Supply Chain Management	p48
	Respect for property rights	2-1-6 Legal Compliance	p31
Consumer issues	Fair marketing, factual and unbiased information and fair contractual practices	2-1 Corporate Governance	p25
	Protecting consumers' health and safety	3-5 Green Product	p93
	Sustainable consumption	2-5 Sustainable Supply Chain Management 2-5-3 Conflict Minerals Management	p48 p59
	Consumer service, support, and complaint and dispute resolution	2-3 Customer Service	p40
	Consumer data protection and privacy	2-3 Customer Service	p40
	Access to essential services	2-3 Customer Service	p40
	Education and awareness	2-3 Customer Service	p40
Community involvement and development	Community involvement	4-4 Community Service	p136
	Education and culture	4-2-4 Cultivating Prospective Talents 4-4-1 Community Service Participation	p120 p136
	Employment creation and skills development	2-2 Innovation Management 4-2 Recruitment and Cultivation 4-2-4 Cultivating Prospective Talents	p33 p107 p120
	Technology development and access	2-2 Innovation Management	p33
	Wealth and income creation	4-4 Community Service	p136
	Health	4-4 Community Service 4-4-2 Promotion of UMC Volunteer Culture	p136 p139
	Social investment	4-4 Community Service	p136

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APPENDIX V: ASSURANCE STATEMENT



ASSURANCE STATEMENT

SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE UNITED MICROELECTRONICS CORPORATION'S CORPORATE SOCIAL RESPONSIBILITY REPORT FOR 2018

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION

SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by UNITED MICROELECTRONICS CORPORATION (hereinafter referred to as UMC) to conduct an independent assurance of the Corporate Social Responsibility Report for 2018 (hereinafter referred to as CSR Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the text, and data in accompanying tables, contained in this report.

The information in the UMC's CSR Report of 2018 and its presentation are the responsibility of the management of UMC. SGS has not been involved in the preparation of any of the material included in UMC's CSR Report of 2018.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of verification with the intention to inform all UMC's stakeholders.

The SGS protocols are based upon internationally recognized guidance, including the Principles contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) 101: Foundation 2016 for accuracy and reliability and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

This report has been assured using our protocols for:

- evaluation of content veracity of the sustainability performance information based on the materiality determination at a high level of scrutiny for UMC and moderate level of scrutiny for subsidiaries, joint ventures, and applicable aspect boundaries outside of the organization covered by this report;
- AA1000 Assurance Standard (2008) Type 2 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2008), and
- evaluation of the report against the requirements of Global Reporting Initiative Sustainability Reporting Standards (100, 200, 300 and 400 series) claimed in the GRI content index as material and in accordance with.

The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, CSR committee members and the senior management in Taiwan, documentation and record review and validation with external bodies and/or stakeholders where relevant. Financial data drawn directly from independently audited financial accounts has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE

The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from UMC, being free from bias and conflicts of interest with the organisation, its subsidiaries and stakeholders.

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The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 26000, ISO 20121, ISO 50001, SA8000, EICC, QMS, EMS, SMS, GPMS, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

VERIFICATION/ASSURANCE OPINION

On the basis of the methodology described and the verification work performed, we are satisfied that the information and data contained within UMC's CSR Report of 2018 verified is accurate, reliable and provides a fair and balanced representation of UMC sustainability activities in 01/01/2018 to 12/31/2018.

The assurance team is of the opinion that the Report can be used by the Reporting Organisation's Stakeholders. We believe that the organisation has chosen an appropriate level of assurance for this stage in their reporting. In our opinion, the contents of the report meet the requirements of GRI Standards in accordance with Comprehensive Option and AA1000 Assurance Standard (2008) Type 2, High level assurance.

AA1000 ACCOUNTABILITY PRINCIPLES (2008) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity

UMC has demonstrated a good commitment to stakeholder inclusivity and stakeholder engagement. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, governments, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, UMC may proactively consider having more direct multi-way involvement of stakeholders during future engagement.

Materiality

UMC has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders.

Responsiveness

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback.

GLOBAL REPORTING INITIATIVE REPORTING STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, UMC's CSR Report of 2018, is adequately in line with the GRI Standards in accordance with Comprehensive Option. The material topics and their boundaries within and outside of the organization are properly defined in accordance with GRI's Reporting Principles for Defining Report Content. Disclosures of identified material topics and boundaries, and stakeholder engagement, GRI 102-40 to GRI 102-47, are correctly located in content index and report. Regarding the training of anti-corruption, it is suggested to provide more training resources for UMC's governance body members. UMC has demonstrated the good practice on consulting stakeholders on economic, environmental, and social topics. For future reporting, more descriptions of UMC's actions and the results of sustainability issues are expected.

Signed:

For and on behalf of SGS Taiwan Ltd.

David Huang
 Senior Director
 Taipei, Taiwan
 14 May, 2019
WWW.SGS.COM

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CORPORATE SOCIAL RESPONSIBILITY REPORT



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