UMC

Corporate Social Responsibility Report

2016

Contents

VIDEO UMC's CSR film
http://www.umc.com/English/CSR/video/UMC_CS_Video.mp4

Words from the CEO

CEO and CS Committee Chairman

For all of our friends caring about UMC sustainability:

2016 has been a fruitful year for UMC in terms of the sustainable development achievements, with continuous improvement and progress on execution performance of our sustainable management strategy. As for the company's ranking among domestic and foreign non-government organizations, we have been listed as a Dow Jones Sustainability Indices (DJSI) constituent stock for nine consecutive years. We have also been ranked as the best among Asian semiconductor companies in the Asia Top 100 Sustainable Enterprises from Channel NewsAsia. In Taiwan, we have won the "Corporate Citizenship Award" from CommonWealth Magazine and "Corporate Social Responsibility Award" from Global View Monthly. Our team has been adhering to the vision of "People-oriented, Environmental Symbiosis, and Social Prosperity" with constant dedication to the aspects of "Customers, Shareholders, Employees, Environment, and Society", while converting the risks and opportunities of sustainable development into actual actions and competitiveness. We have also introduced 17 global sustainable development goals of UN SDGs as the basis for sustainable management and assessment, and we have integrated sustainable indicators with operating benchmarks to become part of the company's operations.

UMC's company governance performance in 2016 was rated by DJSI as better than average for semiconductor industries in emerging markets. In the corporate governance evaluation done by Taiwan Stock Exchange, UMC has been well recognized by domestic and foreign investors by achieving the honor of top 5% for 3 consecutive years. UMC has established good interactions and a checks-and-balance function between the board of directors and management team via "Remuneration Committee", "Audit Committee", and "Capital Budget Committee", which will not only improve operational transparency, but also protect the rights and interests of all shareholders. UMC has also continued to focus on the independence and balance of board directors with participation by a female independent director and periodic self-assessment among all directors of the board.

In terms of environmental sustainability, we have successfully achieved the first year goals of our "Green 2020" plan for reducing power use, water, and waste through joint efforts with all of our employees. We have also been awarded the ROC Enterprises Environmental Protection Award for 14 consecutive years, and became the first in the industry to establish an "Eco Echo Award" to cooperate with organizations dedicated to community enhancement and environmental protection. Through this award, UMC selects proposals from participating organizations to fund so they may be put into action to help ecological preservation. We have collected a variety of outstanding and creative plans to work towards a friendly environment in order to positively influence and protect the local ecology.

In terms of social participation and employee care, UMC has set up an "Energy Saving Service Team" formed by green volunteers. This team's core functions cover various aspects of energy saving, water saving, environmental protection, and fire protection. At the same time, UMC has also enhanced promotion based on joint efforts with subsidiaries and supply chain partners to help social welfare organizations enjoy energy saving and safety. On the other hand, we continue to implement multiple projects that protect the health of our employees to achieve a balanced work/life ratio, and we have won the 2017 "Top Prize of Happy Enterprise" from Global View Magazine in recognition of this effort. Furthermore, in addition to winning the "Work-Life Balance Award of Ministry of Labor", we also acquired the Executive Yuan Ministry of Health and Welfare's "Self-certification of Health Promotion Seal" for all our fabs.

Looking ahead, we will adhere to the spirit of "Make This a Better World" and continue to promote corporate sustainable development and implement social corporate responsibility. We hope to take full advantage of our partnerships and to work with all stakeholders with proper utilization of corporate resources in order to create a sustainable future.

About This Report

This report is the 12th Corporate Social Responsibility Report issued by UMC and the 17 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 2016 UMC corporate sustainable development and social responsibility.

Scope

Information disclosed in this CSR Report includes various performance and data of environmental protection, corporate governance, and community participation work carried out by UMC from January 1 to December 31, 2016. For the disclosure of major activities, the period was further extended to March 31, 2017. In addition to information about UMC Headquarters and wafer fabs in Taiwan and Singapore, this CSR Report also included information on local and external organizations such as information of the subsidiary He Jian Technology Company (HJTC), other foundries in China, and affiliated joint ventures and subsidiaries that are relevant to the key material topics. For details, please refer to Page 119 in this Report.

Reporting Guidelines and Principles

The content framework in this report is based mainly on major UMC corporate sustainability issues in 2016 and stakeholder concerns. In addition, this report is compiled according to the GRI/G4.0 guidelines 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.

2016 Corporate Social Responsibility Report: Issued in June 2017.
2017 Corporate Social Responsibility Report: Scheduled to be issued in June 2018.
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 2017 according to high assurance standards such as the principles of GRI / G4.0 Comprehensive Standards and the Accountability 1000 Assurance Standard TYPE II. The SGS verification report is attached to 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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2016 Major UMC Milestones and Sustainability Performance

Major Milestones

UMC Standardizes on Industry-Leading ARM Artisan Platform for Physical IP

Faraday 12.5G SerDes PHY Debuts on UMC 28HPC^{U} Process

UMC Forges Strategic Partnership with APM to Enhance MEMS Service Capabilities

UMC's Fab 8A Earns MFCA Verification in Accordance with ISO 14051 for Green Management

Faraday's PowerSlash^{TM} IP Now Available on UMC's 55nm Ultra-Low-Power IoT Platform

UMC Qualifies 0.18um BCD Process for Most Stringent AEC-Q100 Grade-0 Automotive ICs

The construction of UMC's Fab 12X in Xiamen, China was completed in record time for the industry. Fab 12X started its commercial production in Q4 of 2016.

Cypress Commences Volume Shipments of MCUs Based on eCT Embedded Flash Memory Manufactured at UMC

Sustainability Awards

Dow Jones Sustainability Indices

Selected as a DJSI global component for the 9th consecutive year.
Selected as a DJSI Emerging Markets indice.

Channel NewsAsia Sustainability Top 100 Ranking

Awarded 6th place in the 2016 Channel NewsAsia Sustainability Top 100 Ranking.

Carbon Disclosure Project

Achieved Leadership Level Score of A- in the CDP's Climate Change Assessment Program

Enterprises Environmental Protection Award

For 14 consecutive years, UMC's Taiwan fab was awarded the Enterprises Environmental Protection Award by the Environmental Protection Administration.

Corporate Governance Accreditation for listed companies

Top 5% for 3 consecutive years, Corporate Governance Assessment Award of the TWSE

CSR Award from Global Views Monthly

2016 CSR Award - UMC received the Model Award for Excellence in Science & Technology and Outstanding Education Promotion Sectors from Global Views Monthly magazine.

CommonWealth Magazine Corporate Citizenship Award

Won 4th place in the 2016 CommonWealth Magazine Corporate Citizenship Award (Top 10 in the last 5 consecutive years).

CEO and Corporate Sustainability Committee Chairman of UMC, Po-Wen Yen, received the 2016 SEMI Sustainability Manufacturing Outstanding Leader Award.

Taiwan Corporate Sustainability Awards

Awarded the Corporate Sustainability Report Awards for 9 consecutive years

Awards in 2016 : Corporate Sustainability Awards
Climate Leadership Award.
Sustainable Water Management Award

2016 Sustainability Performance

Economic Performance

Innovative research and development of advanced technologies

11,963 Patent

In 2016, UMC was awarded 689 domestic and foreign patents, totaling 11,963 patents to date.

35% Advance Process Production Growth in 28nm and Below

Advance process annual production increased by 35% compared with last year.

86 Billion of Investment in Advance Technology R&D and Manufacturing Equipment

Approximately NT$ 86 Billion was invested in advance technology R&D and manufacturing equipment.

40% Decrease in Current Leakage and Power Consumption

28nm high-efficiency and low power consumption process platform reduces current leakage and power consumption by almost 40% compared with the previous platform.

Operations Management and Supply Chain Management

1st ISO 22301 Certification

First wafer foundry in Taiwan to pass ISO 22301 operation sustainability management certification for supplying chips used in automobiles.

0 Conflict Minerals

UMC's 23 suppliers and 14 affiliated companies use no conflict minerals.

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.

3,000 Suppliers

More than 3,000 suppliers joined UMC in committing to sustainable development.

86.6% Client Satisfactory

Customer satisfaction levels gradually increase every year.

Economic Performance

5.2% Annual Increase in Product Manufacturing Volume

Annual product manufacturing volume of approximately 6,172,000 in 8" wafer equivalents, with an annual increase rate of 5.2%.

NT$135.59 Billion

3.7% revenue growth compared to 2015.

20.5% Gross Margin

Environmental Performance

Energy and Greenhouse Gas Management

40% Reduction in Units of Fluorinated Greenhouse Gas Emissions

Achieved the objective for reducing emissions by 40%. Reductions in fluorinated greenhouse gas emissions were equivalent to 1,047,000 tons of CO_2e. Gas replacement measures also achieved savings in raw material procurements of over NT$ 20 million.

67,212 Mwh Power Reduction

The newly added reduction for 2016 was 67,212 Mwh, which is equivalent to a decrease of 35,488 tons in CO_2 emissions and a savings of about NT$ 155 million.

15,628 Mwh Natural Gas Reduction

The newly added reduction for 2016 was 15,628 Mwh, reaching the targeted goal, which is equivalent to a decrease of 3,074 tons in CO_2 emissions and a savings of about NT$ 19,750,000.

Environmental Management

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.

0 Environmental Incidents or Fines

In 2016, there were no environmental incidents or fines.

1 Million Prize Money in UMC Eco Echo Award

UMC invested NT$ 1 million in rewarding annual excellent and innovative eco preservation proposals.

1st ISO 14051 Certification

First domestic wafer foundry in the semiconductor industry to complete material flow cost accounting.

Water Resource Management

27.88 Million Tons of Recovered Water

Recovered water is equivalent to saving 0.89 of the stored water in No.2 Baoshan Reservoir.

472,000 Tons of Reduction in Water Usage

The newly added reduction for 2016 was 472,000 tons, reaching the targeted goal, which is equivalent to a savings of about NT$ 11,800,000.

28% or More in 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.

Waste Management

3,610 Tons of Waste Reduction

The newly added reduction for 2016 was 3,610 tons, reaching the targeted goal, which is equivalent to a savings of about NT$ 16.6 million in annual treatment costs.

89% Waste Recycling

The amount of reused waste was 31,754 metric tons, which is a gain of more than NT$53 million from recycled resources.

Social Performance

Positive Labor Relations

100% Communication Meetings were Completed

By the end of 2016, a total of 119 sessions of company-wide forums (4 sessions), fab communication meetings (71 sessions), secretary forums (8 sessions), labor-management conferences (32 sessions), and benefits committee meetings (4 sessions) were conducted.

0% Labor Dispute

Actively promoted harmonious labor relations to reduce the likelihood of labor conflict. In 2016, there was no case of labor dispute.

100% of eSuggestions were Handled and Closed

Through the audit and reminder system, 100% of cases were closed in 2016.

< 5 on the Annual EICC Labor / Ethics Risk Index

In 2016, the EICC labor /ethics risk index was less than 5.

0 Cases of Human Rights Complaints

Education and Training

93.3% Overall Satisfaction with the Courses

In 2016, a total of 9,920 courses were held, attended by a total of 272,098 individuals. Overall satisfaction for these training courses was 93.3%, while satisfaction for the lecturer and teaching materials attained 93.3% and 93.2% respectively.

90.9% Completion for Training Courses on The 7 Habits of Highly Effective Managers and Employees

To achieve company core values and attain the spirit and principle of responsibility, 90.9% of employees completed training courses on The 7 Habits of Highly Effective Managers and Employees.

Public Service

16,142 People

16,142 people benefited from the 2016 volunteer work service.

9,220 Total Volunteer Service Hours

In 2016, total volunteer service hours reached 9,220 hours.

Benefits System

100% Holistic Health Management Program

Created a safe working environment, and protected health and work-life balance of employees.

All fabs in Taiwan received the “Self-Certification Health Promotion Badge” from Bureau of Health Promotion, Department of Health, Executive Yuan.

95% Satisfaction with Health Promotion Activities

On average, 95% satisfaction with health promotion activities such as health seminars, relaxation series and health check activities.

Safe Work Environment

67% Reduction in Workplace Accidents

18 less accidents compared to the reference basis year of 2011 and achieved a savings of NT$ 3.46 million in potential asset loss.

In 2016, the disabling injury frequency rate was 0.24, and disabling severity rate was 1, which were much lower than the semiconductor industry average.

0 Major Occupational Hazard

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.

Date Founded
May 1980

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

Number of Employees
More than 19,000 employees, including worldwide affiliated companies

Main Operation
Professional integrated foundry services

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

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

Worldwide Locations
Taiwan, USA, China, Europe, Singapore, Japan, Korea

Foundry Manufacturing
Taiwan, Singapore, China

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 is 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.

UMC has several operational IC manufacturing fabs. For 12-inch IC manufacturing, the fabs include Fab 12A in Taiwan, Fab 12i in Singapore and Fab 12X in Xiamen, which belongs to United Semiconductor (Xiamen) Co., Ltd., a subsidiary of UMC. In addition, HeJian Technology (Suzhou) Co., Ltd., a subsidiary of UMC, owns Fab 8N which is an 8-inch IC fab.

The manufacturing base of Fab 12A spans from phase one to phase six. Currently, Fab 12A is responsible for manufacturing customer products that involve the most advanced 28nm and below processes.

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.

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

Management Team

Chairman
Stan Hung

Chief Executive Officer
Po Wen Yen

Senior Vice 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	Participation in Project or Committee	Member fees paid in 2016 (NTD)
Association of Industries in Science Parks (ASIP)	●	●	1,044,000
Taiwan Semiconductor Industry Association (TSIA)	●	●	900,000
Electronic Industry Citizenship Coalition (EICC)		●	483,000
Taiwan IC Industry & Academia Research Alliance (TIARA)	●		120,000
Asia IoT Alliance (AIOTA)	●		60,000
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

The cost of UMC participating in important associations in the past:
2016: NT$ 2,729,000, 2015: NT$ 2,048,000, 2014: NT$ 2,204,000, 2013: NT$ 2,066,000.

Sustainable Development Strategy and Organization

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 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 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 challenge of sustainable development.

Corporate Social Responsibility Principles

UMC has stipulated its Corporate Social Responsibility Principles as a reference and guiding rule for fulfilling 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 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:

Economic
Continue to improve corporate governance

Environment
Dedicate itself to manufacturing green wafers

Social
Fulfill corporate social responsibilities

Sustainable Organization

The structure of UMC's sustainable organization consists of the Board of Directors headed by the chairman. The Board directs the "Corporate Operations Organization" and "Corporate Sustainability (CS) Committee", both of which are headed by the CEO. The execution of sustainable policies is carried out from the top-down, and an audit committee oversees the execution. The "Audit Committee", "Remuneration Committee" and "Capital Budget Committee" enhance the capabilities of the board and strengthen corporate governance. "Corporate Operations Organization" and "Corporate Social Responsibility Committee" also set up sub-committees to meet their respective needs and to jointly execute and practice sustainable commitments.

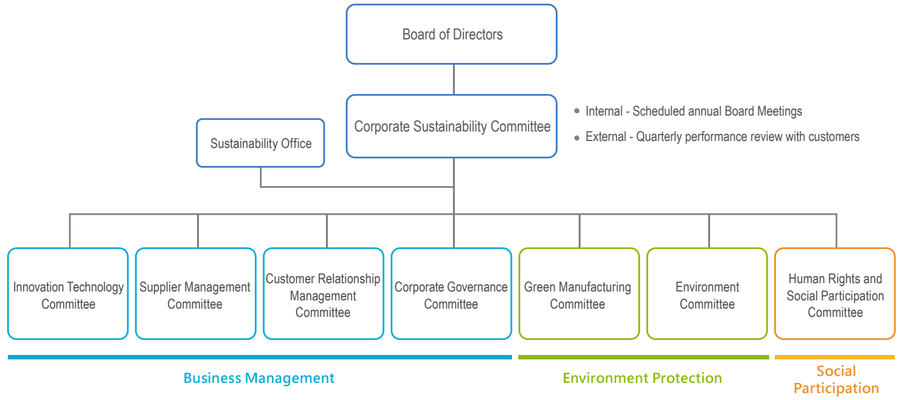
Corporate Operations Organization vs. Corporate Sustainability Committee

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

Corporate Sustainability Committee Organization and Operation

Organization and Function

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 achievement of secondary 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 Board of Directors. The scope of the report will include the management and review of important issues in the area of economics, environment and society.



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

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.

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. Fulfill the company's business philosophy of core integrity, information transparency, shareholder equity protection, and good internal business management.

Customer Relationship Management Committee

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

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.

Innovation Technology Committee

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

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.

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 dialogue 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

Corporate Sustainability Committee	Functional Committees	Key Corporate Sustainability Projects
Management Content — Review : Once every 6 months	Management Content — Review : Quarterly	Management Content — Review : Monthly
Committee reviews Operational progress of various functional committees Review and approve goals and plans, review executive performance	Develop key performance indicators (KPI) to quantify the execution of management performance Implementation programs Follow up implementation progress	Follow up and review company project management system Follow up progress, and present results to the Corporate Sustainability Committee for review
Participant	Participant	Participant
Committee chair | Committee members | Chief administrator | Functional committees administrators	Chief administrator | Functional committee administrators and Members	Functional committee administrators and Members

2016

The corporate sustainability committee proposed a total of 60 KPI items. All 60 items were implemented and completed by each and every department within UMC, achieving a completion rate of **100%**

Discussion meeting of United Nation's Sustainability Development Goals

For 2017, 36 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 Operational Goals

Focus on differentiating advanced manufacturing and development of specialty technology 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.

Motivate employee potential and responsibility, integrate the organization's operational efficiency, and increase competitiveness in sustainable management.

United Nation's Sustainability Development Goals (UN SDGs).

36 KPI items in 5 categories

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

1 Communication with Stakeholders

74 sustainability issues

Adopt the GRI G 4.0 guidelines, ISO 26000 social responsibility standard guidelines, UN Global Compact, and domestic and international sustainability assessments as the basis for issues.

22 UMC report task group members

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

42 categories of sustainability issues

Members of the Corporate Sustainability Committee Report Group compiles and analyzes issues.

33 material issues

Multiply the score for degree of stakeholder concern over each issue and the score for its respective impact on company operation. Rank issues for disclosure.

502 copies of questionnaires

Conduct questionnaire surveys to determine the degree of stakeholder concern over the various types of sustainability issues so that stakeholders can express their needs in terms of sustainable information.

3 major material issues

Following materiality analysis, the company discusses and decides on the disclosure ranking of sustainability issues.

The Sustainability Committee shall conduct management review for material issues related to the economy, environment, and society.

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

Principles

- 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 response to key corporate social responsibility (CSR) issues that the said stakeholders are concerned with.
- Consider all related CSR issues and analyze the potential impact that each issue may exert upon the environment, society, economy, and business operations.
- Employ a system-based mechanism to continuously review and enhance corporate sustainability.

1-1 Mechanisms for Stakeholder Communication

Identified major stakeholders issues and concerns

Frequency: **Annually**

Integrated and coordinated by the Corporate Sustainability Committee

1

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 messages from stakeholders and to come up with appropriate responding measures.

2

Assessment of stakeholder communication outcome

Frequency: **Bi-annually**

Stakeholder communication outcome reported, and key issues reviewed and responded to Corporate Sustainability Committee.

3

Public disclosure

Frequency: **Annually**

Annual financial reports, corporate social responsibility report, etc.

Frequency: **As Required**

Press Releases

UMC official website

(The Stakeholder Area was established for stakeholder inquiry) http://www.umc.com/English/CSR/c_2.asp

4

1-2-1 Issue Identification, Communication and Review

Step 1

Collect sustainability issues

Adopt the GRI G 4.0 guidelines, ISO 26000 social responsibility standard guidelines, UN Global Compact and domestic and international sustainability assessments as basis for issues.

74 sustainability issues

Step 2

Compile sustainability issues

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

42 categories of sustainability issues

Step 3

Survey stakeholders concerns

Conduct questionnaire surveys to determine the degree of stakeholder concern over the various types of sustainability issues so that stakeholders can express their needs in terms of sustainable information.

502 copies of questionnaires

Step 4

Analyze impact of issues on company operations

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

22 UMC report task group members

Step 5

Rank materiality issues

Multiply the score for degree of stakeholder concern over each issue and the score for its respective impact on company operation. Rank issues for disclosure.

33 material issues

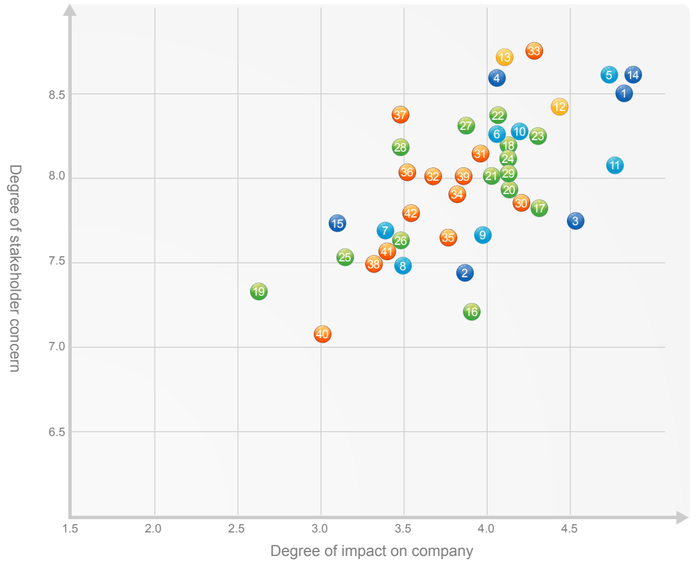
Step 6

Discussion and review

- Following materiality analysis, the company discusses and decides on the disclosure ranking of sustainability issues.
- The Sustainability Committee shall conduct management review for material issues related to the economy, environment, and society.

3 material issues

Ranking The Materiality Analysis Results of Sustainability Issues



Note 1: Stakeholders scored differently in their degree of concern for each issue (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 issue on company operational sustainability (5 points=highly impacted, 4 points= impacted, 3 points=moderately impacted, 2 points=not very impacted, 1 point=not impacted)

1-2 Procedure for Defining Report Content

1-2-1 Identify Stakeholders

UMC referenced the nature of its businesses as well as the 5 key principles of AA1000 SES-2011 Stakeholder Engagement Standard (SES) to identify a total of 7 types of stakeholders

UMC Major Material Sustainable Development Issues

Based on the results of the materiality analysis for each sustainability issue, the respective management policies, goals and approach are disclosed in the relevant sections of this report. Other secondary issues are summarized in this report.

Key Material Issues

Based on 2016 assessment results, “Sustainable Development Strategy”, “Legal Compliance” and “Economic Performance” are the most concerned issues. The other important material issues are listed in the following. Of which, “Occupational Health and Safety”, ”Waste” and “Water Resource Use” were affected as a result of local media reporting, resulting in significant increases in the level of concern compared to the previous year.

	Direction of response and management approach	
Legal compliance Chapter in the 2016 CSR Report 2-1-6 Legal Compliance	Comply with various statutory regulations and make compliance as an integral part of routine management processes.	Increase
Sustainable development strategies Chapter in the 2016 CSR Report Sustainable development strategies	Fulfill CSR and achieve improvements to the economy, environment, and society.	Decreased
Economic performance Chapter in the 2016 CSR Report 2-2-2 Business performance	Continue to commit towards the development of advanced technologies to improve competitiveness of UMC.	Sustain
Innovation Management Chapter in the 2016 CSR Report 2-2 Innovation Management	Provide specialized solutions for wafer foundry technologies that fulfill market trends and customer requirements.	Increase
Occupational health and safety Chapter in the 2016 CSR Report 4-3 Health and Safety Workplace	Safeguard employees’ physical and mental health with special focus on work environment safety and work-life balance.	Increase
Customer service/ Customer Privacy Chapter in the 2016 CSR Report 2-3 Customer service	Improve service quality and customer satisfaction; protecting customer assets.	Sustain
Waste Chapter in the 2016 CSR Report 3-1 Green factory	The strategies of total waste reduction and waste reutilization were considered. By implementing source management measures such as process improvement and raw material reduction, the generation of waste was minimized to achieve waste reduction.	Increase
Corporate Governance Chapter in the 2016 CSR Report 2-1 Corporate Governance	Establish an effective corporate governance framework, safeguard the interests of shareholders, strengthen the functions of the board of directors, and improve information transparency.	Decreased
Ethics and Integrity Chapter in the 2016 CSR Report 2-1-5 Code of Ethics and Anti-Corruption	Improve behavioral integrity and professionalism of every UMC employee.	Decreased
Risk Management Chapter in the 2016 CSR Report 2-4 Risk and Crisis Management	Sustainable business operation was taken as the ultimate management direction for the corporation. Sound risk management and appropriate risk handling plans were implemented to come up with the right emergency response measures and crisis prevention drills.	Increase
Waste Water Discharge/ Water Resource Use Chapter in the 2016 CSR Report 3-3 Water risk management	Maximize water use efficiency and improve the water risk handling capacity of upstream and downstream industries in the supply chain, and encourage efforts and savings in water resource utilization.	Increase
Energy Use Chapter in the 2016 CSR Report 3-2 Energy and greenhouse gas management	Optimize energy use efficiency, promote green building, and introduce renewable energies.	Decreased

Management Review of Material Issues

In addition to disclosing the outcomes of the Phase 1 material issue identification process, UMC also implements a management review (Phase 2) conducted by the senior managerial staff to review material economic, environmental, and social issues and to discuss and verify the value of the said issues in UMC or their potential impact on the company’s financial performance.

Risk in corporate merger and acquisition

Importance
- Important customers were acquired or merged by a competitor or a major client of a competitor, leading to a loss of purchase orders to the said competitor.

Strategy
- Improving the proportion of orders with advanced processes that are difficult to transfer to other foundries.

KPI
- Weight of revenue for advanced processing.

Performance in 2016
- The percentage of revenue from below 65nm to wafer sales is 61%.

Greenhouse gas and energy utilization

Importance
- The government of Taiwan has announced the 2025 Nuclear Free Homeland and 2030 INDC reduction goal. In addition, the government also plans to implement regulations on the total volume of greenhouse gases.
- Singapore government plans to collect a carbon tax in 2019.
- The emission of greenhouse gases in the semiconductor industry originates mainly from the use of electricity. Limiting the use of electricity not only will effect company’s productivity and revenue, implementing control regulations will also increase the business operation costs.

Strategy
- Actively promote energy reduction measures, such as the use of energy optimization processes, the implementation of green building construction and the introduction of renewable energies.
- Implement reduction measures for greenhouse gases such as FCs, N_2O, etc.

KPI
- 369+ power and FCs reduction plan.
- Green 2020 power reduction plan.

Performance in 2016
- Annual added power reduced was by 67,212 Mwh, reaching the stage goal of Green 2020.
- FC emissions per wafer area were reduced by 40%, reaching the reduction goal set for 2020. Regulations on N_2O emission reduction was determined for equipment.

Occupational health and safety

Importance
- Any occupational health and safety risks may lead to severe economic or social losses to the company, and lower the company’s competitiveness.

Strategy
- Establish a 10-year accident prevention management plan.

KPI
- Achieve a 75% reduction in the number of accidents from 2011 to 2020
- Number of extremely severe disasters: 0

Performance in 2016
- Number of major disasters: 0
- Number of minor accidents: 9

Special Issues

In addition, based on the outcome of the open survey questionnaires and this year’s communication results (excluding the above mentioned issues), stakeholders believed that issues such as air pollution (PM2.5), circular economy and information security risk deserve further discussion.

Circular economy issue

Current status

“Zero Waste” is UMC’s ultimate goal in waste management. In addition, waste total volume reduction and waste reutilization are the strategies adopted 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
- Special projects will be established to promote a circular economy within the organization. The goal is to convert wastes that cost 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 circular economy.

Air pollution (PM2.5) issue

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 environmental protection laws.

Responding measures
- The company-wide Safety Committee was charged with providing PM2.5 issue 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.
- In 2016, voluntary measurement on PM2.5 was taken in a demonstration fab. The result showed low PM2.5 concentration, implying no significant risk.

Internet information security risk issue

Current status

In 2017/Q1, many banks/securities firms were attacked by DDoS (distributed denial-of-service). The attack is mainly characterized by the use of a significant amount of legal or falsified connections to occupy internet resources, disabling network and system services. The attack will cause banks and securities firms be unable to use internet banking or place orders, further damaging their business reputation. The purpose of the attack is to blackmail banks and securities firms.

Responding measures
- Current framework will be inspected to strengthen information security in order to prevent future possible DDoS attacks.
- Intruder protection system and firewall application will be installed to protect the system and website which offers services to the clients. Attack pattern/behavior will be automatically blocked when noted. However, if the network traffic occupied by the DDoS attack exceeds the bandwidth available, network or system may still be affected.
- The advanced information security service provided by the ISP (such as Hinet) will be assessed. The network traffic will be checked from the origin to strengthen the protection from DDoS attack.

1-3 Key Points and Outcomes of Stakeholder Communication

Stakeholder communication method, key concerns and major outcome for 2016 are compiled as follows:

Employee

Key Concern: • Compensation and benefits • Economic Performance • Employee Communication • Human rights • Occupational Health and Safety

Communication Method

- CEO –employee forums, , secretary forums, Benefits Committee conference, factory dialogues, labor relations, 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 Stakeholder Communication Outcome in 2016

- 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
- Continue to promote a comprehensive personnel heath management program, which will be focusing on the three aspects of safe working environment, employee health protection and work-life balance.

  In 2016, voluntarily performed investigation on overwork issues. Related programs were proposed after discussing with on-site doctors.
- Strengthen communication of business strategies and directives and to continue the provision of up-to-date information of corporate performance. A total of 141 communication meetings were held in 2016.
- e-suggestion opinion feedback platform received 354 opinions from various employees in 2016; all cases (100%) have been closed.
- Strengthen the EICC Committee; continue to promote and respect international code and standards of laborers as well as human rights.

Customer

Key Concern: • Customer service • Innovation Management • Customer privacy • Ethics and integrity

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 Stakeholder Communication Outcome in 2016

- Continue to carry out information security product common criteria (ISO 15408) certification to improve asset management security for both the company and its customers.
- Technology forums were held in Shanghai and Japan to introduce the new business model of “Innovation by Collaboration” as well as advantageous process technologies to customers.
- Fab 12i obtained ISO22301 Business Continuity Management certification to demonstrate its commitment to continual service.
- Continuous customer services - provide a total of 47 BCM / BCP pieces of risk management data.

Details of the partnership

Strengthen collaborative efforts for manufacturing processes and expand strategic partnerships

- 55nm Ultra-Low-Power IoT Platform
- MEMS manufacturing solution.
- 12.5Gbps programmable SerDes PHY IP on 28HPC^{U} process technology.
- Platform for Physical IP

Feedback

- “In the realm of IoT applications, low-power consumption and high-performance are often considered as trade-offs. With the combination of UMC's 55ULP ultra low-power technology and Faraday PowerSlash IP Turbo Mode capability, chip designers now have a choice to have the advantages of both worlds -- longer battery life and better performance tailored for IoT use scenarios. It marks another success story of the partnership by UMC and Faraday.”(Remi Yu, vice president of marketing and investment at Faraday Technology.)
  http://www.umc.com/English/news/2016/20161012.asp
- “APM brings over 15 years of MEMS experience in design, manufacturing and packaging to our partnership with UMC. Our flexible process capability and process module blocks address different customized chip requirements including sensor, actuator and microstructure, which enable customers to streamline their unique MEMS IC designs to market. We are excited to cooperate with UMC, and believe the synergies created not only by our two companies’ complementary services, but also by our close proximity in Hsinchu to UMC and numerous semiconductor suppliers, MEMS packaging & testing providers, will provide unmatched speed and supply chain advantages to MEMS customers worldwide.” (K.H. Jao, president of APM.)
  http://www.umc.com/English/news/2016/20160905.asp
- “As the complexity of SoC integration increases along advanced process nodes, high-speed SerDes PHY technology has become the crucial building block to address a broad range of high-speed I/O interfaces in SoC applications. 28nm High-K Metal Gate technology is widely recognized to be one of foundry industry's longest node, while UMC's 28HPC^{U} demonstrates superior performance over industry benchmarks. We are happy to expand on our comprehensive portfolio of 28HPC^{U} high speed I/O IP solutions with this 12.5G SerDes, and will extend high quality service to ensure streamlined adoption of this IP solution.”(Flash Lin, chief operation officer at Faraday.)
  http://www.umc.com/English/news/2016/20160803.asp
- “Design complexity is increasing as the connected world places greater demand on the mobile, IoT and embedded markets. As the industry’s leading provider of physical IP libraries, ARM enables the best SoC implementations on process technologies that address a diverse range of applications. UMC’s selection of Artisan as its foremost physical IP provider gives our mutual silicon partners a robust set of tools and platforms to deliver optimized SoC implementations and accelerate time-to-market.”(Will Abbey, general manager, physical design group, ARM.)
  http://www.umc.com/English/news/2016/20160415-2.asp

Investor

Key Concern: • Labor relations • Corporate governance • Sustainable development strategies • Economic performance • Ethics and integrity

Communication Method

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

Corporate shareholders:
- Quarterly domestic and overseas investor conferences
- Domestic and overseas seminar for investing institutions

Key Stakeholder Communication Outcome in 2016

- Worked with the Financial Supervisory Commission (FSC) to complete corporate governance accreditation
- 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

Supplier

Key Concern: • Sustainable development strategies • Compliance with regulations • Ethics and integrity • Human rights • Supplier Assessment

Communication Method

- Review reports or meetings
- Questionnaires and audit visits
- Jointly implement ESH and corporate social responsibility program with suppliers

Key Stakeholder Communication Outcome in 2016

- 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 2016
- Completed the promotion of UMC 3R League, invited suppliers of chemical raw materials, waste treatment, parts cleaning, and maintenance to form the UMC 3R League

Details of the partnership

- UMC 3R League: Reduce, Reuse, Recycle; Circular economy collaboration program

Feedback

Even though ChunYuan is a small company, we have big dreams. Our beliefs in integrity, service and efficiency have earned us a positive reputation, while our persistence, economic discipline and consulting characteristics have driven sales growth every year. ChunYuan has an excellent management team. With “Professional and Efficient” as our business philosophy, we will continue to pursue corporate sustainability and growth. Mobility, responsibility and diligence are our strongest traits.

“We are very pleased and proud to become a member of UMC’s 3R League. Here, we can work with others toward the common goal of building a better environment. The so-called 3Rs: Reduce, Reuse, and Recycle, implies to “reduce from the source, reuse the resources, and recycle the resources for reprocessing” to bring out the full potential (efficiency) of limited resources. The waste from the last process can be converted into the resource for the next process, achieving a circular economy. It is believed that our collaboration will not only allow the supply chain to be more competitive, but can also contribute to the environment, making a better world.” (Te-Yuan Yu, representative of ChunYuan Co., Ltd)

Beaming Co., Ltd. has a philosophy of “Take from the society to use for the benefit of society”. We have been working aggressively with corporations in various fields, spanning from raw material to waste reutilization. By integrating upstream and downstream industries, Beaming Co., Ltd. offers comprehensive services to its customers. Beaming pays special attention on work safety and eco protection in every manufacturing process to make the most environmental friendly products. Only through continual improvement can we make our company run sustainably. UMC’s 3R League: Reduce, Reuse, and Recycle, implies to “reduce from the source, reuse the resources, and recycle the resources for reprocessing” to achieve a circular economy. This idea matches well with our business philosophy.

“Currently, Beaming works with UMC for handling waste sulfuric acid and ammonium sulfate. We turned waste into usable resources. Low carbon, energy saving, low pollution and eco protection are the common philosophies between Beaming and UMC. We will continue to follow the international trend to work towards the goal of resource and waste minimization.”(Shu-Chuan Hou, vice executive general manager of sales at Beaming Co., Ltd.)

Media

Key Concern: • Employer-Employee Relations • Waste Water Discharge • Compensation and Benefits • Customer Privacy • Waste

Communication Method

- Press conferences
- Press releases
- Company Website

Key Stakeholder Communication Outcome in 2016

- Released 24 press articles on corporate governance and sustainability management
  http://www.umc.com/English/news/2016/2016.asp

Community/Non-profit Organization

Key Concern: • Compliance with regulations • Occupational Health and Safety • Human rights • Environmental management • Local Community

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 Stakeholder Communication Outcome in 2016

- Organized the 2016 UMC family day activity
- Volunteer work culture was promoted to provide volunteer work opportunities for minority groups. A total of 9,920 hours of volunteer work was conducted, which benefited more than 16,142 people (visits).
- Worked with the Society of Wilderness (SOW), an ecological conservation organization, to promote the Eco Echo ecological conservation program
- The UMC Eco Echo Award was established to provide subsidy for eco protection proposals.
- Collaborated with NTU (National Taiwan University) to develop water risk management tools for UMC's fabs in the Southern Science Industrial Park.
- Established the Energy Saving & Safety Volunteer Work Team to help 6 organizations such as Shih-guang nursing home, Sacred Church, etc. in energy saving, water saving and environmental safety improvement.
- Participated in IHTESH meetings to share the assessment of nano particulate exposure in semiconductor fabs.
- Participated in SEMI meetings to share UMC's practical experiences in safety data analysis and application.

Details of the partnership

- UMC Eco Echo Award: "Xuejia Wetland Transformation" Program

"Tainan Ecosystem Protection Association is honored to receive UMC's first Eco Echo Award. We appreciate UMC's effort and hard work in "ecosystem protection", promoting the "eco echo award's "spirit of social benefit and implementing the award's concept of social corporate contribution. In addition, the program not only "transformed" Xuejia Wetland Eco Park into a new site for ecosystem tours, environmental education, and school field trips, but also made huge improvements to Xuejia Wetland Eco Park, providing new opportunities in terms of environmental protection and low carbon emission."(Jen-Wu Chiu, chairman of Tainan Ecosystem Protection Association)

Feedback

Governmental Agency

Key Concern: • Compliance with regulations • Environmental management • Occupational Health and Safety • Chemical use • Energy use

Communication Method

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

Key Stakeholder Communication Outcome in 2016

- 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.
- The PFOA-related Free Program and Green 2020 Program were promoted within the organization.
- Participated the expert meeting of occupational muscle and bone disease prevention program held by the Occupational Safety and Health Administration to provide related experiences.
- Participated in the expert forum organized by the Science Park Bureau, Ministry of Science and Technology to share management related experiences.
- Shared ISO50001 energy management performance and experience in seminars held in the Science Park.
- Provided suggestion and feedback on "Electronics Industry Pollutant Release Standard" and "Clean Production Evaluation Index System Technology Index" via CSIA.
- Provided suggestion and feedback on "Jiangsu Semiconductor Industry Pollutant Release Standard Draft" via Jiangsu Semiconductor association.

Other Opinions and Expectations of Communications with Various Stakeholders

Corporate Sustainability Planning

Expectations of communication

- Consider the use of partnerships and work with NGOs / conservation groups / government agencies to tackle issues that the general public are concerned with and improve CSR image of the company.
- The promotion of corporate sustainability in the aspects of social attention and public sentiment still need improvement.
- Provide CSR and required information to the subsidiaries.

Feedback

UMC Group's corporate sustainability development and communication meeting was held in 2016, which invited 10 UMC subsidiaries to promote CSR together and share UMC's experiences, with the intent to achieve sustainable growth.

Economic Dimension

Expectations of communication

- Pay attention to short-, medium, and long-term impacts to the global economy that may be caused by China's continuing economic downturn.
- Play the role of a good corporate citizen to fulfill corporate social responsibility among the cross-strait businesses.

Feedback

Strengthened the management of subsidiaries and CSR assessment of the supply chain.

Environmental Dimension

Expectations of communication

- Taiwan is an island. Issues related to ocean environment require more corporate support.
- Issues relating to commercial waste require more attention.

Feedback

The scope of UMC's Eco Echo Award was expanded in 2016 to include projects that support the ocean environment and ecosystem. Special programs were established within the organization to promote a circular economy.

Social Dimension

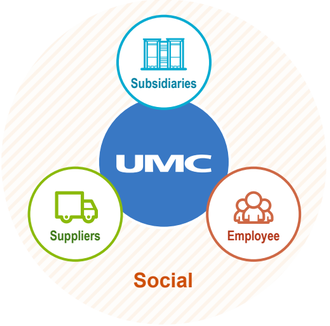
Expectations of communication

- It is hoped that education, minority and social benefits can be integrated in terms of knowledge and practical use and every effort spent and knowledge learned by UMC can in actuality be applied to realize success.
- Improve the Science Park mutual protection mechanism. Disaster prevention capability enhancement and passing down lessons learned from experience.

Feedback

The Energy Saving Service Team was established in 2016 to collaborate with suppliers. Employees contributed their professions in environmental protection, energy saving, work safety and fire-fighting skills to help minority groups and social welfare institutions to improve their quality of life, living together in an eco-friendly and energy saving environment.

In 2016, UMC held a corporate sustainability communication meeting for subsidiaries. A total of 30 representatives from UMC subsidiaries participated in this event. With regards to the important sustainability issues, besides experience sharing and information exchange, collaborative promotion programs were launched to bring the value of the supply chain into effect.



Promoting Consensus

- Introduce UMC Code of Conduct and international EICC standard
- Carry out stakeholder identification/communication to identify important sustainability issues and to make continuous improvement
- Setting a zero occurrence rate for eco and labor safety violations as the basis to establish an environmental safety and health management system.
- Increase the percentage of environmental and social friendly products to continuously improve competitiveness.
- Introduce ESG sustainability capability assessment into supplier management.
- Promote environmental education and volunteer work culture to improve employees' awareness as a global citizen.

Photograph of UMC corporate sustainability communication meeting

1-4 Key Report Considerations and Boundaries

With due consideration to internal and external influence and impact on UMC, the disclosures in this report are shown below in accordance with the materiality analysis outcome of sustainability issues and recommendations of the GRI G4 guidelines:

Category		Economic Dimension					Product Dimension			Environmental Dimension									
Issue		Economic performance	Supplier assessment	Compensation and benefits	Risk management	Innovation management	Customer service	Customer privacy	Compliance with regulations	Energy use	Water use	Greenhouse gas emission	Waste gas emission	Wastewater discharge	Waste substance	Product management	Supplier assessment	Compliance with regulations	Environmental management	Chemical use
GRI G4 Guidelines Aspects		Economic performance	Procurements	Market image	Other issues (Non GRI G4 Guidelines Aspects)		Product and service indicators	Customer privacy	Compliance with regulations	Energy	water	Emissions		Wastewater and waste substance		Products and services	Supplier environmental assessment	Compliance with regulations	Other issues (Non GRI G4 Guidelines Aspects)	
Within the organization	UMC	●	●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●
	HJTC / United Semiconductor	●	●	●			●		●	●	●	●		●	●	●	●	●	●	◉
	Wavetek / NexPower	●		●					●	●	●	●		●		○		●	●	○
	UMC Group USA / UMC Group Japan / UMC Capital Corp. / NBI / Unitruth Investment Corp. / TLC Capital Co., Ltd / Fortune Venture Capital Corp.	●		●					●											
Outside the organization	Supplier		●		●				●	○	○	○		○		○	●	●	○	○
	Contractor								◉											
	Customer						●	●	●											
	Neighboring Communities								●									●		

Category		Social Dimension																		
Issue		Employee-Employee relations	Labor relations	Supplier assessment	Occupational health and safety	Training and education	Compensation and benefits	Human rights						Supplier assessment	Anti-corruption	Fair trade	Compliance with regulations	Supplier assessment	Employee communication	Public services
GRI G4 Guidelines Aspects		Employee-Employee relations	Labor relations	Supplier labor assessment	Occupational health and safety	Training and education	Employee diversity and equal opportunity	Non-discrimination	Freedom to organize associations and collective agreements	Child labor	Forced labor	Human rights complaint mechanism	Assessment	Supplier human rights assessment	Anti-corruption	Anti-competition	Compliance with regulations	Supplier social impact assessment	Other issues (Non GRI G4 Guidelines Aspects)	
Within the organization	UMC	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	HJTC / United Semiconductor	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●		◉	
	Wavetek / NexPower	●			●	○		●	●	●	●	●			●	●	●			
	UMC Group USA / UMC Group Japan / UMC Capital Corp. / NBI / Unitruth Investment Corp. / TLC Capital Co., Ltd / Fortune Venture Capital Corp.														●	●	●			
Outside the organization	Supplier			●										●	●			●		
	Contractor				●										●					
	Customer																			
	Neighboring Communities																●			●

● Highly significant, disclose at this time ◉ Highly significant, plan to disclose within the next 3 years ○ Highly significant, disclosure not yet planned

2 Sustainable Development-Economic Growth

1st ISO 22301 Certification

First wafer foundry in Taiwan to pass ISO 22301 operation sustainability management certification for supplying chips used in automobiles.

11,963 Patents

In 2016, UMC was awarded 689 domestic and foreign patents, totaling 11,963 patents to date.

86 Billion of Investment in Advance Technology R&D and Manufacturing Equipment

Approximately NT$ 86 Billion was invested in advance technology R&D and manufacturing equipment.

NT$ 135.59 Billion

3.7% revenue growth compared to 2015.

86.6% Client Satisfactory

Customer satisfaction levels gradually increase every year.

5.2% Annual Increase in Product Manufacturing Volume

Annual product manufacturing volume of approximately 6,172,000 in 8" wafer equivalents, with an annual increase rate of 5.2%.

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 2016

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

Plans and Objectives for 2017

The Corporate Sustainability Committee will meet regularly with the Board to report promotional outcomes and plans.

Ensure shareholder equity& strengthen competencies of the Board

Performance in 2016

The performance of the board was reviewed and evaluated according to the company Directors' Self-Assessment of Performance.

The 13th Board of Directors had been elected according to the company's Policy for Nomination and Election of Directors. In 2015, the company also established a practice of maximum tenure for independent directors and elected its first female board member.

Plans and Objectives for 2017

The performance of the board will be reviewed and evaluated annually according to the company Directors' Self-Assessment of Performance.

The independent auditors communicate the Key Audit Matters (KAM) with the independent directors.

Enhance information transparency

Performance in 2016

UMC was rated the top 5% of listed companies by the 2nd Corporate Governance Evaluation Results in Taiwan.

Plans and Objectives for 2017

To promote the effectiveness of the Corporate Governance Evaluation.

The Company's Website will disclose major items:

- The communication mechanism between the independent directors and the head of internal audit/the independent auditors
- The conclusion of the Board of Directors' Self-Assessment of Performance

The UMC Board of Directors, Audit Committee, Remuneration Committee and Capital Budget Committee conduct their duties according to the regulations of "Convention Rules for Meetings of Board of Directors", "Audit Committee Charter", "Compensation Committee Charter", and "Capital Budget Committee Charter". To implement corporate governance, enhance capability and review performance of the Board, UMC instituted the Board of Directors' Self-Assessment of Performance to assess the performance of the Board annually in order to enhance the Board's role and responsibilities, the participation degree of company operations and understanding 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 education training of directors, internal control and Audit Committee communications, oversight of the financial reporting process and so on. The conclusion of the Board of Directors' Self-Assessment of Performance in 2016 is that the Board is functioning efficiently and as intended.

In addition to the company's 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).

2-1-1 Board of Directors

The UMC Board of Directors comprises of 8 members from different professional backgrounds, and is responsible for company operations and supervision. The diverse academic and industrial experience of the Board members are an asset to corporate decision-making and long-term strategy planning. Currently, the Board has three seats for independent directors and one for outside director. Half of the director seats are filled by members of outside companies. In 2016, a total of 7 board meetings were held. The average attendance rate was 98.21%, and ratio of total remuneration for board directors to company after-tax net income was 0.65%.

2016

A total of	The average attendance rate was	Ratio of total remuneration for board directors to company after-tax net income was
7 board meetings were held	98.21%	0.65%

Board of Directors

Policy for Nomination and Election of Directors

To ensure the 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 the Company shall be taken into consideration when determining the composition of the Board members. The criteria established to ensure the diversity of the Board members shall include, but are not limited to the following three dimensions:

Basic criteria
shared visions, gender, independence and culture, etc.

Professionalism
educational background, professional skills and industry experience, etc.

Corporate sustainability and communal participation
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

Chair of Board

Stan Hung ♂Age:57
Attendance Rate 100%

Director

Po-Wen Yen ♂Age:61
Attendance Rate 100%

Jason S. Wang ♂Age:54
Attendance Rate 85.71%

SC Chien ♂Age:59
Attendance Rate 100%

Ting-Yu Lin ♂Age:55
Attendance Rate 100%
Capital Budget Committee member

Independent Director

Chung Laung Liu ♂Age:83
Attendance Rate 100%
Audit Committee member
Remuneration Committee member
Capital Budget Committee Member

Cheng-Li Huang ♂Age:68
Attendance Rate 100%
Audit Committee member and financial expert
Remuneration Committee member
Capital Budget Committee member

Wenyi Chu ♀Age:50
Attendance Rate 100%
Audit Committee member and financial expert
Remuneration Committee member
Capital Budget Committee member

Note 1:Independent director Chun-Yen Chang resigned from his director position, effective January 1, 2017.
Note 2: Directors' current position at UMC or other companies is disclosed on Page17 of the company's annual report.

The Board has 8 seats, of which 3 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.	The Board has 8 seats, of which 4 are occupied by members who also serve as administrative directors, namely the Chief Executive Officer, Chief Strategy Officer and Senior Vice President.
Each year, UMC arranges for its directors and managers to participate in economic, social and environmental courses in corporate sustainability. Continuing education for directors in 2016 is disclosed on Page 36 of the company's annual report.	To implement corporate governance, enhance capability and review performance of the Board, UMC instituted a Board of Directors' Self-Assessment of Performance survey to annually assess the performance of the Board in order to enhance its operational efficiency.
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.	Independent director Cheng-Li Huang, with research expertise in 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.

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, whether it is personal or representing organizations, should explain the key content of their interest at the meeting. Should that interest undermine company interests, the said directors are not permitted to participate in discussions or votes, and 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 meeting minutes.The company has formulated 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, stakeholder communication contacts and information regarding disclosure are available in the Stakeholder Engagement section of the company website. The company has spokespersons and a dedicated email address for handling enquiries and input from various stakeholders.

2-1-2 UMC Functional Committee

UMC Functional Committee

Capital Budget Committee

Function

The Capital Budget Committee comprises of 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, and modifies and follows up on the company's capital expenditure budget by auditing its cost-effectiveness and tracking its performance.

Effectiveness in 2016

The UMC Capital Budget Committee was established in October 2013. In 2016, the Committee met 5 times, and audited and approved capital budget expenses of NT $ 81,880 million.

Disclosure Oversight Committee

Function

In response to the US Securities and Exchange Commission (SEC) demand for disclosure as a result of the Sarbanes-Oxley Act, UMC has established a Disclosure Oversight Committee comprising of the company's Level 1 executives. Information is rigorously gathered and managed to ensure that information reported to securities authorities are accurate and timely, thereby fulfilling the company's disclosure responsibility and obligation.

Effectiveness in 2016

In April 2017, UMC's information disclosure for 2016 was rated as top 5% in the Results of the 2016 Corporate Governance Evaluation.

Audit Committee

Function

Assists the Board in its oversight responsibilities, and is responsible for tasks dictated by the Company Act, Securities Exchange Act and other relevant laws. Since UMC is listed on the New York Stock Exchange (NYSE), it is also subjected to the US laws for foreign issuers. The UMC Audit Committee comprises of independent directors, of which two are financial experts. According to the terms and responsibilities stated in the company's Audit Committee Regulations, members are required to meet at least 4 times per year.

Effectiveness in 2016

In 2016, the Committee convened 7 times; the average attendance rate was 96.43% and maintained positive communication channels with the company's internal auditors, certified accountants, management team and employees.

Remuneration Committee

Function

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 2016

Meeting convened in March, June and December of 2016, respectively. The average attendance rate was 91.66%

All three 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 for High Level Managers

In addition to leading the company towards its operational direction and goals, UMC's high level managers also maintain focus on sustainable development indicators, and work diligently on economic, environmental and social development and innovation to create common harmony and prosperity for the corporation and society.
Remunerations for UMC general managers and deputy general managers include salary, pension, compensation, special disbursement, and disposition of earnings and employee stock options. Performance evaluation and salary remuneration policies, system, standards and structure for directors and managers are determined and reviewed by the Remuneration Committee. In addition, regular review and comparison within the industry and talent pool ensures competitive salaries to attract, motivate and retain talent. The effectiveness of high level managers are reflected in the company's overall performance, including indicators such as customer satisfaction, product innovation and technology development, capacity utilization, environment and sustainable development, and personnel training and development. Remuneration is primarily divided into fixed and variable remuneration to fully reflect individual and team performance as well as ensuring steady operating growth and breakthrough innovative power for the company.

Remuneration for High Level Managers

Ratio of maximum remuneration to median annual remuneration

Taiwan	Singapore
10.5	4.6

Ratio of % increase in highest total annual remuneration to % increase in median total remuneration

Taiwan	Singapore
Personnel with the highest wage showed no increase in total income (comparing 2016 with 2015)	1.52

2-1-3 Shareholders' Participation in Corporate Decisions

In the 2016UMC shareholder meeting, electronic voting accounted for 47.9% of total shares outstanding, and 58% of those attending the meeting. 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.
Under the global trends of Shareholder Activism, UMC requests for a motion during the general shareholders' meeting from any shareholders that hold more than 1% of the company. 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 the management with such issues.

2-1-4 Internal Audit

UMC has established an internal audit under the direct jurisdiction of the Board for the following purpose and tasks:

Purpose

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

Key Tasks

- Conduct 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, and 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), it is also subjected to US regulations for foreign issuers. Since 2006, UMC has complied with the SOX 404 Act, and has been audited by certified accountants. To date, the certified accountants have given unqualified opinions on the effectiveness of UMC's internal control plans and implementation.
For details of the internal audit and operation, please refer to the company's Website at
http://www.umc.com/English/investors/Corp_Gov.asp

2-1-5 Code of Ethics and Anti-Corruption

UMC has developed the UMC Code of Conduct 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 Code of Conduct in their daily work and business execution to gain public confidence and ensure sustainable growth and development for the company. By promoting the 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.

For relevant information, please refer to the company Website at
http://www.umc.com/English/CSR/c_4.asp

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 2016, 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 fabs, departments 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 regulations and risk assessment outcome, the Audit Department has formulated audit plans for relevant reviews, and regularly reports results and follow-up improvements to the Audit Committee and the Board of Directors.

Number of Appeal Cases Received in 2016

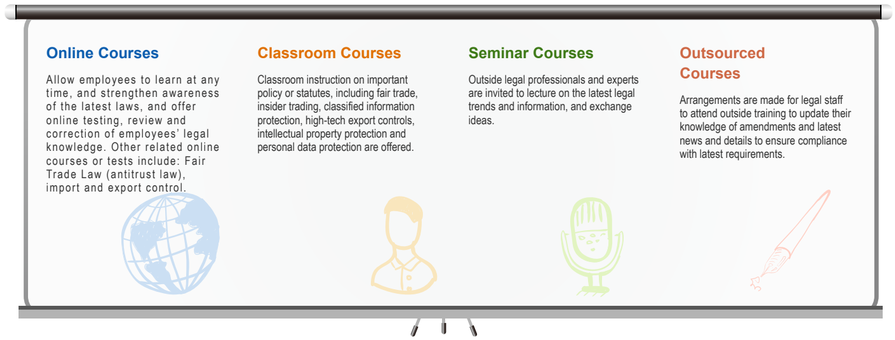
	Total of appeal cases received	Number of appeal cases recorded	Number of appeal cases on file	Number of appeal cases completed
Labor affairs	15	12	0	15
Human rights issues	9	6	0	9
Anti-corruption	6	6	0	6
Environmental/ Social issues	0	0	0	0

Note 1:Scope of human rights: includesissues such as sexual harassment, illegal violations, and forced labor.
Scope of labor affairs: includesissues such as hourly wage & salary, occupational safety, educational training and promotion/benefits.
Note 2:Appeal cases recorded: cases have been assessed by internal appeal procedures as well as standards and have been confirmed.
Appeal cases on file: cases that are officially undergoing judiciary proceedings.
Note 3: No proof of corruption or bribery was found in 2016.

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.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



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:

2016

In 2016, 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. Furthermore, UMC received no complaints from customers accusing anyone associated with UMC of violating their privacy or disclosing confidential customer information.

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.

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 block out dates within the next two months when trading is not allowed.

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.

Conflict Minerals

In compliance with the US Securities and Exchange Commission, UMC confirmed in its August 22, 2012 Conflict Minerls 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.

Intellectual Property Rights

Courses on intellectual property protection laws and regulations are provided to new employees, and in 2016, a total of 1,297employees were trained.

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.

Fair Trade Law

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.

2-2 Innovation Management

Current Status and Development of the Semiconductor Industry

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.

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 a longer operating time, 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.

2-2-1 Innovative Products and Technologies

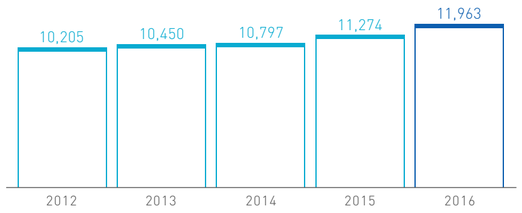
Innovative Products and Technologies

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 2016, numerous domestic and foreign patents were awarded. To date, UMC has a total of 11,963 patents that provide UMC's 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



The Internet of Things (IoT)

Successful Development of Technology or Products in 2016

28HPC^{U}

UMC's 28HPC^{U} process technology has been successfully developed and provided to intellectual property R&D companies to launch programmable 12.5 GbpsSerDes PHY IP solutions for high-speed I / O.

eCT

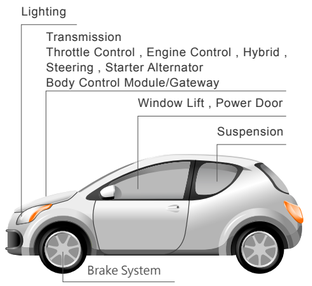
The 40nm embedded charge trap (eCT) flash memory has been successfully developed and provided to customers for the mass production of microcontroller units(MCU).

55ULP

The 55nm ultra low power process (55ULP) has been successfully developed and provided to intellectual property R&D companies to launch PowerSlashTM Fundamental IP to meet the need for long-life batteries in wireless internet-of-things products.

UMC Auto Solutions Platform

UMC announced the UMC Auto^{SM} technology platform to target companies designing chips used for automotive applications. The company also implemented a comprehensive Automobile Service Plan which incorporates zero defect processing methods that meet stringent ISO TS-16949 automobile quality standards.UMC is also the first specialized wafer fabrication company in Taiwan that complies with ISO 15408 EAL6 common criteria, and has successfully ranked as one of the elite companies (currently, only 1% of companies and products in the world have achieved ISO 15408 EAL6 certification or above). This security certification indicates that UMC is capable of achieving rigorous security measures in the manufacturing process, thereby satisfying the high security needs required by most wafer products for sensitive applications (such as door lock sensors for cars and navigation systems).



Note: Key automotive electronic components, including Advanced Driver Assistance Systems (ADAS), safety, body control, infotainment and engine room application products

2016 Environmental and Social Benefit R&D Progress

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.

28nm High Performance, Compact, Low Power Process Technology Platform

This technological platform can reduce current leakage and power consumption by nearly 40% compared to the Company's previous generation technological platform, and by nearly 15% compared to today's industry standards, and continues to give UMC a leading edge in the industry. In addition to excellent performance in terms of current leakage and power consumption, the HPCU + has reached the existing 28nm HK / MG production line standard for wafer yield and defect density.

Power Management Process Technology

To meet the demands of the wide range of power management (PMIC), UMC has already begun mass production using its Ultra High Voltage (UHP) process, which is suitable for power chargers, LED light bulbs, power amplifiers, AC-DC converters and motor drives and other special applications. In addition, a higher voltage 800V process has also been developed to meet the higher voltage needs of industries and achieve energy conservation by reducing energy loss during voltage conversion.

A platform that is compatible with standard logic and comprehensive silicon intellectual property is provided for customers requiring high integration PMIC.

In addition, world class low-resistance high-voltage (5V ~ 100V) components are combined with an integration of nanometer technologies in applications such as cell phones, tablets and home appliances, and automotive industries. Furthermore, UMC's 55nm uses PMIC copper processing for a comprehensive SoC solution to serve green energy needs.

Display Driver 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 process technology is leading the development of various voltages to meet the need for different specifications in a variety of application markets.

Complementary Metal Oxide Semiconductor Image Sensor Technology (CIS)

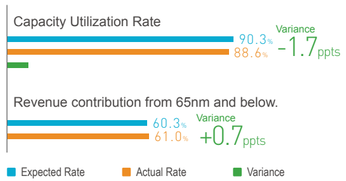
New processes such as backside-illuminated sensor (BSI) and 55nm CIS process technology are in the verification phase, and the technology is expected to provide higher sensor resolution to meet the demands for next generation product.

Micro-electromechanical technology (MEMS)

For the analog and digital SoC microphone that UMC manufactures for customers using CMOS-MEMS technology, the signal to noise ratio (S / N ratio) has out-performed the 60dBA standard. In 2016, 18 million microphones and more than 280 million customized MEMS microphone products were shipped.

2-2-2 Business Performance

Key Performance Indicators in 2016

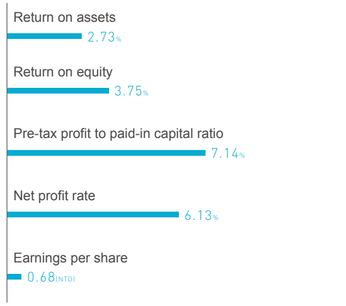


Continual Growth in Advanced Processes

Proportion of advanced process capacity for 40 nm or less has reached **30%**

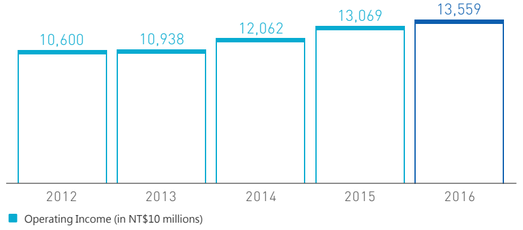
Compared to the previous year, the proportion of advanced manufacturing capacity for 28nm or less has increased by **35%**

Profitability

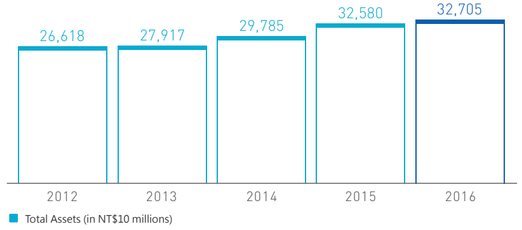


note: The above entity financial information is based on the Executive Yuan Financial Supervisory Commission approved international financial reporting guidelines. Please refer to the Company's 2016 Annual Report on Page 142.

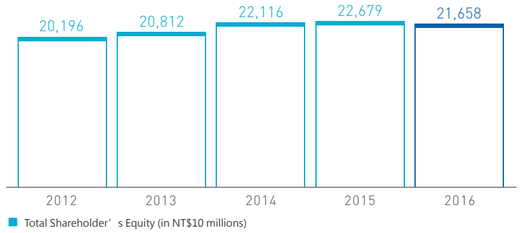
Operating Income



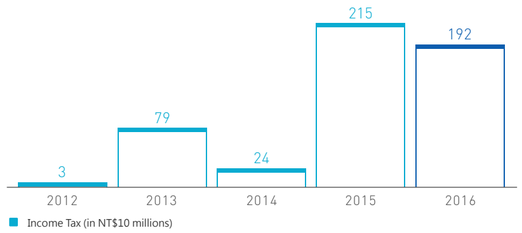
Total Assets



Total Shareholder's Equity



Income Tax

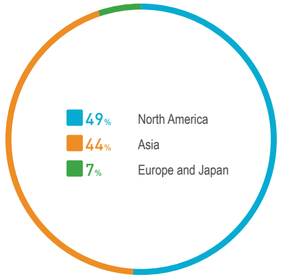


note1: The above information is in accordance with the Executive Yuan Financial Supervisory Committee approved international financial reporting guidelines.
note2: The above information is UMC's financial information. For consolidated information, please refer to Page 141, 146 of the company's 2016 Annual Report

Marketing and Sales Overview

Being highly recognized by customers, UMC's customer base includes major vendors in different regions. North America and Asia Pacific account for most of the product sales, where respective total sales in 2016 were 49% and 44%, while Europe and Japan accounted for7% 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



Factors Favoring UMC's Sustainable Economic Development

The foundry market flourished under the dis-integration of the vertical IC design and manufacturing model, and global demand for foundry grew rapidly.

Integrated device manufacturing (IDM) giants have adopted an outsourcing strategy for foundry, which contributes to the growth of the foundry market.

Strategic alliances with international companies have resulted in long-term stable orders.

UMC has established the industry's most powerful dedicated IoT platform. In addition, UMC's ultra-low power (uLP) process offers an extremely low leakage design that is suitable for a variety of applications. IoT chip design companies can make full use of UMC's low-power consumption technology as a base for combining different processes into a customized platform to satisfy specific customer needs and advance into the IoT and wearable markets.

UMC's advanced 28nm manufacturing process is already in mass production. UMC is one of the very few specialized wafer companies that can provide such technology for helping customers increase product profitability and reduce production costs. In addition to the breakthrough advance in 28nm process technology, UMC has also entered mass production of these wafers for a highly diversified customer base, thereby further strengthening the long-term competitiveness of UMC.

Note:For detailed information, please refer to Page 95 of the Company's 2016 Annual Report.

Unfavorable Factors in Future Development

Given the prospect of long-term demand and growth in the semiconductor industry, the world's leading foundries have increased their capital expenditures to expand advanced manufacturing capacity, which may cause imbalances in future market supply and demand.

Countermeasures

Continue to control spending and improve efficiency to reduce costs, and strategically and efficiently expand 28nm manufacturing capability. Strengthen company competitiveness by increasing advanced manufacturing and product portfolio.

Strategies for new competitors: Continue to strengthen advanced manufacturing development, and maintain the existing advantages of stable high yield and comprehensive service. Expand the gap with new competitors while also creating distinction so that UMC remains the best choice for customers.

Strengthen the building of long-term partnerships with customers, provide competitive advanced manufacturing process and production capacity, help customers capture market share and grow together with customers to seize the next wave of growth opportunities.

In the face of the global recession, be ready to respond to market changes with contingency measures. Through customer expansion, improved product mix and flexible capacity deployment, UMC reduces the impact of cyclical fluctuations.

Build equity and strategic alliances to expand the 12-inch foundry base, and reduce construction time, risk and cost for new foundry fabs, thereby reducing risk for the local market.

Provide the most advanced and optimal manufacturing services for featured IC products in various applications, and help customers achieve lowest cost, high efficiency and low power consumption.

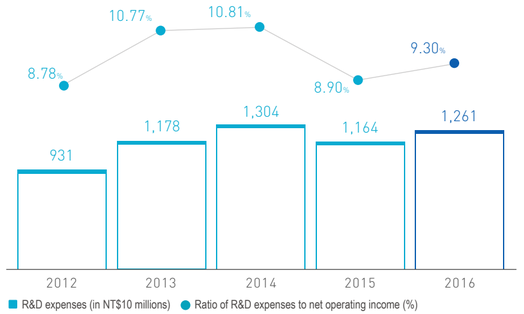
No indiscriminate expansion of production capacity, careful assessment of investment plans, comprehensive consideration of UMC's high level process maturity and customer capacity requirements at different stages.

Strengthen marketing effectiveness and customer service mechanism, and continue to increase customer satisfaction.

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 talents.

Invested R&D Funds



Note 1: The R&D expense is in accordance with the Executive Yuan Financial Supervisory Commission approved international financial reporting guidelines.
Note2: The above information is UMC's financial information. For consolidated information, please refer to Page 151 of the company's 2016 Annual Report.

China has the world's highest domestic demand for semi-conductors, and recently, the Chinese government has supported the semiconductor industry through different approaches. Since 2015, UMC and its subsidiaries have a plan to invested about US$1.35 billion over the subsequentlast 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 55nm and 40nm wafer processing services and further the development of the Group.
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, the Company 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 assistingits investment companies to grow and the parent company to profit.

2-2-4 2017 Operational Goals

2017 Operational Goals

Focus on differentiating advanced manufacturing and development of specialty technology to help customers succeed.

Continue to strengthen manufacturing capabilities, shorten lead-time, and improve overall quality and productivity.

Motivate employee potential and responsibility, integrate the organization's operational efficiency, and increase competitiveness in sustainable management.

Expand marketing and customer management to maintain the company's leadership in foundry.

2-3 Customer Service

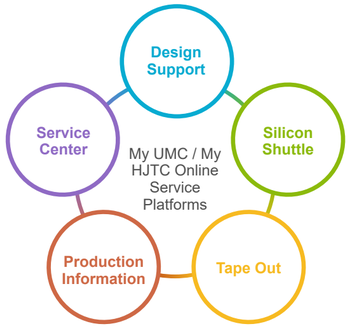
In the spirit of UMC's philosophy of working towards sustainable development, we believe sustainable economic development requires stability and growth in business performance, respect for customer feedback, customer demand, customer recognition and customer long-term support. While striving to strengthen 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 numerous applications 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.

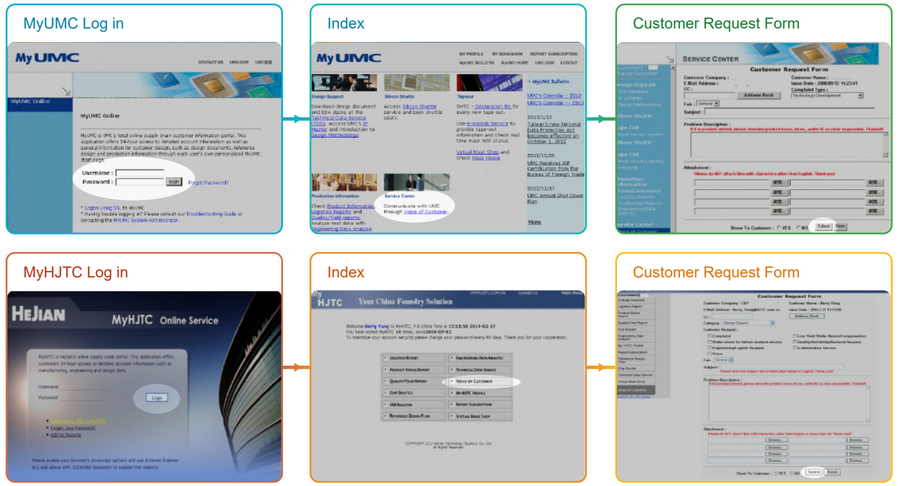
2-3-1 Improving Service Quality and Customer Satisfaction

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 and My HJTC (reserved for HJTC 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 features 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.

Online Service Platforms Provide Real-time Information



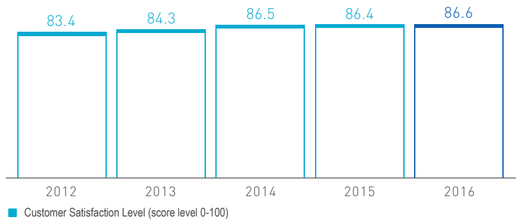
My UMC and My HJTC Online Complaint Systems for Customers



2-3-2 Improving Customer Satisfaction

UMC (including its subsidiary HJTC) regularly receives satisfaction ratings from those customers that generate more than 60% of its revenue. Customer scorecards are distributed on an annual, semi-annual or quarterly basis. Rating results are 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 subsidiary HJTC) use 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 subsidiary HJTC) has been growing steadily. 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



Supplier Award Received from Customer in 2016.

2-3-3 Protecting Customer Assets

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

Integrity

Uphold integrity towards self and customers.

1

Partnership

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

2

Commitment

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

3

We carefully explain the UMC policy and principles on IP protection mentioned above to demonstrate our commitment to ensuring the importance of our customers' IP security. 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.

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 German Federal Office for Information Security (BSI), 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

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 sustain nable 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.
UMC appointed Marsh Risk Consulting to perform Strategic Risk Assessment in November 2016. The consultants interviewed executives and collected and analyzed questionnaires completed by risk owners in order to define the strategic risks of UMC, analyze the impacts and develop a risk map. Through the Workshop, UMC executives internally discussedthe topic of corporate risks to reach common consensus on objectives and structure of risk management, followed by how to plan and execute risk management strategies.

2-4-1 Financial and Operational Risks

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

Liquidity Risk

Content

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.

Currency Interest Rate Risk

Content

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 ofdeposits 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.

Credit Risk

Content

Due to financial deterioration or other factors, clients 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 company's credit policies and customers' financial conditions.

Property and Operational Disruption Risk

Content

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.

2-4-2Emerging 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

In 2014, China announced a nearly $600 billion investment to support its domestic semiconductor industry, and used national strategies to define semiconductors as a future key industry in China.

Impact on Operations

May affect customer's choice of OEM.

Countermeasures

In 2014, UMC announced a joint venture with China's Xiamen municipal government in Fujian Province to establish the first Taiwan-funded 12-inch wafer fab (United Semi, a UMC subsidiary).

This advanced fab broke previous records for ramp up time. In 20 months since groundbreaking in March 2015, the plant beganmass production of customer products. Towards the end of 2016, the product yield of ICs produced using the fab's 40-nm process had exceeded 99%.

Expand the technology and production capacity of Hejian, UMC's subsidiary in Suzhou, and maintain close cooperation with customers in China.

Risk 2

Risk Description

Over the past four decades, Moore's Law has driven revenue growth, power, performance and cost improvement in the semiconductor industry. However, with shrinking processes, Moore's Law will reach a physical limit that will result in new challenges to progress.

Impact on Operations

With the cessation of Moore's Law, customer groups may contract, causing revenue to become concentrated to a few customers, which undermines profit and sustainable business development.

Countermeasures

IoT is the next breakthrough application of science and technology that will become prevalent in daily life. Applications such as smart city, smart car (car networking), smart home, smart medicine (telemedicine), smart individual (health and fitness), smart factory and smart process may become the next important opportunities for the semiconductor industry.

Characteristics constructed by innovative companies create market competitiveness for more and smaller customers. Since 2014, UMC has established an IoT task force to develop specialized platforms for helping customers to quickly gain an edge in the IoT market.

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.

Global Risk List	UMC Countermeasures	
UMC Countermeasures	Refer to 2-4-3 for disaster and risk control.	Environment
Natural catastrophes	Refer to 2-4-3 for disaster and risk control.	
Water crises	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.	Society
Cyberattacks	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	Technology
Data fraud or theft	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.	

2-4-3 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 Certification 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. In 2016, the ISO22301 management system was promoted in the 12-inch fab in Singapore, which passed the ISO22301 Business Continuity Management system verification at its first assessment, thus completing the support capacity for continuous operation.

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 policies.

Note: 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

System Operation Goals

2016 System Operation Goals Achieved

- **100%** participation in the critical 48-hour equipment rescue training.
- Establish qualified personnel inspection procedure for customer BCM responses.
- Complete review of Fab 12A seismic protection risk.

2017 System Operation Goals

- Construct the BCMs information rescue and recovery platform (with Fab 12A as a demonstration plant).
- Achieve **85%** purchase amount on the supplier BCP survey.
- Cyber risk MFL assessment.

2-4-4 Hazard Risk Control

UMC well 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.

Fire Disaster Risk Management Objectives

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 Equaipment 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.

Earthquake Protection

UMC actively planned and established sound disaster risk management and response procedures, and collaborates with internationally renowned structural consultants specializing in earthquake response, which is Vibration Engineering Consultants Stevenson & Associates(S&A) to assess the earthquake safety of its buildings, factory facilities, pipelines and production machines.

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. Introducing the UMC 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.

Response to 0206 earthquake in southern Taiwan

On February 6, 2016, an early morning earthquake measuring 6.6 on the Richter scale in southern Taiwan significantly impacted many manufacturers in Southern Taiwan Science Park. However, because of UMC's long-term investment in earthquake damage prevention, our recovery performance was outstanding compared to others in the same industry. Nevertheless, in terms of disaster impact, UMC remains pro-active, and invited Stevenson & Associates (S & A) and Marsh earthquake prevention experts to conduct anti-seismic inspection. Fifteen dimensions of earthquake impact prevention were reinforced in Fab12A, such proper installation of the fire piping, air handling equipment and electrical panels. Moreover, in cooperation with manufacturers, new quakeproof components such as seismic isolation platform for machines and equipment, and anti-seismic rubber mats and dampers have been introduced. The year 2017 will be dedicated to researching application of an earthquake early warning system and contingency measures for earthquakes.

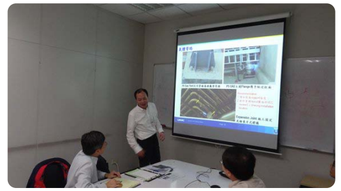
Response to extreme weather

UMC remains actively alert to the possible impact of extreme weather. In terms of flood risk, UMC will incorporate flood control standards into the specifications of new plants. The base of the new Fab12A_P5 / P6 plant is 2m above the surrounding roads, and meets the 200-years flood control standard. The flood potential risk assessment and overall recovery strategy and plan for Taiwan was conducted in 2014, and compared to the Hsinchu fab which is situated higher up in hilly terrain and therefore faces no flood risk, Tainan's Fab12A is situated in a flood potential area. Hence, floodgates are installed in specific entrances to strengthen flood control capacity, and the protection level is increased to the 500-years flood control standard. In terms of water shortage crisis, UMC collaborated with Professor Tong Chingbin from the National Taiwan University Department of Bioenvironmental Systems Engineering in 2016 to install the UMC water shortage warning system for forecasting the water situation for three months to help UMC prepare for or implement water conservation and reduce operation risks.

Note: Please refer to 3-3-6 Water Risk Management Tool Development for the UMC water shortage warning system.

Reinforced quakeproofing in Fab12A's fire piping.

Reinforced quakeproofing in Fab12A's fire piping.



MARSH / Dr. Masui Daisuke were invited to conduct quakeproof inspection.

MARSH / Dr. Masui Daisuke were invited to conduct quakeproof inspection.

Triple-Star Rating system

Since 1998, UMC has introduced the Triple-Star Rating System, which contains 20 items, including the Human Element and Physical Protection, where the highest rating for each item is three stars. Since 1999, the international insurance company AIG has been invited to conduct audits every year. With consistent self-expectations and commitment to improve, UMC's fabs have attained the highest three-star rating in 19 items, compared to 15 items previously, and the assessment outcome in 2016 continues to demonstrate a high level of performance.The results of UMC's efforts are fully illustrated in the following table.

Triple-Star Rating system

UMC's fabs have attained the highest three-star rating

Human Element	Physical Protection
Risk Management	Automatic Fire Protection and Fire Water Supply
Tools and Equipment Hazard Evaluation Procedure	Fire Detection, Outside Hydrant, First Aid Fighting Equipment
Housekeeping & Fire Safety Inspections & Maintenance of Fire Fighting Equipment	Power Supply
Hot Works	Air Handling System
Emergency Response Organization	Other Facilities & Support Equipment
Business Continuity Planning	Flammable Liquid Hazards
Management of Change <MOC>	Flammable Gas Hazards
Impairment Policy for Fire Fighting Equipment	Production Tools & Equipment Hazards
Inspection of Electrical Installation	Clean Room
Watchman & Security	Earthquake Protection

Note 1: This risk rating does not include UMC's subsidiaries HJTC and United Semiconductor in China.
Note 2: Fabs 8A, 8C and 8E are limited by the conditions of the original plant design. After improving their exhaust ventilation, rating for the clean room was upgraded from one star to two stars.

2-5 Sustainable Supply Chain Management

Regardless of where in the supply chain, corporate social responsibility must be confronted. For UMC, such a challenge also presents opportunities. The Supplier Management Committee has formed a special task force to promote sustainable supply chain management. UMC's worldwide suppliers are not merely business partners, but in addition to quality and delivery, UMC also expects them to fulfill their social responsibility in related issues. Management model and major performances are summarized as follows:

Supply chain management issues	Main items	Index
Management policy	Environmental protection, sustainable development Care for social responsibility, labor rights, safety and health Supplier quality, cost advantage, product delivery, service, sustainability, etc. Electronics industry behavioral standards	Suppliers' sustainability evaluation Suppliers' sustainability questionnaires and assessment Suppliers' sustainability audit Supplier risk audit and assessment Conflict mineral management process and disclosure Professional Ethics Agreement for employees of suppliers Supply chain sustainability (ESG) promotion of a circular economy
Supplier capability evaluation	New supplier evaluation Supplier assessment Assessment mechanism Education training	
Supply chain risk	Business continuity plan Earthquake/fire hazard risk Climate change/risk map	
ESG promotion: circular economy	To promote the importance of 3R (UMC 3R League)-Reuse (resources), Recycle (resources), Reduce (the production of waste and the use of energy and resources)	
Conflict mineral management	Management policy/process To ensure that products and the supply chain are free from conflict minerals	

Supplier sustainability questionnaires and assessment percentage

2016 Target: Complete ESG assessment for Tier-1 material suppliers from 95% of the procurement

Short-, mid-term goal: 100% of production related material suppliers; 80% of equipment and factory service related suppliers

Conformity in 2016 (conform/not conform): Completed the ESG assessment for 100% of the Tier-1 production related material suppliers; a total of 183 suppliers (73 of them are key suppliers and 25 of them are Tier-2 suppliers)

Quantity of supplier continual management (BCM) audit

2016 Target: 12 suppliers

Short-, mid-term goal: Complete BCP on-site audit for more than 16 suppliers every year

Conformity in 2016 (conform/not conform): Completed the supplier BCM management promotion, performed the ongoing risk assessment for suppliers that accounted for 95% of our procurement, completed on-site audit of 16 suppliers

Quantity of supplier sustainability (ESG) audit

2016 Target: 12 suppliers

Short-, mid-term goal: Complete ESG on-site audit for more than 16 suppliers every year

Conformity in 2016 (conform/not conform): Completed ESG on-site audit for 16 suppliers (suppliers with low self-evaluation score, new suppliers and key suppliers with high material risk), 5 suppliers failed the ESG audit, and they will be followed up for improvement

Excellent supplier reward

2016 Target: Reward more than 6 suppliers

Short-, mid-term goal: Reward more than 6 excellent suppliers every year

Conformity in 2016 (conform/not conform): A total of 20 suppliers were rewarded in 2016 (including equipment, raw material, parts, factory service, electronic design and automation related suppliers).

Conflict metal/mineral management

2016 Target: Conflict metal/mineral investigation report; On-site audit for 3 suppliers

Short-, mid-term goal: Complete Conflict metal/mineral investigation report every year; On-site audit for more than 3 suppliers every year

Conformity in 2016 (conform/not conform): Completed the 2016 conflict metal/mineral investigation report (no conflict metal/minerals were found in 12 suppliers and 15 affiliated companies); Completed on-site audit for 3 suppliers, and no misconduct was found

Supply chain risk

2016 Target: Establish risk databank

Short-, mid-term goal: Complete supply chain risk map

Conformity in 2016 (conform/not conform): Completed the supply chain risk databank and earthquake spare parts (quartz, fragile parts) management process for 2000 key raw materials (covered 100 suppliers)

Ethics and anti-corruption

2016 Target: 100% of the newly added suppliers sign the UMC Supplier and Employee Professional Ethics Agreement

Short-, mid-term goal: 100% of the newly added suppliers must sign every year.

Conformity in 2016 (conform/not conform): In 2016, 100% of the newly added suppliers (255 suppliers) signed the UMC Supplier and Employee Professional Ethics Agreement; over 3000 suppliers have already signed in total.

Supply chain sustainability (ESG) promotion: circular economy

2016 Target: Propose 1 sustainability (ESG) promotion plan

Short-, mid-term goal: Organize an oath-taking rally in 2017, launch a three-year special project that will run from 2017~2019

Conformity in 2016 (conform/not conform): Completed the promotion of UMC 3R League, invited suppliers of chemical raw materials, waste treatment, parts cleaning, and maintenance to form the UMC 3R League

2-5-1Localize Supply Chain and Procurement

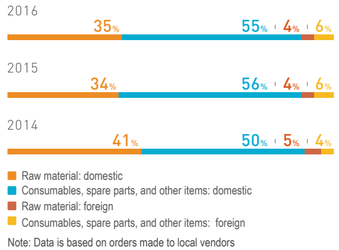
When corporate social responsibility becomes the key to business continuity, UMC must fulfill increasing international expectations towards business standards in Taiwan. In 2016, UMC cooperated with more than 1,800 suppliers worldwide. In order to build close partnerships, promote local socio-economic developments, and reduce carbon footprints of raw materials required during production, localized procurement became a key strategy adopted by UMC when looking for potential partners and suppliers. 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). Besides HeJian Technology 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. established in Xiamen, Fujian Province is a semiconductor manufacturing company, specializing in manufacturing of 12-inch wafers.

UMC invited 80 major suppliers to attend the grand opening ceremony of United Semiconductor (Xiamen) Co., Ltd. in November 2016, with hopes that the upstream and downstream supply chain can work together to realize a win-win situation for the economy, environment, and society. A total of 19 suppliers from equipment, factory construction, raw materials, electronic design and automation were also rewarded for their excellence during the ceremony.

Grand Opening ceremony of United Semiconductor Co., Ltd. in Xiamen China and supplier award ceremony

In the recent years, up to 90% of UMC raw materials, consumables, spare parts, photo masks and other items were purchased from domestic vendors.

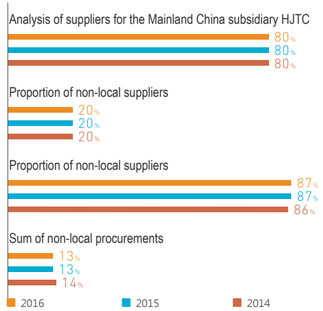
Proportion of UMC raw materials, consumers, spare parts, photo masks and other items purchased from domestic vendors.



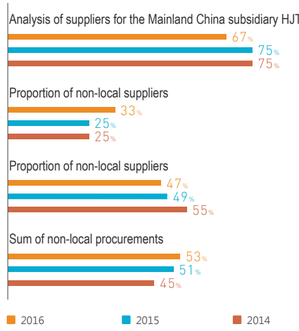
Note: Data is based on orders made to local vendors

With regards to the overseas manufacturing base in 2016, among the supply chain in Singapore, 80% of them were local suppliers and 87% of the procurement was local. Among the supply chain in China, 67% of them were local suppliers and 47% of the procurement was local.

Analysis of suppliers for the Singapore Branch



Analysis of suppliers for the Mainland China subsidiary HJTC



2-5-2 Sustainable Supply Chain Management

UMC Supply Chain Management Policy and Commitment

Policy

- To protect the environment and emphasize society's obligation, labor rights, security, health and the goal of a continually developing supply chain.
- To ensure products and the supply chain do not contain conflict minerals.
- To cooperate with upstream & downstream vendors and collaboratively create business opportunities.
- To manage vendor's quality, cost leadership, delivery, service/response, and sustainability. To fulfill demand in accordance with UMC and promote the spirit of competition.
- To firmly believe the key point of an enterprise's management is to fulfill economic, environmental, and society obligations. To voluntarily reinforce the enterprise's commitment to these obligations, and promote the benefits to customers, employees, suppliers & the community.

Commitment

- To firmly believe the key point of an enterprise's management is to fulfill economic, environmental, and society obligations. To voluntarily reinforce the enterprise's commitment to these obligations, and promote the benefits to customers, employees, suppliers & the community.
- UMC is a party to the global consensus for supporting supply chain and source management and uses certified sources of minerals from non-conflict areas. UMC also requires suppliers to ensure that their products and supply chain are free from conflict minerals. When selecting new suppliers or assessing existing suppliers, UMC shall exercise due diligence in supply chain audits to exclude the use of conflict minerals from the Democratic Republic of Congo (DRC) or adjoining countries.
- To commit to business integrity and forbid any inappropriate profit acceptance, corruption, extortion, or defalcation. To establish an identification and penal security mechanism.
- To monitor fire and earthquake damage, security risks & hygiene, environment, and labor rights. Supply chain risk management is also a competitive capability; as such, the company shall focus on supply chain vendor risks and voluntarily provide any assistance, if necessary.
- To ask suppliers to conduct the survey and management of the current business operating status, material sourcing diversification and the geographic dispersion of suppliers' production. To reduce the material shortage risks from extreme climate or serious natural disasters.
- To build up our risk evaluation program for supply chain vendors and establish an eternal evaluation method for them. To regard the method as the risk evaluation element and become one of the most important UMC procurement strategic references with elements of delivery date, quality, finance and business operation.
- To respect and protect the rights of intellectual patent property and conduct fair trade, advertisement and competition.

UMC Supplier Management Capability Assessment

UMC has planned a comprehensive supplier management approach, and expects to establish a sustainable supply chain management mechanism for providing control and counsel in the following 4 major dimensions:

New Supplier Selection

- Review supplier quality/finances/price/environmental protection and labor rights and other dimensions.
- Only those who meet UMC requirements may become suppliers for UMC.

Grade Suppliers and Counsel Accordingly

- Categorize suppliers according to characteristics and risks.
- Assess suppliers according to categories during annual supplier audits
- Based on assessment outcome, provide counsel to achieve company requirements

Supplier Review/Management

- Score suppliers according to supplier review mechanism
- Stop purchasing from or cancel qualified status of suppliers who score below UMC requirements

Supplier Education and Training

- Conduct supplier education and training periodically
- Promote and communicate UMC supply chain management approach

Only suppliers who satisfy UMC's assessment criteria such as product quality, financial stability, price, quantity and reputation may become suppliers for UMC.

Selecting New Suppliers

Currently, criteria for selecting new suppliers include (1) status on the Dow Jones Sustainability Index, (2) compliance with UMC Supplier and Employee Professional Ethics and code of conduct, and (3) compliance with principles of open and fair competition. In 2016, UMC Taiwan added 255 new suppliers which have passed the above-mentioned new supplier assessment program. In addition, all of the newly added suppliers (100%) agreed to sign the above-mentioned Professional Ethics Agreement, pledging to promote corporate social responsibility.

Sustainable Supplier Assessment

For major suppliers, quarterly assessment includes dimensions such as Q (Quality), C (Cost/ Financial), D (Delivery), S (Service) and S (Sustainability). In terms of sustainability, the focus is on supplier compliance with environmental, social, and economic requirements. Supplier management performance was included as an indicator item in supplier assessments 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. Suppliers that have a certification 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. For suppliers whose assessment scores are too low, UMC may suspend procurement or remove them from the list of qualified suppliers.

Sustainable Supplier Assessment

Economic	Environmental	Social
Supplier cooperation in terms of material delivery/stock management	Greenhouse gas emission information and carbon risk management	Performance in human rights and labor index Labor and professional ethics Human resource assets and development Labor criteria assessment
Emergency response plan for material provision	Water resource usage information and water risk management	Community assessment
Banned conflict metals/minerals disclosure	Energy usage information and risk management	Sustainability and corporate social responsibility
Suppliers annual financial report	Waste production information and management	Others: Business sustainability plan, social impact
	Overall environmental assessment	Employee safety

Mechanism for Assessing Supplier Sustainability

Supplier Chain Management Group

Management Target	■ Suppliers for various raw materials used for production
Management Approach	■ Each quarter, collect from relevant units supplier performance data for analysis ■ Periodically conduct supplier questionnaire surveys ■ Conduct annual on-site audit of major suppliers or request performance summary from the suppliers
Assessment Item	■ Sustainability Index ■ Quality Index ■ Price Index ■ Delivery Index ■ Service Index

Assessing Supplier Sustainability Level and Response Measures

ESG assessment for all qualified suppliers

UMC Taiwan has conducted assessment on its qualified material suppliers in the aspects of economy, environment, and society, etc. via questionnaires. In 2016, all qualified suppliers were investigated. Among the investigated suppliers, 74 of them were the major suppliers that accounted for over 95% of UMC's procurement volume. From these 74 suppliers, 69 of them reached the "Satisfactory" level or above, 61 of them reached the "Satisfactory" level, and 8 of them reached the "Good" level. Nevertheless, 5 of the raw material suppliers failed the assessment in the aspects of economy, environment and society and received a score of less than 70 from the responding questionnaires.

Subsequently, on-site audit was carried out for 16 suppliers who were selected from the suppliers with low score in self-assessment (previously mentioned 5 suppliers), new suppliers, and key suppliers with higher material risk. After the on-site audit, 5 suppliers failed to meet the requirements. For these 5 suppliers, additional audit will be carried out next year and corrective measures will be implemented for improvement. If the supplier receives a score in-between 70 and 79 for two consecutive years, its procurement percentage will be discussed during the supply chain management committee. So far in 2016, no supplier has been disqualified or terminated.

Raw material supplier A /B

Audit result

After on-site audit, the level is upgraded to Needing Improvement

Description

- Since the score did not reach the assessment standard level of 80, improvement of the supplier is requested. Furthermore, such supplier will be listed as the 2017 assessment supplier for keeping updated with the improvement results.
- Continue to demand the suppliers to strengthen their BCP in terms of consistent development in the 7 aspects and risk management to prevent the formation of any risk.
- If the supplier did not reach the "Satisfactory" level (a score of 80) during assessment, it will be sent to the supply chain management committee for consideration.

Raw material supplier C /D /E

Audit result

After on-site audit, the level remained at Significant Deficiency

Description

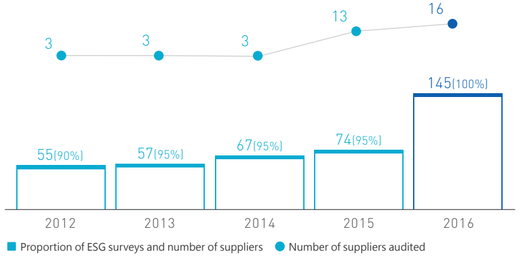
- Since the score did not reach the assessment standard level of 80, improvement of the supplier is requested. Furthermore, they will be listed as a 2017 assessment supplier for keeping updated with the improvement results.
- Continue to demand the suppliers strengthen their BCP in terms of consistent development in the 7 aspects and risk management to prevent the formation of any risk.
- If the supplier did not reach the "Satisfactory" level (a score of 80) during assessment, it will be sent to the supply chain management committee for consideration.

The remaining 110 suppliers accounted for over 5% of the procurement volume. Besides offering corporate sustainability development educational training to these suppliers, simple questionnaires were also given in order to understand their actual practices in terms of the economy, the environment and the society so that guidance can be provided for improvement.

UMC Singapore also investigated their qualified material suppliers in the aspects of the economy, the environment and the society through questionnaires. A comprehensive investigation of suppliers was conducted in 2016. Among the investigated suppliers, 53 of them, which accounted over 95% of the procurement volume at UMC, were rated as "Satisfactory" or above.

In Q1 of 2017, UMC completed its investigation of suppliers for 2016. Besides the major material suppliers which had annual trading of over 40 million NTD and accounted for 95% of the procurement volume (59 suppliers) at UMC, the rest of the suppliers which had annual trading of less than 40 million NTD and accounted for 5% of the procurement volume (86 suppliers) at UMC were also investigated. The investigation was completed and the responding questionnaires were assessed. It is hoped that such comprehensive ESG investigation on qualified suppliers can provide guidance for improvement. As for the suppliers with low self-assessment score, new suppliers and key suppliers with high risk, on-site audit will be performed.

Proportion of suppliers subject to environmental, social, and governance (ESG) audits and number of suppliers audited



In addition, the number and percentage of suppliers under assessment will be increased in 2017. For instance, equipment related suppliers which accounted for 80% of UMC's procurement (13 suppliers) and factory service related suppliers which accounted for 80% of UMC's procurement (29 suppliers) will be included.

Sustainable Supplier Risk

In order to fully understand the operation conditions of suppliers, such as their material source distributions as well as their material production line locations, and also minimize the risk of material shortage due to extreme climate or devastating natural disaster, UMC has established a risk assessment system for collaborated suppliers. Each year, UMC primarily conducts an annual sustainability risk survey, audits and scores major suppliers of raw materials such as silicon wafer, gases, chemicals, quartz components, photo masks, and component cleaning, who represent more than 95% of procurement dollar value at UMC. This fully demonstrates the close cooperation between the company and its partner suppliers to facilitate the commitment to increase overall value of the supply chain.

UMC Supplier Risk Management

Business Sustainability Plan	Request suppliers to formulate contingency plans and procedures for potential natural or man-made threats that may result in their production loss to ensure operational continuation and impact reduction for UMC.
Earthquake and Fire Risk	UMC offers vendors instructions on strengthening earthquake resistance and establishing emergency notification systems so that in the event of a disaster, the suppliers can immediately report the situation and update recovery progress to UMC. UMC shares its experiences to help suppliers with fire prevention.
Climate Change and Water Risk	UMC requires suppliers to prepare a response plan, such as production backup plan and increased inventory to reduce the impact of an incident.
Survey of Manufacture's Origin	UMC Supplier Origin survey for 2000 key raw materials (covering 100 suppliers) and build an emergency notification system in advance of preparedness programmes.

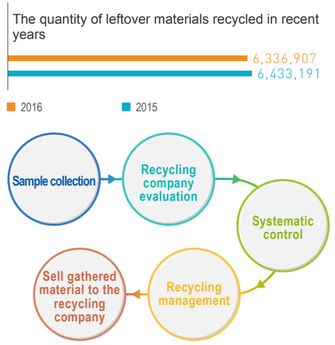
Outcomes of the annual supplier risk assessment conducted in 2016 showed that 8 suppliers had failed to reach a score of 80 points in one or more areas. Improvements were carried out according to consultation and requirements. On-site audits and consultation for business continuity management (BCM) were also implemented so that 3 of the said suppliers achieved an overall score of over 80 points to become middle- to low-risk suppliers. Although 5 suppliers still failed to meet standard requirements, improvements were underway and alternative suppliers were secured in order to achieve zero risk. In 2017, UMC will continue to investigate supplier's origin of production and the results will be systemized. By doing so, the risk of material shortage due to severe natural or manmade disaster can be minimized and controlled.

Circular Economy and Supplier Educational Training

UMC believes that suppliers have a very important position in the green supply chain management system. Therefore the company periodically organizes supplier education and training programs to promote and communicate the company's green supply chain management system policies and practices, and necessary collaboration with suppliers. The company hopes to reach a green product consensus with suppliers, and work together toward a win-win situation.

Circular economy is a recoverable and renewable industrial system：In addition to the continuous effort of source reduction, UMC also works together with its suppliers to develop materials that are recyclable and worth recycling. Moreover, the recycling process is conducted and managed systematically. In recent years, the quantity of leftover materials recycled has reached 6 million pieces to realize waste reduction and reutilization effectively. The implementation of a recycling process not only achieves the goal of waste reduction and reutilization simultaneously, but also creates an added benefit of 100 million NTD annually.

The quantity of leftover materials recycled in recent years



Note: The leftovers include targeted materials such as waste solvent, waste plastic, precious metal solution, wafer and various kinds of metals.

In 2016, the major recycled items from UMC manufacturing process for reuse include:

Dummy Wafer
Use reclaimed wafers, purchase quantity of **578,475pcs**, which accounted for **45.6%**.

Oxide Slurry SS25E
1,104 tons of slurry particle was recycled for reuse; **118,195** tons of water was recycled for reuse.

In 2016, UMC planned to work closely with its suppliers in the green supply chain management system, proposing the UMC 3R League; Reuse (resource), Recycle (resource), and Reduce (waste, energy and resource). Depending on the characteristics of each product, it is hoped that the resources needed for making the product can be used effectively via processes such as maintenance, reutilization, remodeling, and reproduction. The idea is based on the fact that waste from one industry may be the essential energy or resource for a different industry. If such mutual-benefit network can be built, not only we can prevent damage to the environment but also save a significant amount of money for waste treatment. By doing so, both the value of product and resource can be maximized to achieve a win-win situation.

In 2017, UMC will lead a three-year special project for organizing the UMC 3R League which will involve suppliers from major chemical raw materials (9 suppliers), waste treatment (6 suppliers), parts & components cleaning and maintenance (7 suppliers). In this project, a unified quantitative index across UMC's supply chain will be established to build a better future through experience sharing and mutual information exchange.

2-5-3 Conflict Mineral Management

In its conflict minerals management, UMC has been conducting suppler assessment and obtaining supplier signatures since 2009 to guarantee non-conflict minerals and ensure that products from suppliers are not in violation of conflict minerals manufacturing. 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.

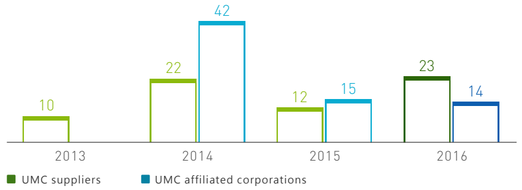
UMC Conflict Minerals Management Measures

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 2016, 15 UMC suppliers, 8 subcontractors and 14 UMC affiliated corporations were investigated.

Results of Recent Surveys



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 blend 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.

http://www.conflictfreesourcing.org/about/members-and-collaborations/

The use of tin, tantalum and tungsten (3TG) in each UMC site in 2016 is shown in the following table. Minerals from conflict areas or countries are not observed.

Supplier	Mineral used	Site
A	Tantalum	12A
B	Tungsten	12I
C	Tungsten	12I, HJ
D	Tungsten	8F,12A
E	Tungsten	8F,8S,12A, HJ
F	Tungsten	8E
G	Tungsten	8A,8D
H	Tantalum	8D, 12A, 12i
I	Tantalum	8D, 12A, 12i
J	Tantalum	8D, 12A, 12i
K	Tantalum	12i
L	Tantalum	8D, 12A, 12i
M	Gold	8A
N	Tin Gold	8F, 12A, 12I
O	Tantalum Gold	12A, 12I
P	Tantalum Tin Tungsten Gold	8D, 12A, 12I
Q	Tin	12I
R	Tin Gold	8E, 12A
S	Tin Gold	12A, 12I
T	Gold	8A
U	Tin Gold	8F, 12A, 12I

2-5-4 Electronics Industry Citizenship Coalition, and UMC Supplier & Employee Professional Ethics Agreement

Since 2013, UMC has been self-evaluating its own regulations and operating procedures in the aspects of labor, health & safety, environment, ethics, and management system from each of its plant site and department according to the most updated version of the Electronics Industry Citizenship Coalition (EICC), ensuring that the intention and the spirit of EICC are complied with.

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 not only is to allow suppliers to understand clearly UMC's requirements regardingon 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 EICC.

Additionally, UMC also responded on the content related to EICC survey forms sent to our clients based on the latest EICC Code of Conduct. A total of 128, 254, 44 and 168 responses were provided in 2013, 2014, 2015 and 2016 respectively.

For further information about EICC, please refer to
http://www.eiccoalition.org/standards/code-of-conduct/

2-5-5 Authorized Economic Operator and Strategic High-Tech Commodities Regulating Operation

The Authorized Economic Operator system for quality corporations has clearly become an international trend, and will become a prerequisite for international trade. In responding to the rising attention of global anti-terrorist and commodity safety issues, UMC has become the first domestic wafer manufacturing company to receive Authorized Economic Operator (AEO) certification in 2013. In 2016, UMC again received again the AEO certification in the manufacturing, and import/export industry categoriesy. Moreover, UMC Singapore (Fab 12i) passed the Singapore Secure Trade Partnership (STP+) in 2006, which is a voluntary verification management program, and the verification is submitted to Singapore customs every year.

UMC's China production base (HeJian Technology Co., Ltd.) also received AEO certification in June of 2016.

On the other hand, in 2012, UMC carried out the rule that "non-permitted strategic commodities cannot be exported" in compliance with the "Strategic High-Tech Commodities Export/Import Regulations" of Bureau of Foreign Trade, and, established the internal export control system (ICP) according to the "Corporateion Internal Export Control System Regulations". This System allows the process of exporting high-tech commodities to be simple, smooth and fast while and still complying ied with the international and domestic export regulations. By implementing this strictly managed system, the risk of false or illegal export of commodities will be minimized. Both the company and its customers have benefitted from the convenience and time efficiency.

Currently, the company has 33 customers using the above preferential licensing.

3 Sustainable Development-Environment

28% or More in 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.

67,212Mwh Power Reduction

The newly added reduction for 2016 was 67,212 Mwh, which is equivalent to a decrease of 35,488 tons in CO_2 emissions and a savings of about NT$ 155 million.

15,628Mwh Natural Gas Reduction

The newly added reduction for 2016 was 15,628Mwh, reaching the targeted goal, which is equivalent to a decrease of 3,074 tons in CO_2 emissions and a savings of about NT$ 19,750,000.

0 Environmental Incidents or Fines

0 Environmental Incidents or Fines
In 2016, there were no environmental incidents or fines.

472,000 Tons of Reduction in Water Usage

The newly added reduction for 2016 was 472,000 tons, reaching the targeted goal, which is equivalent to a savings of about NT$ 11,800,000.

89% Waste Recycling

The amount of reused waste was 31,754 metric tons, which is a gain of more than NT$53 million from recycled resources.

3,610 Tons of Waste Reduction

The newly added reduction for 2016 was 3,610 tons, reaching the targeted goal, which is equivalent to a savings of about NT$ 16.6 million in annual treatment costs.

Major Material Environmental Issues

There were three major categories of material environmental issues in 2016: (1) Environmental Management (2)Operational Eco-efficiency (3) Water Risk

Material Issue	Environmental Management				Operational Eco-efficiency				Water Risk		
Indicator	Compliance with regulations.	Certification for management system.	Hazardous material management.	Supplier assessment	Waste generation.	Electricity consumption.	Natural gas consumption.	Fluorinated greenhouse gas emission.	Development of water risk management tools	Water consumption	Wastewater quality improvement (reduction ammonia nitrogen in waste water).
2016Goal	• **0** cases of environmental regulation violation.	• **100%** passing rate for various annual environmental management system certifications.	• Substitute **100%** of PFOA material in all fabs.	• Perform ESG annual assessment for **74** key suppliers (those that accounted **95%** of UMC'sthe procurement volume) • Conducted on-site audits for **31** waste disposal companies	• Promote Green2020 Reduction Plan to reduce waste production volume of each unit by **2%**	• Promote Green2020 Reduction Plan to reduce electricity consumption of each unit by **2%**	• Reduce natural gas consumption by **2.68%**	• Reduce fluorinated greenhouse gas emission intensity by **>37.6%**	• Establish operational warning and decision supporting system for water deficiency risk	• Promote Green2020 Reduction Plan to reducewater consumption of each unit by **2%**	• Reduce ammonia nitrogen concentration in wastewater by more than **10%**
Compliance for 2016	✓ • No incidents of environmental regulation violation.	✓ • The entire company (8 fab areas) passed ISO 14001, ISO 14064 , QC 080000 certifications.	✓ • Substitute **100%** of PFOA material in all fabs.	✓ • Completed the ESG assessment for **100%** of the Tier-1 production related material suppliers; a total of **183%** suppliers • A total of **33** waste disposal companies have been audited. One supplier was not evaluated due to the withdrawal of its qualification; the rest of the suppliers were graded as "Excellent" or above.	✓ • Additional reduction of **3,610 tons** of waste generation for the year, reaching the annual targeted goal.	✓ • Additional reduction of **67,212Mwh** of electricity consumption for the year, reaching the annual targeted goal.	✓ • Additional reduction of **15,628Mwh** of natural gas for the year.The consumption of natural gas was reduced by **6.17%**	✓ • Fluorinated greenhouse gas emission was reduced by **40%**	✓ • The water deficiency warning and decision supporting systems for UMC fabs in Hsinchu Science Park and Southern Science Industrial Park were completed.	✓ • Additional reduction of **454,000 tons** of water consumption for the year, reaching the annual targeted goal.	✓ • Owing to ammonia source reduction, ammonia nitrogen concentration in wastewater was reduced by **28%~63%**
2017 Goal	• **0** cases of environmental regulation violation.	• Continue to pass various annual environmental management system certifications.	• Substitute **100%** of PFOA related material in all fabs.	• Perform **100%** ESG assessment for all Tier-1 suppliers which involve production related materials. • Expand the scope of ESG assessment for suppliers by including equipment and factory service related suppliers (those that accounted for **80%** of the procurement volume). • Conduct on-site audit of more than **33** waste disposal companies.	• Promote Green2020 Reduction Plan to reduce waste generation volume of each unit by **4%**	• Promote Green2020 Reduction Plan to reduce electricity consumption volume of each unit by **4%**	• Reduce the consumption of natural gas in each unit by **3.2%**	• Reduce fluorinated greenhouse gas emissionintensity by **>41.7%**	• Management system maintenance and optimization	• Promote Green2020 Reduction Plan to reduce water consumption volume of each unit by **4%**	• Establish wastewater treatment system for reducing ammonia nitrogen concentration in wastewater.

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: Fluorinated greenhouse gas emission reduction is calculated by using 2010 as the base year.

Environmental Information

Summary of environment related data for the 8 operating bases (Excluding subsidiaries) under the control of the company.

Number of ISO 14001 certified locations 8
% of certification 100%

Input Wafer 324 ton

Water

Total Water Usage	32,264 1000m³
Total Water Intake	14,456 1000m³
Surface Freshwater	0.00 1000m³
Underground Water	0.00 1000m³
Salt Water	0.00 1000m³
Tap water	13,667 1000m³
Rain/Condensate Water	669 1000m³
Purified Water	15,215 1000m³
Water consumed per unit of production	82.4 m³/wafer-m²

Fuel

Diesel	0.00 1000ton
Natural Gas	32,264 1000m³
Coal	0.07 1000m³

Paper

Paper Consumption 0.03 1000ton

Cost of Environmental Protection

Expenditures	1,082 millions
Capital Expenditures	1,099 millions

Energy

Total Energy Consumption	2,512 1000MWh
Electricity	2,290 1000MWh
Renewable Energy	1.83 1000MWh
Natural Gas	222 1000MWh

Raw Materials

H_2O_2	5.2 1000ton
H_2SO_4	18.8 1000ton
Total Raw Materials	81 1000ton
HF	1.3 1000ton
NaOH	12.6 1000ton

Output Wafer 300 ton

Water

Total Recycled Water	27,880 1000m³
Water Recycling Rate	74.40 %

Waste Water

Total Waste Water Discharge	9,880 1000m³
Chemical Oxygen Demand (COD)	1.86 1000ton

Other Air Pollutant Emissions

Nitrogen Oxide (NOx)	66 ton
Sulphur Oxides (SOx)	1 Kg
Volatile Organic Compounds (VOCs)	37.7 ton
Ozone-Depleting Substances (ODSs)	0 ton

Waste Generation

Total Waste	35.75 1000ton
Hazardous Waste	21.47 1000ton
Recycling Waste	31.75 1000ton
Landfill Waste	2.04 1000ton

Greenhouse Gas Emissions

Scope 1 /Direct Greenhouse Gas Emissions	616 1000tonCO₂e
Scope 2 /Indirect Greenhouse Gas Emissions	1,186 1000tonCO₂e
Category 3 Greenhouse Gas Emission	3,642 1000tonCO₂e

(+) please refer to page 65 for detailed emission of each category

Scope 1 /Direct Carbon Dioxide (CO_2) Emissions	44.0 1000tonCO₂e
Scope 1 /Direct methane (CH_4) emissions	0.4 1000tonCO₂e
Scope 1 /Direct nitrous oxide (N_2O) emissions	151.0 1000tonCO₂e
Scope 1 /Direct hydrofluorocarbon (HFC) emissions	36.6 1000tonCO₂e
Scope 1 /Direct perfluorocarbon (PFC) Emissions	291.7 1000tonCO₂e
Scope 1 /Direct sulfur hexafluoride (SF_6) emissions	92.2 1000tonCO₂e
Scope 1 /Direct nitrogen trifluoride (NF_3) emissions	59.0 1000tonCO₂e

Spillage

Number of spillage for dangerous materials	0.00 ton
Amount of spillage	0.00 ton

Fines

Number of Environmental Protection Fines	0.00
Amount of Environmental Protection Fines	0.00 millions

Paper

Recycling Waste Paper 0.34 1000ton

3-1 Green Factory

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.

Environmental Protection Policy

1. UMC's goal is pollution-free production. We not only comply with, but also strive to exceed international standards and all applicable environmental and safety regulations. We want to be an environmentally friendly enterprise characterized by continuous improvement.
2. We incorporate our environmental management system into the overall organizational management system.
3. We take the initiative to reduce waste production and prevent pollution by introducing and developing environmentally friendly technology into design, production, and operation.
4. We conserve energy and recycle natural resources as a model of environmental protection for the international community.
5. To meet our Corporate Social Responsibilities, we play an active role in government and community to improve and protect our natural habitat.
6. We educate employees about environmentally sound ethics and practices.

3-1-1 Green Factories and Buildings

Using past promotional experience and the 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. In 2013, UMC redoubled its efforts to have all its Taiwan factories achieve the Industrial Development Bureau certification for clean production. In 2016, UMC's Fab 12A P5&6 fabs as well as their offices have received the Diamond Smart Architecture Badge certified by Industrial Development Bureau, Ministry of Economic Affairs and Gold Badge certified by LEED of the United States.

Received

LEED of the United States
Fab 12A P3&4 (Gold Badge) | Fab 12A P5&6 (Gold Badge)

Smart Architecture of Industrial Development Bureau, Ministry of Economic Affairs
Fab 12A P5&6 (Diamond Badge)

EEWH-Green Architecture of Industrial Development Bureau, Ministry of Economic Affairs
Fab 12A P3&4 (Gold Badge) | Fab 8A | Fab 12A P5&6 (Diamond Badge) | Fab 8F (qualified candidate) | Fab 8S (qualified candidate)

Green Factory of Industrial Development Bureau, Ministry of Economic Affairs
Fab12A P3&4 | Fab8A

Clean manufacturing assessment system certification of Industrial Development Bureau, Ministry of Economic Affairs
All fabs. in Taiwan

Expected

Fab 8F and Fab 8S is expected to obtain EEWH Green Architecture Certification in 2017.
Fab 12A P5&6 is expected to obtain EEWH Diamond Green Architecture Certification in 2017.

UMC Future Plans for Green Building and Green Fab

New Fabs

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

Existing Fabs

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


Solar power generation system


Solar panel walls


Ecosystem green lands


Flood detention pool

3-1-2 Energy Resource Productivity Improvement Plan

Currently, environmental issues are a major issue of business sustainability among stakeholders. 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

2010 Completed – 2012
333 Reduction Plan (Base Year - 2009)
Electricity Usage -3%
Fluorinated greenhouse gas emissions intensity -33%

2013 Completed – 2015
369+ Reduction Plan (Base Year - 2012)
Electricity Usage -3%
Waste Generation -9%
Water Usage -6%
Fluorinated greenhouse gas emissions intensity -36%

2016 Implementing – 2020
Green 2020 Reduction Plan (Base Year - 2015)
Electricity Usage -10%
Water Usage -10%
Waste Generation -10%

Note 1: The base year for the 369+ and Green 2020 plans to reduce the intensity of fluorinated greenhouse gases (FCs) 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 – Reduce by 2%

2016 implementation status
Newly added reduction in power consumption was 67,212 Mwh, reaching the annual targeted goal.

Reduction measures
- Efficiency improvement : energy-saving Chiller and energy-saving DI pump were adopted
- Energy recovery technology (Innovation) : MAU heat recovery and high-temperature pump
- Supply condition optimization technology (Innovation) : CDA inverted frequency compressor, high-temperature chiller
- Supply efficiency stabilization technology : saving chiller main unit sponge ball automatic cleaning system
- Process simplification: production optimization to reduce equipment purchase and to save energy

Water Usage – Reduce by 2%

2016 implementation status
Newly added reduction in water consumption was 472,000 tons, reaching the annual targeted goal.

Reduction measures
- LHF recovery system
- AWR recovery system was installed
- LSR water supply improvement + CMP wastewater recycling

Waste Generation – Reduce by 2%

2016 implementation status
Newly added reduction in waste production was 3,610 tons, reaching the annual targeted goal.

Reduction measures
- Reduction in waste diluted sulfuric acid
- EKC reduction
- Reutilization of hydrogen peroxide-free sulfuric acid in ammonia & nitrogen system
- Sludge reduction
- Photoresist reduction

Note: The reduction goal of 2016 is determined based on the statistical data of 2015

3-1-3 Clean Production

UMC Clean Production Promotion

Manufacturing

UMC continues to develop manufacturing processes and high efficiency production equipment that utilizes low hazardous raw materials and produces less waste, reduces risk factors and harmful intermediate products during manufacturing, and reduces waste production and toxicity to maximize resource utilization.

Production

The nature of its operations makes it more difficult for UMC to control end product recovery. Hence UMC focuses on reducing environmental impact and hazard of product manufacturing and utilization, and adopts energy efficient design.

UMC also spares no effort in assessing its semiconductor product lifecycle. To minimize resource and energy consumption, UMC collects information on upstream suppliers to assess product lifecycle for its downstream customers (end-products businesses). Moreover, its harmful substance control measures, green procurement management and voluntary greenhouse gas reduction enable UMC to achieve green products.

Management System and Certification

Currently, all 8 UMC fabs and its subsidiary HJTC are ISO 14001 certified, and continue to incorporate various management systems and certification.

	Issuing Agency	Range
ISO 9001 Quality Management System	DQS-UL	Entire UMC and its subsidiary HJTC
ISO/TS 16949 Quality Management System	DQS-UL	Entire UMC and its subsidiary HJTC
ISO14001 Environment Management System	DNV-GL	Entire UMC and its subsidiary HJTC
ISO50001 Energy Management System	SGS	UMC Fab 8A
OHSAS 18001 Occupation, Health and Safety Management	DNV-GL	Entire UMC and its subsidiary HJTC
ISO22301 Business Continuity Management System	SGS	UMC Headquarters, Fab 12A and Fab12i
ISO 14064-1 Greenhouse Gases Emissions Verification	BSI, DNV-GL, SGS	Entire UMC and its subsidiary HJTC
IECQ HSPM QC 080000	DQS-UL, BSI	Entire UMC and its subsidiary HJTC
Sony Green Partner	Sony	Entire UMC and its subsidiary HJTC
Environmental Production Declaration	DNV-GL	UMC Fab 12A and Fab 8A
Carbon Footprint Verification on Integrated Circuit Wafers	DNV-GL	UMC Fab 12A and Fab 8A
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

- Environment Management System
- Energy Management System
- Occupation, Health and Safety Management
- Business Continuity Management System
- Quality Management System
- Green Product Certifications
- Greenhouse Gas Emissions Verification

Material Flow Cost Accounting Verification

In 2016, UMC's Fab8A passed the verification performed by DNV GL, an international verification company, based on the criteria of ISO 14051, becoming the first wafer foundry in Taiwan to complete Material Flow Cost Accounting (MFCA).
This promotion plan calculated the cost correlation between input (material and energy) and output (product and waste) of "lithography process" or related processes and inspected the consumables used during these processes in order to disclose profits that are hidden within the waste. By doing so, opportunities for waste reduction can be found to effectively save cost and optimize the usage of resources. The plan considered wafer edge cleaning solution EBR as the main consumable. If EBR were replaced by water, more than NT$ 20 million of cost can be saved.

Waste Management

Waste 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.
UMC's total waste output is 35,746 metric tons (not including routine office waste), and waste output per unit production capacity is 205 kg / m^2, which is an increase of 6% compared to 2015. Hazardous waste output is 21,469 metric tons, and hazardous waste output per unit production capacity is 123 kg / m^2, which is an increase of 3.6% compared to 2015. The increase in waste output is due to the increase output of sulfuric acid in high-order processes. The increase in total waste is due to the increase production of sulfuric acid from advanced manufacturing process as well as the generation of ammonium sulfate waste from the treatment of ammonia- and nitrogen-containing wastewater.
In 2016, UMC's reduction plans and measures resulted in a total waste reduction of 3,610 metric tons, as shown in the table below.

2016 Waste Reduction Measures and Performances

	Reduction (tons)
Reduction of waste diluted sulfuric acid (reduce the input of DI water and hydrogen peroxide during process)	1583
Reduce the use of detergent (lifetime extension)	745
Reduction of calcium fluoride sludge (reduction of HF from the source)	471
Reduction of waste sulfuric acid (lifetime extension)	384
Reduction of photoresist (reduction from the source)	105
Reduction of others (waste sulfuric acid, waste ammonia sulfate, buckets, parts and components, kitchen waste)	322
Total reduction	3610

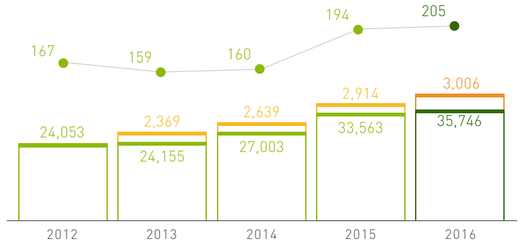
With regards to the waste reduction in Green2020 Reduction Plan, the waste production volume per unit of all UMC's 8" fabs (including 8N) was 116.8 kg/m^2, which is a reduction of 5.7% comparing with that in 2015 (123.9 kg/m^2). The waste production volume per unit of all UMC's 12" fabs was 291.7 kg/m^2, which is a reduction of 1.2% comparing with that in 2015 (295.2 kg/m^2).

Waste reduction measures proposed for 2017

Waste reduction measures proposed for 2017

- Implement independent recycling of diluted sulfuric acid after removal of hydrogen peroxide.
- Promote recycling of copper sulfate liquid waste
- Promote ammonia reduction and waste ammonium sulfate reduction.
- Promote sulfuric source reduction and waste sulfuric acid reduction.
- Continue to promote chemical lifetime extension and liquid waste chemical reduction.

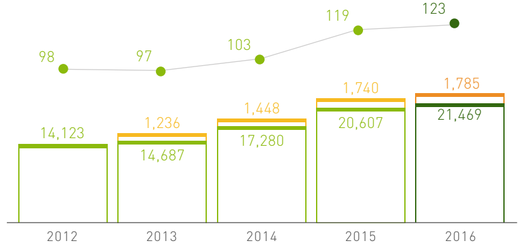
2012-2016 Total Waste Generation



■ UMC: Waste generation amount (ton) ■ HeJian/Fab8N: Waste generation amount (ton)
● UMC: Generation per production capacity (kg/Wafer-m^2)

Note: In 2016, the overall waste generation per wafer area of UMC and its subsidiary HJTC fab (8N) was 197 Kg / Wafer-m^2

2012-2016 Hazardous Waste Generation



■ UMC: Waste generation amount (ton) ■ HeJian/Fab8N: Waste generation amount (ton)
● UMC: Generation per production capacity (kg/Wafer-m^2)

Note: In 2016, the overall hazardous waste generation per wafer area of UMC and its subsidiary HJTC fab (8N) was 118Kg / Wafer-m^2

Waste-to-Resource

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.

In 2016, UMC recycled 31,754mt of waste, which accounts for 89% of waste being recycled. The amount of recycled hazardous waste is 20,269mt, which accounts for 94% of hazardous waste being recycled. In 2016, revenue from resource recycling (fabs in Taiwan) was about NT53 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.

Waste Company Control Measures

UMC conducts on-site audit of its waste cleanup/ treatment / recycling vendors 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 2016, UMC audited a total of 33 waste disposal companies. Except one supplier which was not evaluated due to the its withdrawal of qualification, the rest of the suppliers were graded as "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 the "High-Tech Industry Waste Cleaning Supplier Assessment Project" held by TSIA and TTLA and was responsible for evaluating 5 suppliers which involved waste solvent as well as waste sludge reutilization. The suppliers participating the "High-Tech Industry Waste Cleaning Supplier Assessment Project" in 2016 were assessed and those suppliers with outstanding performance were announced on the Industry Association website. In addition, the results of the assessment were shared and the outstanding suppliers were awarded at the International Seminar of High-Tech Industry Environmental Protection & Sustainability Development held by Taiwan Semiconductor Industry Association (TSIA) on December 6, 2016.

List of major waste recycling resource in 2016

Receptacle
Cleaned by recyclers for re-use.

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.

Fluorescent Lamp
Collected by recyclers for reusable fluorescent powder and metals.

Wood
Recycled as raw material for wood products.

Solvent
Convert to chemical grade raw material through distillation / extraction by chemical factories.

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.

Resin
Collected by recyclers, classified and cleaned and used as second grade resin for ion exchange.

Waste solvent
Collected by the supplier to be remade into coating thinners or banana oil mixtures.

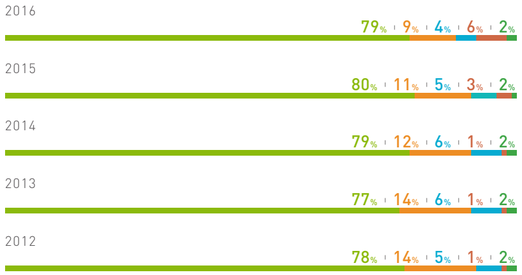
Sulfuric Acid
Collected by recyclers and diluted into industrial grade sulfuric acid, or re-made into poly aluminum chloride or sulfate.

Copper sulfate
Collected by recycler, and using 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.

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.

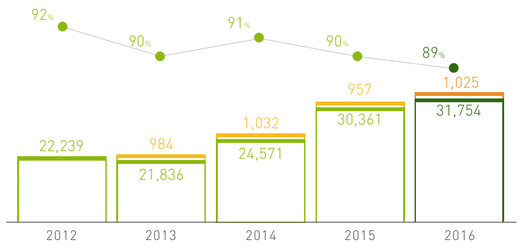
UMC Waste Recycling Trend



■ Material recycling ■ Energy recovery ■ Incineration ■ Landfill ■ Others

Note 1: Other waste recycling methods include solidification, overseas treatment and chemical treatment.
Note 2: Energy Recovery means that waste solvent was recycled as an auxiliary fuel.

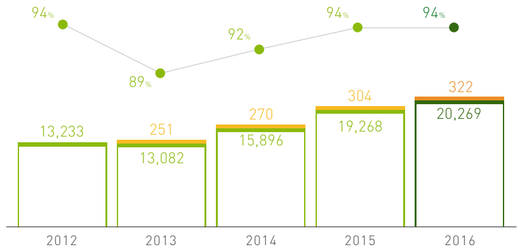
2012-2016 Recycling Status



■ UMC : Amount recycled (ton) ■ HeJian/Fab8N : Amount recycled (ton) ● UMC Recycling rate (%)

Note: In 2016, the overall recycling rate of UMC and its subsidiary HJTC fab (8N) was 85%.

2012-2016 Hazardous Material Recycling Status



■ UMC : Amount recycled (ton) ■ HeJian/Fab8N : Amount recycled (ton) ● UMC Recycling rate (%)

Note: In 2016, the overall recycling rate of UMC and its subsidiary HJTC fab (8N) was 89%.

Packaging Material Management - Collection and Recycling

All shipping materials used by UMC fully comply with EU PPW (Packaging and Packaging Waste) stipulations for material containing heavy metals. All materials are supplied with inspection reports prepared by qualified, impartial laboratories, and low environmental impact materials such as recyclable materials and non-bleached cardboard cartons are used when possible. In addition, since UMC is not an end product manufacturer, with customer consent, raw material and certain product packaging are re-used for shipping products to assembly or testing factories to reduce the amount of packaging materials and waste production.

The company will continue to cooperate with other organizations. From influencing customers to learning from suppliers and downstream supply chains, the company is increasingly able to use packaging that is recyclable or contains recyclable materials. In particular, since 2016, the amount of recyclable packaging in the well-established Hsinchu 8-inch production line has increased to 123,417 kg, of which 72,257 kg contains recyclable materials, representing a recovery rate of 59%.

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.

Air Pollution Control Treatment method

Acidic and alkaline exhaust

Stage 1: Installed tail gas treatment device in machine chamber (L / S) to treat toxic, flammable, Perfluorinated compounds (PFCs) and other process gases.

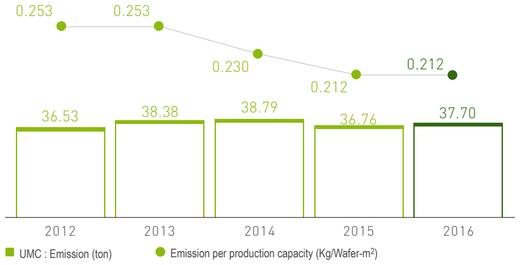
Stage 2: After end treatment by a central exhaust treatment system, gas is released into the atmosphere via a stack.

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 2016, the efficiency of UMC's volatile organic compounds (VOC) treatment was maintained at an average of 95. 27%, which exceeded the 90% legal standard. Total emission of hydrocarbon pollutants was 37.70 tons / year, which was a reduction of 759.25 tons / year.



Note 1: In 2016, the emission for HJTC (8N) was 0.115 tons / year

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 2016 are listed in the table below.

SOx	1 (kg)
NOx	66 (ton)

Toxic Chemical Substance Management

In addition to complying with legal stipulations, UMC also emphasizes hazard assessment and preventive management of chemical substances. Management focus and implementation for 2016 are shown below:

Self-imported chemicals management

Established chemical list and usage application procedure in self-imported chemicals management

Chemical hazard assessment management

The electronic management system was used to evaluate the hazardous properties of new chemical substances and the prevention and response capability of the factories. In 2016 a total of 131 chemicals were evaluated, and the response preparedness measures of all the factories were found to be capable of appropriate management.

Strengthen emergency response capacity

Actively strengthened employee emergency response capability, participated in joint toxic disaster prevention and rescue operations and exercises organized by the authorities, and participated in industrial exchanges.

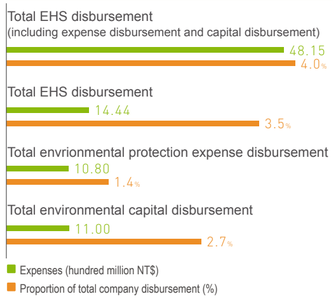
3-1-4 Environmental Accounting

In early January 2001, UMC has already begun implementing the Environmental Accounting system each month, and became the first corporation in the nation to adopt this electronic system in the industry. To ensure data accuracy, UMC referenced the six classification principles used by the Japanese Ministry of Environment. In addition to the environmental protection financial system, UMC also instituted a financial information system for Occupational Safety and Health, which combines with the existing accounting system and uses a matrix and internal control coding to calculate the cost and expense disbursement for environment safety and health related investments to facilitate effective assessment and decision analysis of overall environmental protection and EHS management.

Environment Safety and Health Investment

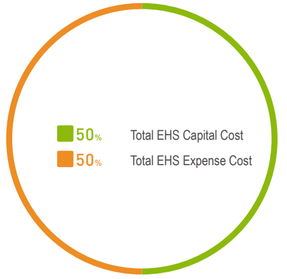
UMC is committed to environmental protection, safety and health, as evident from its considerable annual EHS funding. Through its Environmental Accounting System and calculations, records of ESH-related expenses are analyzed each month, and based on each year-end aggregate and analysis of Environmental Accounting data, UMC's ESH investment for the following year is planned.

EHS Investment in 2016



ESH Expense Ratio

ESH Capital and Expense Cost Ratio



2016 Proportion of Environmental Protection Costs

Environmental Protection Capital and Expense Cost

Direct cost of reducing environmental impact

Capital cost 1,099,367

Description	Expense cost
Pollution prevention costs, such as air, water, soil and groundwater pollution control expenses.	843,535
Global environmental protection expenses, such as climate change and other global warming prevention.	8,052
Expenses for enhancing efficiency of resource utilization.	2,834
Industrial waste disposal, treatment and recycling expenses.	168,431

Indirect cost of reducing environmental impact

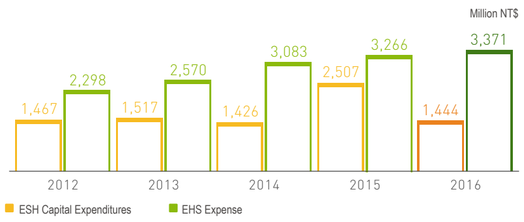
Description	Expense cost
Management costs include:	
Employee environmental education and training expenses.	60
Management system implementation and certification expenses.	1,707
Environment monitoring expenses	3,933
Human resource expenses for environmental protection.	47,984

Other environmental protection cost

Description	Expense cost
Supplier / customer upstream- downstream connection costs, such as suppliers / customers related environment protection expenses	687
Research and development costs, such as research expenses for reducing/ controlling environmental impact.	1,249
Social activity costs, such as sponsoring environmental groups, communications and information for environmental promotion.	3,641
Loss and compensation costs, such as environmental fines and litigation expenses.	0

Subtotal Unit: NT$1000	Capital cost	Expense cost	Total
	1,099,367	1,082,114	2,181,480

Annual Environmental, Safety & Health (Environmental protection/Safety/Health) Capital Expenditures and Expenses



3-2 Energy and Greenhouse Gas Management

3-2-1 Climate Change Policy and Low-Carbon Commitment

In the face of global climate and ecological changes, UMC is committed to its environmental protection duty as a member of the global community. In 2010, UMC led the industry by implementing the UMC Climate Change Policy as its highest guiding principle. In addition, the company formulated the UMC Low-Carbon Commitment guidelines for carbon reduction plans.

UMC Climate Change Policy

1. Expected to reach carbon neutral
2. To be the low carbon solutions provider
3. To promote the development of a low carbon economy

UMC Low-Carbon Commitment

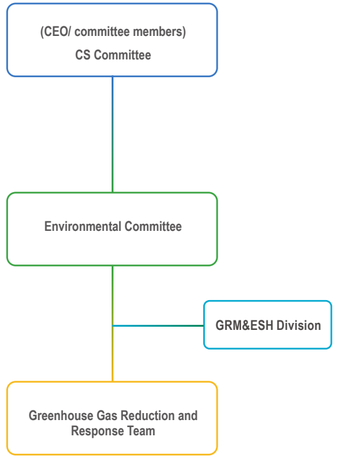
- Low-carbon design process
- Energy efficiency optimization
- Installing high efficiency FCs abatement in new tools
- Adopting green building standard for new buildings
- Carbon partnerships with customers and suppliers
- Complete the carbon footprint inventory for all fabs.
- Invest in green technology industry

For energy and greenhouse gas management, UMC has recently formulated various environmental protection objectives for different phases and dimensions along with actual implementation plans. These objectives and plans were then jointly discussed with the Corporate Sustainability Committee. Discussion outcomes and resolutions would then be ratified by the Committee Chairperson before implementation.

3-2-2 Climate Management Organization

UMC has a dedicated First-level Division (GRM&ESH) responsible for collecting and identifying greenhouse gas related issues. Through the Corporate Sustainability Committee, the Environmental Committee reports annual implementation results and issues to the Chief Executive Officer and Corporate Sustainability Committee members every 6 months.

Climate Management Organizational Chart



3-2-3 Climate Challenges and Opportunities

Temperature rise in the earth's surface has caused the melting of polar ice, rising sea levels and decreasing land. The frequency and intensity of abnormal climate abnormalities changes such as changing ocean current patterns, altering changing rainfall patterns, floods, droughts and storms have increased. These climate changes caused by global warming have directly or indirectly impacted natural ecosystems, and international governments are attaching great importance to greenhouse gas control. Hence it can be expected that increasingly stringent international or governmental carbon emission control regulations will indirectly create a higher threshold for corporate business, and only low energy consumption, low greenhouse gas emissions, green products and green industry will receive community support.

UMC Climate Risks Challenges and Opportunities

Risk Factors	UMC's Response
Regulations	
Greenhouse gas emissions permit and reporting, cap and trade schemes. Carbon tax, energy tax	Lower carbon emission voluntarily. As of 2016, UMC has 3.023 million tons of reduction credits approved by the EPA
Product labeling and disclosure.	Continue to inventory greenhouse gas emissions and product carbon footprint.
Climate related disaster	
Natural disasters resulting in job interruption. Building and facility damage. Raw material shortage and shipping delays. Water shortage during the dry season.	Continue to improve AIG Insurance audit. Promoting business continuity management system. (UMC has received ISO 22301 BCM certification) Globalize factories and supply chains.
Water shortage during the dry season.	Expanding water recycling and reuse to lower the demand for water. Implementing effective water-saving measures.
Other climate-related issues	
Products that are less eco-friendly will be eliminated because of changing consumer demands.	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.) Invest in green technology industry

3-2-4 Measures for Mitigating Climate Change

1. ntroducing ISO 14064-1 greenhouse gas (GHG) inventory program, planning reduction projects, and reviewing the effectiveness of reductions.
2. Participating in the EU FP7 (Seventh Framework Programme) to promote product carbon footprint inventory program. irst in the industry to complete GHG scope 3 emission inventory and verification, and identified more opportunities for reduction from the product life cycle.
3. Supporting the government's reduction policies and formulating FCs gas reduction methodology in semiconductors.
4. Income from carbon trading has been used to establish an environmental conservation foundation to promote GHG reductions and ecological conservation outside the company.

Greenhouse Gas Inventory

In accordance to 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 its reduction. At present, although there is no legally required reduction;, UMC has voluntary instituted greenhouse gas reduction for different stages, conducted annual review and strived for further improvement.
Since establishing an internal management system in 2006, UMC commissioneds a 3rd party to conduct inspections every year. The following lists the inventory statuses for every facility:

UMC Taiwan

Implemented annually since 2006
Historical data were was also verified for 2000 to 2005

UMC Singapore Fab 12i

Implemented annually since 2009

UMC China subsidiary He Jian Technology Company (HJTC) (Fab8N)

Implemented annually since 2014

UMC Greenhouse Gas Inventory Scope

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.

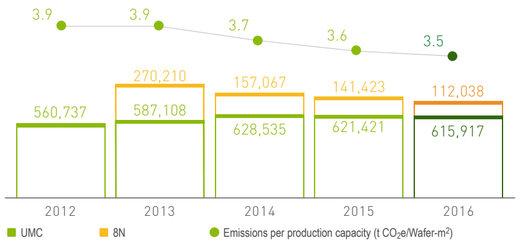
Energy indirect GHG emissions

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

Other indirect GHG emissions

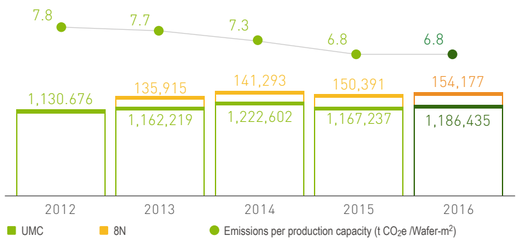
- Other indirect GHG emissions occurring as a consequence of the activities of the company, but generated from sources not owned or controlled by the company.

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



Note 1: In 2016, the overall emissions per wafer area for UMC and its subsidiary HJTC fab (8N) was 3.7 t CO_2e /Wafer-m^2
Note 2: The 2013 greenhouse gas emissions of UMC's subsidiary HJTC (8N) were not verified by a third party.

Scope 2 Indirect GHG Emissions and Emissions per Wafer Area



Note 1: In 2016, the overall emissions per wafer area for UMC and its subsidiary HJTC fab (8N) was 6.8 t CO_2e /Wafer-m^2
Note 2: The 2013 greenhouse gas emissions of UMC's subsidiary HJTC (8N) were not verified by a third party.

Scope 3 (Other Indirect Greenhouse Gas Emissions)

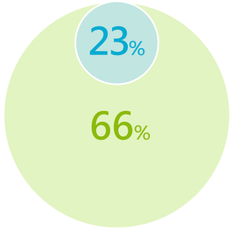
In 2015, UMC began referencing carbon footprint calculation methods and technical documents provided by WRI and WBCSD for inventory checks, in order to estimate scope 3 GHG emissions listed in the following. UMC also passed DNV GL verification, making us the first semiconductor company in Taiwan to complete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

	Boundary	
Purchased goods and services	Upstream (cradle-to-gate) emissions of 85% (by weight) of purchased goods	1,045,161 (t CO_2e)
Fuel-and-energy-related activities	Upstream emissions of purchased fuels (diesel and NG) and electricity	718,501 (t CO_2e)
Waste generated in operations	Transportation and disposal or treatment of waste.	602 (t CO_2e)
Employee commuting	Transportation of employees (in vehicles operated by the Company and employees)	14,410 (t CO_2e)
Downstream leased assets	Operation of assets owned by the Company	0 (There were no cases during the reporting period.)
Upstream transportation and distribution	Transportation of 85% (by weight) of purchased goods	582,096 (t CO_2e)
Capital goods	The purchased capital goods included equipment and infrastructure for production.	941,496 (t CO_2e)
Business travel	Transportation of employees for business-related activities	1,275 (t CO_2e)
Downstream transportation and distribution	Transportation of products sold by the Company	2,991 (t CO_2e)
Investments	Operation of investments: Wavetek Microelectronics Corporation, NexPower Technology Corp., and HeJian Technology(Suzhou) Co., Ltd.	335,323 (t CO_2e)

Greenhouse Gas Reduction

Results of UMC 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 compounds (FCs) and electricity, which account for about 90% of UMC overall greenhouse gas emissions. Therefore, FCs and electricity reduction are UMC's priority.

UMC Primary Sources of Greenhouse Gas Emissions



Greenhouse gas generated by the use of FCs during the company's manufacturing process.
CHF_3 C_3F_8
C_2F_6 SF_6
C_3F_8 NF_3
C_4F_8 CF_4 etc.

Greenhouse gases from electricity providers during the generation of electricity for the company's operations.
CO_2

Fluorinated Greenhouse Gas Reduction

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

2016 Reduction Goal **>36.7 %** (Note)

2016 Actual Reduction **40 %**

Note: The reduction goal set for 2020 was already reached in 2015. In 2016, reduction measures will be promoted continuously to ensure that unit fluorinated greenhouse gas emissions can be further reduced (better than the reduction level in 2015).

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 FCs and Fluorinated GHG reduction projects. FCs reduction in 2016 reached 1,047,000 tons, which was a 40% 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 the current stage, international trend and national policy will both be taken into consideration in planning the new reduction goal for the future.

Reduction Plans and Objectives for Each Phase for Fluorinated GHG (FCs)

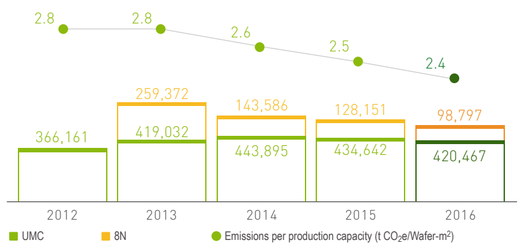
1998 — Phase 1: Comply with TSIA commitments
Decrease total annual FCs emissions in Taiwan fabs by 0.216MMTCE
Achieved target

2010 — Phase 2: UMC's voluntary reduction plan
Compared to 2009, reduce FCs emissions per wafer surface area by 33% in 2012.
Achieved target

2012 — Phase 3: Surpass WSC reduction objectives
Compared to 2010, reduce FCs emissions per wafer surface area by 36% in 2020
Goal attained successfully ahead of schedule

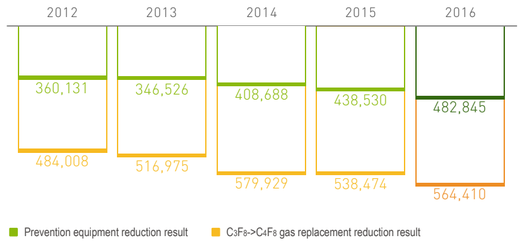
2016 — New objective
Planning

Fluorinated Greenhouse Gas Emissions



Note 1: In 2016, the overall emissions per wafer area for UMC and its subsidiary HJTC fab (8N) was 2.64 t CO_2e/Wafer-m^2
Note 2: The 2013 greenhouse gas emissions of UMC's subsidiary HJTC (8N) were not verified by a third party.

FCs Reduction Results (ton CO_2e)

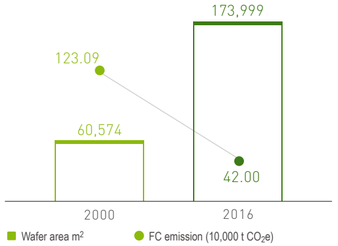


Note 1: The area to promote the emission preventive (reduction) equipment includes all fabs. The reduction efficiency was calculated based on the difference between greenhouse gas emissions before and after the treatment by the emission preventive (reduction) equipment.
Note 2: The area to promote C_3F_8/C_4F_8 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.

UMC's overall production capacity and FCs emission in 2000 and 2016

FCs emission reduced by ↓ 66%

Production capacity increased by ↑ 2.87 fold



Future Reduction Practice

1. All new equipment shall be installed with a high performance local scrubber for N_2O and FC gases.
2. All new CVD equipment in new facilities shall utilize NF_3 gases

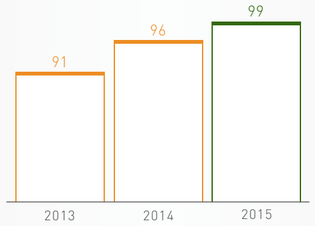
3-2-5 Carbon Disclosure and Communication

In response to international Carbon Disclosure concerns, carbon emissions management and carbon emissions disclosure & communication have become important issues for UMC. In 2006, UMC was invited to participate in the international Carbon Disclosure Project (CDP), and to date, has participated for 11 consecutive years with progressive results. In 2015, UMC was named in the Climate Disclosure Leadership Index (CDLI) , earning the highest Carbon Disclosure Score among Taiwan semiconductor companies for the third consecutive year and the highest ranking for Carbon Performance Band among all Taiwanese enterprises. In 2016, UMC achieved a leadership level score of A- in the CDP's Climate Change Assessment Program

CDP Score Feedback

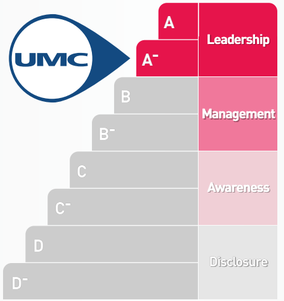
CDP
DRIVING SUSTAINABLE ECONOMIES

2013-2015 UMC CDP Score



2015 : Awarded the highest ranking for Carbon Performance Band among all Taiwanese enterprises. (99, A-).
2014: Awarded the highest Carbon Disclosure Score among Taiwan semiconductor companies. (96, B).
2013: First Taiwanese Company Listed both on CDP's Climate Performance Leadership Index and Climate Disclosure Leadership Index. (91, A).

2016 UMC CDP Score



Communication Channels and 2016 Approach

Symposiums

"UMC Carbon Footprint Management and Sustainability Development Achievements" were shared at the SEMI Conference.

"The Experience of UMC in Responding to Climate Change" was shared in the Carbon Reduction Industry Alliance strategy exchange seminar.

"UMC's Preliminary Project on Reduction Quota Application and Case Sharing" was disclosed in Industrial Pollution Prevention Publication issued by the Ministry of Economic Affairs.

"The Impact of the Paris Agreement on Low-Carbon Economy and UMC's Case" was disclosed in Environmental Management Association/ Industrial Sustainable Development Clearinghouse.

Government agencies

Disclosed greenhouse gas emission amount and reduction information on MOPS (Market Observation Post System).

Submitted the company's annual greenhouse gas reduction implementation and outcome to government agencies for review and statistical analysis (for each fab)

UMC received the Greenhouse Gas Voluntary Reduction Excellency Corporation and Reduction Technology Innovation Award issued by the Industrial Development Bureau, Ministry of Economic Affairs.

Taiwan Semiconductor Industry Association

FCs gas reduction methodology in semiconductors jointly established by UMC and Taiwan Semiconductor Industry Association (TSIA) member companies were submitted to the Environmental Protection Administration (EPA) for review.

Questionnaires

Provide customers with greenhouse gas management/emission and carbon footprint information.

Assess suppliers' carbon footprint management.

World Semiconductor Council (WSC)

UMC participates in the WSC biannual meetings on behalf of TSIA.

Annual Report

In addition to completing yearly CSR disclosure, the company also discloses its yearly financial summary.

Webpage

Disclosed on UMC webpage.

3-2-6 Carbon Assets and Carbon Trading

UMC is a long-time participant in the Taiwan Semiconductor Association (TSIA) discussion on greenhouse gas emissions reduction, and also participates in reduction policies promoted by the government. When the EPA announced its "greenhouse gases early reduction project and trade-in allowance principles" and "semiconductor industry greenhouse gas emission intensity announcement" in 2010 and 2011 respectively, UMC commissioned a third party inspection agency to verify its past greenhouse gas reduction outcomes. At the same time, the company also collaborated with other members of the TSIA on FC gas reduction methodology for the semiconductor industry.
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, promote environmental protection measures, and contribute towards environmental sustainability.
In 2016, UMC further utilized the Environmental Protection Special Fund to launch the Million Dollar "Eco Echo Award" Project. It is hoped that through competition among applicants, outstanding environmental protection programs and innovations can be gathered to stimulate more effective ways of protecting our Earth as well as its ecosystems and continue to generate positive energy. At the same time, the "Energy-Saving Service Team" was established to help minority social welfare groups in achieving the goal of energy saving and carbon reduction.

3-2-7 Energy Management

Energy use not only consumes the earth's resources, but also produces carbon dioxide that causes greenhouse gas emissions. To effectively reduce the environmental impact of the greenhouse effect, reducing energy consumption is the key issue for UMC's sustainable development. 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 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

Power consumption reduction goal： A total of 10% reduction within 5 years from 2016 to 2020 (using 2015 as the base year).

Natural gas consumption reduction goal: a reduction of 2.68% in 2016 (using 2015 as the base year).

Results

Newly added reduction in power consumption for 2016 was 67,212 Mwh, reaching the annual targeted reduction goal of 2%

Newly added reduction in natural gas consumption for 2016 was 15,628 MWh, reaching the annual targeted reduction goal of 2.68%

Electricity Reduction

Electricity Conservation Measures in 2016

Change online UPS to offline UPS
Implementing Fab
8A,8D,8E,8F, 8S, HJTC (8N)

Replacing lighting with LEDs
Implementing Fab
8A,8D,8E,8F, 8S, HJTC (8N)

Reduce machine emission
Implementing Fab
12A,12i

Compress gas energy conservation
Implementing Fab
12A,12i,8D,8E,8F, 8S

Total Electricity Conserved in 2016
67,212 Mwh
CO_2 Emission Reduction Equivalent
35,488 tons

Cold water system energy conservation
Implementing Fab
12A,12i,8D,8E,8F, 8S,

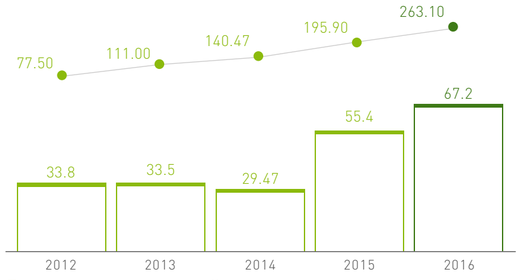
Process cooling water energy conservation
Implementing Fab
12A,8D,8F

Production machine energy conservation
Implementing Fab
12A,12i,8A,8D,8E,8F, 8S, HJTC (8N)

Energy saving measures for water treatment systems
Implementing Fab
12A,12i,8A,8D,8E, 8F,8S

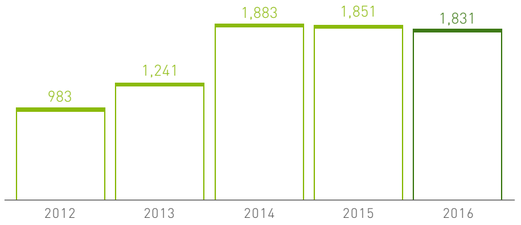
Note 1: CO_2 emissions are calculated using the power coefficient of 0.528 Kg CO_2e / KWh.
Note 2: The information above includes energy savings for fab site 8N but does not include fab sites that have yet to start mass production.

Past Energy Conservation Outcome



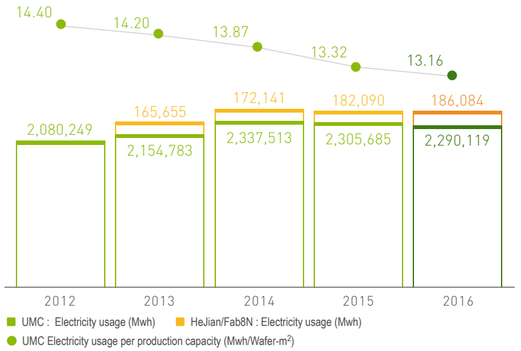
Note: The information above includes energy savings for fabctory sites 8N but does not include fab sites that have yet to start mass production.

Solar Power Output in Recent Years



Note: The information above includes energy generated by solar power for fab site 8N but does not include fab sites that have yet to start mass production.

Past UMC Electricity Usage



Note 1: In 2016, the overall electricity usage per wafer area for UMC and its subsidiary HJTC fab (8N) was 12.58 Mwh/Wafer-m^2

Note 2: UMC electricity usage does not include UT or fab sites that have yet to start mass production.

Natural Gas Reduction

Natural Gas Conservation Measures in 2016

Natural Gas Conservation Measures in 2016

- **Add high temperature heat pumps**
  Implementing Fab ： 8A,12A, 12i — 12,589 MWH
- **L/S retrofit & RFB upgrade to ULF**
  Implementing Fab ： 12A — 547 MWH
- **VOC Oxidizer NG saving**
  Implementing Fab ： 12A — 353 MWH
- **VOC Desorbate Fan flow reducing**
  Implementing Fab ： 12A — 83 MWH
- **Converting VOC system from RTO to RCO**
  Implementing Fab ： 12i — 23 MWH
- **Reducing HDI usage**
  Implementing Fab ： 12A — 2,033 MWH

Total — 15,628 MWH

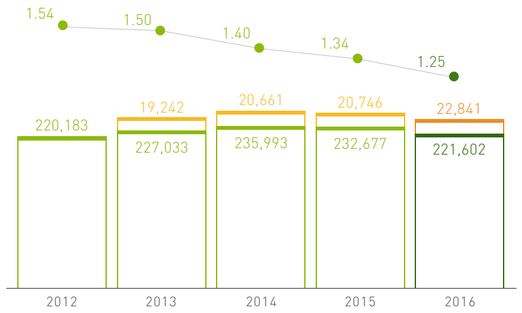
reduction objectives	2.68%
reduction reached	6.17%
Cost savings in 2016	NT$19,756,360
Total gas conservation in 2016	15,682 (Mwh)
CO_2 emission reduction equivalent	3,074 tons

Note 1: For newly added improvements, performance was only calculated for 12 months.

Note 2: The gas conservation amount estimated by the energy conservation measure is a theoretical amount. The CO_2 emission coefficient of the 2006 IPCC fixed and mobile resource (gas) and gas caloric value from the various local fabsctories are also incorporated into the carbon emission calculation.

Note 3: The gas carbon equivalent for Taiwan's fabs = 1.879 $KgCO_2/M_3$
The calorific conversion coefficient for Singapore's (12i) Town Gas = 0.2021 $KgCO_2$/KWH

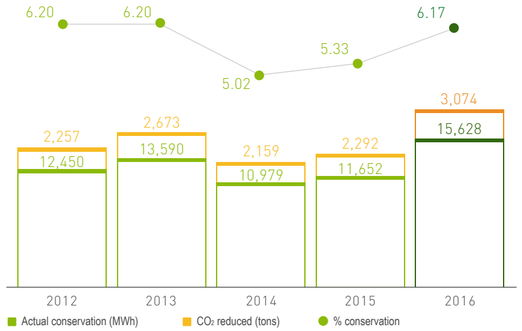
Past UMC Natural Gas Usage



Note 1: n 2016, the overall natural gas usage per wafer area for UMC and its subsidiary HJTC fab (8N) was 1.18 Mwh/Wafer-m^2

Note 2: The unit gas calorific conversion coefficient is calculated according to the caloric value provided by the local fabs.

Past UMC Gas Conservation Outcome



Energy Conservation Plans for 2017

Energy saving plans shall cover about 170 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 2017 are 50,231 MWh, which would be equivalent to carbon dioxide emission reductions of about 26,170 tons.

UMC shall continue to promote heat recycling and energy saving projects for high temperature heat pumps and selective plans for VOC HMDS adsorption that are expected to reduce gas usage by 8,059 MWh, which would be equivalent to carbon dioxide emission reductions of about 1,573 tons.

Variable frequency air compressor

Cooling water energy saving

Use energy saving cold water system

Air conditioning energy saving

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, 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.

Policy and Commitment

Policy

Maximize water efficiency, increase ability of valuable downstream chains to withstand water risk, and promote the importance of water resources and conservation.

Commitment

1. Introduce water risk management system
2. Develop and utilize diverse water sources
3. Use active management indicators to promote water conservation
4. Cooperate with supply chains to reduce water footprint
5. Provide open and transparent water information
6. Widely promote water education

Identifying Water Risk Factors and Response

Risk Factors	UMC Response
Regulations	
Regulations and control for wastewater Water charges	■ 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
Disaster	
Heavy rainfall and flooding	■ Improve flood potential and risk assessments ■ Improve AIG Insurance audit ■ Promote Corporate Sustainable Operations Management System (was awarded ISO 22301 certification) ■ Globalize fabs and supply chain
Global shortage of water resources	■ Reduce pressure of water demand by increasing water recovery and reuse ■ Use limited water resources efficiently ■ Evaluate and introduce new water sources ■ R&D of water resource warning devices
Others	
Consumers, customers, investors and other stakeholders demand green products from businesses, and due to expanding influence to suppliers, energy consuming commodities are indirectly eliminated.	■ Promote analysis and certification of life cycle of product environmental impact, and implement source reduction (UMC has been awarded water footprint certification, and continues to promote water conservation programs)
Shortage of raw materials due to disrupted supply caused by floods.	■ Assess suppliers' water risk
Change of water source resulted in the change of water quality.	■ Water quality risk assessment was conducted.

3-3-1 Factory 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 factories located on water scarce regions and further implement water risk management strategies.

UMC's main source of water for each plant

Hsinchu Science Park — 8A , 8D , 8E , 8F , 8S

Description

In addition to the existing water supply, the Shi-hmen Reservoir and Yongheshan 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.

Water Source

Baoshan Reservoir | Baoshan II Reservoir | Longen Weir

Tainan Science Park — 12A

Description

Water is mainly supplied by the Nanhwa 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.

Water Source

Tsengwen Dam | Nanhwa Dam

China — Subsidiary HJTC(8N)

Description

Taihu Lake has a water storage capacity of 2.72 billion tons, and is an abundant water source that provides stable water supply.

Water Source

The main water sources for Suzhou's Taihu Lake are the Shaoxi in Tianmu Mountain in Zhejiang Province, and Jingxi in Liyang Mountain in Jiangsu Province

Singapore — 12i

Description

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

Water Source

Singapore Newater reclaimed water

Water Scarcity (Note): Low / Moderate / Moderate-High

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

http://www.wri.org/our-work/project/aqueduct/aqueduct-atlas

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

	Regional water consumption (Note 1)	UMC water consumption (Note 2)	Impact of UMC consumption
Hsinchu Science Park	520,000 tons/day	16,200 tons/day	3.12%
Tainan Science Park	820,000 tons/day	12,800 tons/day	1.56%
Singapore	450,000 tons/day	8,300 tons/day	1.84%
China	1.1million tons/day	5,500 tons/day	0.50%

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.

3-3-2 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 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

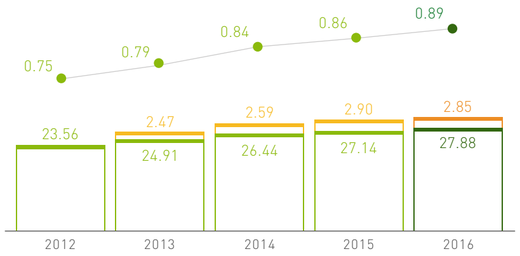
UMC's first principle of water consumption is designing a water conservation process, followed by recovering water for reuse and implementing highly efficient water management. To effectively reduce water resource consumption, all three principles must be integrated. In addition to conserving water, the company also actively participates in the Science Park Administration's water management indicator formulation and annual manufacturer water conservation counseling and technology exchanges for manufacturing companies. 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 include 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

UMC continues to promote water resource reduce, reuse and recycle over the years. According to statistical data, the amount of water saved from 2013 to 2015 has reached 1,398,000 tons, which is equivalent to 11.2% of the water used in 2012. After reaching the short-term water saving goal, the promotion of water saving continued in 2016. Due to the implementation of the company's Green 2020 Reduction Plan and new improvement measures, the amount of water saved in 2016 reached 472,000 tons (accounting for 3.4% of the water used in 2015), which is equivalent to a saving of NT$ 11,800,000. UMC's subsidiary, HeJian Technology Co., Ltd. (8N),saved 8,143 tons of water in 2016 (accountingfor 0.4% of the water used in 2015), which is equivalent to a saving of RMB$ 28,500.

As shown in the diagram below, in 2016, UMC company-wide recovered water that totaled 27.88 million tons, which is equivalent to conserving 0.89 of Baoshan II Reservoir :

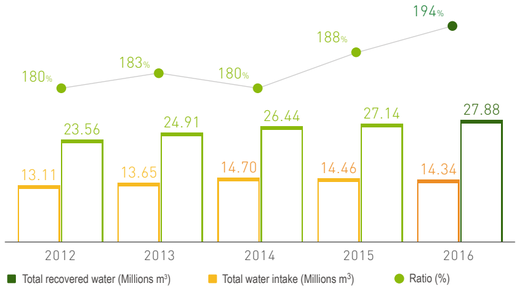
UMC and Its Subsidiary HTJC Water Conservation in the Last 5 Years.



Note 1: In 2016, total recycled water of UMC, including its subsidiary HJTC fab (8N) was equivalent to conserving 0.98 of Baoshan II Reservoir.
Note 2: In 2016, Fab 8N overall recovered water amounted to 2,855,000 tons, which was equivalent to 0.09 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 2017 Water Storage Report)
Note 4: The information above does not include fab sites that have yet to start mass production.

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 intake. Total water recovery and reuse could reach more than 190% of water intake.

Percentage of Water Recovery and Reuse to Total Water Intake.



Note 1: Amount of recovered water is calculated using cumulative flow meter or floating flow meter
Note 2: Total water intake includes tap water + rain water + condensate.
Tap water: Water meter readings are recorded daily, and based on average monthly water usage, annual water amount is calculated.
Rain water/Condensate: Annual water amount is calculated using flow meters and estimates.
Note 3: The information above does not include fabctory sites that have yet to start mass production.

New Improvement Measures and Outcomes for 2016

		Amount of Conserved Water
Reduce Fab ROR consumption usage	Implementing Fab 12i	34,900 tons
Mod-B ROR divert to raw water pit	Implementing Fab 12i	31,650 tons
Upgrade LSR system pump's capacity	Implementing Fab 8D	13,119 tons
Low HF waste water reclaim system	Implementing Fab 8A	100,859 tons
Others		106,350 tons
Expansion of Low HF reclaimation system	Implementing Fab 8E	85,200 tons
CMP waste water reuse to local scrubber	Implementing Fab 8S	17,986 tons
Stop washing of CS IPA Scrubber	Implementing Fab 8D / HJTC(8N)	14,878 tons
Increase capacity for alkaline waste reclamation system	Implementing Fab 12A	65,561 tons
CMP waste water reuse to scrubber system	Implementing Fab 8D	9,787 tons

Note: Only 12 months of performance are included for the new improvement items. Only outcomes in 2016 are included in multi-year plans.

Improvement Activity Photos

Low HF waste water reclamation system

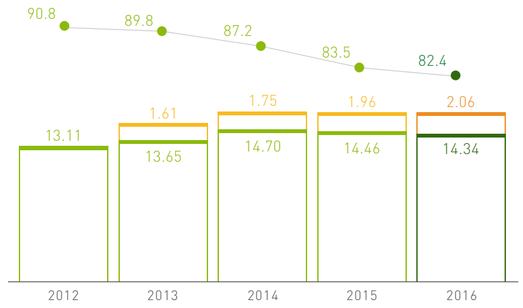
Increased capacity of alkaline waste reclamation system

CMP waste water reuse to scrubber system

Total Water Intake

UMC strives to improve its water conservation and increase its water efficiency and value, and reduce the environmental impact on water source, reduce water consumption replenishment, and use tap water as the primary source, supplemented by rainwater and condensate.In 2016, total water usage in UMC amounted to 14.3 million tons, which included public water, condensation water, and acquired rainwater.

UMC and its Subsidiary HJTC Total Water Intake from Tap Water, Condensate and Rainwater in the Last 5 Years.



- UMC: Total water intake amount (Mm^3)
- HeJian/Fab8N: Total water intake amount (Mm^3)
- UMC: Total water intake amount per production capacity (Mm^3 /Wafer-m^2)

Note 1: In 2016, the overall water intake amount per wafer area for UMC and its subsidiary HJTC fab (8N) was 83.3 m^3/Wafer-m^2

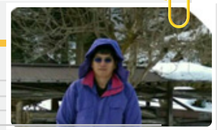
Note 2: 2016 UMC tap water consumption: 13,667,000 tons; condensate + rain: 670,000 tons

Note 3: 2016 8N tap water consumption: 2,020,000 tons; condensate + rain: 36,500 tons

Total water intake includes tap water + rain + condensate:

Note 4: The information above does not include fabctory sites that have yet to start mass production.

Employee Feedback Sam Lin Department Manager FOC/FE8F/WTS



"Since its construction in 1999, Fab 8F has not only fulfilled the environmental standard for process recycling/total plant recycling ratefor water usage, but has also diligently cooperated in the implementation of various water conservation measures and responsibilities throughout our company. Over the last 18 years, we have invested a total of NT$48,970,000 in our relentless effort to conserve water.

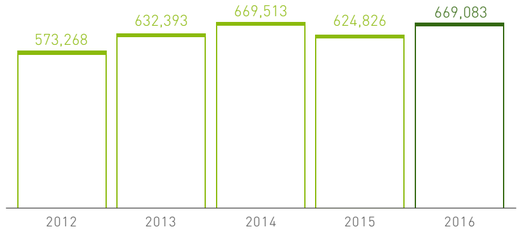
In 2016, we were awarded the Hsinchu Science Park Outstanding Achievement Award in Water Saving. In addition to extending our appreciation to the judges for validating the efforts of our team, we will remain motivated in our endeavor to conserve water. We will actively participate in the various water conservation counseling programs / observations organized by the Science Park and share our water conservation experience to enhance industrial water conservation. We make it our duty to value water resources . Thank you!"

FOC/FE8F/WTS / Sam Lin Department Manager

Rain Water and Condensate

Rain and condensate 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.

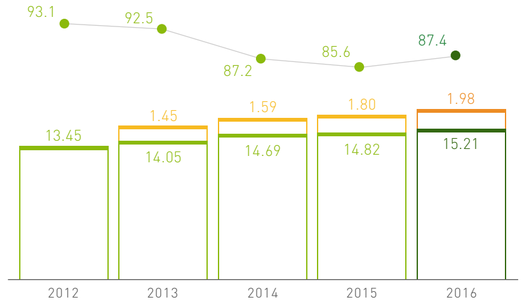
UMC Rainwater and Condensate Recovery in the Last Five Years



- Rainwater and condensate recovery amount (Ton)

Note : The information above does not include fabctory sites that have yet to start mass production.

UMC and Its Subsidiary HJTC Purified Water Consumption in the Last 5 Years.



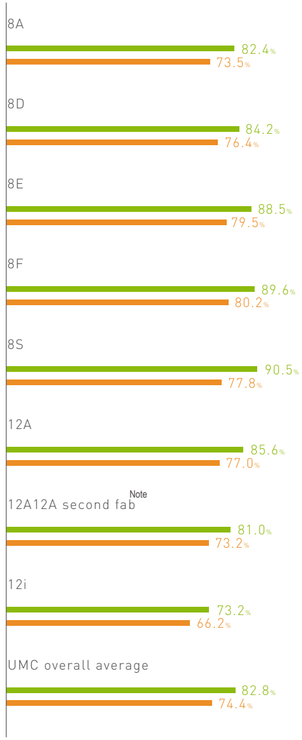
- UMC: Purified water consumption (Mm^3)
- HeJian/Fab 8N: Purified water consumption (Mm^3)
- Purified water consumption per production capacity (Mm^3 /Wafer-m^2)

Note 1: In 2016, the overall purified water consumption per wafer area for UMC and its subsidiary HJTC fab (8N) was 87.4 m^3/Wafer-m^2

Note 2 : The information above does not include fabctory sites that have yet to start mass production.

Company-wide Recovery Rate and Process Recovery Rate

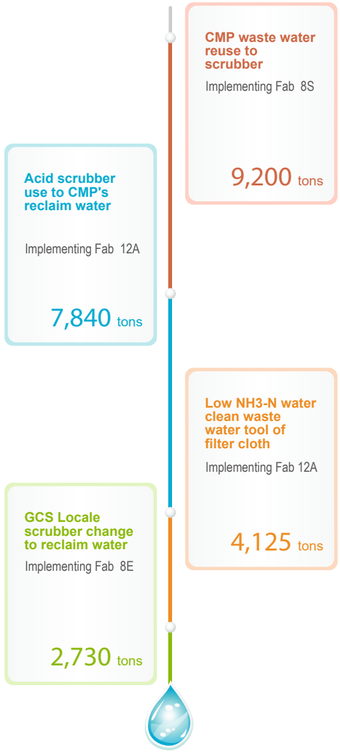
Despite the various operation schedule of UMC's fabs, the water recovery rate still outperformed the standard regulated by the Science Park



- Process recovery rate
- Company-wide recovery rate

Note: 12A's second fab. is a newly constructed fab. Its operation began in mid- 2016.

Water Conservation Improvement for 2017



Continuing improvements were enacted for potential water saving measures. However, the availability of new water saving measures continued to dwindle which poses an increasingly difficult challenge for water conservation efforts. UMC therefore listed the following Phase 3 Water Conservation Challenge Objectives based upon 2015 levels: 2016 to 2020: Water usage per unit area to be reduced by 10%

Industrial Exchange and Counseling

In addition to actively promoting water conservation within the company, UMC began participating in yearly water conservation counseling organized by science parks in 2002, and as of 2016, the company has handled 171 cases and counseled a total of more than 80 manufacturers. The company shares its valuable water conservation experience with like industries to help reduce water demand, and using 2016 as an example, potential water conservation following counseling was 1,380,000 tons / year.

3-3-4 Water Pollution Control

Water Pollution Control

Among process reduction, waste diversion and categorization, the priority in UMC's water pollution control strategies are process source reduction and, 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.

UMC and its subsidiary HJTC Wastewater Discharge

Hsinchu Science Park fabs A/8D/8E/8F/8S)

Discharge Amount: 1.19 (10,000 tons/day)	Discharged into drainage area: Ke-Ya River
Current Treatment Amount: 10.7 (10,000 tons/day)	Treatment Department: Hsinchu Science Park Administration sewage treatment plant

Impact 11.1%

Tainan Science Park fabs (12A)

Discharge Amount: 0.80 (10,000 tons/day)	Discharged into drainage area: Yanshuei River
Current Treatment Amount: 9.25 (10,000 tons/day)	Treatment Department: Tainan Science Park Administration sewage treatment plant

Impact 8.6%

Singapore fab (12i)

Industrial re-use

Discharge Amount: 0.70 (10,000 tons/day)	Discharged into drainage area: South China Sea
Current Treatment Amount 80 (10,000 tons/day)	Treatment Department: Public Utilities Board (PUB)

Impact 0.88%

China Suzhou fab (8N)

Discharge Amount: 0.49 (10,000 tons/day)	Discharged into drainage area: Wusong River
Current Treatment Amount 90 (10,000 tons/day)	Treatment Department: Suzhou: Industrial Park, Hua Yan Water Ltd.

Impact 0.54%

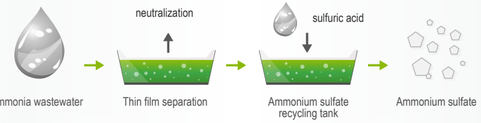
Note 1: Discharge Amount(10,000 tons/day)：Hsinchu Science Park fabs,Tainan Science Park fabs：Water meter readings are recorded daily, and based on average monthly water usage, annual water consumption is calculated. /Singapore fab：Based on daily record & accumulation. / China Suzhou fab：Water meter readings are recorded daily, and based on average monthly water usage, annual water consumption is calculated.
Note 2: Treatment Amount(10,000 tons/day)：Hsinchu Science Park fabs,Tainan Science Park fabs：Ministry of Science and Technology Statistics and Data Bank /Singapore fab：Based on PUB website information. / China Suzhou fab：Hua Yan Water Ltd. sewage treatment plant data

Sewage Treatment

Reducing process source is the first priority in UMC's water pollution prevention strategy, followed by waste liquid diversion, then categorization. The new fab areas have up to 27 categories of wastewater diversion. Wastewater is recovered or incinerated according to high or low flash points 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
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.

In 2014

Southern Tainan Science Park Fab 12A introduced thin film separation technologies and a processing system capable of converting ammonia nitrogen in wastewater into ammonium sulfate.

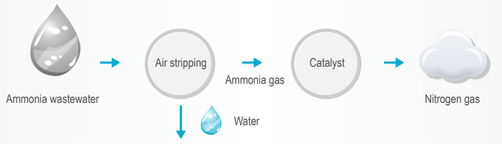


In 2015

UMC successfully developed the latest electrolytic technology capable of breaking down ammonia wastewater into nitrogen gas. The technology is scheduled to be implemented by Fab 8F/Fab 8S in March 2017.

In 2016

Catalyst technology will be implemented by UMC's new phase of Fab 12A for the treatment of ammonia wastewater.



Wastewater Discharge

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 the water discharged by different companies to reaffirm the quality of discharged water.
In addition, each factory also regularly subcontracts wastewater tests for long-term monitoring of wastewater quality to ensure that the quality of wastewater from each plant complies with local effluent standards.

Taiwan

Hsinchu Science Park	Tainan Science Park
8A、8D、8E、8F、8S	12A

Hydrogen ion concentration index, water temperature, chemical oxygen demand, suspended solids, ammonia, cyanide, total chromium, cadmium, hexavalent chromium, zinc, nickel, copper, total mercury, lead, arsenic, nitrate anion interface active agents, boron, fluoride salt

Monitoring Index

Singapore

12i

Biochemical oxygen demand, chemical oxygen demand, total suspended solids, total dissolved solids, chlorides, sulfates, sulfides, cyanides, detergents (LAS silver), oils, arsenic, barium, tin, iron, beryllium , boron, manganese, phenolic compounds, fluoride, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, ammonium, acetone

Monitoring Index

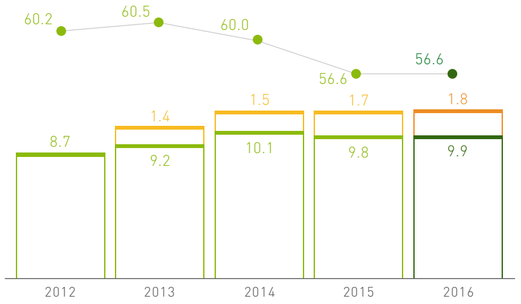
China

8N

Hydrogen ion concentration index \ fluoride \ suspended solids \ chemical oxygen demand \ ammonia \ total phosphorus \ volatile phenols \ petroleum;

Monitoring Index

Wastewater and Unit Wastewater Discharge Amount



Note: In 2016, the overall wastewater amount per wafer area for UMC and its subsidiary HJTC fab (8N) was 59.1 m^3/Wafer-m^2

3-3-5 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 Hsinchu/Southern Science Industrial Park ammonia and TMAH containing developer source reduction project. In 2016, Hsinchu Science Park continued to promote source reduction of for ammonium wastewater. Taking the amount used in 2012 as the basis, the amount used in 2016 was reduced by 50%. UMC's fabs in Southern Science Industrial Park also 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
Economic Benefit: annual operating cost is reduced by about NT$48 million in cost of nitrogen raw materials.
About 48 million

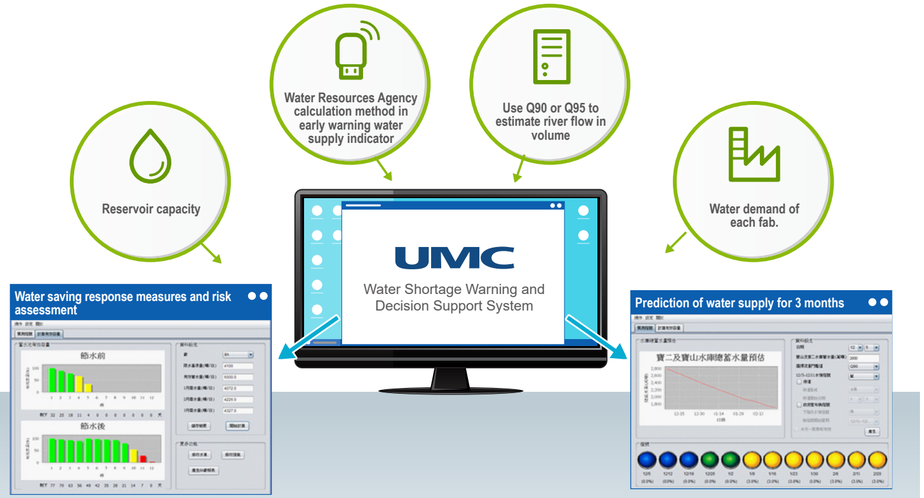
Project Benefits
After 2017, wastewater charges paid to the Science Park Administration can be reduced by about NT$ 180 million per year.
reduced by 180 million

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

3-3-6 Water Risk Management Tool Development

With regards to the water resource issue, besides the continuous implementation of water saving measures, UMC has collaborated with the Department of Bioenvironmental Systems Engineering at, National Taiwan University from 2015- 2016 to develop the "Water Shortage Warning and Decision Support System for UMC's Fabs. in Hsinchu Science Park and Southern Science Industrial Parks". A seasonal (3 months) water shortage warning system was established to simulate the warning system used at 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 of any possible water shortages. By combining this with UMC's water shortage response measures, operation risk can be significantly reduced.

System Framework



3-4 Green Product

UMC Green Product Statement

In addition to the dedication to 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 to cherish resources and protect the environment starting from the sources.; iIn addition to reducing resource consumption and unnecessary pollution during the production process, we have taken our efforts a step further to acquire green factory certificates to strive to be a good green role model.

UMC's promises

- 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.
- 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 emission, 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.

Green product considerations at each stage

Choice of raw materials or components

Implementation plan	Use recycled materials, promote the reutilization of processing raw materials
Implementation in 2016	Significant amount of reclaimed wafers were used. In 2016, 45.6% of the dummy wafers used were replaced by reclaimed wafers. In 2016, reutilization of slurry particle was promoted to recycle 1,104 tons of slurry

Direct operations, production & manufacturing

Implementation plan	Promote clean production, reduce the use of hazardous substances
Implementation in 2016	The Green 2020 Reduction Plan was promoted to reduce water consumption, power consumption and waste generation.(Please refer to the Green Factory Section for more detail on performances and achievements) PFOA related material replacement program was promoted, which will be fully replaced in 2017

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 clients and the amount of products that can be transported by the available carriers, UMC adopts common-route delivery rather than the frequent, small and un-routine delivery modes.
Implementation in 2016	In 2016, the recyclable package materials used reached 123,417 kgs.

Use phase - operation and servicing/ maintenance

Implementation plan	Develop environmentally friendly, low power consumption advanced process chips
Implementation in 2016	UMC applied 28nm process to produce energy efficient and IoT application ICs. The 14nm process will be adopted in 2017 for mass production.

End of life management

Implementation plan	Maintain the uniformity of ICs and products
Implementation in 2016	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.

3-4-1 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

Policy

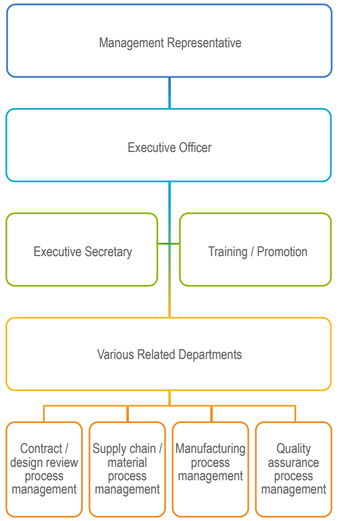
By instilling employee awareness and ensuring control and technological upgrades in design and production, the company produces Hazardous Substances Free Control products that meet regulations and customer demands, thereby fulfilling its duty as a global citizen to protect the environment and human health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

Goals

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

UMC

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 R EACH)
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.

Control of Persistent Organic Pollutants (POPs)
UMC initiated independent replacement efforts for PFOS, PFOA, and PFOA related chemicals which are areas of concern in both Taiwan and other countries.

UMC Hazardous Substances Management

Established a procedure for procuring green raw materials

- The electronic procurement system is an important UMC system for implementing the management of green procurement. Prior to shipping, suppliers upload the test reports of each batch of goods onto this system so that UMC can determine in advance its compliance with regulations and respond accordingly.
- Controlled hazardous substances are included in material testing. Any raw material that violates controlled provisions is disqualified and returned. In addition, suppliers are requested to immediately propose corrective and prevent measures to avoid recurrence.
- Vendor guarantee contract required: Third party test reports must be submitted when necessary to ensure that their products comply with environmental regulations.

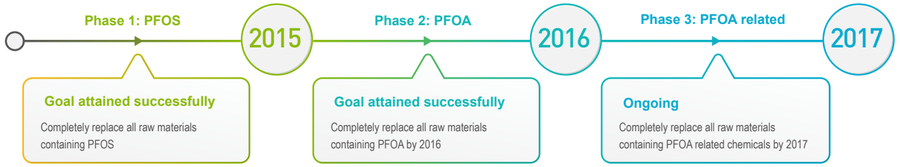
Certification of hazardous material management system and product testing

- In 2006, UMC led global semiconductor manufacturers in completing 3rd party verification of the Hazardous Substance Process Management (HSPM), and became the world's first foundry to achieved international QC080000 IECQ HSPM certification for semiconductor manufacturers. Furthermore, its subsidiary HJTC (8N) fab also completed 3rd party verification at the end of 2014.
- Several years ago, UMC established the inter-department Hazardous Substances Process Management committee (HSPM committee) to enhance the effectiveness of green product management
- An impartial third party laboratory regularly tests products for hazardous substance content to ensure that the products comply with global regulations

Established a list of controlled hazardous substance
Controlled substances are listed according to international environmental regulations and major customer demands. In response to international regulations, product ranges are gradually modified and expanded, and the list of controlled hazardous substances gradually increased. As of 2016, UMC has compiled a list of about 400 controlled chemical substances.

Constructed a new system for evaluating raw materials
To effectively manage new materials used in newly developed manufacturing, UMC has constructed a sound process for evaluating new materials to determine if they are banned/ controlled toxic or hazardous substances and fully determine their impact on environmental safety and health.

Usage reduction project and objectives for PFOS, PFOA, and PFOA related chemicals

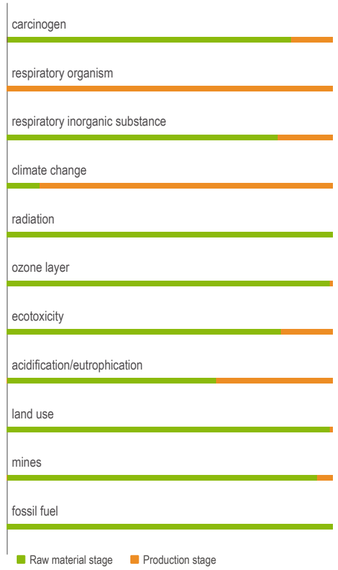


3-4-2 Life Cycle Assessment

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 2016 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 company's environmental management system.

Diagram of Semiconductor Product Lifecycle Concept

Result of 2016 Environmental Impact Assessment (8-inch representative FAB)



3-4-3 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.

History for Promoting Carbon Footprint Management

In 2009
delivered the world's first certified carbon footprint wafer product and; completed Type III Product Environmental Labels and Declarations verification.

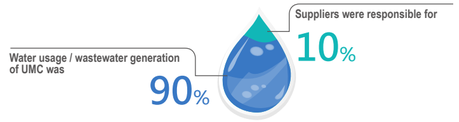
In 2010-2014
UMC participated in the EU Seventh Framework Programme (FP7) from 2011 to 2014 and worked with both private industries and academia to research and develop approaches and tools for a Simplified Life Cycle Assessment (SLCA) system, allowing our clients to quickly and conveniently predict product carbon footprints.

In 2016
the carbon foot print was promoted according to the UMC LCA-to-go Project implementation content.

3-4-4 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 2016 the water footprint inventory was launched throughout the company in accordance with new standards, and third-party verification was implemented in the representative fab.

The resultss of 2016 inventory



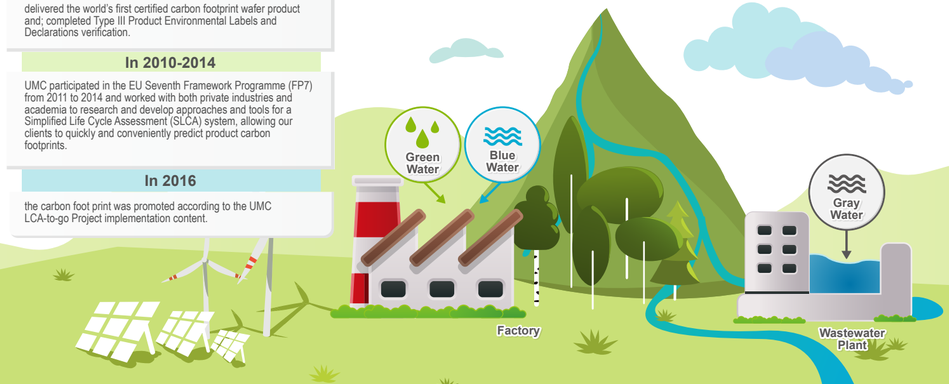
Future directives

1 Continue to improve water usage efficiency (WUE) within the plant, and reduce both water usage / wastewater generation to directly reduce water footprint of our products.

2 Work with suppliers to improve overall WUE of the entire supply chain to achieve joint water conservation and protect our planet.

Diagram of Water Footprint Concept

Note: Green Water: Rain and condensates are water sources that can be directly used.
Blue Water: Surface or underground fresh water source.
Gray Water: Dilute contaminated production gray water to a level exceeding water quality standard.



3-5 Green Concepts

Every year, UMC holds Environmental Protection Month to promote environmental protection and green ideas within the organization. On April 21, 2016, UMC held Earth Day and a launched the ceremony for the UMC Eco Echo Award. During the event, UMC announced the donation of 1 million NTD every year for the "UMC Eco Echo Award", which annually subsidizes outstanding innovative proposals in eco protection to ,promote sustainable development of the participating environmental groups. The ceremony for the establishment of the "UMC Energy Saving Service Team" and the rewarding of the annual outstanding eco protection supplier were also carried out during the event. In addition, the honorary chairman of SOW (Society of Wilderness (SOW), Dr. Wei-Wen Lee, was also invited to give a talk, demonstrating UMC's determination in "growing with the society and living with the environment" as well as UMC's tribute to the environment and society during 2016 Earth Day.

Launching ceremony of "UMC Eco Echo Award" and the establishment of the "UMC Energy Saving Service Team

Eco seminar during Environmental Protection Month

Activities and Achievements During Environmental Protection Month

Eco trip

Achievements

An eco -trip to Liuliao Trail was held. Through the instruction of experts from SOW, participants understood more about the correlation between life and ecosystem, fulfilling the goal of coexistence with the environment. Furthermore, a trip to the natural habitat of Beimen Lagoon was organized. Through experiencing traditional salt making processes such as salt drying, salt carrying, and salt collecting, etc., participants had a better idea about the history and culture of the process. A total of 109 people participated in the event.

A total of **109** people participated in the event.

Green finger

Achievements

The event is based on the themes of energy saving, carbon emission reduction, 3Rs (reduce, reuse, recycle), and green planting for air purification as well as environmental landscaping purposes. A total of 150 people participated in the event.

A total of **150** people participated in the event.

Waste classification promotion

Achievements

Introduction of waste classification as well as treatment of large and special wastes was provided to all employees. The purpose of carrying out waste classification at work/home was explained to all employees, in order to achieve the goal of waste reduction.

Routine inspection of scooter emissions

Achievements

The importance of routine inspection on scooter emissions was delivered to all employees. Inspection stations were set up around UMC facilities during the Environmental Protection Month to perform emission inspections for the employees, so that carbon emissions could be reduced.

Achievements of the Eco-echo Habitat Conservation Project

Since July 2014, UMC has been working with SOW (Society of Wilderness) to carry out the "Sauter's Frog (Rana sauteri) Habitat Conservation Project", with the hope of implementing man-made habitat conservation measures that will help the land surrounding Dashanbei to grow sustainably. This project was financially supported by the special environmental foundation of UMC, which was originated from the profit from the first carbon trading performed by UMC in Taiwan. It is hoped that through habitat conservation and education, the local ecosystem in Taiwan can be continuously cared for and protected.

At the end of 2016, 526 people were trained to be volunteer workers. Overall, these volunteer workers participated in activities over 3378 times and completed the filming of the documentary for Frog Habitat Conservation in Dashanbei. According to the data provided by SOW (Society of Wilderness), the recorded numbers of Sauter's Frogs (Rana sauteri) was higher than compared to before the project was conducted. Moreover, the death rate of Sauter's Frog (Rana sauteri) due to road kill was reduced from 10.91% to 5.32% over the course of the project]

VIDEO (Link of the documentary video)
http://www.umc.com/chinese/CSR/images/ecoecho_video.mp4

UMC Eco Echo Award Project

In responding to the environmental concerns of the general public, UMC has conducted the Eco Echo Award Project to expand its collaboration to partners within the media, and to communicate with local communities and non-profit organization. In addition, the Project also encourages environmental groups to propose practical environmental sustainable development and innovative plans to support activities that are related to local habitat and environmental protection as well as sustainability, while contributing their influences in these fields in order to protect Taiwan's local habitat.

For details of the UMC Eco Echo Award, please visit:
http://www.gvm.com.tw/ecoechoaward

The first UMC Eco Echo Award held in 2016 attracted 19 organizations to participate and send their application. Among them, 4 organizations won the Award.

Society of Habitat Conservation Tainan

Taiwan Association for Marine Environmental Education

Chinese Wild Bird Federation

Community Development Association-Nantou, Puli

4 Sustainable Development-Society

100%
Holistic Health Management Program

Created a safe working environment, and protected health and work-life balance of employees.

16,142 People

16,142 people benefited from the 2016 volunteer work service.

<5 on the Annual EICC Labor / Ethics Risk Index

In 2016, the EICC labor /ethics risk index was less than 5.

95% Satisfaction with Health Promotion Activities

On average, 95% satisfaction with health promotion activities such as health seminars, relaxation series and health check activities.

0 Labor Dispute

Actively promoted harmonious labor relations to reduce the likelihood of labor conflict. In 2016, there was no case of labor dispute.

100% Communication Meetings were Completed

By the end of 2016, a total of 119 sessions of company-wide forums (4 sessions), fab communication meetings (71 sessions), secretary forums (8 sessions), labor-management conferences (32 sessions), and benefits committee meetings (4 sessions) were conducted.

67% Reduction in Workplace Accidentsa

18 less accidents compared to the reference basis year of 2011 and achieved a savings of NT$ 3.46 million in potential asset loss.

Major Material Social Issues

There were three major categories of material social issues in 2016: (1) Occupational Safety and Health (2) Employee Communication (3) Training and Education

Material Issue	Occupational Safety and Health		Training and Education		
Indicator	Number of incidents company-wide	Pass the OHSAS 18001 Management System Certification	Training for professionals with potential	Quality Improvement Team (QIT)	Knowledge Management (KM)
2016 Goal	• **0** major incidents. • ≦**11** minor incidents.	• Pass annual certification.	• Course training completion rate: **100%** • Subsequent action plan completion rate: **100%**	• Establish **138** QITs.	• Reach an average KM point of **2.85** • **70%** achievement in writing penetration • **12%** achievement in three stars KM document *.
Compliance for 2016	• **0** major incidents and **9** minor incidents across the company.	• Passed the annual OHSAS 18001 • Management System Certification.	• Course training completion rate: **100%** • Subsequent action plan completion rate: **100%**	• Established **142** QITs.	• Reached an average KM point of **2.87** • Achieved **72.5%** in writing penetration. • Achieved **15.1%** in three stars KM document *.
2017 Goal	• **0** major incidents • ≦**11** minor incidents.	• Pass the annual OHSAS 18001 Management System Certification.	• Course training completion rate: **100%** • Subsequent action plan completion rate: **100%**	• Establish **138** QITs.	• Reach an average KM point of **2.87**. • **72%** achievement in writing penetration. • **12%** achievement in three stars KM document *.

Material Issue	Employee Communication			
Indicator	Organizational identity and cohesion	Strengthen diversity of communication mechanisms to ensure harmonious labor relations	Ensure compliance with the spirit and standards of international human rights	Implement responsible and customer-oriented behaviors to fulfill organizational mission
2016 Goal	• **85%** achievement in employee identification and cohesion.	• **100%** achievement in communication. • Feedback closure rate for employee opinions: **100%**	• Ensure compliance with the spirit and standards of international human rights. • **100%** achievement in EICC labor/code of conduct training. • Promote EICC spirit to subsidiaries.	• **100%** achievement in the formulation of team cooperation incentive mechanism
Compliance for 2016	• Achieved **89.29 %** employee identification and cohesion.	• Annual targeted goal was reached. Each health occupational index was implemented. Received the "Work Yoho" Medal of the "Work-Life Balance Award" from Ministry of Labor. Received the Excellence in Corporate Social Responsibility Award for 5 consecutive years from CommonWealth Magazine. Listed as DJSI index component for 9 consecutive years.	• Dedicated EICC 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 EICC labor / code of conduct training. • Promotion of EICC was conducted in subsidiaries and the results were reviewed regularly for compliance.	• Completed the standardized incentives mechanism. Implemented the Responsibility and 7 Habits programs. The 7-Habits program is ongoing (81.4% of managers and 95.9% of employees have completed the 7-habits training).
2017 Goal	• Implement corporate cohesion and identity. • **87%** achievement in employee identification and cohesion.	• Maintaining an open and transparent communication channel to promote employer-employee harmony. • **100%** achievement in communication. • Feedback closure rate for employee opinions: **100%**.	• Ensure compliance with the spirit and standards of international human rights. • **100%** achievement in EICC labor/code of conduct training. • Promote EICC spirit to subsidiaries.	• Continue to strengthen the implementation of core values and training.

Note 1: Three stars 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.

4-1 Labor Rights

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 Conductfollows

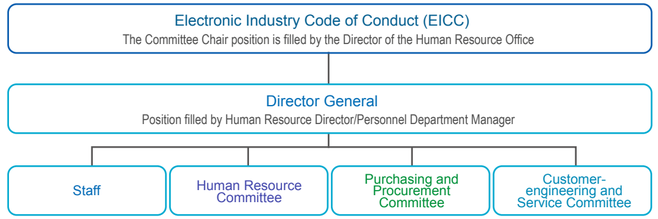
- International Labor Office Tripartite Declaration of Principles
- he OECD Guidelines for Multinational Enterprises
- UN Universal Declaration of Human Rights
- The UN Global Compact
- Electronic Industry Code of Conduct, EICC

EICC Committee

To ensure a safe working environment and the basic labor rights of supply chain enterprises in the global electronics industry, UMC established the EICC Committee in 2013 to address issues pertaining to labor, health and safety, environment, ethics and management systems. The EICC 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 EICC Committee initiates annual review of internal systems to ensure compliance with the latest EICC guidelines and thorough implementation of the Code of Conduct for the electronics industry. Furthermore, through the EICC-ON official website, further risk assessment of fabs are conducted to avoid potential risks.

In addition to the internal self-inspection mechanism, UMC also accepts formal auditing by a third party EICC commissioned by customers. Through the perspective of an external audit, further improvement for the management system can be identified. At the same time, UMC's spirit of compliance with the EICC can be conveyed to subsidiary groups to jointly protect human rights and ensure corporate social responsibility. UMC conducts annual EICC Compliance Survey and field audits for suppliers. Suppliers are required to comply with EICC standards on labor, health and safety, environment, ethics, management systems, and other measures. Instruction is offered on EICC concepts, and programs for a relevant management system are formulated. Furthermore, to enhance employee knowledge of EICC standards, UMC has incorporated EICC guidelines into the training courses for new employees. Online self-test training is also conducted annually for all employees, and as of 2016, training and relevant tests have been completed in Taiwan and Singapore. At the same time, UMC will promote the spirit of compliance with EICC 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 EICC Management System



Note : Please refer to the ISO & OHSAS 18001 14001 management systems and the UMC Environmental Safety and Health Management Committee operations for environment, health and safety.

EICC Committee Tasks and Implementation Outcome

EICC Committee Tasks

- Promote EICC 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 EICC regulations.
- Discuss and approve priorities for EICC labor, business ethics and management system implementation plans.
- Track and assist in implementation of EICC labor, business ethics and management system plans.
- Regularly assess and review EICC labor, business ethics and management system committee reports.

EICC Committee Outcome Note1

• 100% of new staff completed the EICC labor / ethics training.	100%
• 100% completion for annual labor EICC /ethics training.	100%
• Number of cases of ethics non-violation in the quarterly reviews.	0 case
• No case of local government review as a result of human rights issues.	0 case
• Scored less than 5 on the annual EICC Labor / Ethics Risk Threat Index Note2	less than 5

Note 1: Implementation outcome includes Taiwan and Singapore

Note 2: Safety Risk Threat Index = Self-Rating Outcome Level (1-5) x Self-assessment Possibility Level (1-5); Higher score on the index indicates higher risk.

Human Rights

UMC places great emphasis on promoting EICC 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 2016, 100% of employees received a total of 13,980 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

Focus	Impact Assessment		Management Mechanism
Foreign employees and Female employees	Review and assess through quarterly labor-management meetings, quarterly corporation communication meetings and various appeal channels.	Human Rights	Formulate the UMC Code of Conduct, and regularly promote measures such as the Code of Conduct and sexual harassment prevention to strengthen staff awareness of human rights protection. Use bilingual documents to ensure that foreign employees clearly understand the Company guidelines.
		Non-discrimination	UMC prohibits any overt or covert act of workplace sexual harassment and discrimination. Hiring, evaluation and promotion will not be based on race, gender, age, marital status, political affiliation or religious beliefs, and the same principles apply to cooperation with vendors.
		Forced Labor	The employer-employee contract is signed according to labor laws. The contract is based on the premise that the employer-employee relationship is mutually consensual, with no forced labor or illegal human trafficking, and opposition to slavery.
Customer	Regularly receives customer satisfaction ratings.	Privacy	UMC signs privacy contracts with its various vendors or customers to require mutual protection of confidential information. UMC has set up confidential information / data management measures, and customer information is handled by a responsible unit. In all employee contracts, both parties are required to sign a confidentiality agreement to avoid the potential of inappropriate disclosure.

Focus	Impact Assessment		Management Mechanism
All Staff	Conduct risk assessment of regulations compliance and professional ethics through annual internal control self-assessment.	Ethics and Integrity	Formulate policies for honest operation, clean operation, prohibition of inappropriate income, public disclosure, intellectual property, fair trading, fair advertising, fair competition, confidentiality, conflict minerals, privacy and anti-retaliation, and promote these policies through annual online testing.
	Review and assess through quarterly labor-management meetings, corporate-wide communication meetings and various appeal channels.	Labor Relations	The labor contract between each UMC employee and the Company is in compliance with local regulations. Comprehensive communication and effective problem resolution between employees and the Company are achieved through labor-management meetings, communication meetings and numerous communication channels.
	The company has an automated system for controlling work hours	Work Hours	All overtime is voluntary, and the company stipulates against overworking. The attendance system is set up for initiating reminders, and regular reviews and monitoring are also conducted. In addition, the company attends labor committee meetings at various factories to educate supervisors and employees.
Supplier	Administer the EICC compliance survey to suppliers, and conduct field audits.	Child Labor	UMC policies clearly state that no child under the age of 16 may be hired, and any action that may result in the employment of a child is not permitted. UMC works with vendors who comply with the above principles.
		Forced Labor	UMC policies clearly states that it will not permit forced labor and illegal human trafficking, and opposes slavery. UMC works with vendors who comply with the above principles.

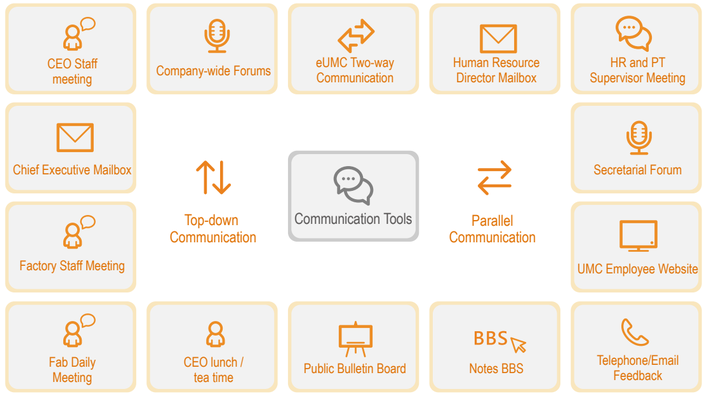
For relevant information, please refer to the UMC Code of Conduct on the company website: http://www.umc.com/English/CSR/c_4.asp

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



UMC Communication Meetings

UMC (including Hsinchu &Tainan plants)		UMC	HeJian Technology (HJTC)
Fab and Departmental communication meetings (including Singapore) Share overall operational performance as well as developmental highlights of the plants and departments with all employees . 63 Held every 6 months by each fab and department.	Welfare committee meeting The employee welfare activities as well as the usage of welfare funds shall be described to the welfare committee member delegated by each plant / site in the meeting every quarter. 4 Once per quarter.	Company-wide conferences Interactive,videoconference for 6 sites spanning multiple countries and regions hosted by the CEO himself, allowing UMC colleagues and external parties to review the latest company policies, directives, and performance. 4 Once per quarter. Implemented after the investor conference.	Union-employee conference Communication and discussions with union members on employee welfare and employer-employee topics. 2 2 times per year.
Secretary Conference 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. 8 Hsinchu Science Park / Southern Taiwan Science Park Secretariat Conference (4 times each)	Employer-employee meeting 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. 32 Once per quarter; held in 8fabs.	Employee conference 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. 12 Once every month.	Secretary Conference The Human Resource (HR) department shall collect key topics and discuss them with the Secretariat. The Secretariat shall then convey key issues raised during the discussion with fellow employees to generate a dialogue. 12 Once every month

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 2016, 345 employee comments were received with 100% of the feedback responded to and closed.

"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.

Satisfaction Survey

Satisfaction surveys utilized by UMC can be largely divided into regular surveys, project-focused surveys, or targeted surveys designed for specific issues. The current satisfaction survey system employed by UMC is relatively diverse and targets different goals and objectives. Specialized satisfaction survey systems were employed to ensure that authentic responses from the employees could be collected to initiate effective improvements.

Collection and responses to various survey feedback will help management identify areas that require improvements in order to effectively resolve employee problems. HR satisfaction surveys were also used in project investigations that cover the aspects of employee hiring, remuneration and welfare, employee relations, plant 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.

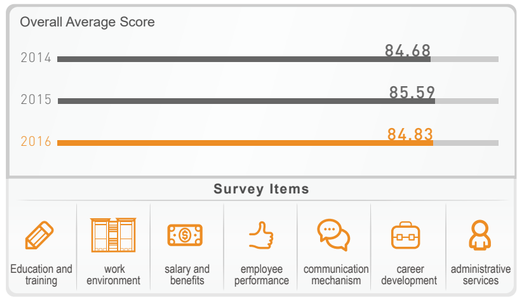
Category of satisfaction surveys

Regular
HR satisfaction 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, training and development satisfaction surveys, and plant site affairs satisfaction surveys designed for various administrative and supporting services.

Implementation of HR Satisfaction Survey



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 the 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 Mailbox: csr@umc.com
- Employee Relationship (ER Service) Hotline 12885
- Fraud and Ethics Violation Report Box: whistleblower@umc.com (This e-mail box will automatically forward messagesto 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 Extension 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 137 formal and large scale conferences were held in 2016 to effectively communicate key topics on UMC businesses. The diverse and comprehensive selection of UMC's communication systems were used to effectively assess the employee's 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 2016.

4-2 Recruitment and Cultivation

4-2-1 Human Resource

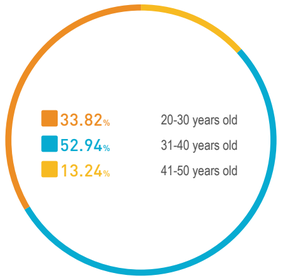
Human Resource Distribution

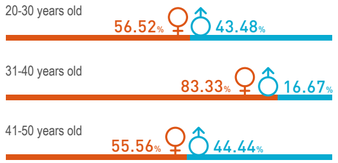
By the end of 2016, the total number of formal employees at UMC ,including China subsidiaries HJTCand United Semiconductor was 18,220. This figure included 1,884 supervisors, 9,166 engineers, 530 managers, 6,632 technicians, and 8 administrators. The working population within UMC can be divided into 2 categories by type of employment, namely formal employees(98.4%) and non-formal employees, which include contract personnel as well as dispatched personnel delegated by external vendors to provide services in UMC (1.6%). Formal employees can be further subdivided according to the type of their contracts, namely non-regular contracts (97.8%) and periodic contracts (about 2.2%) (NOTE: periodic contracts refer to labor contracts for foreign technicians). Non-formal employees include contract personnel (0.6%) and dispatched personnel delegated by external vendors to provide services in UMC(1.0%). 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 80% of employees work in the primary business location in Taiwan. For age distribution, 77.9% of the total employee population in UMC were between 21 and 40 years of age.The overall average age is 34.4 years old.

Type	Male		Female		Total	
	No. of Persons	Percentage	No. of Persons	Percentage	No. of Persons	Percentage
Total Employees - Type of employment						
Formal employees	10156	55.74%	8064	44.26%	18220	98.36%
Contract or temporary staff	78	70.27%	33	29.73%	111	0.60%
Dispatched staff	65	33.85%	127	66.15%	192	1.04%
Formal Employees Job Category						
Engineering staff	7393	80.72%	1773	19.28%	9166	50.31%
Executive staff	1657	88.38%	227	11.62%	1884	10.34%
Technicians	1003	13.62%	5629	86.38%	6632	36.40%
Office staff	4	42.86%	4	57.14%	8	0.04%
Managerial staff	99	18.35%	431	81.65%	530	2.91%
Formal Employees - Job Site						
Taiwan	7770	56.68%	5938	43.32%	13708	75.24%
Singapore	1015	61.40%	638	38.60%	1653	9.07%
China	1371	47.95%	1488	52.05%	2859	15.69%
Formal Employees Age						
18-20	38	25.50%	111	74.50%	149	0.82%
21-30	3353	53.15%	2955	46.85%	6308	34.62%
31-40	4408	55.93%	3473	44.07%	7881	43.25%
41-50	2085	61.49%	1306	38.51%	3391	18.61%
51-60	268	55.14%	218	44.86%	486	2.67%
Above 60	4	80.00%	1	20.00%	5	0.03%

By the end of 2016, UMC's headquarters in Taiwan had a total of 68 aboriginal employees. In terms of gender, 29.41% are males and 70.59%are females. In terms of age, 33.82% are between 20-30 years old, 52.94% are 31-40 years old, and 13.24% are 41-50 years old.

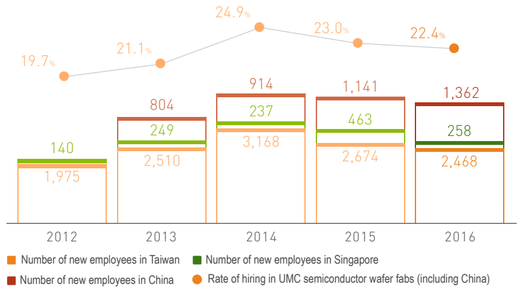
Formal Employee — Aborigines and Gender



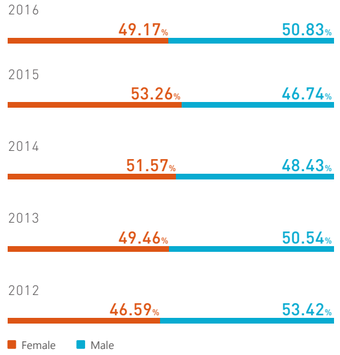


New Employees

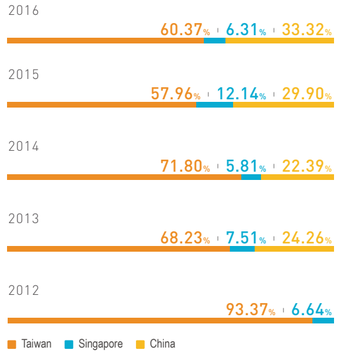
In 2016, the company hired a total of 4,088new employees. The gender, region and age distributions are as shown below



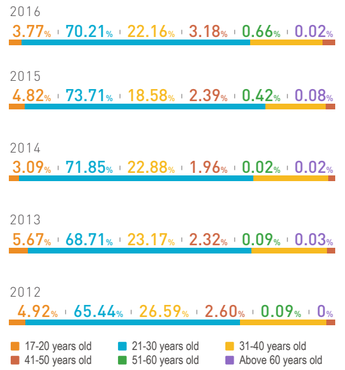
New Formal Employees — Gender



New Formal Employees — Site



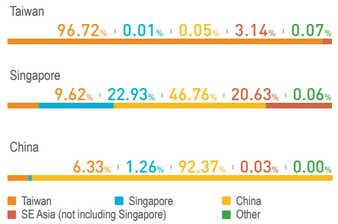
New Formal Employees — Age



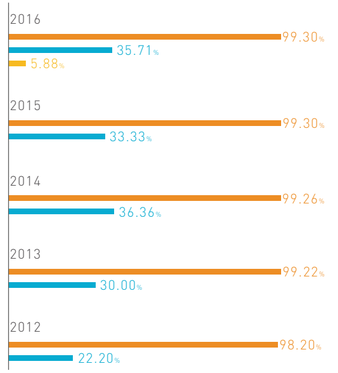
Local Employment

To fulfill social responsibility and create sufficient jobs for local residents, the staff at the UMC headquarters in Taiwan comprised of 97.7% local employees as of 2016, and among these, 99.3% of the high level management is locally hired. Since Singapore is ethnically diverse, 22.9% of the employees and 35.7% of the high level management are locally hired, while in the semiconductor wafer fab in China, 92.4% of the staff and 5.9% of the high level management are locally hired.

Formal Employee—Country



Proportion of locally hired high level managers in 2012-2016



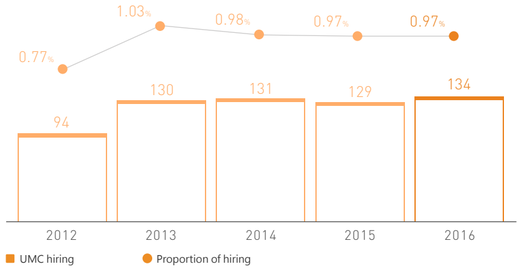
Note: High level directors are defined as Level 1 directors (including deputy directors) and above.

Note: Locally hired refers to employees who are nationals of the main operating location/region.

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 2016, UMC headquarters in Taiwan employed a total of 134employees 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.

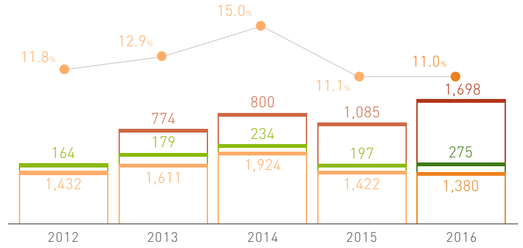
UMC Disability Hiring



Employee Turnover Rate

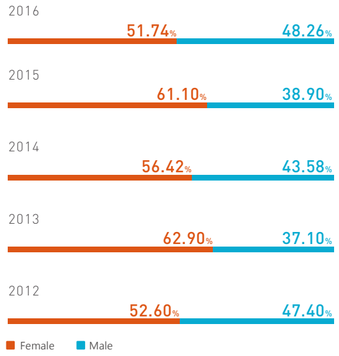
In 2013, the HJTC semiconductor wafer fab in China was added as a subsidiary of UMC. In 2015, United Semiconductor in China was added as a subsidiary of UMC. From 2012-2016, the UMC employee turnover rate was 12.4% due to the higher turnover rate of direct labor in China (including a17.0% turnover rate in the semiconductor wafer fab in China). When UMC 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. The UMC Human Resource Department also keeps regular contact with employees who have resigned, and opportunities are provided for those who wish to return to their employment.

Employee Turnover Rate

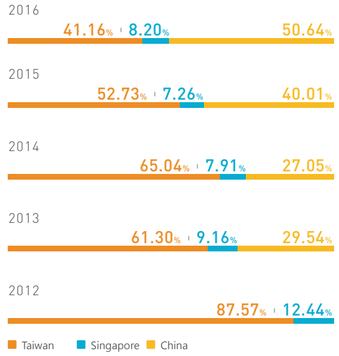


Note: Annual employee turnover rate refers to the total number of employees who resigned/total number of existing employees (Sum of employees at the end of each month/12).

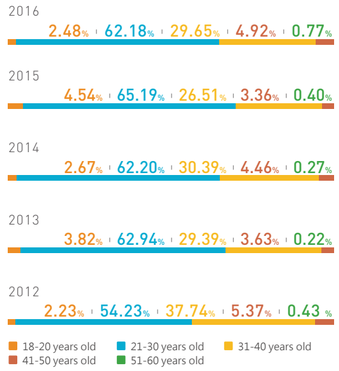
Formal Employee Resignation—Gender



Formal Employee Resignation—Region



Formal Employee Resignation—Age



4-2-2 Wages and Benefits

UMC has always regarded its employees as an important asset, and hopes that by providing a competitive overall wage and benefit package, excellent talents will be attracted to join the UMC team and work together to achieve operational goals and contribute to UMC profits.

WagesPolicy

UMC employee pay is based on educational level, performance and market prices. Employees are not subjected to differential treatment because of gender, race, religion, political position or marital status. Employee salaries are in accordance to all applicable wage laws, including laws on minimum wage, overtime and mandatory benefit.

Performance-oriented remuneration system

UMC offers wage 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 the 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

Note 1: The data of high/mid-level managers and specialists are calculated on the basis of the engineer category.
Note 2. Currently, there are no high level female managers in Singapore
Note 3: Direct Labor shall be calculated according to the number of technicians.

Leave policy is superior to the Labor Standards Acts

UMC offers a comprehensive and superior leave policy.

UMC offers 2-days' worth of special welfare leaves for newly hired employees in the same year when they report to the company. Statistics revealed 100% special welfare leave utilization for engineers that were newly hired in the previous year. UMC employs flexible leave policies and regularly reminds employees to use their leave 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 2016, the Labor Standards Act reduced the number of national holidays from 19 days to 12 days. However, UMC continues to offer an additional 7 days of flexible 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 subsidiary HJTC, 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.

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 with an additional layer of protection. 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. For Taiwan, the Labor Standards Act was used as the basis to stipulate regulations for the calculations and payment rules of retirement pensions. The Labor Pension Act entered into force on July 1, 2005, and the Act is used as the standard for the provision of the Retirement Benefits Plan. Employees may select pension regulations prescribed by the Labor Standards Act or pension systems applicable to the said Act and retain their work tenures before the said regulations apply to them. For the provision of post-retirement welfare and expenses, please refer to previous annual reports released by UMC.

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.

Pension Contributions in Different Regional Fabs

Labor Standards Acts — Taiwan

Proportion of remuneration contributed (employer)	Proportion of remuneration contributed (employee)	Proportion of employee contribution to pension plan
2%	0%	100%

Labor Pension Act — Taiwan

Proportion of remuneration contributed (employer)	Proportion of remuneration contributed (employee)	Proportion of employee contribution to pension plan
6%	0%~6%	100%

CPF Note 1 — Singapore

Proportion of remuneration contributed (employer)	Proportion of remuneration contributed (employee)	Proportion of employee contribution to pension plan
7.5%~17%	5%~20%	47%

Endowment Insurance Note 2 — China

Proportion of remuneration contributed (employer)	Proportion of remuneration contributed (employee)	Proportion of employee contribution to pension plan
20%	8%	100%

Note 1: CPF, the government's Central Provident Fund Board policies are applicable to Singapore's citizens and permanent residents.
Note 2: Endowment insurance is retirement insurance in Mainland China. According to regulations of the Suzhou Industrial Park Provident Fund Management Center, it's specified that with the exception of Chinese employees who must be insured, insurance coverage would be optional for employees of other nationalities.

Parenting Leave

In 2016, a total of 434female employees applied for maternity leave. Of these, 96.77% returned to their original positions after their leave while those who did not return voluntarily resigned to take care of family needs. In addition, 503 male employees applied for paternity leave in accordance to the Act of Gender Equality in Employment, and of these, 99.60% returned to their original positions after their leave.According to the Act of Gender Equality in Employment, employees may apply for parenting leave without pay. When their contract expired in 2016, a total of 123female employees returned to their positions, indicating a return rate of 69.89% after parental leave. Fifteen male employees returned to their positions, indicating a return rate of 78.9% 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 2015-2016, 94.29% of female employees and 83.33% of male employees that took unpaid parenting leave returned to work.

2016 Maternity Leave/Parenting Leave

2016 Return rate after maternity/paternity leave: 98.29% (♂ 99.60% ♀ 96.77%)

2016 Application rate for parenting leave: 07.91% (♂ 01.40% ♀ 15.46%)

2016 Return rate after parenting leave: 70.77% (♂ 78.95% ♀ 68.89%)

2015 One year stay rate after return from parenting leave: 93.16% (♂ 83.33% ♀ 94.29%)

4-2-3 Education and Training

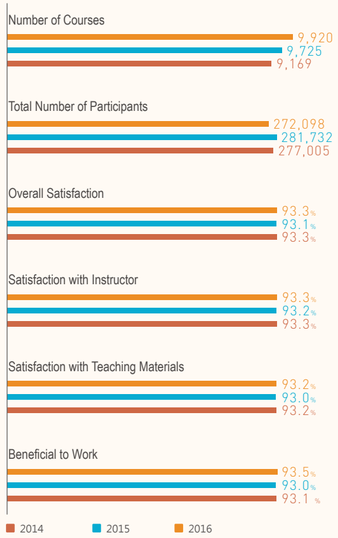
UMC Comprehensive Learning Environment

In 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

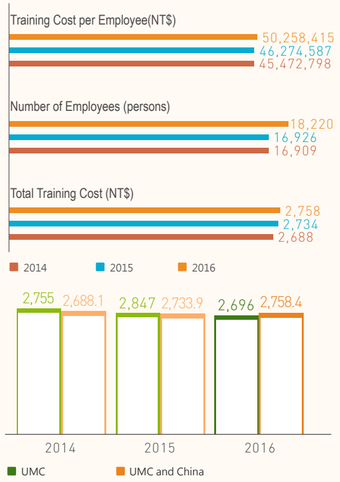
In terms of professional training, complete technical training curriculum is offered. For managerial training, different training programs are designed for different levels of directors. For language, language proficiency tests and courses are offered according to job descriptions and positions. In terms 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 2016, UMC organized up to 9,920 training courses, with a total number of 443,106 training (persons) hours and 272,098 participants. The total cost of training was NT$ 50,258,415, and satisfaction level with the various courses was more than 90%, gradually increasing with each year.

Course Satisfaction

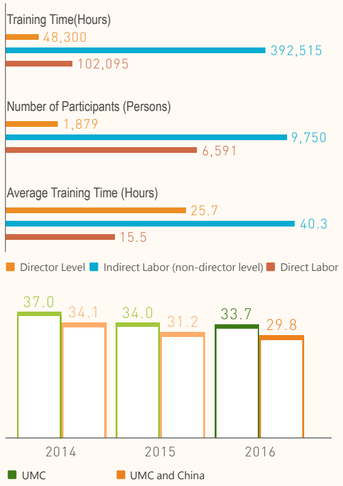


Average Employee Training Cost



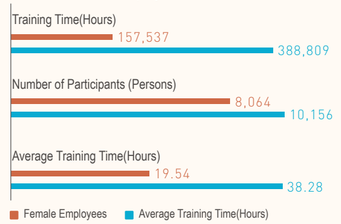
Average Training Hours for Various Job Levels

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.



AverageEmployee 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 less than that of male employees.



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

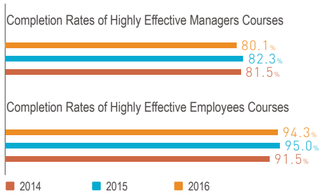
In terms of personnel training and development, UMC defines the managerial competency required for the various levels of directors. Core and professional competencies are also defined for general employees so that they clearly understand the required core competencies for each level of job responsibility. In the curriculum framework for internal training, all corresponding developmental courses are designed according to the competency model. 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 2015 completed these courses in the 1st Quarter of 2016 in order to collect course-related data.

Leadership Development Web

Summary of Competencies

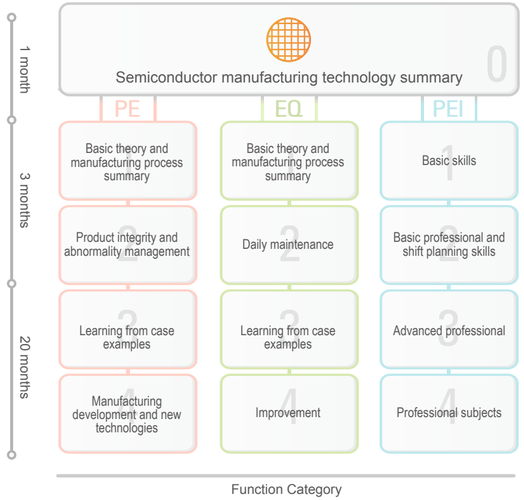
Completion Rates for "The 7 Habits of Highly Effective Managers" and ""The 7 Habits of Highly Effective Employees" Courses (Taiwan Area)

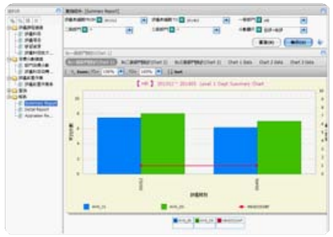


Technical Training for Engineers

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 levels 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. In 2012, the company developed the learning passport system to formulate a learning blueprint that is consistent with the developmental needs of the organization, and create a learning platform that is humanized and functional. To effectively track personnel development, the use of this system has been promoted and taught since 2013. Furthermore, based on the job needs of each employee, a learning map is charted, and through the training system's monitoring and statistical analysis, the required training course and hours for each employee is determined to create specific and effective training.

Professional Competency Inventory and Learning Curriculum Planning





Skills Assessment System

Personal Learning Passport

Convenient e-Learning Platform

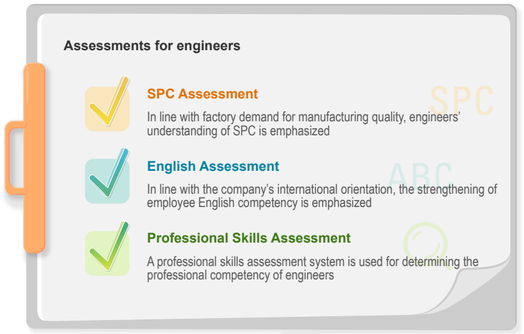
In addition to the various professional skills and management courses, UMC has set up an e-Learning educational platform to provide employees with a convenient and easy environment for spontaneous learning. Information channels allow for convenient lesson preview and review, and together with effective 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 Skill 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 2016, the Taiwan completion rate for the SPC training is 96.4%, and the completion rate for Singapore is 99%.

Assessment System



Professional Skills Assessment

SPC :3-6-9 SPC Principle

Training for Diverse Cultures

Since employees from different countries are employed, training Introduction for Newly Hired Staffcourses 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 in UMC, along with regular language skill 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 competiveness 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. In 2016, 20 sessions of the new employee orientation program were conducted, and a total of 953 new employees completed training (the above figures refer to indirect labor in Taiwan, and include formal employees and dispatched staff).

Team Building

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 2016, UMC focused on 2 major orientations in its collegiate relationships: (1) Positioning outstanding R&D talents, and (2) In-depth development of talents 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 2016. In addition to existing practical programs for semiconductor technologies in key institutions, the Industry-Academia Cooperation / 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). Business-education partnerships were also restructured in 2016 to establish the UMC Industry-Academia Program. A series of brand image development activities such as paper discussions, career sharing, practical collaborations, and exhibits of semiconductor products were scheduled, with more than2,000 individuals participating in paper discussions in 2016. 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 campus talent cultivation. Since 2013, a total of 2237 candidates have been recruited, of which 1121 are still in school, while the hiring rate for those who have graduated exceeds 80%.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 reserving in advance future R & D personnel for UMC.

PTP Student Participation-Thoughts and Reflections

During my fourth year of university, in order to apply for summer internships, I joined the PTP Prospective Talent Program and began an inseparable relationship with the United Microelectronics Corporation. Until I graduated from my Master's program, I spent three years participating in numerous company activities, from the Charter Ceremony, PTP lecture, Business Mentor Fireside Chats, to the FAB 12i summer internship. I was able to feel the diligence and care that the company put towards members of the PTP. Although we were not formal employees at the company, the company still made a considerable effort to hold a variety of events for us, giving us the opportunity to understand the difference between the industry and school while we were still engaging with our studies. I believe that this insight is more important than any textbook, yet it is something that we are not able to learn in school. I am very thankful to UMC for their work and effort on the PTP Prospective Talent Program. I am very fortunate to be able to gain more knowledge and experience than other individuals while I am still a student.

2016 PTP Awards Ceremony Group Photo

UMC Prospective Talent Program methods

Visit by faculty and students from target departments

In 2016, about 1242 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.

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.

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. In addition, practical resume writing advice is offered to help new graduates highlight and market themselves, and capture the attention of companies and executives.

Domestic and overseas summer internship programs

In 2016, a total of 25 interns were recruited. The program continues to select high-quality talent to intern at major departments in domestic and overseas UMC plants. 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.

UMC Prospective Talent Program methods

Guidance by Industry Experts

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.

Equipment Intern Program

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 2013-2016, 95 interns were accepted.

4-3 Healthy Workplace

4-3-1 Healthy Workplace

Comprehensive Health Care Program

UMC believes that a healthy staff is an important foundation for corporate success. The comprehensive health care program initiated by UMC entered Phase 2 in 2015 and continued to improve upon the spirit of the 2014 program based upon the themes of building a quality workplace and common employee identity. UMC shall continue to pursue the 3 aspects of providing a safe work environment, safeguarding employee health, and encouraging work-life balance to ensure the health of all our employees as well as those of their families.

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

Comprehensive Health Care Program

Stress-free Workplace: Focusing on Work Environment Safety

In 2016, 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-proportionedwork-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. In addition to prevention, UMC has set up an overwork improvement index to measure three dimensions of overwork, namely the employee health examination index, overwork survey and consultation, and comparison of employee health examination index with the previous year. In 2016, all plants showed an average overwork improvement rate of 85%, among which Fab8E, Fab8F, Fab8S showed an improvement rate of 100%.

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 2016, 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.

Work hour control

- Automated leave management: Using the automated system, an effective alert mechanism was installed to control work hours and excessive overtime. Overtime alertsare 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 2016 and 2017, 7 days of special flexible vacation time are 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

- 12,024 employees in Hsinchu and Tainan completed the survey in 2015, and 12,642 competed the survey in 2016.
- In 2016, the average overwork improvement rate for the various plants is 85%, among which Fab 8E,Fab8F,Fab8S showed a 100% improvement rate.

Measures for a Safe Workplace

Establish a culture of gender equality	Measures for nighttime job safety for female employees	Assistance for pregnant women and special needs	Comprehensive mechanism for sexual harassment prevention	Flextime for work and vacation to balance work and family
Measures for gender equality are consistent with or exceed those stipulated by the Labor Standards Act. Positive actions are implemented for employee selection, hiring, education and leave.	Night time car service, parking lot escort, roadside assistance, emergency buttons, other emergency assistance, day and night time shuttle, 24-hour employee hotline, and night time emergency response mechanisms.	Priority meal order, designated parking spaces, cleaning and disinfection notification, no night shift, child raising allowance (for both male and female employees), breastfeeding room, eligibility to pre-apply for maternity leave after 3 months of pregnancy.	Reporting and Disciplinary Measures for Workplace Sexual Harassment, mechanism for investigating complaints, procedure for selecting team members, confidential complaint channel, education and training, and internal security service for providing assistance are established.	Flextime for work and vacation to balance work and family In accordance with theAct of Gender Equality in Employment, both female and male employees may apply for unpaid parental leave without duress.

Note: UMC complies with government regulations such as the Labor Standards Act, Act of Gender Equality in Employment, and Sexual Harassment Prevention Act in its personnel policies, and also promotes related measures.

Healthy Workplace: Safeguarding Employee Physical and Mental Health

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 can sustain development, and only happy and healthy employees can create UMC vitality". Therefore, in 2016, with UMC and You as the central theme, UMC implemented as many as 18 projects, such as annual health promotion activities, special lectures, annual health examination, various health tests, stress management activities and counseling. According to the theme and educational focus of each quarter, the activities were centered around four key topics to safeguard employee health, namely maternal health, human factor injury prevention, weight loss and overwork prevention.

2016 UMC &YouHealth Promotion Theme and Key Achievements

Q1 Maternal Health

In response to the Occupational Safety and Health Act, information on returning to work after maternity leave was provided to female employees to ensure the health of female employees who are pregnant, have given birth or are nursing.

Hsinchu and Tainan plants of UMC
A total of 211 employees participated, and average satisfaction rate was 95.4%

Including other activities such as health tests, counseling, and massages by visually impaired massagetherapists, a total of
8,127 employees participated, and average satisfaction was 94.3%

Q2 Human Factor Injury Prevention

Regularly posted maternal care information, organized cancer screening for women, and promoted workplace safety assessment to protect pregnant employees.

the Aches and Pain Prevention Newsletter.
A total of 19,636 logins

the Aches and Pain health lecture
A total of 773 attended

the Active Life U & U Aches and Pain Prevention Ambassador activity.
A total of 6,492 participated in

A total of
26,983 participated in the activities, and average satisfaction rate was 93.25%

Q3 Weight loss Activities

Provided the latest weight loss information, and worked with catering to provide light, reduced fat and healthy meals. Organized health activities for those at risk of high blood pressure, high blood sugar, and high blood lipids.

Get Moving Video, a total of
2,062 check-ins

A total of
2,680 participants / average satisfaction was 95.7%

Conducted 6 sessions of series lectures, and a total of
608 attended

Q4 Overwork Prevention

To prevent aches and pains from human factors, employees were encouraged to move their muscles and bones.

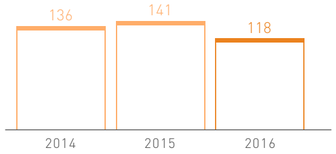
A total of
1,372 participated, and average satisfaction level was 94.7%

Overwork counseling activities, a total of
202 participants

Employee Assistance Program

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 2013 – 2016, service was provided to 395 employees.



Number of employees receiving assistance in 2013-2015

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, 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.
- Integrated 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 a diversity of 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 multiple challenges of work, interpersonal relationships, parenting and family life. In 2016, the optimized health center platform provided employees with services such as activity registration, health information, relaxation corner, self-assessments and health activities.

Health Center Platform

Expanding Health Concept, Outreach to Employee Dependents.

UMC conducts annual health examinations, and offers check-up items that exceed regulations. UMC has a Health Self-Management Program that is tailored for employees. Professionals are designated to follow-up on employees with health abnormalities, including arranging for a follow-up appointment, regular follow-up 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. In 2016, the health examination participation rate in Taiwan plants reached 95%, with a total of 12,117 qualified for health tests, among which11,517 employees participated.

Employees who are special operations inspectors are assigned for case management and tracking. In addition, health promoting 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 family health of employees, and organizes annual health examinations and massage services for their families. Such health care services for both employees and their families create the win-win situation of a harmonious society and family. In 2016, a total of 450 employee family members participated in the health examination, and overall satisfaction was 97.6%.

Health Examinations

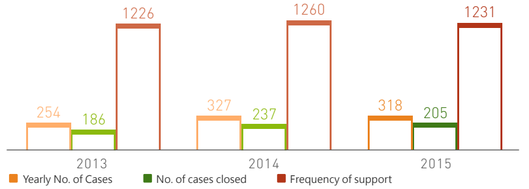
Maternity Health Protection

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.In 2016, Fab8AB, Fab8E, Fab8F and UT fab sites were successfully rewarded with the Certificate of Excellence for Breast Pumping Rooms by the Public Health Bureau of Hsinchu City Government.

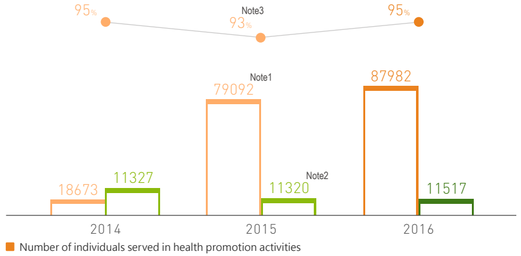
Injury and Illness Care

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 2014-2016



Key Results of Health PromotionActivities from 2014 to 2016



Note 1: To provide complete coverage of the company's efforts in promoting a Healthy Workplace, the method for calculating the total number of individuals benefiting from health promotion activities in 2015 was changed to include all event participants. Scope of calculations does not include Fab 12i.

Note 2: Number of individuals served in yearly health examinations only included general health examinations.

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. A total of 13 donation drives were held in 2016 where over 1,100 employees donated to provide about 1,700 units of blood.

Establishing a Comprehensive Healthy Workplace

Health promotion activities implemented by the UMC Health Center in 2016 showed an average overall satisfaction rate of 95%. Activities such as the annual health examination and massages by visually impaired massage therapists were highly attended, indicating high employee support and responsiveness toward these activities. Our healthy workplace promotion and implementation has been widely recognized externally. In 2016, UMC won the "Corporate Social Responsibility Award" conferred by the Global Views Monthly and the "Corporate Citizens Award" by CommonWealth Magazine. Our Fab 12A won the "Excellent Healthy Workplace Self-Management" certification awarded by the Southern Taiwan Science Park Administration, and all our plants also obtained the "Executive Yuan Ministry of Health and Welfare Health Promotion Bureau Self-certification of Health Promotion Seal." These awards represent the success of UMC's dedication to creating a healthy workplace.

Public Charity and Blood Donation

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

Team competitions were held alongside the series of Company celebration activities in 2016. The water fun competition held at the Southern Taiwan Science Park invigorated the spirits of participating departments, and continued to energize the cohesiveness of the UMC team.It is hoped that positive competition between different fabsites will help build employee identity and cohesiveness, reduce opposition to new internal measures, and create high performing and effective teams.

Snapshots of Team Competitions

Family Cohesion

UMC emphasizes work-life balance, and in addition to focusing on employees, UMC also reaches out to their families.In the special themed activities, UMC planned family events for employees, such as the 2016 “Let’s have a Picnic” family day event, where employees and their families were invited to an afternoon of enjoying a leisurely picnic.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.

Snapshots of the UMC 2016Let’s have a Picnic Family Day Activity

Club Activities

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.

Taiwan	2 rounds of selection- a total of	club members Note
26 clubs	15 excellent social group will be subsidized in each round.	1,620

Note: Does not include one-time or temporary club members

Social Group Photographs

Social Group Photographs

UMC recreational facilities and services (UMC Center/ UMC Park/ Jinshan)

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 in 2016	Average number of daily visitors of UMC Recreation Center
17 million visitors	479 people

Hsinchu Science Park UMC Activity Center

Tainan Science Park UMC Park Activity Center

5-star gym

Multi-purpose basketball and badminton court

Diversity of employee activities

Organized regular Easy Travel, Family Day, and Art Festival.

Let’s have a Picnic theme-based family day event was held in both HSP and STSP in 2016.

Routine screening and playing of popular movies every month

the Easy Travel program	UMC Family Day	Art Festival
277 people participated in	8,200 people participated in	2,454 people participated in

Inter-factory competitions and Fitness Festival

A wide range of activities and sports competitions are organized to promote an active culture of exercise from within.

33 teams participated in the competitions

UMC Extreme Art was an art event organized by UMC in 2016, and included a series of activities such as movie screenings, book fairs, photo galleries, musicals and art performances, tap dancing, and celebrity seminars as well as measures that encourage employees to include diverse arts as part of their daily lives. The purpose of these activities is to help UMC employees achieve ideal work-life balances while improving their quality of life. Events planned for 2016were 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. 2015 UMC Extreme Art included a total of 35art events which were attended by about2,454 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.

Social Group Photographs

Social Group Photographs

4-3-2 Safe Work Environment

Safety and Health Policy

The Safety and Health Policy formulated by UMC’s environmental, safety and health management representative (ESH-MR) shall be reviewed and approved during the company-wide management review meeting before final verification and approval by the Chairperson of the Board. Every employee in UMC shall then be notified about the policy, which will be disclosed to the general public through UMC’s official website.

http://www.umc.com/English/CSR/e_2.asp

Safety and Health Policy

- Achieve zero accidents and comply with all applicable safety and regulatory requirements to ensure safety as the top priority for UMC's sustainable development.
- Continually reinforce best safety and health management practices to reach international ESH and risk management standards.
- Applying total risk control, advanced ESH management and rescue technologies to enhance company's standards.
- Providing a safe work environment and operation through preventive management and audit.
- Eliminating hazardous factors and preventing incidents through each and every ownership of responsibilities in safety and health.
- Encourage all employees to participate actively in safety and health training, and promotional activities.

Safety and Health Organization

UMC in Taiwan has a company-wide safety and health committee, chaired by the Deputy General Manager. 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 with local regulations, and in compliance with the law, its number of employee representatives is greater than the number of director representatives. Although China has no safety and health committee stipulation, the company’s subsidiary HJTC has established a safety and health committee that meets every quarter.

Tasks reviewed by UMC’s company-wide Environmental Safety and Health Committee during each quarterly meeting are

- Review of matters pertaining to company-wide environmental safety and health management.
- Review appropriateness of environmental safety and health guidelines.
- Promote relevant environmental safety and health outcomes in fabs.
- In response to environmental safety and health trends, formulate key decisions.
- Important changes in regulations and responses.

Create a Corporate Culture of Work 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.

Major implementations in 2016 include:

Established a methodology of hazardous chemical risks and rankingthat uses scientific methods to comprehensively determine exposure level and classify risks. Adopted corresponding hierarchical management measures to effectively control worker exposure to chemical hazard risks in the workplace.

Introduced advanced nano-measurement equipment and installed nano-measurement technology. Conducted preventive maintenance (PM) at key processes in pilot run fabs to measure environmental exposure to nano-particles as a solid foundation for future control of exposure risks to employees in all UMC fabs, and for adopting necessary protective measures to provide employees with a healthy and hygienic workplace.

Established an industrial accident data mining database to allow quicker search by the accident manager of each plant. In addition, the database provides for the construction of an abundant and complete accident factor classification, giving managers a more diversified accident classification and analysis. With gradual addition to the data, the function and efficiency of the database will become more evident and effective.

High Risk Jobs and Occupational Disease Management

Statutory regulations in Taiwan, Mainland China, and Singapore were reviewed to identify high risk jobs and employees related to certain equipment and facilities operations.

Special health examinations offered for high risk jobs, including noise, ionization radiation, dust, organic solvents, specific chemical substances and other operation examinations, were conducted according to law. Health management was also implemented according to the classification of health examination results.

To create a healthier and more comfortable work place, comprehensive health risk classification and management systems would be used for early detection of high risk groups while simultaneously improving on work processes and subsequent healthcare measures.

An occupational healthcare system was formulated for groups experiencing suspected work-related discomfort. A healthcare team composed of occupational health physicians, HR health center personnel, and staff members of the Risk Management and EHS department, shall investigate the root cause of the discomfort and propose improvement measures. As of 2016, a total of 4 cases were handled accordingly.

Employer-Employee Communication for Health Issues

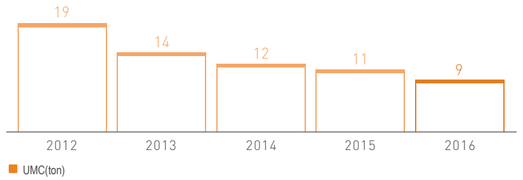
The method for generating labor representatives for occupational safety and health (OSH labor representative) prescribed in the Occupational Safety and Health Act were used as the basis for empowering employees to vote for their labor representatives. With the approval of the labor representatives of the employer-employee meeting, the OSH labor representative shall attend quarterly safety committee meetings, and, be included as a joint participant for amendments to safety and health principles, accident investigations, work environment monitoring, and joint resolutions in related OSH issues.

The employer-employee meeting shall also jointly discuss the penalties for employees who violate the code of conduct and the election process of a labor representative. Any relevant OSH issue and requirements shall be discussed in employer-employee meetings to reach a mutually acceptable consensus.

Accident Management

UMC continues to dedicate itself to reducing the incidence of workplace accidents and aimed to achieve a 10% reduction in accidents with severity rated higher than slight injuries in 2016 (compared to 2015). In order to achieve the objectives of accident management, preventive plans were proposed at the beginning of the year at every fabsite. Dynamic root cause analysis was also implemented at different times of the year in response to accidents that occur at any site, in order to propose corresponding solutions.For example, through a series of activities such as the "Safety Performance Reward", "Accident Prevention Committee", "Repeat Accident Prevention", and "Industrial Accident Data Mining", the recurrence of accidents are effectively prevented. With the implementation of key projects in the 2016 “Work Safety for Everyone”, the annual goal for reducing the number of accidents was achieved. Analysis of the 9 categories of accidents in 2016 shows 3 incidents of employee injury from falls/collisions/cuts; 3 incidents of leakage: 3 incidents of electrical components melting; 1 incident of injury from scalding; and 1 incident of injury from crushing. The Company will continue to develop measures in 2017 to prevent the recurrence of similar accidents. In addition, the Company has developed a 10-year accident management target, and expects the number of accidents in 2020 to decrease by 85% compared to 2011. In 2016, the number of accidents has already decreased by 67% compared to 2011, and the Company is committed to the goal of zero accidents.

Accident Cases

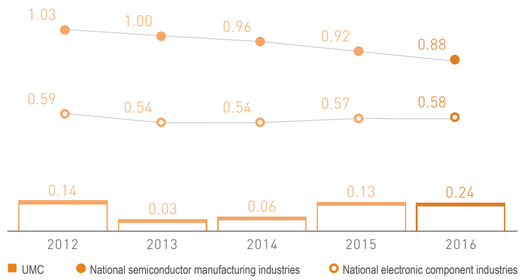


Note 1: The target number of accidents in 2017 is 8.
Note 2: UMC scores and classifies accidents according to injuries cause by people, production impact, financial loss and involvement of chemical substances, range of impact, fire, or problems due to employee behavior. Not all accidents result in human injury.
Note 3: The base year for calculating the rate of accident reduction is defined as the year before.

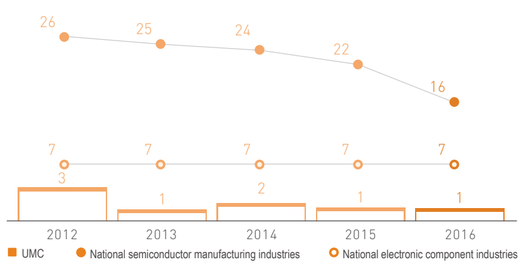
Occupational Disaster Management

In 2016, the Disabling Frequency Rate (FR) for UMC was 0.24, its Disabling Severity Rate (SR) was 1, and both values are far below the average value for semiconductor companies. UMC will continue to promote disaster prevention, and strive toward the goal of zero incidents.

Disabling Frequency Rate (FR)



Disabling Severity Rate(SR)



2016 Disabling Frequency of Relevant Index

Region	2016 Relevant Index	Male		Female		Total
		UMC	Contractor	UMC	Contractor	
Taiwan	No. of people with disabling injuries	1	2	5	1	9
	No. of lost days due to disability	8	17	30	30	85
	No. of reportable injuries	2	3	6	1	12
	No. of wo rk related deaths	0	0	0	0	0
	Occupational Disease Rate (ODR)	0	0	0	0	0
	Total No. of Work Hours	25,019,996				
	Injury Rate (IR)	0.016	0.024	0.048	0.008	0.096
	Lost Day Rate (LDR)	0.064	0.136	0.240	0.240	0.679
	Absenteeism	0.39		1.48		0.83
Singapore	No. of people with disabling injuries	0	1	1	0	2
	No. of lost days due to disability	0	6	3	0	9
	No. of reportable injuries	0	1	1	0	2
	No. of wo rk related deaths	0	0	0	0	0
	Occupational Disease Rate (ODR)	0	0	0	0	0
	Total No. of Work Hours	3,630,322				
	Injury Rate (IR)	0	0.055	0.055	0	0.110
	Lost Day Rate (LDR)	0	0.331	0.165	0	0.496
	Absenteeism	1.21		1.65		1.39
China	No. of people with disabling injuries	2	0	0	0	2
	No. of lost days due to disability	28	0	0	0	28
	No. of reportable injuries	2	0	0	0	2
	No. of wo rk related deaths	0	0	0	0	0
	Occupational Disease Rate (ODR)	0	0	0	0	0
	Total No. of Work Hours	4,001,434				
	Injury Rate (IR)	0.01	0	0	0	0.01
	Lost Day Rate (LDR)	1.399	0	0	0	1.399
	Absenteeism	0.91				3.27

Definition of Terms

Third party: Refers to non-employees or contracted personnel

Number of people with disabling injuries: Refers to the number of deaths, permanent disability, permanent loss of partial function or temporary full 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.

Total number of work hours: Refers to the actual work hours of all workers in the current term.

FR = Number of people with disabling injuries x1,000,000 / Total number of work hours [per million work hours].

SR = Number of lost day due to disability x1,000,000 / Total number of work hours [per million work hours].

ODR = Total number of occupational diseases x200,000 / Total number of work hours [per 200,000 work hours].

IR = Number of reportable injuries x200,000 / Total number of work hours [per 200,000 work hours].

LDR = Number of lost day due to disabling injuries x200,000 / Total number of work hours [per 200,000 work hours].

Absenteeism:Total hours of employee personal leave, occupation injury leave and sick leave /Total number of work hours.

Note: There were no third party illnesses, injuries, disabilities or deaths caused by UMC operations.

Contractor Management

Contractor management is a very important part of safety and health management in UMC. Each cooperating vendor signs the "Environmental Safety and Health Contract" with the company, and is informed of matters such as the work environment, risk factors and safety and health regulations. In addition, existing safety and health management mechanisms such as incident reporting and investigation, inspections and work observation are also applicable to specific contractors. Through the company-wide monitoring mechanism, any unsafe practice or condition found on the part of a contractor is reported to the appropriate director or relevant personal through the various safety and health management mechanisms for systematic follow-up and improvement. To enhance the effectiveness and implementation of construction management, the company has a systematic construction permit application, and prior to any construction work within the fab, a construction permit must be obtained.

UMC requires all contractors to undergo the UMC Environmental Safety and Health Education and Training for Contractors to inform them of potential risks and regulations so that the contractors realize the company commitment to their lives and safety. Company overseers must also complete the Overseer Education and Training program to fully understand supervisory responsibilities, tasks and competency before assuming the position.

In addition, to manage contractor entry into the fab and perform the various construction work within the fab, and also to prevent occupational disasters, a comprehensive contractor management standards is developed. The standards include environmental safety and health management regulations and instructions for contractors, regulations for operating in confined spaces, regulations for electrical safety, regulations for dismantling dangerous circuitry, and regulations for fire detection and isolation for follow-up training and requirement criteria.

UMC also established a new supplier assessment system and will assemble a professional evaluation team to implement OSH system assessments for new suppliers. Suppliers whose assessment results were less than ideal would be provided with case consultation and support from UMC to strengthen their OSH systems. OSH management standards of both UMC and the said supplier could also be aligned in future partnerships to achieve mutual benefits in improvements of OSH management and prevention of construction accidents. In 2016, UMC successfully provided consultation and inducted 3 new contractors to become UMC partners.

In order to ensure effective integration of work permits and access controls, the Tainan plant introduced integrated access control systems in the second half of 2014. The system became fully operational throughout the Tainan plant in 2015. All qualified vendor personnel who have completed the UMC Contractor Environmental Safety and Health Training would be allowed to apply for Access Passes. These Passes could then be used to provide access to areas listed within the construction work permits, greatly reducing the time and effort required for maintaining company security as well as Pass replacement for vendor personnel. These solutions provided effective improvements to vendor access controls while fulfilling current regulations that govern work permits.

Contractor management

Environmental Safety and Health Management for Contractors

- Electrical safety
- Environment safety and health instructions for contractors
- Regulations for operating in confined spaces
- Operating rules for interruption of fire protection system
- Regulations for fire detection and isolation
- Regulations for dismantling dangerous circuitry

4-3-3 UMC Fire Brigade

Semiconductor plants 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 the safeguarding and emergency rescuing mission of the STSP plant sites.

Fire fighters in the Brigade serve 2-year terms, with the 9th cohort serving the term of 2015-2016. Personnel composition included 13 full-time fire fighters and 93 members delegated to specific tasks. Most fire fighters and members of the Brigade are holders of Master's degrees and skilled in semiconductor processes, making the UMC Fire Brigade the best educated firefighting team in Taiwan.

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.Members of the UMC Fire Brigade during their term of office will participate both organizational and non-organizational rescuing 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.

In addition, the "ERT Competition" Activity was held in 2016 during UMC's Work Safety Environmental Protection Month. Through participating games of emergency responding skill exchange and competition, the emergency responding skills of employees were significantly improved.

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

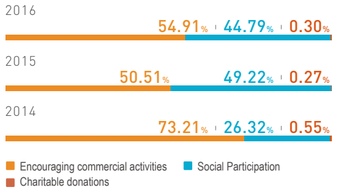
To effectively quantify the benefits brought about by community services, UMC referred to the community investment assessment system established by London Benchmark Group (LBG). Investment time, cost, material donations, and management expenses were carefully recorded to evaluate the positive benefits 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 2014 to 2016

2014	2015	2016
Cash donations		
47,481,810 (0.58%)	34,435,555 (0.29%)	34,594,654 (0.32%)
Time contributions		
4,622,727 (0.06%)	4,172,045 (0.04%)	3,143,182 (0.03%)
Material donations		
8,124,275,019 (99.01%)	11,808,406,852 (99.41%)	10,854,665,619 (99.34%)
Management costs		
28,799,912 (0.35%)	31,879,268 (0.27%)	33,899,867 (0.31%)
Total		
8,205,179,468	11,878,893,720	10,926,303,321

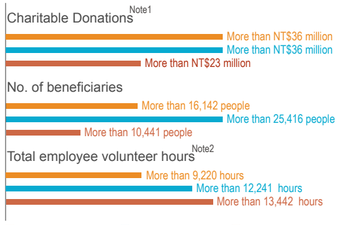
Unit: NT$

Proportion of community service investments from 2014 to 2016



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 2016, using their different skills to target and identify the best means of investing in community services. In 2016, UMC employees provided a total of 9,920volunteer hours. Charitable donations and the number of beneficiaries also grew significantly and the latter grew to over 16,142 individuals. These results demonstrate continued growth of human resources and kindness of UMC volunteers offering services to the needy throughout Taiwan.

UMC Community Service Participation and Number of Beneficiaries



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 2016, more and more societies and clubs in UMC took the initiative to be a part of community services, including musical groups such as Music Lover, Guitar Club, and Ukulele Club, recreational groups such as Swimming Club and Road Running Club, and art groups such as I-Ching Study Club. 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

Since 1996

UMC LOHAS Education Foundation

Promote sports – Open the UMC Park Activity Center to disadvantaged groups

Education for the disadvantaged –Provide basic literacy skill training for new residents (foreign spouses) and expatriates

Since 2009

UMC Fire Brigade

Assist in industrial park and community disaster rescue

Promote fire safety in elementary schools

Since 1999

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 6,000 school children have continued in their studies, thereby fulfilling the mission of "Spreading the Seeds of Hope "

In 2016, 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.

Executive Summary of Spreading the Seeds of Hope Plan

Seeds of Hope

Educational Assistance for Children from Disadvantaged Families	Results in 2016	Effects
After-school counseling Reading class Ethics class Long-term care Organizing festivals and events	800 hours of after-school counselingservices Sponsored the Nantou Karate Association Provided service to 150 underprivileged children	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	Results in 2016	Effects
Assembling Life Education Volunteer Team Regular visits to remote villages and juvenile delinquents	Organized 5 sessions of Mobile Theater and caretaking activities at the House of Miracles. Sponsored the Whatever Makes Sense show provided by Voice of IC Dr. Hung Lan. Provided a total of 12 Ukulele community service performances by the Ukulele Society.	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	Results in 2016	Effects
Reading seminars Reading promotion	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 24 reading events in remote elementary schools to benefit a total of 500 schoolchildren.	School children appreciating the fun of learning through various activities.

Seeds of Green Energy

environmental education and cultivating green energy technology talents	Results in 2016	Effects
Implementing environmental conservation activities	Invested NT$ 30 million in the UMC Eco-Echo Conservation Project. Worked with The Society of Wilderness (SOW) and provided them with a budget of NT$ 3 million for ecological conservation projects for 3 years. Organized seminars and green market events to promote the concepts of earth friendliness In 2016, started the Green Award program with Global Views Monthly, and the program will continueannually.	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	Results in 2016	Effects
Industry-academia classes for the semiconductor industry Creative R&D projects Other business-education partnerships Campus Cultivation Project	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 292 students.	Cultivated future talent in the semiconductor industry so that young students could achieve in-depth understanding of semiconductor-related knowledge and technology during theirschool 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 2016, a sum of NT$ 3 million was invested into the award.

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 2016, our community service clubs provided a total of 172 outreach efforts to disadvantage 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 resultswere provided with additional funding to support both social group activities as well as community participation.

Certificate of Gratitude Snapshots of Volunteer Services

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.

Services provided by various societies in 2016

Services

Energy Saving Service Team — Sessions held 31
- Volunteer services: To assist social welfare agencies with energy conservation and carbon reduction
- Beneficiaries: Underprivileged students

Candlelight Club — Sessions held 119
- Volunteer services: Offering companionship at the House of Miracles; Services provided at Ren'ai Children's Home; Initiating love charity drives; Services in remote villages; Charity sales activities jointly held with the foundation
- Beneficiaries: Underprivileged students; Underprivileged senior citizens; Environmental protection

Music groups

Guitar Club — Sessions held 5
- Volunteer services: Island tour, charity performances, and volunteer work; Supporting community work organized by the foundation
- Beneficiaries: Underprivileged students; Hsinchu residents

Music Lover Club — Sessions held 5
- Volunteer services: Supporting community work organized by the foundation; Engage in community work through music
- Beneficiaries: Underprivileged students

Ukelele Club — Sessions held 12
- Volunteer services: Services for children living in remote areas; Ukulele instructions for children living in remote areas; Charity performances
- Beneficiaries: Underprivileged students

Partners

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, etc.

Service Reflection

It seems like overnight, but we have experienced five enriching years of providing tutoring, and we want to thank UMC trusting us with this opportunity. We also want to thank the teacher and student volunteer teams from the National University of Tainan who labored with us, and for their confidence and professional ability when facing the challenges of each new journey. Over the years, they have been a consistent and strong support for our career counseling and helped shoulder our burdens. The efforts of the University of Tainan-UMC tutoring program have sowed seeds of hope and love, and we believe that in the future, we will see the fruits of our community service.

National University of Tainan-UMC Tutoring Center
Assistant Director, Kang Chikai2017.2.20

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.

For more information please refer to the following website
http://foundation.umc.com

Other community services by the Foundation are listed below

Education for the disadvantaged
- Program: Spreading the Seeds of Hope
- Outcome: Provided a total of 800 hours of remedial classes to 150 students in 2016.
- Activity Content: The "Spreading the Seeds of Hope—Educational Assistance for Children from Disadvantaged Families" program was launched at 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.

Life Education
- Program: UMC Love storyteller club
- Outcome: Gave 56 performances in 8 years. Through the performances, life education messages were delivered to a total audience of more than 18, 000 people.
- Activity Content: In the 2009 Typhoon Morakot Disaster, UMC sent 600 people to help clean up disaster areas in Pingtung. After the disaster, employees formed the "UMC Love storyteller club" to harness their strength, and gave musical performances in Pingtung, Hsinchu, Tainan and other areas.

UMC Drum Club
- Program: UMC Drum Club
- Outcome: A total of 27 moving charity performances were given to 19,000 audiences in the last 4 years.
- Activity Content: In July 2013, UMC CEO Yen mobilized employees in Hsinchu and Southern Taiwan to form the Drum Club to reciprocateto 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.

Parent Education
- Program: IC Voice—"Be Reasonable" program by Teacher Hong Lan
- Outcome: The sponsored program is in its 8th yearsince its beginning in 2009.
- Activity Content: UMC sponsors the IC Voice radio program, "Be Reasonable" by Teacher Hong Lan to promote correct educational perspectives

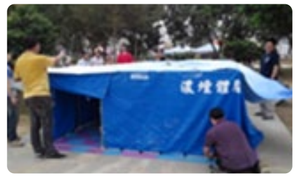
Volunteer Activities
- Program: Storytelling volunteers
- Outcome: A total of 24 sessions were conducted, totaling about 500 participants
- Activity Content: Encouraged employees to become storytellers and lead reading activities in Bao Shih elementary school in Hsinchu County. Through a diversity of themes and mediums, extra-curricular cultural materials are used to motivate reading in children.
- Program: Letter Writing Volunteers
- Outcome: A total of 110 children were adopted through Children and Families Fund.
- Activity Content: Children and Families Fund to adopt school children on behalf of the Foundation. In addition, employees volunteer to write letters to the adopted children to reach out and give encouragement. Such a simple friendship links the chain of love and hope.

4-4-4 Serving the Community with Core Professional Skills

In 1999, UMC formed the high-tech fire brigade to help the community. The brigade actively participated in large-scale drills in the community, and assisted the Environmental Protection Administration with toxic chemical disaster training. In coordination with the UMC Culture and Education Foundation, the UMC fire brigade also conducted safety education in elementary schools to instill and ingrain disaster prevention into community consciousness and conduct. The brigade also provided fire safety consultation and inspection to the Company's energy saving and safety teams, and participated in a total of 20 events in 2016.

Community Fire Education

Assisted the Hsinchu County (city) fire department in fire safety activities, and in coordination with the UMC Culture and Education Foundation, assisted with activities in the tutoring classes.



Supported the Hsinchu County Fire Prevention Activities - Smoke Filled Room Experience

Assisted the National Fire Agency Chushan Training Center with training.

Provided fire safety education to the children in St. Joseph Social Welfare Foundation

Disaster Support and Rescue

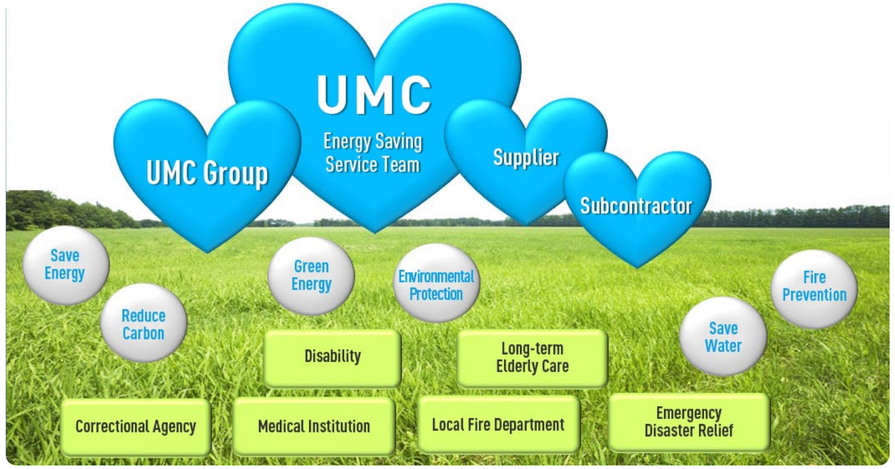
Participated the disaster response operations with the fire department of Hsinchu County (city) and HSIP , and provided the surrounding community disaster accident contingency rescue assistance

Assisted with fire rescue in Sing-Yu Recycling Center.

Assisted with hydrochloric acid leak rescue in WistronNeWeb Corporation

Assisted with fire rescue in EPISTAR Corporation

In 2016, with the parent Company as the core platform, UMC established the Energy Saving Service Team. In the spirit of industrial continuity and mutual benefit of social improvement, the Team collaborated with value chains (Group companies, suppliers and subcontractors) to assist social welfare agencies with energy conservation and carbon reduction. The services included 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.



UMC Energy Saving Service Team Solutions to Issues

United Nations Sustainable Development Goals (SDGs)

Educational Quality
Assisted with improving teaching environment and educational quality.

Good Health and Well-being
Provided fire prevention and home safety counseling, promoted care 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.

Social Return on Investment (SROI) Assessment

Based on the 2016 investment records of the Energy Saving Service Team volunteers, UMC calculated the cost of labor, time and construction. In addition, based on interviews with previous service recipients, the feelings and changes experienced by the recipients were quantified to estimate the resulting social and environmental values. The outcome showed that every NT$1 invested by the Energy Saving Service Team resulted in NT$5.6 in social contribution and an overall reduction of 280 tons of CO_2 emissions. UMC not only hopes that the Energy Saving Service Team volunteers and their partner teams can be aware of their contribution, but also expects to use the statistics and assessment to conduct internal reviews to discover more social improvement opportunities and more effective future investment and management.

2016 Implementation Outcome of the UMC Energy Saving Service Team

Statistics: All 2016 Energy Saving Service Team service targets for investment and outcome.
Labor cost: Cost of volunteer participation(NT$500 / hour).
Construction cost: Cost of improving hardware.
Economic benefit: Cost of energy saved in operations.

Investment		Output	
Labor Cost	249,500 NT$	Economic benefit	8,700,545 NT$
Construction Cost	1,295,415 NT$	Environmental and social benefits	-280 Tons of CO_2
Total	1,544,915 NT$	Total	8,700,545 NT$

Helped St. Joseph Social Welfare Foundation install LED lighting

Helped St. Joseph Social Welfare Foundation evaluate fire prevention equipment

Provided Shih Guang Educational and Nursing Institution with energy conservation counseling

Appendix I – 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 2016, over 90% 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 upon the outcomes of actual sustainable assessments listed in Chapter 1 and discloses the information of 11 joint ventures and subsidiaries according to subsidiary categories and industrial natures, namely: He Jian Technology, United Semiconductor(Xiamen)Co.,Ltd, Wavetek Microelectronics Corporation, NexPower Technology Corporation, NBI,UMC Group USA, UMC Group Japan, UMC Capital Corp., Unitruth Investment Corp.,TLC Capital Co., Ltd., and Fortune Venture Capital Corp..Please refer toPage 126 of UMC's 2016 Annual Report for these 11 subsidiaries' individual economic performances and financial information as well as other subsidiaries' information.

Reference website: http://www.umc.com/English/investors/Reports/2010-present_report.asp

Non-manufacturing Subsidiaries.

Important sustainability-issue related information other than economic performances for 7 non-manufacturing subsidiaries

(NBI ,UMC Group USA, UMC Group Japan, UMC Capital Corp., Unitruth Investment Corp., TLC Capital Co., Ltd., and Fortune Venture Capital Corp.)

Non-manufacturing Subsidiaries	NBI	UMC Group USA	UMC Group Japan	UMC Capital Corp.	Unitruth Investment Corp	TLC Capital Co., Ltd	Fortune Venture Capital Corp
Compensations and Benefits	Retirement pension is provided to employees in accordance with the local regulations; the salaries of employees fulfill the minimum wage standard required by law.						
Corruption Risk Assessment	Promoted according to the UMC Code of Conduct. (For relevant information, please refer to the company website at http://www.umc.com/English/CSR/c_4.asp) In 2016, there were no incidences of corruption, and no violations of antitrust.						
Regulations Compliance	No significant fines related to violation of relevant regulations in 2016.						

Manufacturing Subsidiaries

Company Name		HJTC （Suzhou）Co., Ltd.	United Semiconductor (Xiamen)Co.,Ltd	Wavetek Co., Ltd.	NexPower Technology Corp.
Basic Information	Establishment Date	2001.11	2014.10	2010.10	2005.11
	Principal operation or production	Semiconductor Manufacturing and Sales	Semiconductor Manufacturing and Sales	Semiconductor Manufacturing and Sales	Solar cell manufacture and sales
	Address	No. 333, Xinghua Street,Suzhou Industrial Park, Suzhou, Jiangsu Province, China	No.899,Wan Jia Chun Road, XiangAn,Xiamen,Fujian,P.R.China	3F.,No. 10, Innovation 1st Road, Hsinchu Science Park, Hsinchu County,Taiwan, R.O.C.	No.2, Houke S. Rd., Houli Township, Taichung City,Taiwan, R.O.C.
Details		UMC-related information shall be disclosed in various chapters.	Refer to the list of information on manufacturing subsidiaries.		

Information on Manufacturing Subsidiaries

Category	Issue	2016 Subsidiary Company Information (Disclosure Index)	United Semiconductor (Xiamen)Co.,Ltd	Wavetek Co., Ltd.	NexPower Technology Corp.
Economic	Compensations and Benefits	Minimum wage standard/ Pension fund allocation	According to local regulations on minimum wage and pension regulations		
Product	Regulations compliance	Product/Service Total Significant Fines /NT$	No significant fines related to violation of relevant regulations in 2016		
Environmental	Environmental Management	Promote relevant environmental management system certification	Newly constructed fabthat is expected to introduce ISO 14001 Environmental Management System Certification in 2017.	1. Has passed the ISO 14001 environmental management systems (EMS) certification. Systematic management is used to reduce the generation of waste gas, wastewater, and waste. 2.Awarded ISO 14064-1 verification on greenhouse gas emissions. For relevant information, please refer to http://www.wtkmicro.com/eng.cc/index.asp	1. Awarded the IEC (61646 & 61730) and ISO (9001 & 14001) certifications 2.Awarded the PAS2050 carbon footprint and ISO/CD14067-1 certifications 3. Passed the WEEE 3R compliance verification. For relevant information, please refer to http://www.nexpw.com/About/About
	Regulation Compliance	Environmental regulation violation fines/ NT $	No major fines related to violation of relevant regulations in 2016.		
	Resource usage	Energy consumption	113,855 MWh 409,878 Giga Joules	73,898 MWh 266,031 Giga Joules	20,854 MWh 75,073 Giga Joules
		Energy intensity	0.809 Giga Joules/1000 NTD	0.11 Giga Joules/1000 NTD	0.88 Giga Joules/1000 NTD
	Water resource usage	Total water withdrawal	886,422 m^3	501,561 m^3	81,088 m^3
	Greenhouse gas emission	Direct greenhouse gas emissions (Category 1)	Newly constructed fab, inspection was not yet performed, inspection is expected in 2018.	17,900 ton CO_2e	170 ton CO_2e
		Indirect greenhouse gas emissions (Category 2)		39,018 ton CO_2e	11,295 ton CO_2e
		Intensity of greenhouse gas emission		0.025 ton CO_2e/1000 NTD	0.134 ton CO_2e/1000 NTD
	Waste gas emission	Ozone Depleting Substances (ODS) emissions	0 ton	0 ton	0 ton
		Emissions of air pollutants	Newly constructed fab, no monitoring data was collected,monitoring expected to begin in 2017.	Nitrogen oxides (NOx) 2.13 ton Sulfure Oxides (SOx) 0.03 kg volatile organic compounds (VOCs) 2.337 ton	Nitrogen oxides (NOx) 0.68 ton Sulfure Oxides (SOx) 0 kg volatile organic compounds (VOCs) 1.13 ton
	Wastewater discharge	Total wastewater discharge	593,135 m^3	388,239 m^3	25,080 m^3
		Total weight of waste	2,125 ton	571 ton	79 ton
Social	Waste Labor relations	Number and rate of employee turnover according to gender	Male： 55 employees ; 10 % Female：40 employees ; 16 %	Male：66 employees ; 16.5 % Female：58 employees ; 13 %	Male： 23 employees ; 18 % Female： 5 employees ; 12 %
		Gender-neutral return to work and retention rates following maternal and parental leave	Return rate： NA Retention rate： NA	Return rate： 59% Retention rate： 100%	Return rate： 60% Retention rate： 50%
	Occupational Health and Safety	Occupational injury index	Disabling Frequency Rate (FR):0 Disabling Severity Rate (SR):0 Injury Rate (IR):0 Lost Day Rate (LDR):0	Disabling Frequency Rate (FR):0 Disabling Severity Rate (SR):0 Injury Rate (IR):0 Lost Day Rate (LDR):0	Disabling Frequency Rate (FR):0 Disabling Severity Rate (SR):0 Injury Rate (IR):0 Lost Day Rate (LDR):0
	Compensations and Benefits	Female-male basic wage ratio Female-male compensation ratio	Employee salary is based on educational level, performance and market prices, and independentof gender.		
	Human Rights	Discrimination	No incidence of discrimination in 2016.		
		Child labor	Management mechanism in place; no incidence of child labor.		
		Serious incidence of forced or compulsory labor risks in operation base	No incident of forced or compulsory labor risks in operation base in 2016.		
		Number of cases	Complaint mechanism in place. No complaints related to human rights issues in 2016.		
	Anti-Corruption	Corruption risk assessment	Promoted according to the UMC Code of Conduct (For relevant information, please refer to the company website http://www.umc.com/English/CSR/c_4.asp) In 2016, there were no incidences of corruption, and no violations of antitrust.		
	Fair Trade	Number of antitrust litigations			
	Regulations Compliance	Significant Fines for violation of regulations /NT$	No significant fines related to violation of relevant regulations in 2016.		

Appendix II – Global Reporting Initiative (GRI) Index

General Standard Disclosures

General Standard Disclosures

General Standard Disclosures	Location	Page	Note	External Assurance
Strategy and Analysis				
G4-1 Statement from the most senior decision-maker of theorganization.	From the CEO	p1		○
G4-2 Description of key impacts, risks, and opportunities.	1. Communication with Stakeholders 2-2-2. Business Performance 2-4. Risk and Crisis Management 3-2. Energy and Greenhouse Gas Management 3-3. Water Risk Management	p11 p33 p39 p63 p71		○
Organizational Profile				
G4-3 Name of the organization.	About UMC	p5		○
G4-4 Primary brands, products, and services.	About UMC	p5		○
G4-5 Location of the organization's headquarters.	About UMC	p5		○
G4-6 Number of countries where the organization operates, names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report.	About UMC	p5		○
G4-7 Nature of ownership and legal form and markets served.	About UMC	p5		○
G4-8 Markets served (geographic breakdown, sectors served, and types of customers and beneficiaries).	About UMC	p5		○
G4-9 Scale of the organization: employees, operations, sales, capitalization & quantity of services provided.	About UMC 2-2-2.Business Performance	p5 p33		○
G4-10 Total number of employees by employment contract, gender, permanenent employees, region, supervised workers, casual workes & significant variations in employment numbers.	4-2-1. Human Resource	p91	No significant changes occurred during the reporting period.	○
G4-11 Percentage of total employees covered by collective bargaining agreements.	4-1. Labor Rights	p86	No employee labor unions were formed before the end of the reporting period. No employee to sign a collective agreement.	○
G4-12 Description of the supply chain.	2-5. Sustainable Supply Chain Management	p43		○
G4-13 Significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain.	2-5. Sustainable Supply Chain Management	p43		○
G4-14 Precautionary approach or principle.	2-1-4. Internal Audit 2-4. Risk and Crisis Management	p28 p39		○
G4-15 Subscription to externally developed economic, environmental and social charters, principles, or other initiatives.	3-2-3. Climate Challenges and Opportunities 2-5. Sustainable Supply Chain Management 4-1-1. Human Rights	p63 p43 p86		○
G4-16 Memberships of associations (such as industry associations) and national or international advocacy organizations.	About UMC	p5		○
Identified Material Aspects and Boundaries				
G4-17 Entities included in the consolidated financial statements.	About UMC Appendix:Joint Ventures and Subsidiaries	p5 p119		○
G4-18 Process for defining the report content and the Aspect Boundaries and, implementation of the Reporting Principles for Defining Report Content.	About This Report 1. Communication with Stakeholders	p2 p11		○
G4-19 List of all the material Aspects identified in the process for defining report content.	1. Communication with Stakeholders	p11		○
G4-20 Aspect Boundary within the organization for each material aspect.	1. Communication with Stakeholders	p11		○
G4-21 Aspect Boundary outside the organization for each material Aspect.	1. Communication with Stakeholders	p11		○
G4-22 Effect of any restatements of information provided in previous reports, and the reasons for such restatements.				○
G4-23 Significant changes from previous reporting periods inthe Scope and Aspect Boundaries.	About This Report	p2		○
Stakeholder Engagement				
G4-24 List of stakeholder groups engaged by the organization.	1. Communication with Stakeholders	p11		○
G4-25 Basis for identification and selection of stakeholders with whom to engage.	1. Communication with Stakeholders	p11		○
G4-26 Approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken specifically as part of the report preparation process.	1. Communication with Stakeholders	p11		○
G4-27 Key topics and concerns that have been raised through stakeholder engagement. How the organization has responded to these key topics and concerns, including through reporting. Stakeholder groups that raised each of the key topics and concerns.	1. Communication with Stakeholders	p11		○
Report Profile				
G4-28 Reporting period for the information provided.	About This Report	p2		○
G4-29 Date of most recent previous report.	About This Report	p2		○
G4-30 Reporting cycle (such as annual, biennial).	About This Report	p2		○
G4-31 Contact point for questions regarding the report or its contents.	About This Report	p2		○
G4-32 'In accordance' option chosen. GRI Content Index for the chosen option. Reference to the External Assurance Report.	About This Report	p2		○
G4-33 External assurance for the report.	About This Report	p2		○

General Standard Disclosures

General Standard Disclosures	Location	Page	Note	External Assurance
Governance				
G4-34 Governance structure of the organization.	Sustainable Development Strategy and Organization 2-1-1. Board of Directors	p7 p25		○
G4-35 Process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees.	Sustainable Development Strategy and Organization	p7		○
G4-36 Executive-level position or positions with responsibility for economic, environmental and social topics, and whether post holders report directly to the highest governance body.	Sustainable Development Strategy and Organization	p7		○
G4-37 Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics.	Sustainable Development Strategy and Organization	p7		○
G4-38 Composition of the highest governance body and its committees.	2-1-1. Board of Directors	p25		○
G4-39 Report whether the Chair of the highest governance body is also an executive officer.	2-1-1. Board of Directors	p25		○
G4-40 Nomination and selection processes for the highest governance body and its committees, and the criteria used for nominating and selecting highest governance body members.	2-1-1. Board of Directors	p25		○
G4-41 Processes for the highest governance body to ensure conflicts of interest are avoided and managed and whether conflicts of interest are disclosed to stakeholders.	2-1-1. Board of Directors	p25		○
G4-42 The highest governance body's and senior executives' roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental and social impacts.	Sustainable Development Strategy and Organization	p7		○
G4-43 Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics.	2-1. Corporate Governance	p25		○
G4-44 Processes for evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topics. Frequency and independence of the Evaluation. Report whether such evaluation is a self-assessment. Actions taken in response to the evaluation.	Sustainable Development Strategy and Organization 2-1. Corporate Governance	p7 p25		○
G4-45 The highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities. The highest governance body's role in the implementation of due diligence processes. Report whether stakeholder consultation is used to support the highest governance body's identification and management of economic, environmental and social impacts, risks, and opportunities.	Sustainable Development Strategy and Organization	p7		○
G4-46 The highest governance body's role in reviewing theeffectiveness of the organization's risk managementprocesses for economic, environmental and social topics.	Sustainable Development Strategy and Organization	p7		○
G4-47 Frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities.	Sustainable Development Strategy and Organization	p7		○
G4-48 The highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material Aspects are covered.	Sustainable Development Strategy and Organization About This Report	p7 p2		○
G4-49 Process for communicating critical concerns to the highest governance body.	Sustainable Development Strategy and Organization	p7		○
G4-50 Nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them.	Sustainable Development Strategy and Organization	p7		○
G4-51 Remuneration policies for the highest governance body and senior executives.	2-1-1. Board of Directors 2-1-2. UMC Functional Committee	p25 p27		○
G4-52 Process for determining remuneration. Involvement of remuneration consultants in determining remuneration and whether they are independent of management. Other relationships which the remuneration consultants have with the organization.	2-1-2. UMC Functional Committee	p27		○
G4-53 How stakeholders' views are sought and taken into account regarding remuneration, including the results of votes on remuneration policies and proposals, if applicable.	2-1-2. UMC Functional Committee	p27		○
G4-54 The ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees (excluding the highestpaid individual) in the same country.	2-1-2. UMC Functional Committee	p27		○
G4-55 The ratio of percentage increase in annual total compensation for the organization's highest-paid individual in each country of significant operations to the median percentage increase in annual total compensation for all employees (excluding the highestpaid individual) in the same country.	2-1-2. UMC Functional Committee	p27		○
Ethics and Integrity				
G4-56 Description of the organization's values, principles, standards and norms of behavior.	2-1-5.Code of Ethics and Anti-Corruption	p29		○
G4-57 Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity.	2-1-5.Code of Ethics and Anti-Corruption	p29		○
G4-58 Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity.	2-1-5.Code of Ethics and Anti-Corruption	p29		○

Specific Standard Disclosures (DMA and Indicators)

Economic

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Economic Performance				
DMA				○
G4-EC1 Direct economic value generated and distributed.	2-2-2.Business Performance 4-2-2. Wages and Benefits	p33 p94	For more information, please refer to the 2016 Annual Report (page 139).	○
G4-EC2 Financial implications and other risks and opportunities for the organization's activities due to climate change.	3-2-3. Climate Challenges and Opportunities 3-2-6. Carbon Assets and Carbon Trading	p63 p67		○
G4-EC3 Coverage of the organization's defined benefit plan obligations.	4-2-2. Wages and Benefits	p94		○
G4-EC4 Financial assistance received from government.			For more information, please refer to the section on "income tax" in the 2016 Annual Report on pages 241~242 of the instructions.	○
Market Presence				
DMA				○
G4-EC5 Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	4-2-2. Wages and Benefits	p94		○
G4-EC6 Senior management hired from the local community at significant locations of operation.	4-2-1. Human Resource	p91		○
Procurement Practices				
DMA				○
G4-EC9 Spending on local suppliers at significant locations of operation.	2-5. Sustainable Supply Chain Management	p43		○

Environmental

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Energy				
DMA				○
G4-EN3 Energy consumption within the organization.	3-2-7. Energy Management Appendix: Joint Ventures and Subsidiaries	p97 p119		○
G4-EN4 Energy consumption outside of the organization.	3-2-4. Measures for Mitigating Climate Change	p64		○
G4-EN5 Energy intensity.	3-2-7. Energy Management	p67		○
G4-EN6 Reduction of energy consumption.	3-2-7. Energy Management	p67		○
G4-EN7 Reductions in energy requirements of products and services.	3-4. Green Product	p78		○
Water				
DMA				○
G4-EN8 Total water withdrawal by source.	3-3-1. Factory Water Source	p71		○
G4-EN9 Water sources significantly affected by withdrawal of water.	3-3-1. Factory Water Source	p71		○
G4-EN10 Percentage and total volume of water recycled and reused.	3-3-3. Water Conservation During Manufacturing	p72		○
Emissions				
DMA				○
G4-EN15 Direct greenhouse gas (GHG) emissions (Scope 1).	3-2-4. Measures for Mitigating Climate Change	p64		○
G4-EN16 Energy indirect greenhouse gas (GHG) emissions (Scope 2).	3-2-4. Measures for Mitigating Climate Change	p64		○
G4-EN17 Other indirect greenhouse gas (GHG) emissions (Scope 3).	3-2-4. Measures for Mitigating Climate Change	p64		○
G4-EN18 Greenhouse gas (GHG) emissions intensity.	3-2-4. Measures for Mitigating Climate Change	p64		○
G4-EN19 Reduction of greenhouse gas (GHG) emissions.	3-2-4. Measures for Mitigating Climate Change	p64		○
G4-EN20 Emissions of ozone-depleting substances (ODS).	3-1-3. Clean Production	p57		○
G4-EN21 NOx, SOx, and other significant air emissions.	3-1-3. Clean Production	p57		○
Effluents and Waste				
DMA				○
G4-EN22 Total water discharge by quality and destination.	3-3-4. Water Pollution Control	p75		○
G4-EN23 Total weight of waste by type and disposal method.	3-1-3. Clean Production	p57		○
G4-EN24 Total number and volume of significant spills.	NA		No spills occurred during the reporting period.	○
G4-EN25 Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention.	3-1-3. Clean Production	p57	All waste materials generated by UMC during the reporting period were processed domestically and not overseas.	○
G4-EN26 Water bodies and related habitats that are significantly affected by water discharges.	3-3-4. Water Pollution Control	p75		○

Environmental

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Products and Services				
DMA				○
G4-EN27 Extent of impact mitigation of environmental impacts ofproducts and services.	3-4. Green Product	p78		○
G4-EN28 Percentage of products sold and their packaging materials thatare reclaimed by category.	3-4. Green Product	p78		○
Compliance				
DMA				○
G4-EN29 Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations.	3-1-4. Environmental Accounting	p62	No non-compliance with environmental laws and regulations occurred during the reporting period.	○
Overall				
DMA				○
G4-EN31 Total environmental protection expenditures and investments by type.	3-1-4. Environmental Accounting	p62		○
Supplier Environmental Assessment				
DMA				○
G4-EN32 Percentage of new suppliers that were screened using environmental criteria.	2-5. Sustainable Supply Chain Management	p43		○
G4-EN33 Significant actual and potential negative environmental impacts in the supply chain and actions taken.	2-5. Sustainable Supply Chain Management	p43		○
Environmental Grievance Mechanisms				
DMA				○
G4-EN34 Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms.	2-1-5.Code of Ethics and Anti-Corruption	p29	There were no cases during the reporting period.	○

Human Rights

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Investment				
DMA				○
G4-HR1 Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.	NA		No significant investment agreements and contracts were signed during the reporting period.	○
G4-HR2 Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.	4-1-1. Human rights	p86		○
Non-discrimination				
DMA				○
G4-HR3 Total number of incidents of discrimination and corrective actions taken.	4-1-1. Human rights	p86	None for discriminatory incidents.	○
Freedom of Association and Collective Bargaining				
DMA				○
G4-HR4 Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights	4-1-1. Human rights	p86		○
Child Labor				
DMA				○
G4-HR5 Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.	4-1-1. Human rights	p86		○
Forced or Compulsory Labor				
DMA				○
G4-HR6 Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.	4-1-1. Human rights	p86		○
Assessment				
DMA				○
G4-HR9 Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.	4-1-1. Human rights	p86		○
Supplier Human Rights Assessment				
DMA				○
G4-HR10 Percentage of new suppliers that were screened using human rights criteria.	2-5. Sustainable Supply Chain Management	p43		○
G4-HR11 Significant actual and potential negative human rights impacts in the supply chain and actions taken.	2-5. Sustainable Supply Chain Management	p43		○
Human Rights Grievance Mechanisms				
DMA				○
G4-HR12 Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms.	2-1-5.Code of Ethics and Anti-Corruption 4-1. Labor Rights	p29 p86	There were no cases during the reporting period.	○

Labor Practices and Decent Work

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Employment				
DMA				○
G4-LA1 Total number and rates of new employee hires and employee turnover by age group, gender and region.	4-2-1. Human Resource	p91		○
G4-LA2 Benefits provided to full-time employees that are not provided to temporary or parttime employees, by significant locations of operation.	4-2-2. Wages and Benefits	p94		○
G4-LA3 Return to work and retention rates after parental leave, by gender.	4-2-1. Human Resource	p91		○
Labor/Management Relations				
DMA				○
G4-LA4 Minimum notice periods regarding operational changes, including whether these are specified in collective agreements.	4-1. Labor Rights 4-1-1. Human rights	p86 p86		○
Occupational Health and Safety				
DMA				○
G4-LA5 Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and saftey programs.	4-3-2. Safe Work Environment	p108		○
G4-LA6 Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of workrelated fatalities, by region and by gender.	4-3-2. Safe Work Environment	p108		○
G4-LA7 Workers with high incidence or high risk of diseases related to their occupation.	4-3-2. Safe Work Environment	p108		○
G4-LA8 Health and safety topics covered in formal agreements with trade unions.	4-3-2. Safe Work Environment	p108	Health and safety issues were discussed by the ESH Committee.	○
Training and Education				
DMA				○
G4-LA9 Average hours of training per year per employee by gender, and by employee category.	4-2-3. Education and Training	p96		○
G4-LA10 Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	4-2-3. Education and Training	p96		○
G4-LA11 Percentage of employees receiving regular performance and career development reviews, by gender and by employee category.	4-2-3. Education and Training	p96		○
Diversity and Equal Opportunity				
DMA				○
G4-LA12 Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	4-2-1. Human Resource	p91		○
Equal Remuneration for Women and Men				
DMA				○
G4-LA13 Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	4-2-2. Wages and Benefits	p94		○
Supplier Assessment for Labor Practices				
DMA				○
G4-LA14 Percentage of new suppliers that were screened using labor practices criteria.	2-5. Sustainable Supply Chain Management	p43		○
G4-LA15 Significant actual and potential negative impacts for labor practices in the supply chain and actions taken.	2-5. Sustainable Supply Chain Management	p43		○
Labor Practices Grievance Mechanisms				
DMA				○
G4-LA16 Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms.	2-1-5.Code of Ethics and Anti-Corruption 4-1. Labor Rights	p29 p86		○

Product Responsibility

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Product and Service Labeling				
DMA				○
G4-PR3 Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	About UMC	p2		○
G4-PR4 Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.	2-1-6 Legal Compliance	p29	No non-compliance with laws and regulations occurred during the reporting period.	○
G4-PR5 Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	2-3-2. Improving Customer Satisfaction	p38		○
Customer Privacy				
DMA				○
G4-PR8 Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	2-1-6 Legal Compliance 2-3-3 Protecting Customer Assets	p29 p38	There were no cases during the reporting period.	○
Compliance				
DMA				○
G4-PR9 Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.	2-1-6 Legal Compliance	p29	No non-compliance with laws and regulations occurred during the reporting period.	○

Society

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Anti-corruption				
DMA				○
G4-SO3 Total number and percentage of operations assessed for risks related to corruption and the significant risks identified.	2-1-5.Code of Ethics and Anti-Corruption 4-1-1. Human rights	p29 p86		○
G4-SO4 Communication and training on anti-corruption policies and procedures.	2-1-5.Code of Ethics and Anti-Corruption 4-1-1. Human rights	p29 p86		○
G4-SO5 Confirmed incidents of corruption and actions taken.	NA		No business units have been analyzed for risks related to corruption.	○
Anti-competitive Behavior				
DMA				○
G4-SO7 Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes.	2-1-6 Legal Compliance	p29	UMC is not involved in legal actions for anticompetitive behavior, anti-trust, and monopoly practices during the reporting period.	○
Compliance				
DMA				○
G4-SO8 Monetary value of significant fines and total number of nonmonetary sanctions for non-compliance with laws and regulations.	2-1-6 Legal Compliance	p29	UMC is not involved in noncompliance with regulations nor has it been found guilty during the reporting period.	○
Supplier Assessment for Impacts on Society				
DMA				○
G4-SO9 Percentage of new suppliers that were screened using criteria for impacts on society.	2-5. Sustainable Supply Chain Management	p43		○
G4-SO10 Significant actual and potential negative impacts on society in the supply chain and actions taken.	2-5. Sustainable Supply Chain Management	p43		○
Grievance Mechanisms for Impacts on Society				
DMA				○
G4-SO11 Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms.	2-1-5.Code of Ethics and Anti-Corruption	p29	There were no cases during the reporting period.	○

Others

Specific Standard Disclosures (DMA and Indicators)	Location	Page	Note	External Assurance
Innovation Management				
Other_1. Innovative new products and technologies	2-2. Innovation Management	p31		○
Risk Management				
Other-2. Business continuity, risk management and control	2-4-3. Business Continuity Management	p39		○
Environmental Management				
Other-3. Environmental management system progress and outcome	3-1. Green Factory	p55		○
Chemical Use				
Other-4. Hazardous substance management and reduction outcome	3-4-1. Hazardous Substance Management	p78		○
Employee Communication				
Other-5 Employee communication, support and solidarity	4-3-1 Healthy Workplace	p103		○
Social Welfare				
Other-6.Company charitable and community involvement	3-5. Green Concepts 4-4. Social Commitment and Participation	p81 p113		○
Conflict Mineral Management				
Other7- The company's condition in regards to the conflict minerals management by the products of its supplier and supply chains	2-5. Sustainable Supply Chain Management	p43		○

Appendix III – ISO 26000 Index

Core Subjects and Issues		Related CSR Report Section	Page(s)
Organizational governance	Decision-making processes and structures	SustainableDevelopment Strategy and Organization 2-1 Corporate Governance	p7 p25
Human rights	Due diligence	2-5 Sustainable Supply Chain Management 4-1-1 Human Rights	p43 p86
	Human rights risk situations	2-5 Sustainable Supply Chain Management 4-1-1 Human Rights	p43 p86
	Avoidance of complicity	2-1 Corporate Governance 4-1-1 Human Rights	p25 p86
	Resolving grievances	2-1-5 Code of Ethics and Anti-Corruption 4-1-1 Human Rights 4-1-2 Employer-employee Communication	p29 p86 p87
	Discrimination and vulnerable groups	4-1-1 Human Rights 4-4 Community Service	p86 p113
	Civil and political rights	4-1-1 Human Rights	p86
	Economic, social and cultural rights	4-4 Community Service	p113
	Fundamental principles and rights at work	4-1 Labor Rights	p86
Labor practices	Employment and employment relationships	4-2 Recruitment and Cultivation	p91
	Conditions of work and social protection	4-1-1 Human Rights 4-3 Healthy and Safe Workplace	p86 p103
	Social dialogue	1.Communication with the Stakeholders 4-1-2 Employer-employee Communication	p11 p87
	Health and safety at work	4-3-1 Healthy Workplace 4-3-2 Safe Work Environment	p103 p108
	Human development and training in the workplace	4-2-3 Education and Training	p96
The environment	Prevention of pollution	3-1-3 Clean Production 3-3-4 Water Pollution Control	p57 p75
	Sustainable resource use	3-1-3 Clean Production 3-2-7 Energy Management	p57 p67
	Climate change mitigation and adaptation	3-2 Energy and Greenhouse Gas Management	p63
	Protection of the environment, biodiversity and restoration of natural habitats	3-1Green Factory	p55
Fair operating practices	Anti-corruption	2-1-5 Code of Ethics and Anti-Corruption	p29
	Responsible political involvement	UMC did not provide any political donations in the reporting year.	
	Fair competition	4-1-1 Human Rights	p86
	Promoting social responsibility in the value chain	2-5 Sustainable Supply Chain Management	p43
	Respect for property rights	2-1-6 Legal Compliance	p29
Consumer issues	Fair marketing, factual and unbiased information and fair contractual practices	2-1 Corporate Governance	p25
	Protecting consumers' health and safety	3-4 Green Product	p78
	Sustainable consumption	2-5 Sustainable Supply Chain Management 2-5-3 Conflict Minerals Management	p43 p49
	Consumer service, support, and complaint and dispute resolution	2-3 Customer Service	p37
	Consumer data protection and privacy	2-3 Customer Service	p37
	Access to essential services	2-3 Customer Service	p37
	Education and awareness	2-3 Customer Service	p37
Community involvement and development	Community involvement	4-4 Community Service	p113
	Education and culture	4-2-4 Cultivating Prospective Talents 4-4-1 Community Service Participation	p101 p113
	Employment creation and skills development	2-2 Innovation Management 4-2 Recruitment and Cultivation 4-2-4 Cultivating Prospective Talents	p31 p91 p101
	Technology development and access	2-2 Innovation Management	p31
	Wealth and income creation	4-4 Community Service	p113
	Health	4-4 Community Service 4-4-2 Promotion of UMC Volunteer Culture	p113 p115
	Social investment	4-4 Community Service	p113

Appendix IV – United Nation Global Compact Comparison Table

United Nation Global Compact Comparison Table

10 Principles	Related CSR Report Section	Page
Human Rights		
Businesses should support and respect the protection of internationally proclaimed human rights.	4-1 Labor Rights	p86
Make sure that they are not complicit in human rights abuses.	2-5 Sustainable Supply Chain Management 4-1 Labor Rights	p43 p86
Labor		
Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining.	4-1 Labor Rights	p86
The elimination of all forms of forced and compulsory labor.	4-1 Labor Rights	p86
The effective abolition of child labor.	4-1 Labor Rights	p86
The elimination of discrimination in respect of employment and occupation.	4-1 Labor Rights	p86
Environment		
Businesses should support a precautionary approach to environmental challenges.	3 Sustainable Development-Environment	p51
Undertake initiatives to promote greater environmental responsibility.	3 Sustainable Development-Environment	p51
Encourage the development and diffusion of environmentally friendly technologies.	2-2 Innovation Management 3-4 Green Product Technologies	p31 p78
Anti-Corruption		
Businesses should work against corruption in all its forms, including extortion and bribery.	2-1-5 Code of Ethics and Anti-Corruption	p29

Appendix V – Assurance Statement

SGS ASSURANCE STATEMENT

SGS TAIWAN LTD.'S INDEPENDENT ASSURANCE REPORT ON SUSTAINABILITY ACTIVITIES IN THE UNITED MICROELECTRONICS CORPORATION's CORPORATE SOCIAL RESPONSIBLE REPORT FOR 2016

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 Responsible Report (hereinafter referred to as CSR Report) of 2016. 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 2016 and its presentation are the responsibility of the superintendents, CS committee and the management of UMC. SGS has not been involved in the preparation of any of the material included in the UMC's CSR Report of 2016.

Our responsibility is to express an opinion on the text, data, graphs and statements within the scope of assurance set out below with the intention to inform all UMC's stakeholders.

The SGS Group has developed a set of protocols for the Assurance of Sustainability Reports based on current best practice guidance provided in the Global Reporting Initiative (hereinafter referred to as GRI) Sustainability Reporting Guidelines and the AA1000 Assurance Standard (2008). These protocols follow differing options for Assurance depending the reporting history and capabilities of the Reporting Organization.

This report has been assured using our protocols for:

- evaluation of content veracity 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 Global Reporting Initiative Sustainability Reporting Guidelines (G4 2013).

The assurance comprised a combination of pre-assurance research; interviews with relevant superintendents, CS committee members and the management; 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 affirms our independence from UMC, being free from bias and conflicts of interest with the organization, 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 2016 verified is accurate, reliable and provides a fair and balanced representation of UMC sustainability activities in 01/01/2016 to 12/31/2016.

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 G4 Comprehensive Option and AA1000 Assurance Standard (2008) Type 2, High level assurance.

AA1000 ACCOUNTABILITY PRINCIPLES CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity

UMC is committed to being accountable to its stakeholders and to integrating inclusivity into its strategic and management approach. A variety of engagement efforts such as survey and communication to employees, customers, investors, local communities, suppliers and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns. For future reporting, UMC may proactively consider having more direct 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. It is recommended that the process and criteria applied to assess materiality to be formalized and documented to ensure better consistent result in future reporting.

Responsiveness

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback. Future reporting would benefit from more reporting on the results of stakeholder feedback from this report.

GLOBAL REPORTING INITIATIVE REPORTING GUIDELINES CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, UMC's CSR Report of 2016, is adequately in line with the GRI G4 Comprehensive Option. The material aspects 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 aspects and boundaries, and stakeholder engagement, G4-17 to G4-27, are correctly located in content index and report. More engagement to involve NGO and CSR illustrious personage for considering the full picture of UMC's significant outward impacts on the economy, the environment, and society is encouraged in future reporting..

Signed:
For and on behalf of SGS Taiwan Ltd.

David Huang, Director
Taipei, Taiwan
26 May, 2017
WWW.SGS.COM

AA1000 Licensed Assurance Provider 000-8

GPS008 Issue 4

UMC

Corporate Social Responsibility Report

United Microelectronics Corporation

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2016 Corporate Social Responsibility Report : http://www.umc.com/English/CSR/b.asp