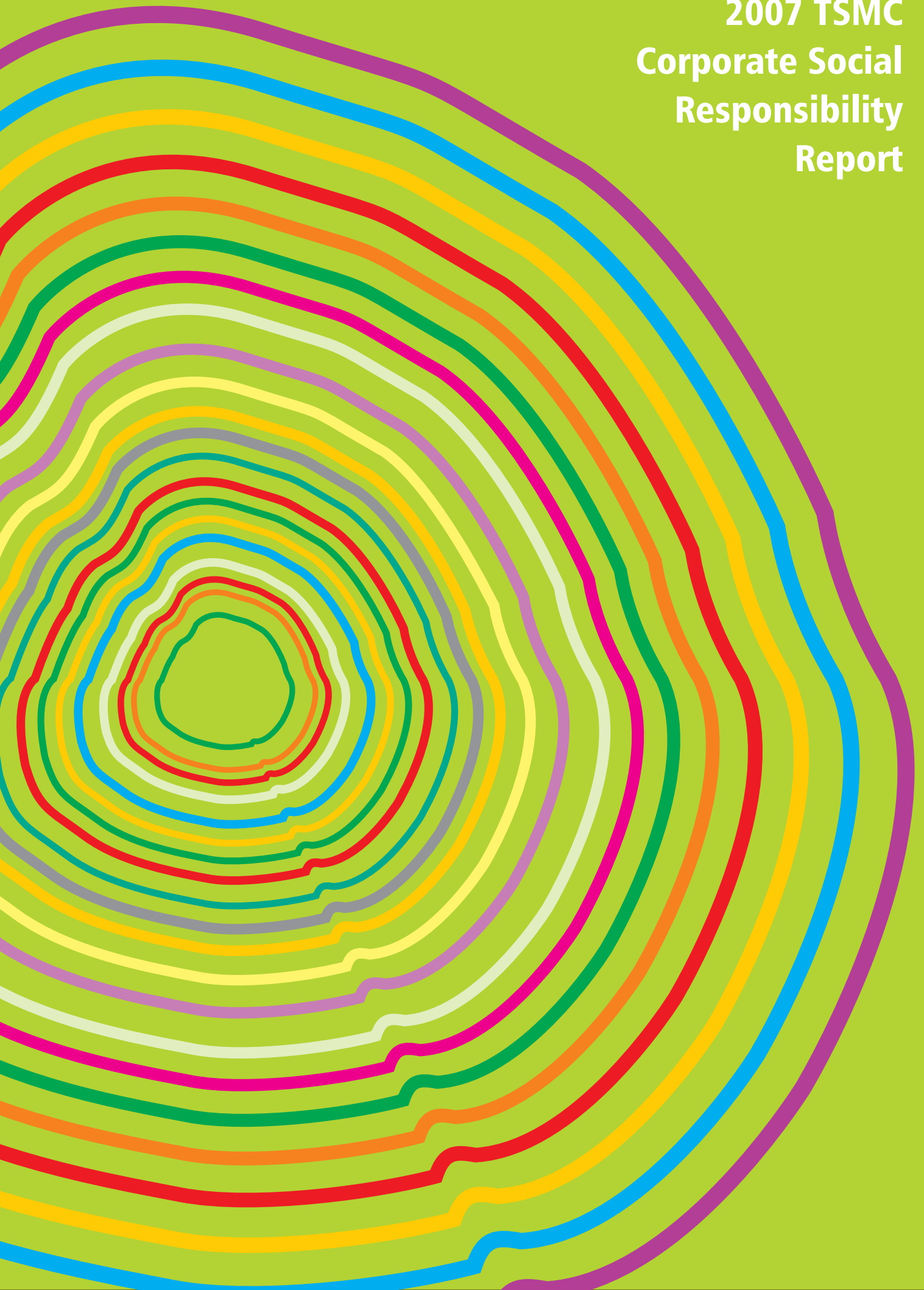


**2007 TSMC  
Corporate Social  
Responsibility  
Report**







# How Many Times Has a New Company Led to a New Industry?

History passes every second.  
Sometimes, we leave only our own footprints.  
Sometimes, the ideas of a pioneer  
set off a chain reaction, one after another  
leading us into the future.

In February of 1987,  
a new chapter began in the global semiconductor industry.

TSMC set itself free  
from the rules of the semiconductor business  
blazing a trail  
to create the dedicated semiconductor foundry business model  
and nurture the fabless semiconductor industry.

Lighting the spark of innovation,  
launching the industry on the next stage of its journey,  
everything began  
from the ripples set off  
by one change.







## Your Trust Is Our Undivided Commitment

Customers Suppliers Employees Shareholders Society

these are all our partners,  
a powerful team,  
that generates the energy for endless growth.

A circle connected by trust,  
every link is indispensable.  
Once connected, it is a living cycle.









## Let's Make the World Better

The wind is blowing,  
the clouds are sailing,  
the sun is shining,  
and the World is turning.

TSMC is just one  
of the countless companies in the world,  
but we know that we can make a difference  
because we believe  
that if we fulfill our social responsibility  
we can lift society higher.

Bit by bit,  
we can make the world a better place.









## A Radiant Pearl

Running our business well and respecting the law  
is our most important corporate social responsibility.

We are the nexus that connects  
more than 20,000 employees, hundreds of customers,  
thousands of suppliers, hundreds of thousands of shareholders,  
and the networks that extend beyond them.  
Together, we are a vast web of interactions,  
we are all connected.

We never forget that we are connected,  
and we work hard to grow and create more value  
because we know  
that is the starting point of our responsibilities.







## TSMC's Economic Power

TSMC strives to excel in its core business of dedicated semiconductor foundry.

In 2007, we led the foundry sector  
in bringing 45nm technology into volume production.  
We produced more than 8 million 8-inch equivalent wafers,  
making up more than 7.5 percent of global wafer output.

Continuous advances in R&D and production have propelled growth.

In 2007, our consolidated revenue was NT\$322.6 billion,  
setting a record high for a sixth consecutive year  
and making us the world's sixth largest semiconductor company.

TSMC bears an unwavering focus on adding value.

In 2007, the value of TSMC wafers produced for customers  
accounted for 13.5 percent of global semiconductor revenues.

TSMC spent US\$4 billion in 2007 to purchase materials  
and equipment all over the globe,  
and provided more than 20,000 high-quality job opportunities  
in Taiwan and around the world,

We created NT\$109.1 billion in net profit,  
distributed NT\$76.8 billion in cash dividends to shareholders,  
and created added value of more than NT\$200 billion.

With our dedication,  
and together with employees, customers, suppliers, and shareholders,  
we can be a driving force in the global economy.









## Planting a Forest

We have a dream of planting a mighty forest.  
Not just a forest of trees,  
but an environment for people to grow and prosper.

That is why we see our employees as a resource to be cultivated.  
We need the talents of every employee to be evergreen.

That is why we built a comprehensive safety and health system,  
and ask our suppliers to meet the same high standards.  
We want everyone who works at TSMC to be protected.

That is why we established the TSMC Foundation.  
We seek to spread the seeds of education and art,  
and make a more beautiful society.

TSMC will keep growing, touching the sky, and  
spreading out to share fruit and shade to all.









## A Positive Force in Society

TSMC was aided by many helping hands as it grew.

Now our roots are deep,  
we want to give back to society by caring about people.

We develop our employees, and give them an environment to continue learning.

We offer tailor-made courses to fit our employees' needs.

In 2007, we conducted 698,564 hours of training  
for 245,988 participants,  
accumulating human capital for TSMC and for society.

Human safety comes first; on this, we never compromise.  
And we guide our contractors to make the same commitment.

To improve the industry's safety culture,  
we were first to require contractors bidding on high-risk work  
to establish the OHSAS18001 safety management system  
by July 1, 2007.

With our efforts, incidents have declined by more than half.

TSMC's compassion shows through in active charity work.

In 2007, we donated more than NT\$140 million,  
and our team of volunteers made up of employees and their families  
extended our compassion even further.

More than 300 Science Museum Volunteer Docents  
donated 8,000 hours of their time to spread knowledge.  
Some 160 reading volunteers told 4,000 hours of stories  
to help underprivileged students in remote areas of Hsinchu and Tainan  
learn to love reading.

Giving back to society is something we must do,  
and something that we will never stop doing.









## The World in a Drop of Water

Each drop of water has limitless possibilities,  
and we treasure every drop.

We have three international patents in water recycling alone,  
and use more than 20 recycling measures.

In 2007, we recycled 13,730,000 tons of precious water resources.

Achievement is measured by more than just rising profits and revenues,  
Maintaining the harmony of the natural environment  
is also one of the ways we judge ourselves.

The Sustainable Development Committee is a mark of our dedication.

Every drop of water cycles through land, sea, and sky.

TSMC cares for the earth.

We see the beauty of nature in every drop of water.

We protect the environment in everything that we do.







# Working for the Environment

TSMC is committed to protecting the environment.  
For the future of the planet,  
environmental protection is everyone's responsibility.

We take action: Every TSMC fab has received certification for  
ISO14001 Environmental Management Systems  
and QC080000 Hazardous Materials Management Systems.  
We have established a green supply chain with our suppliers  
to give the semiconductor industry a sustainable future.

We set goals: TSMC aggressively reduces greenhouse gas emissions.  
We pledge that by 2010, greenhouse gas emissions  
will be 10 percent lower than our 1997 and 1999 average  
even as our capacity has expanded more than sevenfold since 1997.

We care: TSMC continues to improve energy conservation.  
In 2007, we conserved 430 million kilowatts of power  
and reduced carbon emissions by 270,000 tons.

We lead: We are not content with our global leadership in water recycling.  
The water recycling rate of new fabs has reached more than 85 percent.

We make better: We continue to improve waste reduction, recycling, and reuse.  
In 2007, our combined waste recycling rate was 86 percent,  
effectively reducing waste treatment costs  
and creating recycled products with economic value.

We stand firm: All new plants and office buildings  
will follow U.S. LEED and Taiwan green building standards.

In 2007, we were selected as a member of  
the Dow Jones Sustainability Index for a seventh consecutive year,  
an honor that we share with just four other semiconductor companies.

We want to keep our planet beautiful as we march into the future.



# Contents

<b>Overview</b>	<b>2</b>	<b>Supply Chain Management</b>	<b>26</b>
<b>Letter from the President and Chief Executive Officer</b>	<b>4</b>	4.1 Supply Chain Risk Management	26
<b>Corporate Profile</b>	<b>6</b>	4.2 Environmental, Safety, and Health (ESH) Standards	27
2.1 An Introduction to TSMC	6	4.3 Managing Contractors' ESH	28
2.2 Market/Business Summary	7	4.4 Helping Suppliers Improve Delivery and Quality	29
2.3 Operational Highlights	8	4.5 Ensuring Supplier Compliance	29
2.4 Financial Highlights	8	4.6 SCM Forum and Excellent Supplier Award	30
2.5 Corporate Development	9	4.7 Customer Service and Satisfaction	30
2.6 Awards Received in the Reporting Period	9	<b>Social Contribution</b>	<b>32</b>
2.7 International Sustainability Indexes	10	5.1 TSMC Employee Volunteer Program	32
2.8 Membership in Industry Associations	10	5.2 Commitment to Education	34
2.9 Investor Engagement	10	5.3 Promotion of Arts and Culture	36
2.10 Corporate Governance	11	5.4 Community-Building	37
<b>Employee</b>	<b>14</b>	<b>Environmental Protection</b>	<b>40</b>
3.1 Employment	14	6.1 Green Management Organization and System	40
3.2 Employee Development	15	6.2 Climate Change and Greenhouse Gas Reduction	42
3.3 Compensation and Benefits	16	6.3 Green Building	44
3.4 Employee Relations	16	6.4 Green Product	45
3.5 Work and Life Integration Program	17	6.5 Water Resource Management	46
3.6 Corporate Security and Risk Control	18	6.6 Pollution Prevention	47
3.7 Safety and Health	19	6.7 Ecological Preservation	54
		6.8 Green Promotion Activities	54
		6.9 Environmental Compliance Record	56
		<b>Global Reporting Initiative (GRI) Content Index</b>	<b>57</b>
		<b>Contact Information</b>	<b>63</b>



# Overview

As a good corporate citizen, TSMC has always committed itself to a high standard of corporate social responsibilities. In the past, we have disclosed our efforts made in carrying out these responsibilities on our corporate website. However, in response to the growing interest around the world in corporate social responsibilities, we have decided to issue this Corporate Social Responsibility Report to share with the public our progress made in company performance, social engagement, and environmental protection over the past year.

The scope of this "Corporate Social Responsibility Report" covers our company's operational, social, and environmental performance, particularly with respect to progress made in 2007. This report contains information related to all TSMC fabs located in Taiwan, as well as the ESH performance of our two wholly-owned subsidiaries, TSMC (Shanghai) and WaferTech in the United States. Financial figures in this report are expressed in NT dollars, while ESH performance is expressed in commonly accepted benchmarks.

This report is compiled based on the Global Reporting Initiative (GRI) G3 framework, and a table is attached at the end of this report for easy comparison. This report is published in both English and Chinese versions and is available on our corporate website.







# Letter from the President and Chief Executive Officer

We have always believed that to fulfill our corporate social responsibility is to act as an uplifting force in society. In other words, as a corporation seeks growth, profit, and sustainability, it must also meet its corporate social responsibility and continue to uphold the values of society.

TSMC's four core values are Integrity, Commitment, Innovation, and Customer Partnership. Integrity is the foundation of these four core values, and represents the company's moral character. Our commitment is multifaceted and it extends to every aspect of our business, including commitment to employees, commitment to society, and commitment to the environment. Based on these values, we insist on transparent operations, we uphold the rights of shareholders, and we believe that a sound and efficient board of directors is the cornerstone of good corporate governance. Integrity is our most important belief, and it is key to thorough execution of good corporate governance.



We are committed to the welfare of employees. We view employees as the company's most important asset, and ensure their health and safety at work.

To protect the environment, we not only strive to reduce our own energy consumption and carbon emissions, we have taken the lead in establishing a green supply chain. Our goal is to do more for the environment by using our influence and guiding our supply chain partners to lower their carbon emissions as well. TSMC will design all new plants and offices using "green building" concepts, following Taiwan's Ecology, Energy Saving, Waste Reduction, Health (EEWH) standard and the U.S. Leadership in Energy and Environmental Design (LEED) standard.

TSMC believes in engaging with local communities. Besides ensuring the safety and protecting the environment of the areas where we operate, our more than 20,000 employees and their families have long been an indispensable part of the local communities. In addition, we seek to give back to society through the work of the TSMC Foundation in its four core objectives of commitment to education, sponsorship of the arts, contribution to local communities, and development of the TSMC Employee Volunteer Program.

TSMC has won awards and recognition from around the world for its operations, knowledge management, corporate governance, investor relations, environmental protection, and other aspects of our business. These accolades have not made us vain and complacent; instead, they drive us to achieve more, because we know that we can work even harder and improve even further.

As corporate social responsibility becomes an increasingly important topic of public discussion, we are issuing our first corporate social responsibility report this year to replace our Environmental, Safety, and Health Annual Report. TSMC's corporate social responsibility report has been compiled based on the Global Reporting Initiative's "Sustainability Reporting Guidelines". We hope that with this report, everyone who is concerned about TSMC can understand the efforts we have made to fulfill our corporate social responsibility, and encourage us to continue growing in a sustainable fashion.

A handwritten signature in black ink that reads "Rick Tsai". The signature is fluid and cursive, with the first name "Rick" and last name "Tsai" clearly distinguishable.

Rick Tsai  
President and Chief Executive Officer







# Corporate Profile

TSMC is the world's largest dedicated semiconductor foundry, providing the industry's leading process technology and the foundry industry's largest portfolio of process-proven libraries, IP, design tools, and reference flows. TSMC's leading industry position is based on a trinity of key differentiating strengths: technology leadership, manufacturing excellence, and customer partnership. Revenue for 2007 totaled NT\$322.63 billion, net income was NT\$109.18 billion, and earnings per share was NT\$4.14.

## 2.1 An Introduction to TSMC

TSMC is the world's largest dedicated semiconductor foundry. Founded on February 21, 1987 and headquartered in Hsinchu, Taiwan, TSMC pioneered the business model of focusing solely on manufacturing customers' semiconductor designs. As a dedicated semiconductor foundry, the company does not design, manufacture, or market semiconductor products under its own brand name, ensuring that TSMC does not compete directly with its customers.

TSMC's diverse global customer base ensures that TSMC-manufactured microchips are used in a broad variety of applications in various segments of the computer, communications, and consumer electronics markets.

Total capacity of manufacturing facilities managed by TSMC, including subsidiaries, affiliates, and joint ventures, was 8.29 million 8-inch equivalent wafers in 2007. In Taiwan, TSMC operates two advanced 12-inch wafer fabs, four 8-inch wafer fabs, and one 6-inch wafer fab. It also manages two 8-inch fabs at two wholly-owned subsidiaries, WaferTech in the United States and TSMC (Shanghai) in China. In addition, TSMC obtains 8-inch wafer capacity from other companies in which TSMC has an equity interest.

TSMC provides customer services through its account management and engineering service offices in North America, Europe, Japan, China, South Korea, and India. The company employed more than 20,000 people worldwide as of the end of 2007.

TSMC continued to lead the industry in advanced process technologies. Already first to provide 65nm production capacity, TSMC in 2007 became the first foundry to provide 45nm production. In addition to general-purpose logic process technology, TSMC supports the wide-ranging needs of its customers with embedded non-volatile memory, embedded DRAM, mixed signal/RF, high voltage, CMOS image sensor, color filter, and silicon germanium technologies.

The company is listed on the Taiwan Stock Exchange (TSE) under ticker number 2330, and its American Depositary Shares trade on the New York Stock Exchange (NYSE) under the symbol TSM.



Corporate headquarters and Fab 12



## 2.2 Market/Business Summary

### 2.2.1 TSMC Achievements

In 2007, TSMC maintained its leading position in the dedicated foundry segment of the global semiconductor industry, with an estimated market segment share of approximately 47%. TSMC achieved this result amid fierce competition from both established players and relatively new entrants to the business.

In 2007, we achieved an estimated market segment share of approximately **47%**.

A key contributory factor to TSMC's strong position is its lead in advanced manufacturing process technologies. In 2007, 55% of TSMC's wafer revenue came from manufacturing processes with geometries of 0.13 $\mu$ m and below. TSMC reached a critical milestone in December 2007, when it shipped its one-millionth 90nm 12-inch wafer. Moreover, TSMC also achieved volume production of the 45nm process as well as development of the leading-edge 32nm process, both industry firsts. By the fourth quarter of 2007, more than 39% of TSMC's revenue came from 90nm processes or below.

### 2.2.2 Market Overview

The integrated circuit (IC) market in 2007 reached US\$218.5 billion in revenue, an increase of 4.3% over 2006. This represented 85% of total worldwide semiconductor revenue of US\$256 billion. Growth of fabless design companies slightly outpaced that of integrated device manufacturers (IDMs) in 2007, with a market share of 21% of total IC revenues. IC foundry, a manufacturing sub-segment of the IC industry that serves both fabless companies and IDMs, generated total revenues of US\$24.3 billion in 2007, up 4.3% year on year, while revenues from dedicated IC foundries such as TSMC reached US\$20.7 billion, up 4% from 2006. It is estimated that the production value of dedicated IC foundries accounted for 19% of worldwide IC revenues in 2007.

### 2.2.3 Industry Outlook, Opportunities, and Threats

#### Industry Demand and Supply Outlook

The semiconductor market in 2007 experienced modest growth of 3.5%. For 2008, based on current market conditions, the semiconductor market growth rate could be around a mid-single digit percentage depending on the level of global economic growth. As the inventory level in general was comparatively normal at the beginning of 2008, the growth of the foundry segment could outperform the semiconductor industry by a few percentage points in 2008. On the other hand, foundry capacity could expand 13% in 2008 according to IC Insights, compared with the 15% compound annual growth rate of the past 3 years. This indicates that there may be more cautious capacity investment from major foundry players in response to slowing industry demand.

### Opportunities and Threats in the Foundry Sector of the Semiconductor Market

Despite the fact that the semiconductor market as a whole is maturing, TSMC believes that foundry services, the sector in which TSMC competes, will play an increasingly important role as the IC industry becomes more reliant on outsourced manufacturing. IC Insights forecasts that by 2012, 27% of global semiconductor revenue will come from dedicated foundries compared with 19% in 2007. Consequently, the dedicated foundry sector is forecast to grow at a rate of 12% in 2008, outpacing overall industry growth. As the leader in dedicated foundry services, TSMC is well positioned to capture the faster growth opportunities of this sector. On the other hand, threats remain, such as the continuing fall in wafer prices, due to the fact that the IC industry is prone to fast-declining end application prices, as well as potential industry overcapacity if the global economic climate experiences a downturn.

### 2.2.4 TSMC Position, Differentiation, and Strategy

#### Position

As the leader in the dedicated foundry segment of the IC manufacturing industry, TSMC commanded a 47% share of this segment in 2007, with total revenue of US\$9.8 billion. In terms of geographic distribution categorized by company headquarters, 77% of total revenue came from North America, 11% from the Asia-Pacific region excluding Japan, 9% from Europe, and 3% from Japan. In terms of end-product application, 32% of total revenue came from the computing sector, 42% from communications, 17% from consumer products, and 9% from other categories, such as industrial products.

#### Differentiation

TSMC's leading industry position is based on a trinity of key differentiating strengths: technology leadership, manufacturing excellence, and customer partnership. As a technology leader, TSMC has consistently been the first dedicated foundry to develop the next generation of leading-edge technologies. As a manufacturing leader, TSMC is renowned for its yield management, and offers best-in-class support services to expedite time-to-market and time-to-volume. And, in customer partnership, TSMC works closely with its customers on end-to-end collaboration to optimize design and manufacturing efficiencies. Going forward, TSMC will continue building on this trinity of strengths to provide the best overall value to its customers.

## Strategy

TSMC is confident its differentiating strengths will enable it to leverage the attractive growth opportunities in the foundry sector going forward. TSMC works constantly to ensure that these strengths are maintained and improved, both in the short term and in the long term. For example, TSMC is intensively working on the leading edge 32nm process to maintain its technology leadership position, and is poised to be the first dedicated foundry player to roll out production in that technology. Numerous efforts are also underway to ensure manufacturing excellence, such as continuing enhancement of Design-For-Manufacturing (DFM) support services to increase yield and efficiency. Finally, TSMC conducts customer reviews and surveys throughout the year to better understand customer needs and wants, and accordingly adjusts its offering in response, thereby strengthening its partnership with customers.

TSMC plans to continue strengthening its core capabilities and value propositions; including its ability to deliver customer product to market earlier and with better functionality, providing sufficient capacity support and flexible manufacturing for both advanced and mainstream technologies, and its unwavering focus on customer service. In addition, TSMC will continue optimizing its service portfolio in order to balance profitability and growth.

## 2.3 Operational Highlights

### 2.3.1 Business Scope

TSMC's business scope is IC foundry and associated services. The Company excels in all aspects of its business, including semiconductor process technology research and development, wafer manufacturing, logistics management, capacity utilization, and customer service, as well as associated services such as design services, mask manufacturing, wafer probing, and in-house bumping and testing. TSMC strives to provide the best overall value to customers; the success of TSMC's business is manifested in the success of its customers.

### 2.3.2 Customer Applications

Over the past 20 years, more than 500 customers worldwide have relied on TSMC to manufacture chips that are used across the entire spectrum of electronic applications, including computers and peripherals, information appliances, wired and wireless communications systems, automotive and industrial equipment, consumer electronics such as DVDs, digital TVs, game consoles, digital still cameras (DSCs), and many other applications.

The rapid evolution of end products drives our customers to utilize TSMC's innovative technologies and services, while at the same time spurring TSMC's own development of technology. As always, TSMC's success depends on leading rather than following the industry trends.

## 2.4 Financial Highlights

In 2007, TSMC delivered its sixth consecutive annual growth in revenue since 2001. Although we saw weakened demand in the first quarter as customers worked down inventories, our revenue recovered in the following quarters with rising utilization rates and improving profitability quarter over quarter.

In 2007, we delivered the **sixth** consecutive annual growth in revenue.

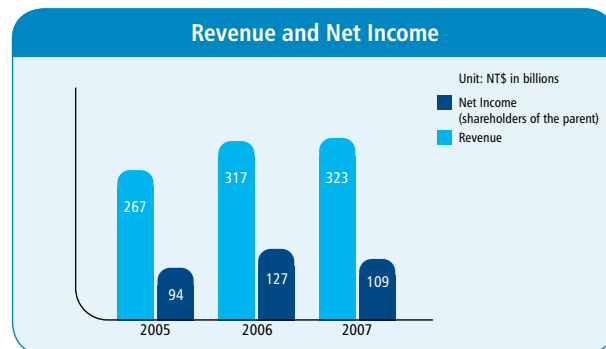
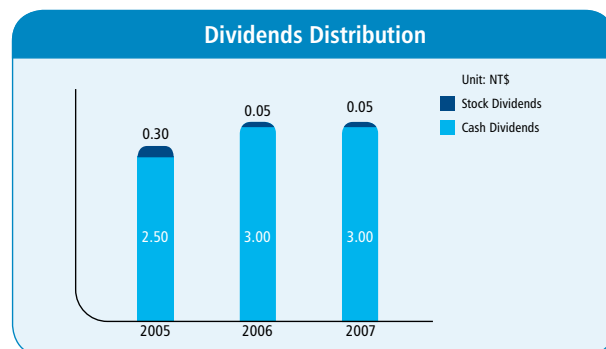
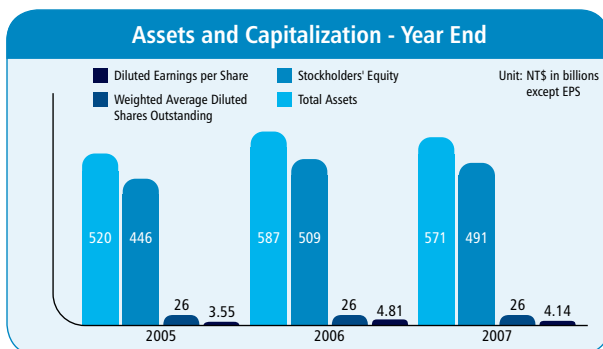
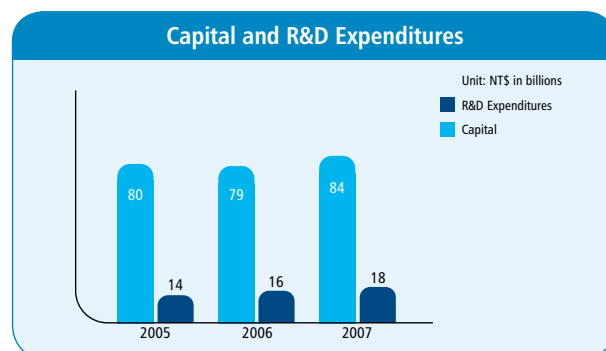
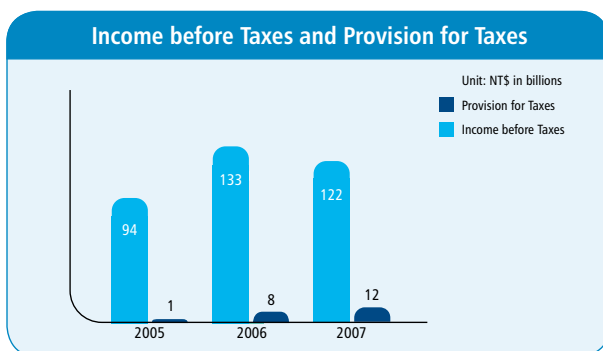
Due to customers' inventory correction that took place in the early part of 2007, growth of the pure-play foundry segment of the semiconductor industry for the year was essentially flat, lagging the global semiconductor industry's estimated 4% growth. Nevertheless, in our 20<sup>th</sup> year as a public company, TSMC continued to enjoy a market share of about 50% in the pure-play foundry segment it created, and announced several major operational and technological developments. More importantly, better capital discipline in 2008 along with increasing capital productivity and operating efficiencies should put us in a strong position for continued growth and profitability in future years.

Revenue for 2007 totaled NT\$322.63 billion, a 1.6 percent increase compared with NT\$317.41 billion in 2006. Net income was NT\$109.18 billion, a decrease of 14 percent compared with net income of NT\$127.01 billion earned in 2006. Diluted earnings per share decreased 15.8% to NT\$4.14, compared with NT\$4.92 for 2006. In US dollars, TSMC revenue for 2007 increased 0.7% to US\$9.83 billion, while net income declined 15% to US\$3.23 billion. Although TSMC registered another revenue record in 2007, a lower average utilization rate and a larger decline in average selling price than in 2006 contributed to the decrease in earnings.

TSMC paid record dividends of NT\$3.0 in cash and 0.5 percent in stock per common share in 2007. We also used NT\$48,467 million to repurchase 800 million common shares during the year. The repurchased shares were subsequently retired in February 2008.

For more information, review TSMC's 2007 Annual Report.





## 2.5 Corporate Development

The Company and Royal Philips Electronics announced in March 2007 a four-phased plan to facilitate an orderly exit by Philips from its TSMC shareholding. In the third phase of the program completed on December 31, 2007, the Company had repurchased a total of 800 million of its common shares over the open market from the Taiwan Stock Exchange, accounting for approximately 3.03% of its total outstanding shares, at an average price of NT\$60.58 per share. The repurchased shares were subsequently cancelled in February 2008.

Starting in 2008, Taiwan accounting rules require the expensing of employee profit sharing in the Company's financial statements. TSMC took an early leadership position by announcing in November 2006 a change in its profit sharing mechanism in order to better balance the interests of TSMC's employees and its shareholders. As we informed the market as well as our employees at that time, employee profit sharing for the year 2008 will be at 15% of 2008's net income, and the Company will start accruing such an amount in each quarter beginning the first quarter of 2008.

## 2.6 Awards Received in the Reporting Period

Year	Awards and Recognitions
2007	"Excellence in Corporate Social Responsibility First Prize", <i>CommonWealth Magazine</i>
2007	<i>CommonWealth Magazine</i> awarded TSMC "Most Admired Company in Taiwan" for 11 consecutive years.
2007	Recognized for "Best Corporate Governance Award" for the Hong Kong and Taiwan regions from <i>IR magazine</i> , "The Best in Taiwan of Asset Governance Awards 2007" from <i>The Asset Magazine</i> , "Corporate Governance Awards Recognition in Taiwan" from <i>Corporate Governance Asia</i> , and has been acknowledged as the "Most Committed to Corporate Governance" for the Taiwan region by the <i>FinanceAsia Magazine</i> .
2007	Recognized by the Ministry of Economic Affairs (MOEA) Industrial Development Bureau - "Industry Voluntary Greenhouse Gas Emission Reduction Outstanding Performance Award"
2007	Recognized by the Ministry of Economic Affairs (MOEA) Water Resources Agency for Excellence in Water Conservation
2007	EPA "National Award for Outstanding Achievement in Industrial Waste Disposal and Resource Conservation, and Recycling"
2007	MOEA "Energy Conservation Award"
2007	Recognized by Tainan Science Park Administration for Outstanding Achievement in Environmental Protection
2007	Recognized by the Council of Labor Affairs for "Five-Star Excellence in Labor Safety and Hygiene"
2007	Recognized by Hsinchu Science Park Administrations for Excellence in Labor Safety and Hygiene

## 2.7 International Sustainability Indexes

TSMC has not only achieved outstanding business performance, but also does so in the spirit of giving back to society. TSMC continuously seeks sustainable development, and strives to improve employee welfare as well as workplace safety. TSMC also actively participates in community activities, supply chain management, and environmental protection.

In September 1999, Dow Jones and Sustainable Asset Management (SAM) introduced the Dow Jones Sustainability Indexes (DJSI), which selects the top 10% of sustainability-driven companies in the Dow Jones Indexes (approximately 3000 companies) as constituents. These indexes serve as a benchmark for socially responsible investors.

TSMC has been privileged to be a member of the DJSI for seven consecutive years since 2001, and is the only Taiwan enterprise to have been accredited with the honor from 2003 to 2007. The DJSI scoring results in 2007 show that TSMC ranked among the highest in the industry in the categories of "risk management", "environmental protection", "code of conduct" and "product quality management". These results demonstrate recognition for TSMC's outstanding and sustainable economic, social, and environmental performance.



## 2.8 Membership in Industry Associations

As a semiconductor industry leader, TSMC actively participates in trade and industry associations. TSMC executives have been nominated to and hold senior positions in associations including the Taiwan Semiconductor Industry Association, the Association of Industries in Science Parks, the Chinese National Association of Industry and Commerce, the Taiwan Electrical and Electronic Manufacturers' Association, the Mount Jade Science and Technology Association of Taiwan, the Taiwan Business Council for Sustainable Development, and the Taiwan SOC Consortium, holding positions such as Chairman or Executive Board Director. In addition, many TSMC employees also contribute to the semiconductor industry by serving in industry associations as committee chairman or vice chairman in professional committees.

## 2.9 Investor Engagement



TSMC Board of Directors and senior management team presided over 2007 Annual General Shareholders Meeting.

TSMC's business strategies and financial policies aim at upholding and enhancing the value of our long-term shareholders. We not only align ourselves with international standards that demonstrate our position and reputation as a premier

investment and sustainability champion, but also have been ranked within semiconductor industry as the sustainability leader and are honored as a component of Dow Jones Sustainability Index (DJSI) since 2001. Since becoming a publicly listed company in 1994, we have consistently delivered value to shareholders through paying annual dividends and maintaining a strong balance sheet and a top credit rating among the technology companies.



TSMC IR team wins many "Best IR" awards.

TSMC has established a highly effective communication system to disseminate information to investors. Our management holds an investor conference, followed

by a conference call each quarter to report and discuss company performance with investors worldwide. More than 300 analyst and investor meetings are held every year in major financial centers over the world and at TSMC's headquarters. E-mail updates covering all business activities and key events are regularly sent out to thousands of members of the investment community. Information regarding TSMC's business fundamentals and significant filings with regulatory authorities are posted on TSMC's corporate website in a timely manner. Investors surveyed annually by the *IR magazine* and other similar media recognized the transparency of TSMC's disclosure policies and have given us many awards during the last 7 years, including: "Best Corporate Governance"; "Best Investment Meetings"; "Best Annual Report and Corporate Literatures"; "Best Website"; "Best Investor Relations by a CEO or Chairman"; and "Best Overall Investor Relations at a Taiwanese Company".

The followings are direct quotes from several investors surveyed by the *IR magazine* about TSMC:

"It is so transparent. Its investor relations people are friendly – they are the best at answering questions. TSMC also has pretty good guidelines; it does not over-talk in terms of numbers"

"It is the leader in setting and following new rules and regulations. It is also well respected and follows international standards"

"Its operating style is clear and it is the leader in use of technology. It has good financial status and a high degree of transparency"

"There is open disclosure of the overall report and good information provided" "There is detailed information that's easy to read"

"It is innovative, and it does continuous research and development. It has leading technology and has kept up business relationships with information that's easy to read"



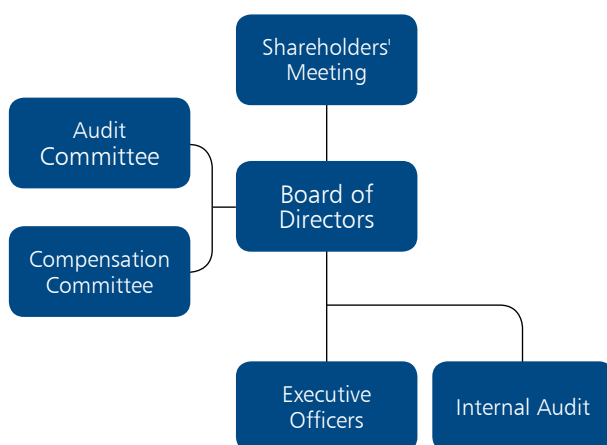
## 2.10 Corporate Governance

TSMC advocates and acts upon the principles of operational transparency and respect for shareholder rights. We believe that the basis for successful corporate governance is a sound and effective Board of Directors. The Chairman of the Board of Directors is not an executive officer of the Company. In line with this principle, TSMC's Board of Directors set up an Audit Committee in 2002 and a Compensation Committee in 2003.

TSMC has established the "Rules and Procedures of Board of Directors Meetings", "Audit Committee Charter", and "Compensation Committee Charter" to govern the operation and process of the Board of Directors, Audit Committee and Compensation Committee.

### 2.10.1 Governance Structure

TSMC's governance structure is as follows:



### 2.10.2 Board of Directors

TSMC's Board of Directors consists of eight distinguished members with a great breadth of experience as world-class business leaders or scholars. Four of the eight members are independent directors: former British Telecommunications Chief Executive Officer, Sir Peter Bonfield; Professor Lester Thurow of the Massachusetts Institute of Technology; former Acer Group Chairman, Mr. Stan Shih; and former Hewlett-Packard Chairman and CEO, Ms. Carly Fiorina. Under the leadership of Chairman Morris Chang, TSMC's Board of Directors treats its duties earnestly and is a diligent, competent, and independent Board.

In the spirit of Chairman Chang's approach to corporate governance, a board of directors' primary duty is to supervise. The Board should supervise the Company's compliance with relevant laws and regulations; financial transparency; timely disclosure of material information, and maintaining of highest integrity within the company. TSMC's Board of Directors strives to perform through the Audit Committee and the Compensation Committee, the hiring of a financial expert for the Audit Committee, coordination with the Internal Audit department, and

through the ombudsman reporting system. The second duty of the board of directors is to provide guidance to the management team of the Company. TSMC's management conducts quarterly reports to the TSMC Board on a variety of subjects, which also include the management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles. The management also proposes and reviews the Company's business strategies with the Board. Furthermore, the management often reviews with and updates TSMC's Board on the progress of the strategies, obtaining Board guidance as appropriate. The third duty of the board of directors is to dismiss officers of the company when necessary and to evaluate the management's performance. TSMC's management has maintained a healthy and functional communication with TSMC Board of Directors, has been devoted in executing guidance of TSMC Board of Directors, and is dedicated in running the business operations, all to achieve the best interest for all TSMC shareholders.

The Board meets at least once every quarter. The Chairman convened four regular meetings and two special meetings in 2007.



TSMC Board of Directors -- back row, from the left: Rick Tsai, F.C. Tseng, Chintay Shih  
front row, from the left: Stan Shih, Carly Fiorina, Morris Chang, Sir Peter Bonfield, Lester Thurow

### 2.10.3 Audit Committee

The Audit Committee assists the Board in carrying out its financial oversight responsibilities and other duties as set forth in the Company Act, the Securities and Exchange Act, and other applicable laws and regulations. Matters required to be reviewed by the Audit Committee include the Company's financial reports; auditing and accounting policies and procedures; internal control systems; material asset or derivative transactions; offering or issuance of any equity-type securities; hiring or dismissal of an attesting CPA, or the compensation given thereto; and appointment or discharge of financial, accounting, or internal auditing officers. Furthermore, the Risk Management Division also reports to the Audit Committee on enterprise risk management activities on a regular basis.

TSMC's Audit Committee is empowered by its Charter to conduct any study or investigation it deems appropriate to fulfill its responsibilities. It has direct access to TSMC's internal auditors, the Company's independent auditors, and all employees of the Company. The Committee is authorized to retain and oversee special legal, accounting, or other consultants as it deems appropriate to fulfill its mandate, and meets at least four times a year.

The Audit Committee is comprised of all four independent directors and has engaged a financial expert consultant. Sir Peter Bonfield is Chairman of the Audit Committee, and convened four regular meetings and three special meetings in 2007.

#### **2.10.4 Compensation Committee**

The Compensation Committee assists the Board in discharging its responsibilities related to the compensation and benefits policies, plans and programs of TSMC, and in the evaluation and compensation of TSMC's executives. The Committee meets at least four times a year.

The Compensation Committee is comprised of five members. All four independent directors serve as voting members of the Committee and the Chairman of the Board, Dr. Morris Chang, is a non-voting member. Mr. Stan Shih is Chairman of the Compensation Committee, and convened four regular meetings in 2007.

#### **2.10.5 Corporate Compliance**

For many years, TSMC has had an Ethics Code that has guided employees, officers and non-employee directors. TSMC's Ethics Code is designed to promote honest and ethical conduct and deter wrongdoing, as well as support compliance with applicable laws and regulations. The principles embodied in this code express TSMC's policies regarding environment, health and safety, discrimination, bribery and corruption, conflicts of interests, and protection of company assets and reputation.

TSMC firmly upholds its ten business principles: 1) Integrity; 2) Focus on Our Core Business-IC Foundry; 3) Globalization; 4) Long-term Vision and Strategies; 5) Treating Customers as Partners; 6) Building Quality into All Aspects of Our Business; 7) Unceasing Innovation; 8) Fostering a Dynamic and Fun Work Environment; 9) Keeping Communication Channels Open; 10) Caring for Employees and Shareholders, and Being a Good Corporate Citizen.

All Employees should comply with all applicable laws, rules, regulations, and in-house regulations in every aspect of the Company's corporate activities at all times. All Employees should strive to ensure that all corporate activities are in compliance with normal business practices and social ethics.

All Employees should maintain impartial, fair, and open relationships with all the stakeholders of the Company and will conduct business in a fair manner with them.

TSMC's reputation is built upon the daily decisions and behavior of its employees. TSMC's business practices are based on objective norms and integrity, and we do not accept gifts or special favors. TSMC Ethics Code (the "Code") requires that:

- TSMC Employees must observe high business ethics standards when dealing with suppliers, vendors, subcontractors, customers, competitors, and other relevant parties, including the government. Employees or their family members and close relatives must not give or accept any gift, money, or entertainment to or from any TSMC suppliers, vendors, subcontractors, customers, competitors. Any form of bribery is strictly prohibited.
- When it is a required courtesy to accept gifts, gratitude or any form of hospitality, or where it is in accordance with accepted courtesy to maintain and promote normal business relationships by giving gifts to relevant parties, Employees must abide by the principles set forth in the code.
- All Employees should follow common business etiquette and refrain from frequent and excessive business hospitality when entertaining or being entertained. Employees should not give customers or vendors the impression that any form of hospitality, or gift giving is required to establish or maintain a relationship with TSMC.
- Gift giving and entertaining between managers and their subordinates should also follow the above principles, and should be based on the principle of simplicity.

To comply with this Code is the responsibility of every TSMC employee. The Company will take disciplinary action, including termination of employment, against Employees who violate this Code.

As of today, TSMC has never been subject to significant monetary fines and non-monetary sanctions for non-compliance with statutory laws and regulations.

#### **2.10.6 Political Contributions**

TSMC has consistently remained politically neutral, but encourages employees to fulfill their duties as citizens and actively participate in politics and vote for the candidates the employees believe to be the best public servants. TSMC executives have also expressed concern and made public comments on political matters affecting industry and the economy. Due to a recent revision in Taiwan legislation, TSMC is now forbidden from making political contributions as it is over 70 percent owned by foreign investors.





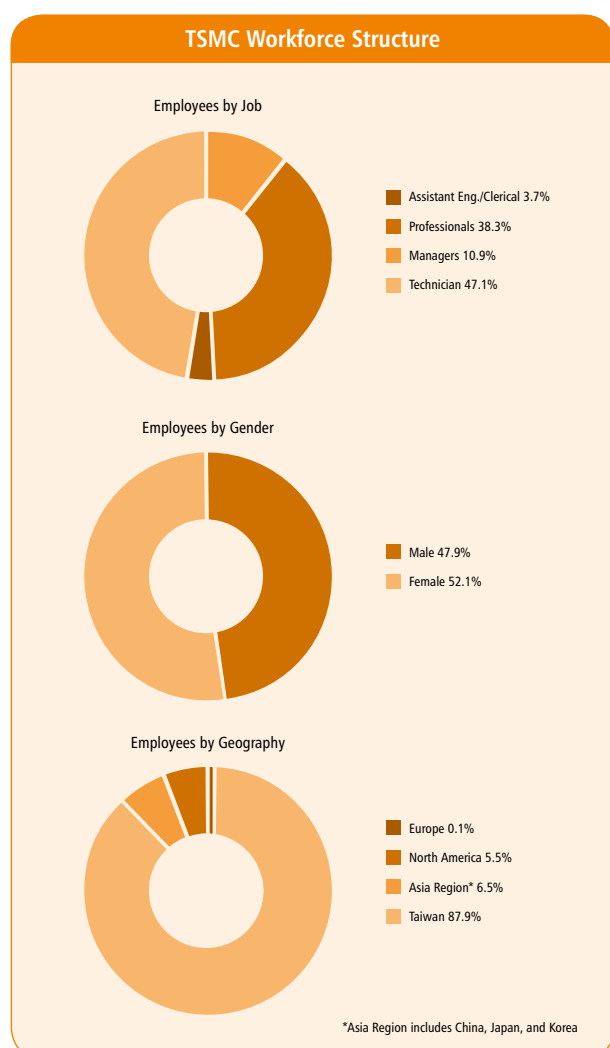
# Employee

Human capital is one of TSMC's invaluable assets to support business success. TSMC is committed to creating a corporate culture embracing innovation and diversity, and strives to build a challenging, yet enjoyable and rewarding work environment. TSMC offers not only competitive compensation and benefits, as well as a variety of work-life integration program to enable a better workforce; we also provide solid training and development systems and programs to enhance employees' capability to support the success and the growth of our business. In 2007, TSMC was awarded the "Most Admired Company in Taiwan" by *CommonWealth Magazine* for the 11<sup>th</sup> consecutive year.

## 3.1 Employment

At the end of 2007, TSMC had 23,020 employees, including 2,520 managers and 8,814 professionals. Female managers comprised of 11.4% of all managers. Non-Taiwanese employees comprised of 11.5% of all TSMC employees.

### 3.1.1 TSMC Workforce Structure



### 3.1.2 Employee Retention

TSMC has focused on retention programs that provide employee career development opportunities, promote work-life balance, and enhance managers' capabilities. The average annual turnover rate of the past 3 years is less than 10%.

### 3.1.3 Recruitment

TSMC is an equal opportunity employer and values employee diversity. To unearth worldwide talents who share TSMC values, TSMC deploys a variety of recruitment tactics including target campus programs, summer internships, career symposiums, seminars, and job fairs around the world.

### 3.1.4 Abolition of Child Labor

Taiwan's "Labor Standards Law" regulates that no workers below the age of 15 shall be employed, and that children between the age of 15 and 16 are not permitted to perform heavy or hazardous work. To comply with the law, TSMC has controls in place to prevent hiring any employee younger than 15 years old.



### 3.1.5 Performance Management and Development

TSMC performance management system aims to integrate and improve the performance of individual employee and the organization as a whole. Five principles of the system include personal accountability for individual performance, partnership, and co-operation between supervisors and employees, ongoing engagement and communication, equal weight on performance appraisal and development, and performance differentiation.

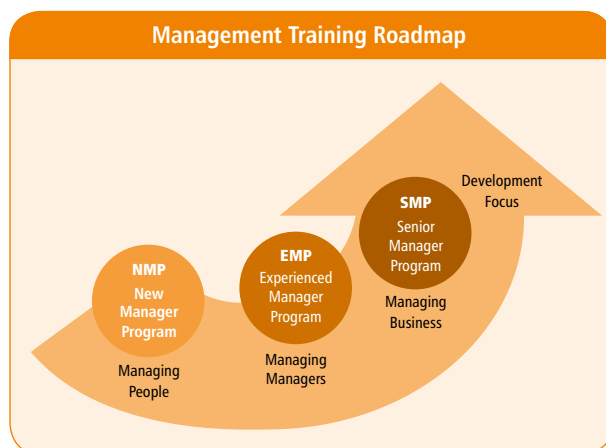
## 3.2 Employee Development

Continuous learning is the cornerstone of TSMC employee development strategy. Employees are given a wide range of on-site general, professional and management training programs. During 2007, TSMC in Taiwan conducted 698,564 training hours with a total of 245,988 attendees. TSMC continued to focus on the following employee development initiatives and resources.

### 3.2.1 Management Training and Development

Both corporate-level and function-level talent development processes have been established to develop future leaders. These processes are led by the CEO and respective function heads, and are powered by development programs including leadership assessment, executive coaching, mentoring by senior managers, training courses and others.

TSMC has also designed Management Training Roadmaps, including a mandatory New Manager Program for first-time managers, an Experienced Manager Program for middle-level managers, and a Senior Manager Program for senior-level managers.



### 3.2.2 New Employee Training



New employee orientation

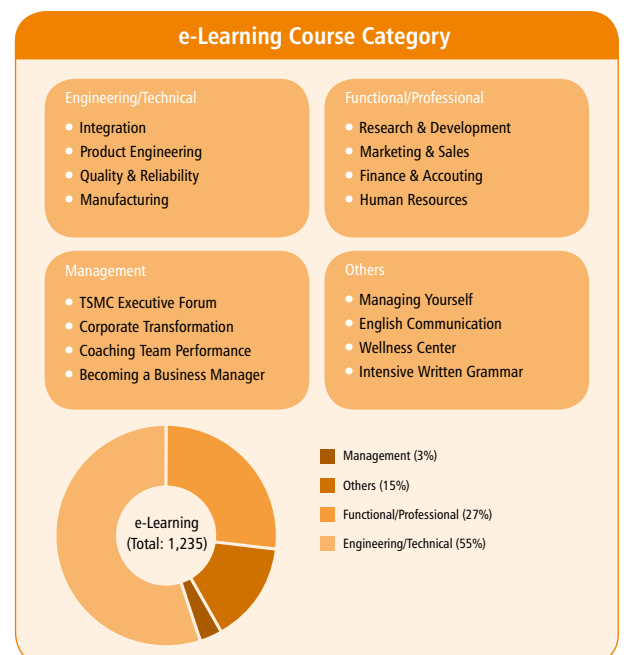
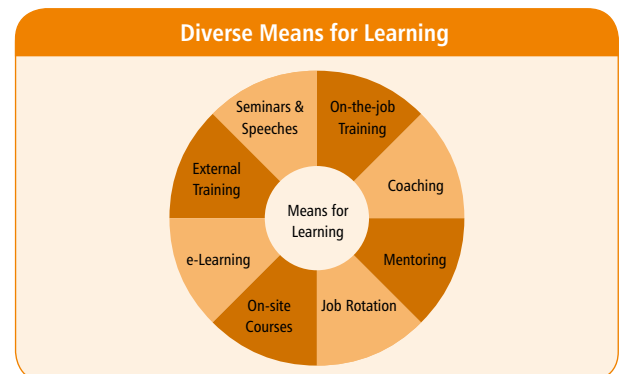
New Employee Training consists of basic training and job orientation, and shapes a simulated scenario of the job, people, objectives, and the road ahead. In 2007, 2,409 employees participated

in new employee orientation totaling 25,182 training hours. The buddy system helps newcomers fit in a new workplace and build up productivity sooner.

### 3.2.3 Diversifying Employee Training Programs

The individual development plan is tailor made for each employee according to the employee's development needs. Employees can access rich resources, including on-the-job training, coaching, mentoring, job rotation, on-site courses, e-learning, external learning opportunities, seminars and speeches.

At the end of 2007, 1,235 e-learning courses had been offered and covered Engineering and Technical courses, Functional and Professional courses, Management courses, and others. Total 155,743 attendees participated in those training programs.



### 3.3 Compensation and Benefits

The company values every employee. TSMC entitles employees to a comprehensive compensation and benefits program above the industry average.

TSMC compensation policy is based on the following principles:

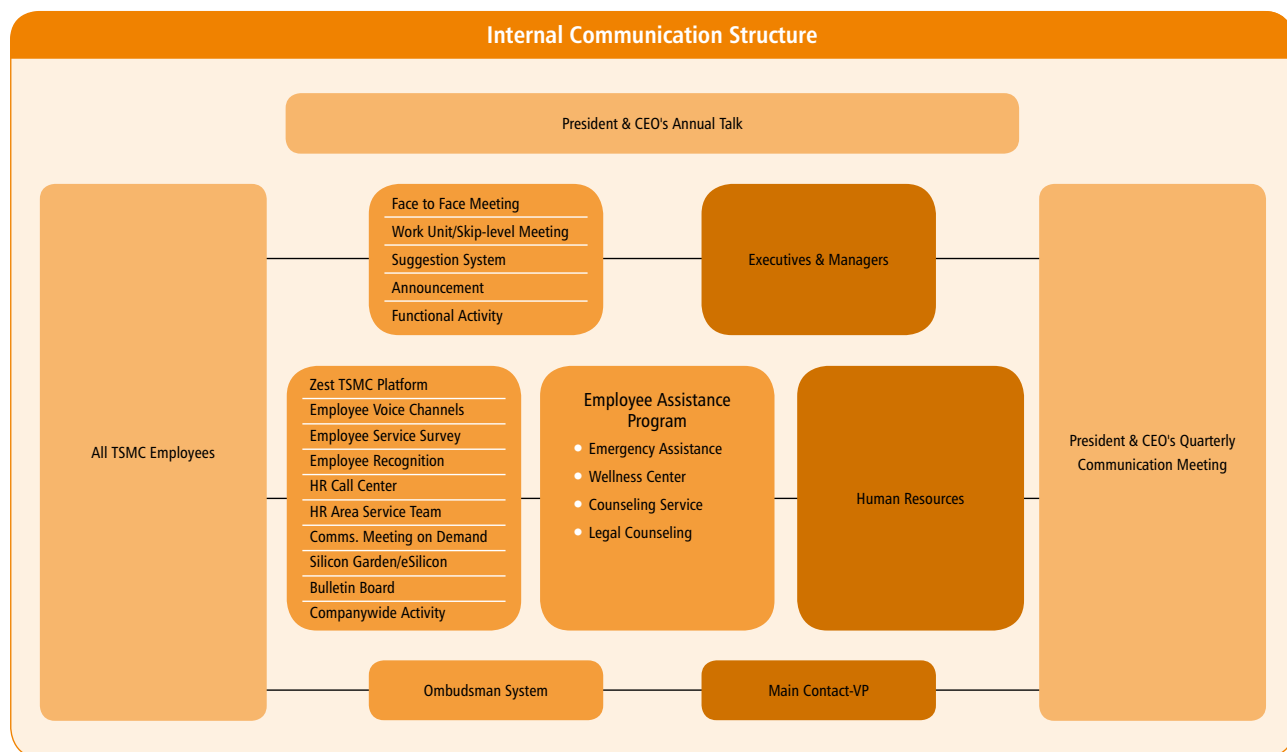
- Must be in the interests of both shareholders and employees.
- Must be able to attract and retain good employees.
- The company's success should create moderate wealth for high-level, long-term managers.

### 3.4 Employee Relations

TSMC is committed to creating an open communication environment, and fostering a fun work environment. Various programs have been launched to facilitate communication between the company and employees, develop employee recognition, and sustain harmonious labor relations.

#### 3.4.1 Open Communications

TSMC values quality two-way communication between employees and management, and believes that long-term success depends on employees' understanding of our business strategies, technologies, and financial results. TSMC communicates through well-established channels on a regular basis, such as face-to-face communication meetings hosted by CEO/company executives and senior managers at various levels; Silicon Garden company publication to employees and their families; Employee Survey, Ombudsman channel to voice opinions about significant management or financial related issues and concerns; Employee Suggestion Box, HR Call Center and Fab Caring Circle to feed back about working environment, HR-related or personal assistance-related issues.





### 3.4.2 Employee Recognition

TSMC has the tradition of marking noteworthy performance in support of organizational goals, providing public commendation, and appreciating outstanding team and individual accomplishments. All awards encourage employees to aggressively pursue continuous improvement, attain high levels of excellence, and increase overall competitiveness.



TSMC Innovation and Customer Partnership Awards Ceremony

The recognition programs include:

- The Innovation Award and Customer Partnership Award, established by the Chairman Dr. Morris Chang in 2003, aims to cultivate innovation and customer partnership culture in TSMC.
- Employee Role Model Awards, Outstanding Engineer Award and Total Quality Excellence Conference to honor and stimulate employees who have applied specialized technology and knowledge to create enhanced value for TSMC.
- Service Year Recognition of employees' long-term commitment and contribution.
- Encouraging and supporting employees to compete for external international and national awards. In 2007, Dr. Burn J. Lin (Senior Director/R&D) was elected as a New Member of the USA National Academy of Engineering for technical innovations and leadership in the development of lithography for semiconductor manufacturing. This membership is regarded as the highest distinctions to engineering professionals. At the same time, TSMC employees also were granted many national awards such as the Taiwan National Model Labor Award, Taiwan Top 10 National Outstanding Manager Award, Taiwan Outstanding Engineer Award, Taiwan Ministry of Economic Affairs' Team and Individual Awards for Industrial and Technology Development, and Taiwan National QCC Silver Award.

### 3.4.3 Human Rights

TSMC's Human Rights Policy aims to communicate our ethics and social values to our customers, suppliers, investors, employees, and the communities where we operate. TSMC is committed to and respects internationally proclaimed human rights, namely the United Nations Universal Declaration on Human Rights, and the International Labor Organization's fundamental conventions on core labor standards. The company not only offers equal opportunities for job applicants and employees, but also ensures basic human rights of employees and families. Senior executives are required to sign an annual declaration confirming that no breaches of the policy occurred during the course of the year.

TSMC has established and actively advocated policies and measures for ensuring gender equality and a fair working environment in accordance with employment laws and sexual harassment prevention policy.

- Conducting regular training to all employees in sexual harassment awareness and prevention, as well as a learning session during newcomer orientation programs.
- Holding annual promotional activities for awareness and prevention of sexual harassment.

### 3.5 Work and Life Integration Program

TSMC provides thorough health services in four areas: health care; health promotion; occupational health; and the employee assistance program to maintain and promote employees' health and quality of life.

#### 3.5.1 Health Care and Health Promotion

TSMC offers employee annual health examinations, consultation services as well as on-site clinics and dentist for convenient employee medical service. Health promotion activities for employees include fitness programs, women's care programs, mother's rooms, and health forums.

### 3.5.2 Occupational Health

TSMC Health Center operates 24 hours a day to implement corrective and preventive actions for occupational injury. Emergency medical teams are given 28-hour training programs to respond to emergencies. TSMC also promotes correct ergonomics with preventive programs for healthy posture.

### 3.5.3 Employee Assistance Program

The TSMC Employee Assistance Program provides individual counseling, group sharing, workshops, mental assessment, as well as lectures about personal and family issues for employees' multidimensional well being.

### 3.5.4 Comfortable Working Environment

TSMC provides on-site services such as travel agents, convenience stores, dry cleaning, coffee shops, fitness centers, and bookstores.

### 3.5.5 Employee Accommodation, Dining, and Transportation Services

TSMC cafeterias offer a wide variety of meals, including many healthy options. The company also provides comfortable dormitories and shuttle buses for convenient transportation to work.



We have advanced recreation facilities including sports center, bookstores, and canteens to make work healthy and fun.

### 3.5.6 TSMC Employee Welfare Committee- Recreation, Sports, and Community for both Employees and Families



Chairman and all employees enjoyed a great day in annual TSMC Sports Day.

The TSMC Employee Welfare Committee (or TSMC EWC) was established in line with Taiwan's Employee Welfare Fund Law. The TSMC EWC aims to provide a synergized welfare services platform to all employees and their families to enhance employee engagement. The Committee consists of 24 members appointed by the management team and elected representatives from each function. This committee is led by a Chairman for directing strategy, and a Secretary General leading a team for daily administrative supervision and operation.

2007 expenditures of the TSMC EWC included subsidies for a Sports Center with spa, swimming pool, children's playground and gym facilities, gyms at all fabs, recreation activities, Children's Centers, departmental team outings, emergency aid, special occasions, festival gifts, literature, and educational assistance.

### 3.6 Corporate Security and Risk Control

TSMC provides a safe and risk-free working environment. Protections encompass both the facility's physical security and personnel security. TSMC also offers extensive security awareness training against fraud, professional security consultation, and law enforcement for ad-hoc assistance. An exclusive security consultation website, hosted by the Corporate Security Division (COSD), helps employees acquire needed information for personal and residence security.



## 3.7 Safety and Health

### 3.7.1 Safety and Health Management

TSMC's Environmental, Safety, and Health Policy clearly states that the company's highest safety priority is its employees, followed by the environment, property, and production. TSMC believes that good safety and health management is both an important part of the company's commitment to taking care of its employees and their families, and is an important part of its commitment to the community and society. TSMC's safety and health management is based on the framework of the OHSAS18001 system, and uses information technology to improve management based on the "Plan-Do-Check-Act" (P-D-C-A) principle to prevent accidents, improve employee safety and health, and protect company assets.

For TSMC's safety and health management organization, please review "6.1 Green Management Organization and System".

Current safety and health management operations can be divided into several areas:

#### Hardware Safety and Health Control

The effectiveness of a facility's safety and health management is largely determined in the design phase. TSMC follows legal requirements, international codes, and internal standards when planning, designing, and building new facilities or rebuilding existing facilities for production, IT, general services or other purposes. A designated team takes responsibility for safety and health management using the procedures below:

- New tool and chemical management procedure: TSMC's New Tool and Chemical Committee (NTCC) ensures that all new tools and chemicals meet international codes such as SEMI-S2 as well as national and TSMC standards. In order to reduce the risk before operation, the committee not only reviews tools' safety, but also evaluates the related safety issues of location, accessory equipment, and facility system connections. To comprehensively evaluate the safety of these new tools and chemicals, the NTCC includes experts in a broad variety of fields, including process, equipment, facility and safety specialists.
- Safety management of change (SMOC): All new TSMC fabs and changes in design or operation procedure in existing TSMC fabs that would alter safety or fire prevention conditions need to follow SMOC procedure. SMOC cases undergo strict review by facilities, equipment, ISEP, and ESHP departments before implementation.
- New tool installation safety sign-off procedure: All production-related tools must follow a three-phase safety sign-off procedure before operation. In phase-1, a tool sponsor must confirm interfaces between facility systems and tools are under safe condition before turning on non-HPM (Hazardous Production Materials) related utilities. In phase-2, a tool sponsor must verify hazardous gases and chemical supply systems, fire protection, toxic gas monitoring, tool safety interlocks, laser and radiation protection, the tool's local gas or chemical delivery system, and exhaust abatement before turning on the tool. In phase-3, a tool sponsor must remedy any shortcomings found in phase-1 and phase-2, execute IR scans for electrical utilities, and put all safety requirements into regular maintenance procedures.

#### Operation Safety and Health Control

In TSMC's daily operations, we not only prevent accidents through strict controls on high-risk work, contractor management, chemical safety controls, and routine audits, but also maintain emergency response plans and hold regular drills to minimize the impact of potential accidents on the environment, society, employees and property.

- High-risk work controls: TSMC's high-risk work management procedure classifies any work that may cause serious injuries, casualties or major property damage as level-1 high-risk operations. In total, TSMC has identified 20 high-risk tasks. Before beginning high-risk work, the sponsor must apply for and receive a high-risk work permit and approval from a manager. In addition, TSMC requires case sponsors and contractors' supervisors to supervise critical tasks such as disconnection of gas piping or tank entry from beginning to end.
- Contractor management: TSMC values the safety of our contractors just as we value the safety of our own employees. Before placing purchasing orders, TSMC requests that contractors list a fixed-rate safety management fee and provide qualified safety staff. To communicate with contractors about hazards, all contractors' workers must take a "Contractor ESH Training" course before entering the site. All work projects must perform a Job Safety Analysis (JSA) to identify the scope, hazards and safety requirements, and then the result must be announced to all workers at safety pre-meetings. TSMC's sponsor must do on-site audits to find out potential risks. Any unsafe behaviors or environments must be eliminated before starting the job. TSMC disciplines contractor violations with a record of the violation, fines, or suspension of the contractors' eligibility to work for TSMC. The record of the violation will serve as a reference to TSMC's facilities and procurement departments when issuing future purchase requests.

- Personal protective equipment (PPE): TSMC requires that employees use PPE to reduce exposure to hazards to an acceptable level. Each department using PPE cooperates with the ISEP department to develop a PPE program that addresses the hazards presented, the selection, maintenance, and use of PPEs, the training of employees, and monitoring of the program to ensure its ongoing effectiveness. In TSMC, all PPEs can be acquired at any time. Each site exhibits PPEs and displays posters to heighten employee's awareness.

- Ergonomic enhancement and promotion: TSMC takes action to prevent musculoskeletal injury that is caused by equipment design, heavy loads and improper posture. On equipment design, TSMC requires that all new tools must meet SEMI-S8 requirements and to take some supplementary measures to reduce ergonomic risk. Regarding heavy loads, TSMC endeavors to automate 300mm front-opening unified pod (FOUP) transportation due to the innate weight of 300mm wafers in order to eliminate accumulative damage caused by long-term manual carrying.

In 2007, the automation rate of 300mm wafer handling reached 99.9%. To address the issue of improper posture, TSMC offers instructional videos on stretches that can be performed in the office, as well as ergonomics evaluation software for office staff. TSMC also includes ergonomics into our technicians' training programs to enhance employee's awareness and prevent of musculoskeletal injury.

- Workplace environment assessment: TSMC performs semi-annual workplace environment assessments. The assessments include physical hazards such as CO<sub>2</sub> concentration, illumination, and noise, and chemical factors that are identified by domestic law. If the assessment finds abnormal measurements, ISEP performs job observations and engineering improvement until exposure risk reaches acceptable levels.
- Special health examinations: TSMC annually arranges special health examinations for employees performing special tasks, such as those involving radiation, noise, and certain chemicals. If the result of the health examination is classified as level-2 or above, the Wellness Center will provide historical health examination records and workplace environment assessment results for review by an occupational therapist.

## Social Engagement

TSMC's outstanding ESH team dedicates itself to minimizing risks to TSMC, shares its rich management experience, and uses its influence in the semiconductor industry to make contributions to society.

- Supply chain: TSMC reduces accidents and improves contractor ESH management through audit and assistance programs. We hold an annual Supply Chain Management Forum as well as an ESH and Risk Management Forum to improve TSMC's green supply chain by sharing management experience and discussing important topics such as RoHS, PFOS, and Climate Change. Our close cooperation with companies in our supply chain over the past several years has begun to yield results as some suppliers have started to embed ESH management models into their own systems, providing additional protection to laborers.
- High-tech Industries: We believe safety and health are universal values in society. TSMC openly shares its safety and health experience through the Hsinchu Science Park Safety and Health Committee.

Major topics in 2007 included:

1. TSMC MSDS Management Experience
2. TSMC Hazardous Chemical Control Plan
3. TSMC Experience in Applying New Training Regulations

- Participation in Drafting Laws and Regulations: We invited National Fire Agency officers to visit a TSMC cleanroom and exchanged views on several occasions. These visits gave the officers a better understanding of the high-tech industrial environment, and helped the Agency to draft appropriate regulations on hazardous materials control.

In 2007, we provided feedback and suggestions on amendments to the Council of Labor Affairs' regulations including:

1. Labor Training Regulation
2. Labor Safety Organization and Self-Inspection Regulation
3. Hazardous Material Identification Regulation



3.7.2 Emergency Response

TSMC believes that when natural disasters or accidents occur, an appropriate response at the first moment can not only minimize casualties and environmental contamination, but can also greatly reduce damage to equipment and lower the difficulty of restoring production. Therefore, we place great importance on emergency response, and thoroughly plan, execute, assess, and improve our equipment, response procedures, as well as training and exercises.

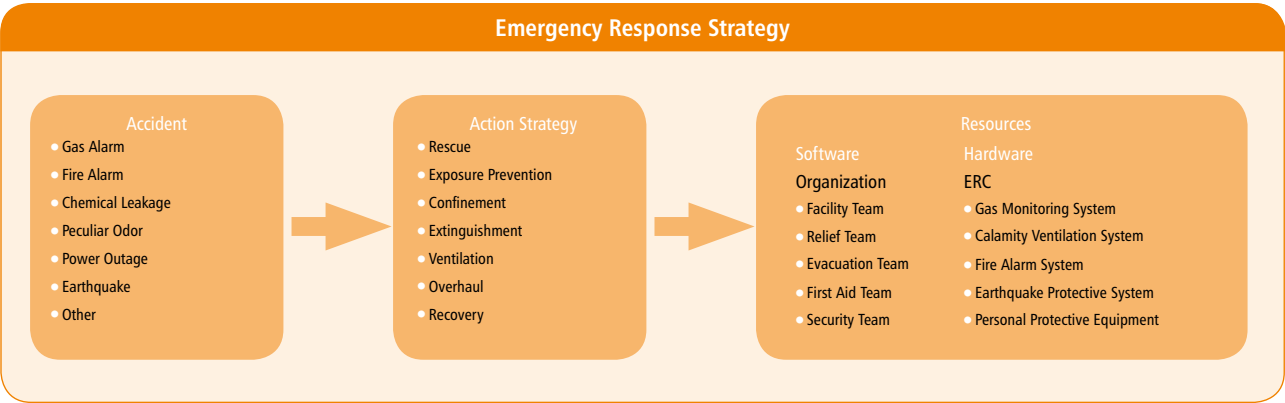
TSMC's Emergency Response Centers (ERCs) are equipped with gas detection systems, fire alarms, CCTVs, emergency ventilation, and other emergency response equipment. The ERC is immediately aware of abnormal conditions or accidents, and can rapidly broadcast the situation to set up emergency response teams and take effective action.

TSMC has established detailed emergency response procedures and disaster recovery plans for accidents and natural disasters that may take place at semiconductor factories. TSMC designs appropriate emergency response organizations according to the nature of different emergency situations and trains personnel with skills such as emergency reporting, suppression, facility system response, site security control, first aid, and equipment support.



Evacuation drill

All TSMC fabs conduct major annual emergency response exercises and evacuation drills. Drills cover not only cleanroom and facility areas but also other equipment rooms, laboratories, kitchens, employee dormitories, and shuttle buses. Drill organizers often invite local fire brigades to join certain exercises, or invite external experts to serve as judges. In 2007, emergency response drills covered fires, toxic gas leakages, chemical leakages, earthquakes, and power blackouts, confined space accidents, and other events. The drill procedures covered first aid and evacuation of the entire plant area.



### **3.7.3 Corporate Contagious Disease Prevention Project**

Avian Influenza has the potential to mutate into a disease transmissible from human to human, and the World Health Organization (WHO) estimates that such a mutation would be highly contagious and cause a deep impact on global health. To control this major potential risk, TSMC drafted the "TSMC Avian Influenza Prevention Plan" and established a task force in 2005. The plan is based on our SARS prevention experience and also integrates the SARS experience of the Taiwan Center for Disease Control's "New Influenza Combat Plan", Singapore's "Avian Influenza Preparedness and Emergency Response Plan", and consultations with domestic epidemic experts and distinguished medical doctors.

The "TSMC Avian Influenza Prevention Plan" includes global information collection, employee disease prevention education, stockpiles of disease prevention materials, kitchen disease prevention management, leave and travel management, case management, notification and medical assistance, procedures for mask wearing and hand washing, supplier/contractor and visitor restrictions, body temperature measurement procedures, work-at-home plans, routine disinfection of the work environment, reduced meeting frequency, medical waste treatment, and other preventive measures. TSMC's senior VP of Materials and Risk Management also holds regular meetings to review disease prevention preparations. If Avian Influenza cases occur in Taiwan or if the virus becomes transmissible from human to human transmission, TSMC will initiate different plans in accordance with the stage of the epidemic to lower its impact on employees and operations.

In addition to Avian Influenza, TSMC has also set prevention and emergency response plans for all contagious diseases. TSMC firmly believes that only full preparation and early prevention can lower the impact of contagious diseases to the minimum.

### **3.7.4 Occupational Injury/Illness Statistics**

TSMC uses the Disabling Injury Frequency Rate (FR, cases of disabling injuries and illness per million labor-hours) defined by Taiwan's Council of Labor Affairs (CLA) to evaluate the effectiveness of the Company's occupational health and safety programs. TSMC's FR has consistently been significantly lower than Taiwan's national average.

TSMC strives to maintain a safety culture that ensures a safe and healthy workplace. The causes of all occupational injuries are analyzed and improvement programs are implemented based on the data. Our program further requires us to regularly collect and analyze data by departments and types of high-frequency occupational injuries. In particular, these reviews focus on interdepartmental incidents or repeated incidents as first priority.

#### **Disabling Injury Frequency Rate (FR)**

The FR of TSMC was 0.24 in 2007 -- much lower than Taiwan's national FR of 2.14 in 2006 as reported by the CLA. Taiwan's 2007 national FR data is not yet available.

### **3.7.5 Disaster Risk Management Earthquake Protection**

Taiwan, a densely-populated island located on the seismically active "ring of fire" circling the Pacific Ocean, is one of the world's most high-risk regions for earthquakes. As a multinational corporation based in Taiwan, TSMC believes that while earthquakes cannot be avoided, its risks can be assessed and controlled. TSMC's strategy is to simultaneously enhance the seismic resistance of facilities along with emergency response skills.



• **Enhance Anti-seismic Ability of Hardware Facilities**

Following the September 21, 1999, Chi-Chi earthquake in Taiwan, TSMC conducted a comprehensive investigation and improvement program based on the technologies available at that time. In addition to repairing damaged buildings, facility systems and process tools, the company also enhanced the seismic anchorage of equipment and facilities. In recent years, the company adopted new anti-seismic concepts and methodologies and carried out a series of earthquake protection projects. Based on the semiconductor industry's special requirements, the project team studied both international and Taiwanese standards, assessed and improved facility firmware including buildings, facility systems, process tools, laboratory equipment, and IT equipment as well as measures such as personnel training, emergency response, and management systems.

TSMC's anti-seismic projects in the past several years included analysis of the most likely potential earthquake fault lines, building seismic durability evaluation, quick earthquake damage assessment, post-earthquake risk evaluation, reinforcement of existing buildings, reinforcement and anti-seismic design for equipment, and experiments on earthquake resistance of raised floors. TSMC has established an anti-seismic design review process and set up related procedures, as well as procedures for certification of professional engineers. TSMC also performs regular site inspections and improvements, and holds training classes. At the same time, the company closely cooperates with external organizations such as the National Center for Research on Earthquake Engineering (NCREE), the Industrial Technology Research Institute

(ITRI), academic organizations, and the Constructions and Planning Agency, Ministry of the Interior (CPAMI) to efficiently enhance the anti-seismic capabilities of facilities and equipment. The knowledge accumulated from all these projects is used to improve existing factories and form the basis for the design of new factories.

• **Establishment of Response Procedures Strengthens the Emergency Response of Personnel**

TSMC has clearly defined its post-earthquake emergency response organization and procedures, and conducts periodic drills to minimize casualties, reduce property loss and shorten operation recovery time. At the same time, TSMC has also established business continuity plans to guide support and recovery for the entire company.

• **Appropriate Earthquake Insurance**

TSMC's properties are appropriately insured to distribute business losses under the worst possible conditions. TSMC has developed an earthquake loss evaluation system taking into account both construction enhancement and insurance strategy.

**Fire Loss Control**

The highest goal of TSMC's fire loss control strategy is prevention. The second goal is containment of potential fires to minimize losses. The final goal is to strengthen emergency response and disaster recovery during and after the event. Based on these principles, TSMC pays close attention to fab fire protection planning and design, maintenance of fire protection equipment, personnel training, and development of emergency skills.



### • Fire Risk Control at the New Fab Design Stage

New fab fire protection planning and design not only follows local fire protection and construction regulations but also takes international codes such as NFPA and FM into consideration. The key points for fire control at this stage are:

1. Fire loading of buildings, equipment, and piping materials
2. Fire separation between buildings
3. Fire alarm and extinguishing systems, particularly automatic fire alarm and extinguisher systems
4. Personnel evacuation routing

Fire loading decreases the likelihood of fires and limits incipient fires. Fire separation between buildings contains maximum damage to the company's assets. Automated fire extinguishing systems are a necessity for modern cleanrooms, and good personnel evacuation routes can save the lives of personnel.

### • Fire Risk Control for Equipment Installation

Fire control at the equipment installation stage is a core part of industrial safety. The Site Safety and Environment Department is responsible for supervising engineering units and contractors in this stage.

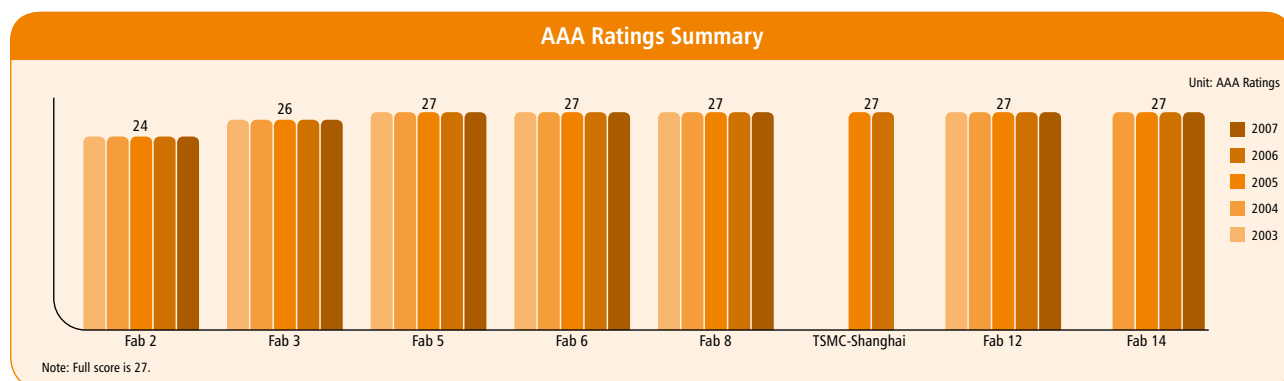
The New Tool and New Chemical Committee is responsible for verifying that all new tools and chemicals introduced comply with international semiconductor equipment safety standards such as SEMI S2, national fire protection and other safety regulations, and TSMC's internal safety and health requirements.

### • Fire Risk Control at the Mass Production Stage

At the mass production stage, it is often necessary to relocate, add, or remove equipment to meet production demands. All of these changes must carefully follow change management procedures to assure that existing fire protection systems, emergency evacuation routes, fire separations, detection systems, and standard operating procedures remain functional.

### • AAA Property Loss Control Risk Evaluation Program

To assure the effectiveness of fab fire loss protection, TSMC adopted the AAA property loss control evaluation program in 1995 to augment internal audits by site safety departments. This program covers overall fire prevention, fire extinguishing equipment, and related maintenance management. Through regular external audits, we can identify weak points in fire management, give personnel an opportunity to keep abreast with international developments in the field, and meet our goal of continuous improvement and sustainable management.







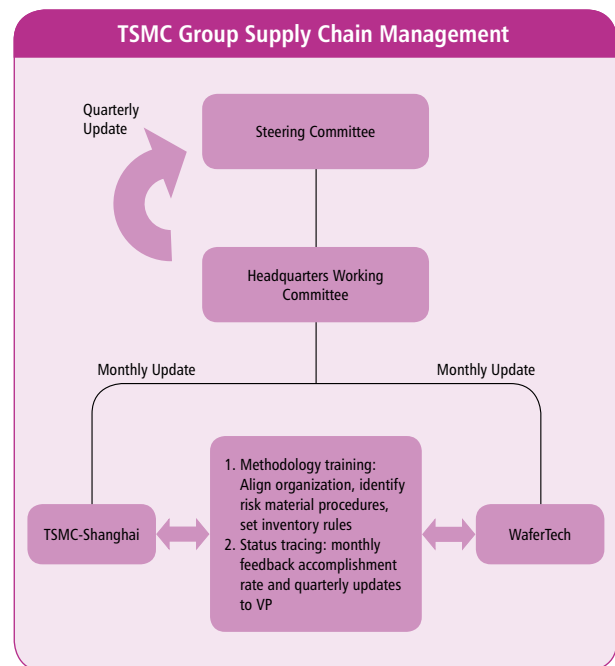
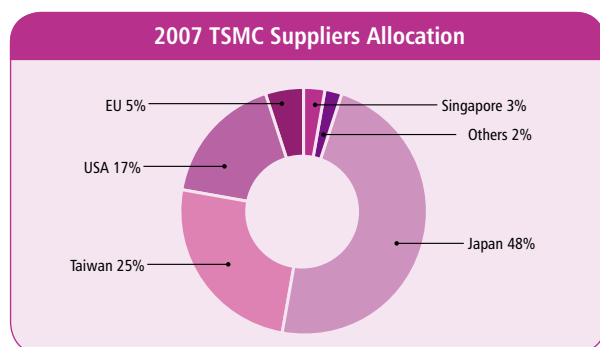
# Supply Chain Management

TSMC cooperates with suppliers to meet our corporate social responsibilities by building a reliable and sustainable supply chain, which supports protection of the environment, human rights, safety, and health. Our committees and managing teams responsible for aligning corporate direction in supply chain management execute a complete "Plan-Do-Check-Act" (P-D-C-A) cycle.

## 4.1 Supply Chain Risk Management

In 2006, TSMC brought together fab operations, materials management, risk management, and quality system management in an internal committee dedicated to managing our supply chain. The focuses of the committee are risk mitigation and supply chain improvement.

The steering team, including a senior vice president and managers, directs annual goals and reviews progress each quarter. The committee's working team assists suppliers in lowering production and transportation risk by sharing risk management practices and helping suppliers improve quality systems and safety. The working team holds monthly meeting to monitor progress and actively handle suppliers' issues.





## 4.2 Environmental, Safety, and Health (ESH) Standards

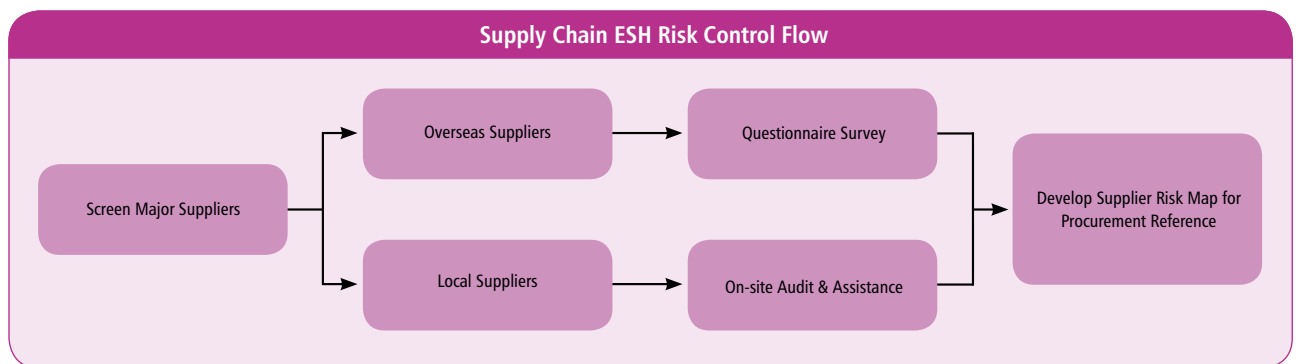
### 4.2.1 Supply Chain ESH Risk Control

TSMC believes that helping suppliers improve environmental, safety, and health standards both reduces risks to our supply chain and gives TSMC an opportunity to contribute to society. In 2005, TSMC initiated audits of critical local assembly, testing, and raw materials suppliers and conducted questionnaire surveys of overseas suppliers with the goal of reducing environment, safety, and health risks in our supply chain, reducing the possibility of supply chain disruption, and enhancing partnership with suppliers. These survey and audit results are combined with delivery, quality, safety, and environmental protection data and developed into a risk map of suppliers, which serves as a reference for our procurement strategy.

When TSMC discovers major shortcomings in our suppliers' goods or services, we work directly with their top managers on improvement. If they lack the resources or ability to make improvements, we offer support through experience sharing and on-site assistance.

In 2007, we spent 48 man-days to conduct 21 site audits of supply chain partners. The audit rated 5 suppliers as "good", and we continue to assist others for further improvement. TSMC held its first supply chain environmental, safety, and health risk management forum on November 17, 2007 to promote our environmental, safety, and health requirements, and also invited partners such as Advanced Semiconductor Engineering (ASE), Formosa SUMCO Technology, BASF, and Air Products to host discussions and share their experience in environment, safety, and health protection. A total of 58 professionals from our suppliers joined our forum, and response has been highly positive.

Since TSMC began to manage environmental, safety, and health risks in our supply chain, we have not only significantly reduced our own supply chain risks but also improved the employee safety and property protection of our suppliers. We believe this is a "win-win" strategy that enhances the competitiveness of TSMC and members of our supply chain, and we will continue to meet our commitment to environmental, safety, and health risk management to meet our responsibility to customers, investors, and society.



#### 4.2.2 Supplier Annual Emergency Response Drill

One of our chemical suppliers, BASF, held its annual emergency response drill on December 2007, and TSMC was invited to act as observers at BASF's headquarters in Taipei, its Taoyuan plant, and the simulated accident site. This cooperation through exchange of professional experience marked a closer partnership relationship with our suppliers.



TSMC's major gas suppliers visited its fab for experience sharing.

#### 4.2.3 TSMC Green Supply Chain

TSMC not only strives to prevent pollution, conserve energy and resources, and minimize waste and hazardous substances in its own manufacturing processes, but also actively leads its upstream raw material suppliers and downstream assembly and testing facilities to establish a green supply chain, collaborating to improve environmental and carbon reduction performance of products. We implement our green supply chain from a product life cycle point of view to reduce the environmental impact of manufacturing at each stage of the supply chain and minimize the environmental impact of end-products used by consumers.

Beginning in 2005, TSMC has conducted questionnaire surveys and site audits of major domestic and international raw materials suppliers and international assembly and testing facilities. Environmental protection and hazardous materials reduction are a key part of the audits and surveys, which are combined with delivery, quality, and service data to develop a supplier risk profile, an important reference for TSMC's procurement policy.

In the past, corporations focused on waste disposal, pollution prevention, and energy conservation in manufacturing process, relying on the ISO14001 environmental management system. However, even if waste and pollutants generated by production are treated properly, the product itself may have environmental impact. The "green product" concept begins with products used in daily life to set environmental requirements on products. The European Union has led the way by restricting imports of electric and electronic products containing lead, cadmium, mercury, hexavalent chromium, PBB, and PBDE, requiring recycling of waste electrical and electronic equipment.

As a leader in semiconductor manufacturing and services, and to meet our corporate social responsibilities, TSMC began to implement the QC080000 hazardous substances process management system in 2005, and all TSMC fabs including WaferTech and TSMC Shanghai were certified for QC080000 by July 2007. In addition, TSMC has also shared its QC080000 policies and experience with affiliated companies, and one affiliate, Vanguard International Semiconductor, received QC080000 certification in June 2007.

TSMC's leadership in guiding upstream supply chain partners and downstream companies to adopt QC080000 demonstrates TSMC's willingness to take action and improve the semiconductor industry's environmental social responsibility. Our next goal will be to embed the "green product" concept in all suppliers and assembly and testing subcontractors.

#### 4.3 Managing Contractors' ESH

TSMC endeavors to be a good enterprise citizen and meet its corporate social responsibilities, TSMC believes in going beyond providing a safe workspace for employees to establish a higher ESH standard with our partners in all industries. TSMC is committed to communicating with suppliers and contractors on environmental, safety, and health issues and encouraging them to improve their ESH performance. TSMC treats contractors like our employees and works together with them to adopt good safety protection, and leads members of our supply chain to reduce their environmental impact.



#### 4.3.1 Identifying High-risk Work for Priority Management



Confined space high-risk work

TSMC has established standards for high-risk work to strengthen contractor safety management. TSMC began adopting high-risk work management and self-management to govern work

performed by contractors in 2005. TSMC's high-risk work management classifies works that may cause injuries, casualties or major property damage as level-1 high-risk operations. These include work in confined spaces, work with electrical shock risk, hot work, or disconnection of gas or chemical piping. Work that may result in system shutdowns or production interruptions are classified as level-2 high-risk operations. TSMC explicitly defines safety precautions and control procedures to be taken by personnel according to different operations.

#### 4.3.2 Request Contractor to Establish OHSAS18001 Management System and Worker Skill Certification



Contractor high-work training

In terms of self-management, TSMC requires that contractors performing level-1 high-risk must complete worker certification before July 1, 2006, and establish their own

OHSAS18001 safety and health management system before July 1, 2007 before they are eligible to bid on contracts. This self-management is aimed at increasing contractors' sense of ownership and responsibility with the goal of promoting safety awareness and technical improvement for all contractors in the industry. As of end-2007, 89 high-risk work contractors had received OHSAS18001 certificates, and over 2,400 workers passed working skill certification.

TSMC plans to continuously promote its contractor safety certification program in the future, and encourage excellent contractors by auditing their ESH performance. In addition, TSMC holds an annual "Contractor ESH Forum" to announce ESH requirements and share safety management experience. TSMC believes that we can help the community and the environment by leading our contractors to reach higher standards of environmental, safety and health protection and create a better workplace.

#### 4.4 Helping Suppliers Improve Delivery and Quality

##### 4.4.1 Supplier Web Site

TSMC's "Supplier Online" is an integrated website containing detailed information about our ethics, environmental, safety, and health requirements for suppliers. The secure area of the site promotes effective communications and ensures that proper data is collected.

##### 4.4.2 Lean Supply Chain

TSMC works closely with raw material suppliers to exchange inventory information, so that in-bound supply chain inventories are transparent and demand fluctuations can be detected early. We collaborate with our suppliers to build a strong and lean supply chain together to mitigate the risk of supply interruption and avoid making surplus material.

##### 4.4.3 Collaborating for Continuous Improvement

TSMC evaluates supplier performance each quarter for delivery, quality, and safety, and the results of the evaluation are delivered to supplier's top manager. TSMC also works closely with its suppliers to improve weaknesses through regular meetings. In certain projects, TSMC assembles a special team, including various experts, and suppliers receive our technical support through open communication meetings.

#### 4.5 Ensuring Supplier Compliance

##### 4.5.1 Quarterly Business Review

TSMC conducts quarterly meetings with our suppliers' senior managers to review performance, including quality and safety performance. We ensure suppliers comply with TSMC requirements and through semi-annual or quarterly monitoring of key indicators through a scorecard and checklist.

##### 4.5.2 Site Audit

TSMC visits our suppliers and performs audits according to an annual plan. When special concerns arise from these audits, we work with suppliers to develop appropriate solutions for fulfilling our expectations. These solutions are executed by specified sponsors with a clear goal and timeframe.

##### 4.5.3 Certification

TSMC encourages its suppliers to be certificated by ISO14001 and OHSAS18001. Furthermore, we conduct site audits to ensure suppliers' factories are protected by sprinkler systems and measure supplier safety performance through accident counts.

## 4.6 SCM Forum and Excellent Supplier Award

TSMC held its seventh annual TSMC Supply Chain Management Forum on November 11, 2007 to recognize the contributions of its suppliers and to award outstanding suppliers for their excellent support and contributions over the past year. In addition, TSMC arranged breakout sessions on industrial waste reduction, logistic risk mitigation and requirements pertaining to safety and health environment. Nearly 400 companies in the fields of equipment, materials, packaging, testing, facility, IT, export/import service, and environmental and waste management services participated in the forum.



2007 SCM forum

## 4.7 Customer Service and Satisfaction

### 4.7.1 Customer Partnership

Customer partnership is one of TSMC's core values. At TSMC, customers come first. Their success is our success, and we value their ability to compete as we value our own. We strive to build deep and enduring relationship with our customers, who trust and rely on us to be part of their success over the long term. Customer partnership is also one of TSMC's trinity of strengths to support its value proposition.



### 4.7.2 Customer Service

TSMC is committed to providing the best service to our customers and believes that customer service is critical to enhancing customer loyalty. In turn, customer loyalty leads to higher levels of customer retention and to expansion of business relationships. TSMC's goal is to maintain its position as the most advanced and largest provider of semiconductor manufacturing technologies and foundry services. TSMC believes that achieving this goal will help retain existing customers, attract new customers, and further strengthen customer partnerships.

To facilitate customer interaction and information access on a real-time basis, TSMC has established a wide range of web-based services covering applications in design, engineering, and logistics collaboration. They are collectively branded as eFoundry®. TSMC also has a dedicated team or interface or champion throughout the management chain for serving our customers.

### 4.7.3 Customer Satisfaction

TSMC regularly conducts surveys and reviews to ensure that customer's needs and wants are adequately understood and addressed. Continual improvement plans supplemented by customer feedback are an integral part of our business processes.

An Annual Customer Satisfaction Survey is carried out by an unbiased third party consulting firm with the goal of:

- Understanding customers' specific needs and expectations from TSMC
- Obtaining formal and direct feedback from our customers to measure TSMC's performance and identify TSMC's weaknesses for development of improvement strategies

Improvement initiatives are generated and actions are taken based on customer issues. A final wrap-up letter will be sent to each customer to address those matters.



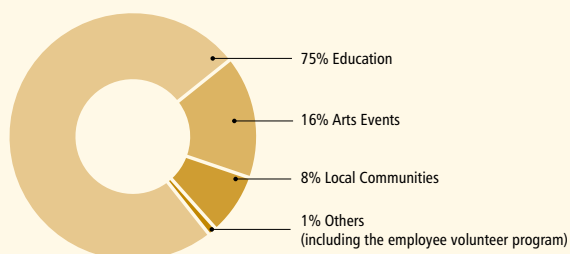


# Social Contribution

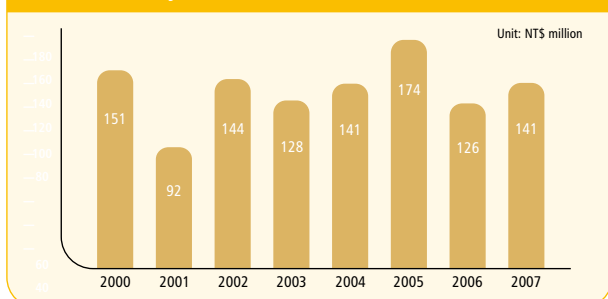
TSMC established the Education and Culture Foundation in 1998 to coordinate the Company's sponsorship of cultural and educational activities as part of our comprehensive CSR effort. Demonstrating a long-term commitment, TSMC has continued to donate more than one hundred million NT dollars to the Foundation every year. The Foundation manages, organizes and monitors the sponsorships to ensure the most efficient utilization of our resources. We contributed over NT\$100 million annually to support various initiatives and make every effort to develop fresh ideas and coherent programs. Over the years, the Foundation pioneered several original approaches and the positive feedback from the public has prompted many companies to join our efforts. Our sponsorship of the Cloud Gate Dance Theater in 1998 created a new paradigm for corporate sponsorship of art groups. Cooperation between the business community and art organizations in Taiwan has flourished ever since. In 2004, the Foundation initiated the TSMC employee volunteer program. It is the first corporate volunteer group in Taiwan at large scale and on a regular basis.

The Foundation's sponsorships aim to engage the public activities of the whole society and emphasizes education and culture. We carefully focus our resources on four core objectives to maximize the impact: employee volunteer program, commitment to education, sponsorship of art events, and contribution to local communities. In 2007, the Foundation contributed NT\$141 million to support programs in these four areas.

Sponsorship by TSMC and TSMC Foundation in 2007



Donations by TSMC and TSMC Foundation since 2000



## 5.1 TSMC Employee Volunteer Program

The most valuable asset a company can offer to the society is the talents and enthusiasm of its employees. The Foundation initiated and continues to run the TSMC employee volunteer programs since 2004. Employee volunteers and their family members served either as guides at the National Museum of Natural Science in Taichung or joined the TSMC Book Reading Volunteer Program to read stories to elementary school children in remote townships in Hsinchu or Tainan. The program is a continued success. Our employees try to help and serve the society. In the process they also come back from their service with a positive feeling of mutual growth.



### 5.1.1 Volunteer Guide Program and Promotion of Science Education

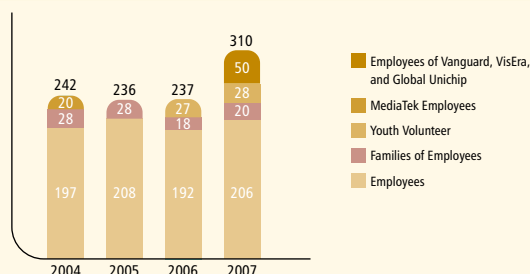


TSMC volunteers guide at the National Museum of Natural Science.

To promote science education, the Foundation donated funds to renovate an exhibition hall in the National Museum of Natural Science (Taichung) and set up an exhibition titled "The World of Integrated Circuits". We organize employees to serve as volunteer guides at the exhibition on weekends. We set up one-day workshops and carefully train them to guide visitors through the inner working of semiconductors. The exhibition brings insight to the public and boosts the company's image. From the beginning, the program drew a warm response from our colleagues. It is a perfect opportunity for them to engage and serve the society. We carefully nurtured a welcoming environment so that volunteers feel the service is an exciting growth experience.

This Program has now run for four years. In 2007, the program was expanded to involve employees of TSMC-affiliated companies, including Vanguard, VisEra, and Global Unichip. Between 200 and 300 employees have volunteered annually, and over the past four years, volunteers put in a total of over 25,000 hours and gave tours to over 500,000 visitors. In 2007, 310 volunteers, again a 10% increase, joined the program with a total of 8,099 working hours.

Number of Guide Volunteers Serving at Science Museum



### 5.1.2 TSMC Book Reading Volunteer Program and Support for Education of the Underprivileged Students

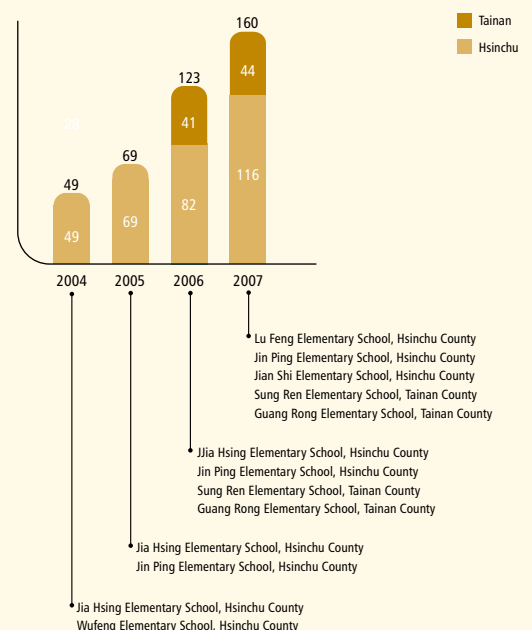
The Foundation sponsors the Hope Reading Program organized by the renowned *CommonWealth Magazine*, donating twenty thousand books to children in two hundred schools in remote rural areas in Taiwan. In order to further induce these children's interest in reading, we launched a book reading volunteer program. Employees travel to remote schools and read to the students. They are trained in the beginning of the service to apply various skills and stimulus to make the occasion an interesting and exciting experience for children. In 2007 this Program entered its fourth year. The number of volunteers has increased from 49 in the first year to 160 in 2007. When the program was launched, the volunteers went to two schools in remote rural areas of Hsinchu County. The program has now expanded to Tainan and includes a total of five schools. Over the past four years, more than 10,000 students have attended 7,000 of our reading sessions. In 2007 alone, our team contained 160 volunteers and they dedicated about 4,000 hours to the program.

We hope the reading experience for students will build their interest in learning and launch them onto a continuous path of self-education.



TSMC volunteers read stories to rural school children.

Number of Book Reading Volunteers Serving at Rural Schools



"Not until I became a volunteer guide at the National Museum of Science, did I have the opportunity to serve others. I can not only assist visitors from all over the world or even the handicapped, but also learn a lot from the experience. Many visitors have told me that they've gained more knowledge of the high tech industry from our explanations of the exhibits. This feedback itself is the greatest reward of my volunteer work."

-- Jui-Pin Hung, TSMC Guide Volunteer

"Even though I am busy with my work at TSMC, I always have this strong anticipation at the end of each month. It is not my anticipation for pay day. Rather, it is my hope to meet the little angels in the mountains again with my teammates."

-- Bill Hu, TSMC Book Reading Volunteer

"In volunteer life, I learned to give and to share. While spreading the seeds of love, I have also gained spiritual growth and feel incredibly moved."

-- Y.C. Jiang, TSMC Book Reading Volunteer

## 5.2 Commitment to Education

As a leader of Taiwan's knowledge-based industry, TSMC is committed to the development of Taiwan's knowledge economy. Hence helping develop talented people for the society is one of TSMC's key responsibilities as a corporate citizen. We design our programs to focus on different aspects of education at different age levels. At primary schools, our focus is on aesthetic education, with the goal of exposing children to arts as early as possible and bridge the gap between rural and urban areas. For secondary schools, our focus is to develop students' potential in science, hoping to nurture future scientists. At the college level, we target global perspectives so that the students can compete in global economy.

### 5.2.1 Developing Talents with a Global Perspective

#### International Exchange Student Scholarship

In 2000, TSMC Foundation established the International Exchange Student Scholarship to help Taiwan college students broaden their horizons. The scholarship sponsors outstanding students to study abroad for one year. TSMC believes that in the face of global competition, only talented young people with a global perspective can keep Taiwan on the world stage. In 2007, NT\$2.5 million from the Foundation was allocated to sponsoring ten students from National Tsing Hua University and National Chiao Tung University for overseas studies in science, engineering, humanities, and social sciences.



At the college level, TSMC targets global perspectives.

#### TSMC Chair Professorship

In order to enhance academic research and help Taiwanese universities recruit top-notch overseas scholars, the Foundation has endowed TSMC Chair professorships at National Tsing Hua University, National Chiao Tung University, and National Central University since 2003. In 2007, an endowment of NT\$6 million helped to bring to Taiwan five outstanding scholars in the areas of material science, fluid mechanics, geosciences, molecular science, and electrical engineering. With their academic abilities and vision, these scholars have led students and researchers at these top universities into the most advanced research.

### 5.2.2 Nurturing Scientific Talent

#### Wu Chien-Shiung Science Camp

The Foundation has sponsored the Wu Chien-Shiung Science Camp since 2004, providing gifted youths in the fields of mathematics, physics, chemistry, and life science the opportunity to engage in dialogue with world-class scientists as well as to work closely with other promising young scholars. The Foundation aims to inspire and nurture future scientists through intensive training at the science camp. In 2007, the Wu Chien-Shiung Science Camp merged with the Asian Science Camp and invited five Nobel laureates and eight other world-class scientists to the Camp, which brought together close to 400 gifted youths from fourteen countries and regions of Asia.

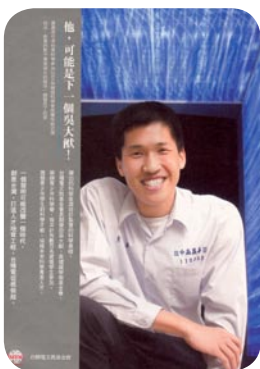
"I'm delighted to be able to participate in this camp. I look forward to gaining new knowledge in science from the Nobel laureate lectures, which cannot be obtained in school..."

-- Cheng Wang, Chang-Hwa High School, Taiwan

"I think it's really great. You get to see the way other science students think. It's really great to be able to ask questions to the professors, especially the Nobel Laureates. It really makes you apply what you learned and to do it creatively as well as teach you how to present your ideas."

-- Bao Jia Tan, Hunman High School, Singapore





For secondary schools, TSMC develops students' potential in science.

### Wu Ta-Yu Science Camp

Since 2004, the Foundation has been supporting science camps sponsored by the Wu Ta-Yu Foundation. The Camp invites world-class scientists to hold dialogues with outstanding college students with the goal of inspiring them to explore fields with potential. The two themes of the camp, featured in alternate years, are life sciences and physical sciences (which

includes astronomy, physics, and chemistry). In 2007, the fourth year of the TSMC Foundation's sponsorship, the theme was life sciences, and 67 students from Taiwan, Hong Kong, and mainland China had the opportunity to enjoy dialogues with Nobel laureates and leading Chinese scholars.

## 5.2.3 Cultivating Aesthetic Education

### TSMC Aesthetic Education Tour

The Foundation has been running the TSMC Aesthetic Education Program since 2003. Each year, the Foundation allocates NT\$10 million to the program, providing students from remote school districts with educational tours to museums, art galleries, and local historic sites. By giving children from these remote rural areas opportunities to appreciate the beauty of art, TSMC hopes to bridge the gap between rural and urban areas and to plant a seed of artistic appreciation in the heart of each and every child in each and every corner of Taiwan.



At primary schools, TSMC focuses on the aesthetic education.

"The guide told us that the National Palace Museum houses a collection of artifacts dating from ancient China to the Sung, Yuan, Ming, and Ching Dynasties. There are jade ware, bronze ware, lacquer ware, paintings, and carvings. Among all the artifacts, my favorite was the Jade Cabbage because its shape and colors were just amazing. Another marvel was the Meat Stone. It looked just like a real piece of meat. I could even see the pores. It was so real. At the end, we saw Mao Gong Ding and other bronze ware. I think that ancient Chinese were very intelligent. They created many marvels. I really admire our ancestors. Happy time flies fast. The happy day ended very soon. I would like to thank our teacher for taking us on the tour, and I would like to thank TSMC for giving us such an opportunity. I have learned a lot. Today was a beautiful day. I will put it in my memory box and guard it forever."

-- Yenling Fang, TSMC Esthetic Education Tour,  
Kuang Fu Elementary School

### An Enchanted Journey through the National Palace Museum -- A TV Program

As an extension of the Aesthetic Education Program, in 2007 TSMC commissioned Taiwan's Public Television Service to produce and broadcast a children's television program -- An Enchanted Journey through the National Palace Museum. The lively and in-depth TV program brings the richness of the museum to every family and makes the precious artifacts more accessible to young viewers. Young viewers will have opportunities to appreciate the beauty and explore the riches of Chinese cultural heritage. In order to promote the program, the Public Television Service, together with the Mandarin Daily, launched a contest called "Finding Beauty beyond Time and Space". Young viewers publish their painting and writings, and participated in interactive sessions, bringing aesthetic education to a larger audience.

## 5.2.4 Aid for Underprivileged Students

### Hope Reading Program

Since 2004, TSMC has sponsored the Hope Reading Program initiated by the Common-Wealth Educational Foundation. This program is a campaign to narrow the gap in educational resources between rural and urban areas caused by disparities in wealth. By providing books to children in remote and underprivileged areas of Taiwan, TSMC hopes to promote literacy and inspire interest in reading among these children so that they will have good books to read and the opportunity to one day leave poverty behind through education. From 2004 to 2007, the Foundation provided two hundred rural schools with 50,000 books and supported 25,000 children. In addition, the Foundation has promised to continue to sponsor the program for three more years by donating 20,000 books to two hundred remote schools annually.

### TSMC Scholarship for Students with Financial Needs

To encourage and support outstanding students with financial needs and to help bridge the gap in educational resources caused by disparities in wealth, the Foundation established the TSMC Scholarship in 2004 for students with financial needs. The Foundation planned to endow NT\$25 million to five universities in five years to assist eligible students from low-income families so that they can finish their college education without financial worries. In 2007, the Foundation donated NT\$5 million to support nearly 50 students attending National Taiwan University, National Cheng Kung University, National Tsing Hua University, National Chiao Tung University, and National Central University. TSMC hopes to help develop talent for our society by offering support to students with financial needs and expects these students to contribute their expertise to society in the future.

"I know that like me there are a lot of people from low-income families. However, I can not help them now. I hope that in the future I can use what I have learned to help more people, just as TSMC has helped me. I hope to share the warmth TSMC has brought me."

-- Lin, Dept. of Computer Science,  
National Tsing Hua Univ.

"I would like to thank TSMC Education and Culture Foundation for offering me the scholarship, which helped to pay for my tuition and living expenses this year. This greatly reduced the financial burden on my family and enabled me to concentrate on my studies...."

-- Ho, Dept. of Computer Science,  
National Chiao Tung Univ.

"I would like to thank TSMC Education and Culture Foundation again. You have made a big difference in my future. I will give what I can to society without hesitation when I have the ability to do so."

-- Wu, Dept. of Engineering and Engineering Management,  
National Tsing Hua Univ.

### 5.2.5 Donating Facilities

TSMC is committed to offering support for top-notch research and facilitating development of highly educated people. The Foundation made donations for the construction of new facilities at the University of California, Berkeley, National Taiwan University, and National Tsing Hua University to better develop talented people in the electrical engineering, science, and management departments. In July 2007, National Taiwan University began the second phase of construction of its new chemistry research center, funded with NT\$120 million donated by the Foundation. The TSMC Building at Tsing Hua University, funded with NT\$180 million donated by the TSMC Foundation, has been completed and will open in 2008. The Foundation has also endowed the Morris Chang Chair at the College of Technology Management and recruited the former President of ITRI, Mr. Chintay Shih, to serve as Dean.

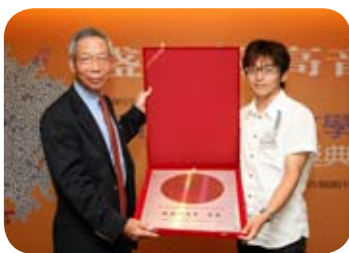
## 5.3 Promotion of Arts and Culture

The TSMC Education and Culture Foundation puts great efforts in promoting arts and cultural activities. In 1998, the Foundation pioneered cooperation between the corporate community and art groups in Taiwan by sponsoring the Cloud Gate Dance Theater. Apart from actively assisting prominent Taiwanese art groups in international promotions, TSMC also provides support for performances in Taiwan by international groups. We invited the prestigious Berliner Philharmoniker, Royal Concertgebouw Orchestra, and other renowned musical groups to visit Taiwan. In 2007, to celebrate TSMC's 20<sup>th</sup> anniversary, we invited the London Symphony Orchestra to visit Taiwan and perform Beethoven's Symphony No. 9, the Ode to Joy. The performance was broadcast live to a huge outdoor audience to share this rare opportunity with the community at large. In the past, the Foundation also funded several art exhibits, including works by Picasso and Da Vinci, and cultural relics from the Tang dynasty.



TSMC supports international and local music performances.

The Foundation is committed to preserving Taiwan's cultural assets and supports the revitalization of historical sites. In 1990, the Foundation provided funding for the restoration of the former American embassy, bringing new life to the historical landmark that had been defunct for years. It was reborn in the form of SPOT Film House, which is now a celebrated cultural showcase through its promotion of Taiwanese movies. We have also taken part in the historical landmark revival management program spearheaded by the Museum of Contemporary Art (MOCA) Taipei. It has become a model for future developments and gained wide recognition for vibrant and exciting exhibits that chart new trajectories for contemporary Taiwanese art.



TSMC Youth Literature Award encourages creative writings.

We believe a healthy dose of humanities and literature is crucial for the maturity of our society. The Foundation nurtures this development through a carefully chosen series of

activities, including the TSMC Youth Literature Award, Taiwan Literature Camp, and the Literature Salon at Taipei Story House.

The Foundation established the first TSMC Youth Literature Award in 2004 as a way to encourage Taiwan's youth to engage in the creation of literary works at an early age. We hope it will eventually cultivate an appreciation of literature in the community in general. Presented annually for the past four years, the award has become a potent venue to encourage young students to read and write. The fourth annual TSMC Youth Literature Award has shown that the contest is beginning to make an impact, with entrants presenting very mature writing. In due course, this may motivate and usher in a new generation of exciting Taiwan young writers.

In 2007, we began sponsorship of the prestigious Taiwan Literature Camp, previously funded by the Council for Cultural Affairs, continuing a precious literary tradition. Five hundred participants, mostly students, from all across Taiwan converged at National Tsing Hua University in Hsinchu for the 2007 Taiwan Literature Camp, where they met contemporary masters and underwent three days of training and inspiration. It is our hope that by establishing a permanent site for the camp in Hsinchu, we can continue and invigorate the cultural tradition of this technology city.

The protection of cultural assets not only involves maintaining structures but also continual rejuvenation through vibrant events and activities. We sponsored the monthly Literature Salon at Taipei Story House since 2006. Through regular book reading events by authors, its cultural heritage is revitalized.

## 5.4 Community-Building

With nearly 20,000 employees and their families in Hsinchu and Tainan, providing better living conditions and a more ideal community environment is a responsibility that TSMC takes very seriously. In order to give back to the immediate community and infuse these high-tech cities with the humanities, the Foundation moved its focus for fine arts funding from Taipei to Hsinchu and Tainan beginning in 2003. By organizing exquisite exhibits and performances in these cities, TSMC is germinating a greater appreciation of the arts, and using the arts to participate in the building of a well-rounded community. In addition, the Foundation has undertaken long-term projects to provide assistance to disadvantaged women and youth.



The 2007 TSMC Hsinchu Art Festival was inaugurated by a charity concert.

### 5.4.1 TSMC Hsinchu Art Festival

With a budget of nearly NT\$10 million, the Foundation holds a large-scale annual community art festival in Hsinchu and Tainan -- TSMC Hsinchu Art Festival. Apart from bringing international arts and cultural activities to the local community, the festival gives local artistic talent the chance to perform as well. In combining the promotion of arts and culture with community-building, TSMC is germinating greater appreciation of the arts in nearby communities. Started from year 2004, the TSMC Hsinchu Art Festival has refined its craft and is now one of the most highly regarded major arts events in Taiwan.



In 2007, the twentieth anniversary of TSMC, the TSMC Hsinchu Art Festival was launched with a special charity concert. Students from the remote schools of Taoshan and Wufeng were invited to perform with a prominent symphony orchestra. The concert gave the children an opportunity to show their musical talent and also encouraged the general public to participate in fundraising and community building. All the proceeds were donated to the education of underprivileged children in remote school districts in Hsinchu County. TSMC has pledged to establish a tradition of holding a charity concert each year during our annual Art Festival. The festival also included 55 other outstanding events -- classical music concerts, operas and dramas, family activities, and art and literature seminars. TSMC Hsinchu Festival received an overwhelmingly positive response from over 40,000 participating members of the community.

#### 5.4.2 Promoting Arts in Schools

Spanning out from efforts to promote traditional theater, the Foundation, as a long-term supporter of the National Cheng Kung University (NCKU) Arts Festival in Tainan, sponsored a modern adaptation of a traditional Chinese Kun opera, "Butterfly Dream", as the festival's finale. The Foundation also sponsored the Kun opera program at National Central University's Theater Arts Day. We hope that through such promotion in schools a greater number of students will be able to appreciate the beauty of theater arts and carry on the tradition of Chinese theater.



TSMC supports various art events in schools.

#### 5.4.3 Caring for the Underprivileged

Besides promotion of arts and culture, TSMC has also been involved in the care of the underprivileged in our community for many years. In 2004, we funded the establishment of the Modern Women's Foundation help center in Hsinchu, assisting local female victims of sexual attacks or domestic violence. We have also coordinated language training and adjustment counseling for immigrant wives. Additionally, in 2007 the Foundation sponsored the "Adolescents' Emotional and Physical Wellbeing Program," undertaken by the Department of Psychiatry, Hsinchu General Hospital. Experts in psychology and medicine now provide lectures on emotional management at local high schools, and professional counseling at clinics to prevent teenagers' emotional problems.



TSMC involves itself in the care of the underprivileged in our community.

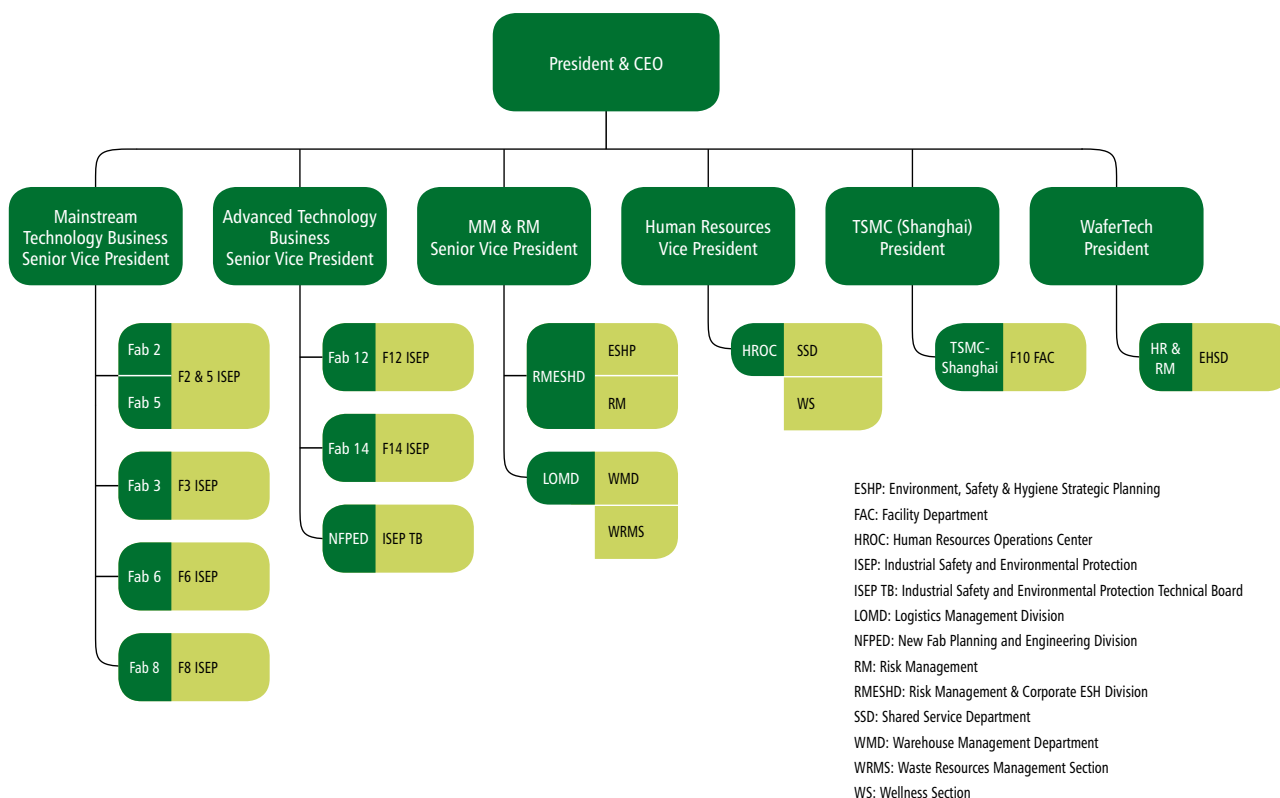


# Environmental Protection

TSMC acknowledges that all employees should take responsibility for environmental protection. We not only comply with the environmental regulations of the locations where we operate, but also track new developments in global environmental issues, and take the lead in adopting new environmentally-friendly measures. In addition to protecting the environment of our manufacturing sites in Taiwan and around the world, we lead our suppliers to establish a green supply chain. TSMC actively seeks to raise the environmental consciousness of all employees, and through social engagement and dialogue with semiconductor trade organizations, we encourage the semiconductor industry to contribute to society and the world.

## 6.1 Green Management Organization and System

TSMC's green management organization can be divided into the central planning unit, the Operational Organization Technical Board, and the designated department in each fab, which have defined responsibilities and operate in cooperation. The Risk Management and Corporate ESH Division (RMESHD) is responsible for ESH policies, establishing standards, auditing, and external activities with suppliers, customers, the community and governmental authorities. The Operational Organization Technical Board is in charge of integrating the standards and procedures for fab operation and tracking the status of execution. Fab directors are responsible for fab environmental protection. The on-site ISEP departments are in charge of planning, supervising, and implementing the ESH operations of each fab. The ISEP departments report to fab directors and must identify environmental risks of daily operations, plan for environmental management programs, and submit annual environmental goals. The fab directors host monthly ESH committee meetings, and also host annual management review meetings to ensure the achievement of continuous improvement goals.





## 6.1.1 Environmental and Hazardous Substance Management System Certificate

All TSMC manufacturing facilities in Taiwan, China, and United States have received ISO14001 certification for environmental management systems and QC080000 certification for hazardous substance management systems, and new facilities will be certified as well. In line with ISO14001's concept of continuous improvement, TSMC diligently carries out its responsibilities of pollution prevention, power and resource conservation, and waste reduction. By practicing QC080000 for hazardous substance management, TSMC ensures its processes and products comply with the requirements of the Stockholm Convention. TSMC continues to identify environmental risks, drafting feasible control measures and carrying them out to reduce environmental and hazardous substance risks.



ISO14001 Certificate



QC080000 Certificate

## 6.1.2 Environmental Accounting

Environmental accounting categorizes a company's environmental costs, and is useful in implementing cost-efficient environmental programs and aiding external communication about environmental efforts. Environmental costs often are hidden in normal expenses and are difficult to identify; for example, maintenance fees for environmental equipment are often categorized as production equipments costs, and the cost of management, such as certification or salaries of environmental protection staff is often neglected. Environmental accounting is necessary for collecting accurate information on environmental costs.

TSMC established its environmental accounting system in 2002 and integrated environmental accounting practices with the Environmental Management System (EMS) in 2003. The integrated system not only helps each fab to implement environmental management programs, but also evaluates their economic efficiency at the same time. In addition, each department has improved their performance in using correct environmental account codes for annual budget planning, enhancing the accuracy of future statistics. In 2007, the total benefit for promoting environmental management programs, including waste recycling and industrial waste reduction amounted to NT\$247 million. Environmental accounting has helped TSMC assure that environmental protection measures also have major economic benefits.

TSMC environmental expenditure in 2007 was about NT\$3.65 billion.

## TSMC 2007 Environmental Cost

Unit: NT\$ thousands

Classification	Description	Investment	Expense
1. Direct cost for reducing environmental impact			
(1) Pollution Control	Fees for air pollution control, water pollution control, and others.	1,814,769	1,189,417
(2) Resource Conservation	Costs for resource (e.g. water) conservation	147,919	16,446
(3) Waste Disposal and Recycling	Costs for waste treatment (including recycling, incineration and landfill)	0	67,305
2. Indirect cost for reducing environmental impact (managerial cost)	(1) Cost of training (2) Environmental management system and certification expenditures (3) Environmental measurement and monitoring fees (4) Environmental protection product costs (5) Environmental protection organization fees	44,351	368,792
3. Other environment-related costs	(1) Costs for decontamination and remediation (2) Environmental damage insurance and environmental taxes (3) Costs related to environmental settlement, compensations, penalties and lawsuits	0	0
4. Total		2,007,039	1,641,960

TSMC environmental efficiency in 2007 was about NT\$247 million.

## TSMC 2007 Environmental Efficiency

Unit: NT\$ thousands

Items	Description	Efficiency
1. Recycling of industrial waste	Recycling of waste pallets, packaging materials, wafer boxes, wafers, computers and accessories, fluorescent lamps, metals, empty toner cartridges, and other waste	118,000
2. Reduction of industrial waste	Costs of industrial waste disposal saved by reducing quantity.	129,203
Total		247,203

## 6.2 Climate Change and Greenhouse Gas Reduction

Global climate change is TSMC's top environmental concern. The U.N. Intergovernmental Panel on Climate Change (IPCC) has declared that greenhouse gas emissions are the primary cause of global climate change, which may have a catastrophic impact on the world economy and human life. TSMC is dedicated to reducing not only its own carbon emissions, but to serving as a benchmark in environmental protection by leading our supply chain members in emission reduction.

TSMC acknowledges that, as a member of the global village, it is necessary to reduce the greenhouse gas emissions of our facilities. Besides continued energy conservation to reduce indirect CO<sub>2</sub> emission, TSMC also spends funds and manpower to conduct reduction programs for greenhouse gases used in manufacturing processes. At the same time, we offer a wide variety of environmental protection training courses and promotional programs encouraging all employees to conserve energy and protect the environment in their daily life.

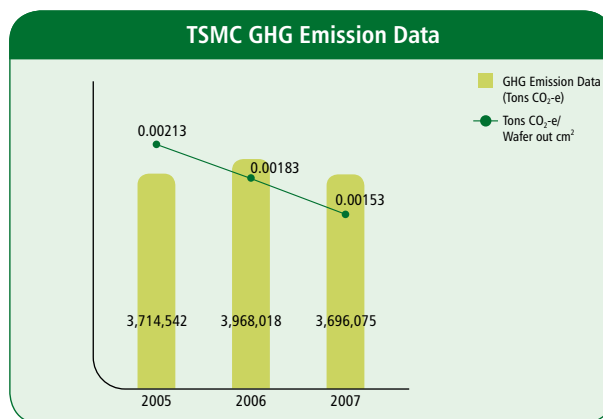
TSMC's past climate change strategy was to actively carry out energy conservation measures, implementing voluntary PFCs emission reduction projects, and conducting GHG inventories and verification every year. In the near future, we will adopt climate change as an Enterprise Risk Management (ERM) item to be evaluated and controlled, with regular reviews by senior executives and the Board of Directors. Externally, TSMC has disclosed climate change information every year since 2005 through participation in an annual survey held by the non-profit organization Carbon Disclosure Project (CDP).

### 6.2.1 Greenhouse Gases Inventory

Inventory of greenhouse gases (GHG) is a necessary procedure in reducing emissions and fighting climate change and global warming. An accurate inventory allows us to set priorities and reduction goals, raises the efficiency of the reduction process, and allows us to confirm reduction results.

In 2005, TSMC was the first semiconductor company in Taiwan to make a thorough inventory of GHG emissions and to receive official certification. The purpose of the inventory was to serve as a reference for TSMC's GHG reduction strategy, to meet future domestic regulatory requirements, and to prepare for future carbon dioxide trading and corporate carbon asset management. We distributed the inventory information to related departments to build a basic understanding and common language to build consensus for later environmental protection activities.

In 2006, the Taiwan Semiconductor Industry Association (TSIA) began a GHG inventory project for all members, including TSMC. This project followed the ISO14064 standard to conduct a GHG inventory for 2005, and acquired verification by an accreditation agency in June 2007. TSMC will use these established systems to coordinate with the Taiwan Environmental Protection Agency (EPA) and TSIA to update GHG inventory data and proceed with third party verification.



### 6.2.2 GHG Emission Reduction

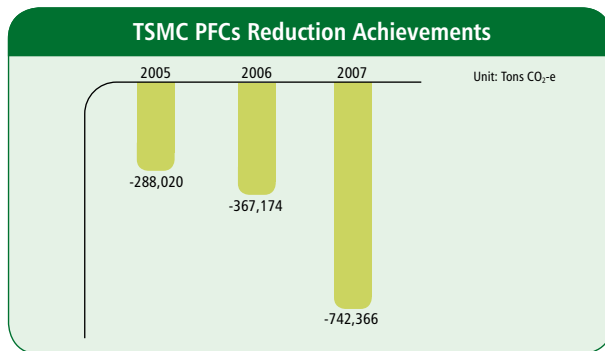
#### PFC Emission Reduction

In response to the GHG emission reduction requirements of the Kyoto Protocol, many developed countries have set reduction goals. Taiwan is not a UN member and cannot ratify the Kyoto Protocol. However, many corporations in Taiwan and around the world have decided to voluntarily lower GHG emissions to act as good global citizens.

TSMC is committed to environmental protection and actively participates in international environmental protection programs. In particular, TSMC takes active measures to reduce greenhouse gas emissions. The semiconductor manufacturing process generally uses perfluorinated compounds (PFCs) such as CF<sub>4</sub>, C<sub>2</sub>F<sub>6</sub>, SF<sub>6</sub>, NF<sub>3</sub>, CHF<sub>3</sub>, C<sub>3</sub>F<sub>8</sub>, and C<sub>4</sub>F<sub>8</sub>. TSMC and the TSIA have signed a memorandum of understanding with the Environmental Protection Agency of the Executive Yuan of the R.O.C. to set a PFC emission reduction policy and implementation plan. Under the plan, TSMC voluntarily commits to reduce PFC emissions to 10% below the average emission level of 1997 and 1999 by 2010. This emissions target remains fixed as TSMC continues to grow and construct new fabs. We have achieved significant results in the past several years and we expect to reduce more than 70% of PFC emissions and reach our target as scheduled. TSMC is actively taking the following strategies to reduce emissions:

We expect to reduce more than **70%** of PFC emissions.

- Accurate measurement of PFCs gas production by chemical vapor deposition (CVD) process equipment and effectiveness of PFCs treatment equipment to calculate actual emission coefficients and volume of PFCs emitted.
- Evaluation of the feasibility of using  $C_3F_8$  as a cleaning gas during the CVD process. The feasibility study reached a positive conclusion and TSMC plans to use  $C_3F_8$  as a replacement in all fabs by 2008.
- To evaluate and make effective use of combustible and catalytic PFCs abatement systems. Combustible systems have passed the evaluation and TSMC has begun to install and make use of such systems.



### Energy Conservation

TSMC consistently promotes energy conservation, which reduces  $CO_2$  emissions and saves costs. Coal-fired generators are a major source of electricity in Taiwan and emit large amounts of  $CO_2$ . Therefore, conserving energy is an important part of  $CO_2$  emission reduction for industries. TSMC uses energy-conserving designs when building new fabs, and continues to implement energy-saving measures on production equipment in operation.

TSMC's wholly-owned U.S. subsidiary, WaferTech, primarily uses hydroelectric and natural gas power, which emits less  $CO_2$  than coal-fired power plants. In 2006, WaferTech's energy efficiency was ranked number two out of 26 members of the U.S. Semiconductor Industry Association.

Although energy conservation efforts in office areas make a smaller impact than conserving energy used in production, TSMC believes such programs can raise employees' awareness of environmental protection. TSMC maintains a designated department responsible for planning office energy conservation programs, distributing information through our internal website and bulletin boards to help employees develop a habit of reducing power used in office lighting, air conditioning, and computers.

TSMC has made significant achievements in its many years of energy conservation at all fabs. In total, TSMC has reduced electricity consumption by 430 MKWH per year, enough to power a city of 54,000 people for one year and equivalent to 270,000 tons of  $CO_2$  emissions.

### TSMC Energy Saving Measures

#### Cleanroom Energy Saving

Measures	Achievements
Adoption of a mini-environment design for the cleanroom	Reduction of 52,310 tons of $CO_2$ per year
Reduction of cleanroom outdoor air leakage	Reduction of 19,639 tons of $CO_2$ per year
Recycling of cleanroom general exhaust at controlled temperature and humidity	Reduction of 479 tons of $CO_2$ per year
Use of recycled cleanroom general exhaust in gas/chemical room	Reduction of 5,144 tons of $CO_2$ per year
Use of recycled cleanroom general exhaust in first floor non-cleanroom production area	Reduction of 98 tons of $CO_2$ per year

#### Air-conditioning System Energy Saving

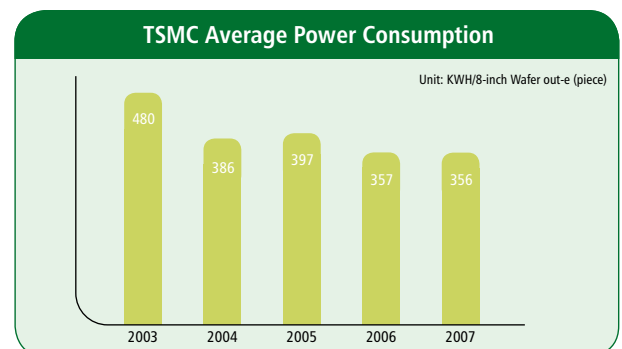
Measures	Achievements
Adoption of heat recovery chiller	Reduction of 110,933 tons of $CO_2$ per year
Dual-temperature chilled water systems design	Reduction of 7,557 tons of $CO_2$ per year
Energy-saving improvements in Cleanroom makeup air and indoor exhaust temperature	Reduction of 5,668 tons of $CO_2$ per year

#### Other Energy Saving Measures

Measures	Achievements
Adoption of inverters in air conditioning, exhaust, and process cooling water systems	Reduction of 54,735 tons of $CO_2$ per year
Heat recovery for reheat coils in makeup air units	Reduction of 2,310 tons of $CO_2$ per year
Process tool exhaust reduction	Reduction of 9,880 tons of $CO_2$ per year
Lighting reduction and formula on-off control	Reduction of 7,941 tons of $CO_2$ per year

### Power Consumption Records

TSMC's average power consumption per 8-inch wafer out equivalent has been reduced from 480KWH in 2003 to 356KWH in 2007, which shows our gradual reduction in energy consumption.





### 6.3 Green Building

#### Company-wide Initiative

TSMC initiated a "green building" program in 2006 to improve environmental performance. The program covers design and construction of new fabs, enhancement of existing fabs, internal training, and encouraging partners to gain "green building" certification. To reach our targets, TSMC established a Green Building Task Force, which will certify new fabs and existing office buildings according to the U.S. Leadership in Energy and Environmental Design (LEED) standard and Taiwan's Ecology, Energy Saving, Waste Reduction, Health (EEWH) standard. For this project, TSMC invited Dr. Kath Williams, former vice president of the United States Green Building Council (USGBC) to serve as a consultant, and also consulted experts from leading Taiwan universities.



TSMC Fab 14 Green Building

#### Achievements of TSMC's Green Building Program

Green buildings aim to reduce the ecological damage of construction by reducing consumption of scarce resources and decreasing harmful emissions. TSMC seeks a balance between cost and environmental protection through green design and environmentally friendly construction procedures, lowering energy and water consumption to improve operation cost, reducing waste production and emissions of greenhouse gases to provide a healthy and comfortable environment. The concepts are already broadly used in construction of factories, shopping centers, offices, hospitals, and schools and can be applied in construction, remodeling, and interior design.

Both the U.S. LEED and Taiwan's EEWH are aimed at improving a site's sustainability, enhancing resource recycling and water conservation, raising energy efficiency and reducing impact on atmosphere. TSMC has gained the following ten capabilities since beginning its green building program:

- Building energy use simulation and conservation analysis
- Vegetated roofs and use of high-reflectance roofing materials
- Use of glass curtain walls, evaluation of sunlight and heat transmission for energy savings
- Use of daylight and energy-saving lighting
- Integrating the control of lighting and air conditioning
- Recycling and reusing low temperature condensate for outside air conditioning systems, and reusing energy from reheating coils
- Integrating renewable energies
- 75% recycling ratio of construction waste
- Reusing energy recycled from hot gas exhaust
- Recycling water from rainfall and sewage

#### Fab 14 "Green Building" Project

New construction of TSMC's Fab 14 has applied for a LEED NC (New Construction) certification and expects to gain a "gold class" score in 2008.

TSMC has taken the following measures to meet various LEED's requirements:

- Sustainable Site: providing construction pollution prevention plans; evaluating site conditions; evaluating development density and community connectivity; installing bicycle parking and changing rooms; providing parking space for carpools and vanpools; cultivating domestic plants on 53.5 percent of vacant ground; ensuring that post-development water permeability of the site was greater than pre-development; moving all parking spaces underground; using high-reflectance roofing materials; and planting vegetated roof.
- Energy and Atmosphere: simulating and optimizing buildings' energy performance; confirming that HVAC systems use no CFCs; enhancing refrigerant and firefighting CFC management.
- Water Efficiency: using only recycled rainwater for irrigation and increasing sewage (kitchen and toilet) equipment efficiency by 30% through use of high-efficiency fixtures.
- Materials and Resources: classifying and appropriate storage of wastes; establishing collection points for recyclable materials; reducing construction waste by 75% by reusing construction materials; and using local materials.

- Indoor Environmental Quality: use of HVAC system meeting ASHRAE 62.1-2004 IAQ standard; forbidding indoor smoking; locating smoking space away from building openings (entrance, outdoor air intakes, operable windows); monitoring CO<sub>2</sub> concentrations within all densely occupied spaces; increasing outside air ventilation rates; developing and implementing indoor air quality management plan in the construction and pre-occupancy phases; using low-emission materials; controlling indoor chemical and pollutant sources; controlling lighting, temperature and humidity; and investigating thermal comfort satisfaction.

TSMC hopes that its efforts to build and promote green buildings will encourage the industry to take conservation and pollution reduction into consideration when building new fabs to reduce both damage to the environment and waste of resources, and to leave a better future for generations to come.

## 6.4 Green Product

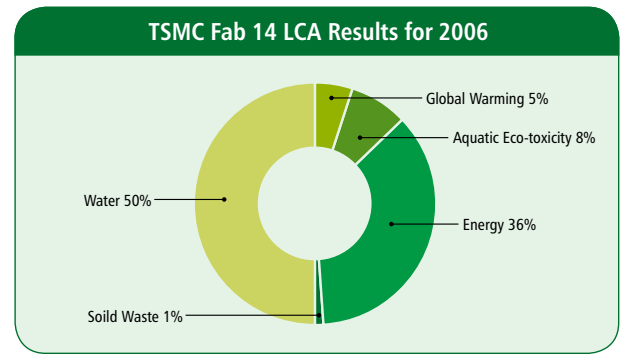
### 6.4.1 Wafer Life Cycle Assessment

As the concept of sustainable development has gained acceptance, product environmental impact evaluation has taken the more comprehensive approach of examining product life cycles, including raw material mining, transportation, product manufacturing, use, and disposal to thoroughly evaluate environmental impact. A product life cycle assessment can produce dramatically different results from a traditional product environmental impact analysis for products that would have relatively little environmental impact in the production or disposal stage, but would have a large impact in other stages.

TSMC began a "Product Life Cycle Assessment (LCA) Project" on wafer production in 2002, collecting and analyzing data such as energy, raw materials consumption, and pollutants from the entire manufacturing chain, starting from raw materials to shipment from TSMC. TSMC has completed "Eco-profiles" for all TSMC fabs in Taiwan, which will help the company meet regulations such as the European Union's "Energy-Using Product" directive. These Eco-Profiles can also be provided to customers who require such documentation.

Product life cycle data shows that water is the most heavily consumed raw material for TSMC and its suppliers, followed by air, coal, and petroleum. Air is considered a renewable resource and effectively inexhaustible. According to a weighted analysis, the most significant environmental impact of wafer manufacturing is water consumption, followed by energy consumption, aquatic toxicity, and the greenhouse effect.

The LCA results helped TSMC to recognize the importance of resource conservation and waste reduction, and to place these as the first priority for environmental protection, achieving significant results. In 2007, we completed the LCA of TSMC's newest fab, Fab 14.



### 6.4.2 Design for Low Power Consumption Green Product

"Green Products" are environmentally friendly products that conserve energy, have low toxicity, and can be recycled. As a major wafer foundry, TSMC provides power efficient design platforms to its customers, and TSMC's customers can develop energy saving products using such platforms to be manufactured by TSMC. TSMC cooperates with one of its customers to integrate their patent energy saving technology and TSMC's advanced manufacturing technology to provide a "Power Trim Service" to our customers. Two of TSMC's major customers have already adopted such services and processes.

### 6.4.3 Hazardous Substance Restriction Management

The EU directive focuses on hazardous substances in electric and electronic end-products, but does not detail how a corporation can become "hazardous substance free". To offer guidance, the International Electrotechnical Commission (IEC) Quality Assessment System for Electronic Components (IECQ) developed the QC080000 hazardous substance process management system based on the ISO9001 framework. QC080000 establishes a hazardous substance management mechanism for all operational procedures, such as R&D, procurement, outsourcing, production, and testing to help companies become "hazardous substance free".

As a leader in semiconductor manufacturing and services, and to meet our corporate social responsibilities, TSMC began to implement the QC080000 hazardous substances process management system in 2005, and in June 2006 became the first semiconductor company to earn certification for one of its fabs. TSMC's U.S. fab, WaferTech, obtained certification in September 2006, and all TSMC fabs including TSMC Shanghai were certified for QC080000 by July 2007. In addition, TSMC has also shared its QC080000 policies and experience with affiliated companies, and one affiliate, Vanguard International Semiconductor, received QC080000 certification in June 2007.

## 6.5 Water Resource Management

As global climate change becomes more severe, development and allocation of water resources has become a key issue in many countries. It is particularly vital in Taiwan, a highly industrialized and densely populated island with mountainous terrain that does not retain water easily. Development of water resources and balancing ecology with economy has become an important issue for both government and the private sector. TSMC recognizes both that water resources are limited, and that water conservation is one of our highest priorities in resource conservation. TSMC's sole source of water is the Taiwan Water Corporation, and our first principle of water use is reduction, followed by recycling.

### 6.5.1 Water Reduction and Recycle Internal Water Saving Status

The primary method of water use reduction is to raise the efficiency of process equipment in using ultra-pure water. TSMC's facilities optimize the water consumption of process equipment and uses wastewater recycling systems to reduce water usage and production of wastewater. TSMC carefully categorizes post-process water by quality to improve water-recycling rates. We use recycled water in the manufacturing process or secondary uses including cooling tower make-up water, wet scrubber make-up water, cleaning water for sludge de-watering filter in wastewater treatment systems, or toilet water, which will not come into human contact. Secondary uses of water are also optimized to reduce make-up water quantity, maximizing water efficiency to reduce water costs and wastewater production.

In 2007, TSMC's average process water recycling rate rose from 60% in 1993 to 80%, while the recycling rates of new fabs are all above 85%, meeting or exceeding standards set by the Science Park Administration, and also exceeding the process water recycling rate for international semiconductor fabs. Our major approaches are:

- Optimization of water usage for process tools, air pollution control wet scrubbers, cooling towers, ultra-pure water systems, and wastewater systems
- Installation of organic/acid water recycling systems, separated collection according to water quality, recycling water to ultra-pure water systems or secondary uses such as cooling towers
- Installation of general and copper-containing CMP wastewater recycling systems, recycling wastewater to ultra-pure water systems or secondary water use
- Installation of wet scrubber water recycling systems to recycle wet scrubber effluent after treatment
- Establishment of rainwater storage system on the roofs to supply plant irrigation systems, toilets, and wet scrubber water use
- Recycling of air condition condensation for cooling tower use
- Use of water saving faucets for employees
- 100% use of recycled water for toilet flushing
- Controlled water use for external wall cleaning and irrigation to avoid unnecessary water use

In 2007, we saved a total of 13,730,000 tons of water, which can provide a town of 50,000 with 2.5 years of water, or 2.57 volume of Hsinchu's Paoshan Reservoir.

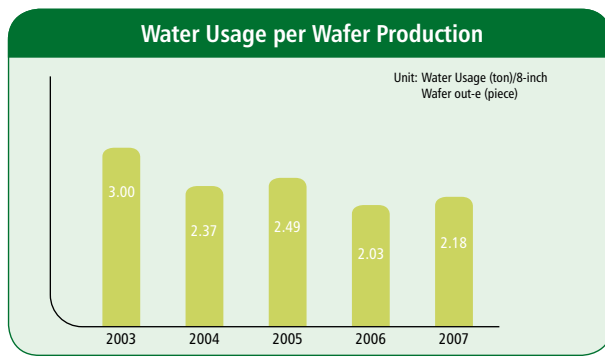
In 2007, we saved a total of **13,730,000** tons of water.

### TSMC Water Conservation Performance, 2003-2007

Item	2003	2004	2005	2006	2007
Average process water recycling rate (%) <sup>1</sup>	75.6	76.6	73.4	76.4	80
Water saved (10,000 tons)	991	1,162	1,331	1,628	1,373
Water saved, measured in standard swimming pools <sup>2</sup>	3,964	4,649	5,323	6,511	5,493
Water saved, measured in the full capacity of Paoshan Reservoir <sup>3</sup>	1.85	2.17	2.49	3.04	2.57

Note:  
1. Average process water recycling rate is defined by the Science Park Administration.  
2. A standard 50 x 25 x 2m swimming pool contains up to 2,500 tons of water.  
3. Paoshan Reservoir is the major reservoir that supplies water to Hsinchu Science Park. The full capacity of Paoshan Reservoir is 5.35 million tons.





#### External Cooperation for Water Saving Activities

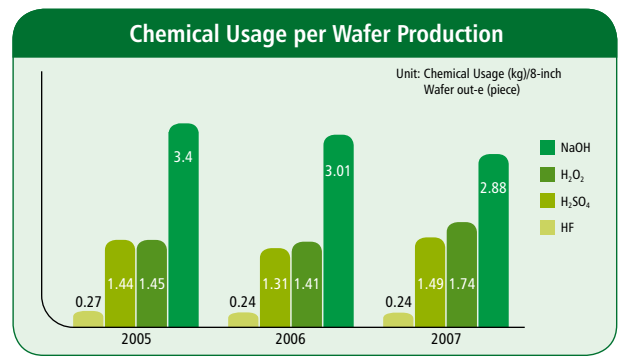
Since water resources are inherently local, TSMC shares its water saving experience with other semiconductor companies through the Association of Science Park Industries to promote water conservation. At the same time, TSMC collaborates with the Science Park Administration to assist small facilities in the Science Park in well water resource management to achieve the Science Park's goals and ensure long-term balance of supply and demand.

### 6.6 Pollution Prevention

TSMC believes that pollution prevention is one of a corporation's most important responsibilities. TSMC's pollution prevention is based on the ISO14001 environmental management system and uses the "Plan-Do-Check-Act" management model to promote continuous improvement. We believe that conserving raw materials, energy, and resources and reducing waste and pollutants both saves production costs and protects the environment.

TSMC has established comprehensive management and operations procedures for pipe-end treatments such as air and water pollution controls, and ensures these procedures are carried out precisely. TSMC has also installed monitoring systems on the discharging sides of pollution control facilities for on-line monitoring. Facility personnel follow emergency response and reporting procedures to take proper actions if operating conditions diverge from preset limits.

For waste management, TSMC has transitioned from traditional "treatment and disposal" to a concept of effective resource management and implements this concept in daily operations. We manage wastes as resources, categorize and collect waste at the source, raise waste recyclability, and also collaborate with waste treatment and recycling facilities to search for or develop possible recycling measures. With this waste resource management model, TSMC has successfully raised its waste recycling rate each year.



#### 6.6.1 Water Pollution Control

TSMC's ultra-pure water system turns raw water into ultra-pure water mainly used in process tools for cleaning chemical residue on wafer surfaces. To reduce total water usage, TSMC's effluent water from ultra-pure water systems and process tools are graded by purity. The cleanest is reused by in the manufacturing process; the second grade taken from the recycling treatment is employed in secondary uses such as cooling-tower water. Wastewater that cannot be recycled is discharged to treatment facilities for final wastewater treatment.

TSMC adopts a strict front-end wastewater categorization strategy to improve treatment efficiency. Wafer fabs' wastewater can be divided into fluoride, general acid, and various polishing wastewaters. All kinds of wastewater are strictly categorized at process tools, and collected to wastewater treatment facilities through separated piping, carefully operated and maintained by professional teams to comply with the standards of the Science Park Administration (SPA). The water is then discharged to the SPA wastewater treatment plant for further treatment after professional teams ensure the discharge complies with SPA standards. The treated wastewater is discharged to rivers from the SPA's wastewater treatment plants in compliance with river discharge standards.

TSMC operates only after ensuring that the environment is not polluted. Each fab is equipped with effective wastewater treatment systems including complete back-up systems, such as emergency power supplies, to reduce the likelihood of abnormal discharge. Operating status of all of TSMC wastewater treatment systems are monitored 24 hours a day by shift personnel. If operating conditions shift from the preset limits, a warning signal is sent and wastewater discharge is halted. Data gathered for monitoring system effectiveness have been designated an important tracking item to ensure the effluent's quality.

#### Wastewater Effluent Monitoring Results

All TSMC fabs are equipped with continuous monitoring equipment to monitor and record changes in water quality, such as acidity and fluoride ion concentration, and quantity in order to take appropriate responses when abnormal situations occur. We also conduct off-site sampling and analyze wastewater effluents' quality at least four times a year, which also provides a calibration reference for on-line analyzers, ensuring that TSMC complies with water quality standards.

## 2007 TSMC Wastewater Quality Analysis Results

Items	Fab Date	Fab 2		Fab 3				SPA Standard
		March	September	March	June	September	December	
pH		6.7	6.3	7.2	7.2	7	7.1	5-10
Temperature (°C)		24.3	25.5	22.5	25.8	27.5	24.7	35
Suspended Solid (mg/L)		55.9	11.4	24.5	22.2	35.6	44.8	300
COD (mg/L)		46.2	52.1	48.5	107	84.8	45.9	500
BOD (mg/L)		1.4	12.3	25.9	28.9	24.4	20.3	300
Fluoride (mg/L)		8.2	5.5	5.56	5.23	3.96	4.44	15

Items	Fab Date	Fab 5		Fab 6				SPA Standard
		March	September	March	June	September	December	
pH		7.0	6.5	7.2	6.5	6.4	6.7	5-10
Temperature (°C)		23.4	27.4	25.2	29.2	29.4	26.4	35
Suspended Solid (mg/L)		19.7	215.0	51.0	17.5	37.0	33.5	300
COD (mg/L)		11.6	130.0	80.2	115.0	134.0	127.0	500
BOD (mg/L)		1.6	94.3	57.9	22.1	80.1	72.6	300
Fluoride (mg/L)		2.2	4.9	7.3	4.7	6.0	5.1	15

Items	Fab Date	Fab 8				SPA Standard
		February	May	September	November	
pH		7.4	6.9	6.9	7.0	5-10
Temperature (°C)		25.0	27.2	27.8	24.6	35
Suspended Solid (mg/L)		27.7	30.3	34.2	24.5	300
COD (mg/L)		115.0	129.0	167.0	98.1	500
BOD (mg/L)		44.3	45.1	35.3	53.3	300
Fluoride (mg/L)		3.8	4.9	6.2	7.8	15

Items	Fab Date	Fab 12				SPA Standard
		March	June	September	December	
pH		6.6	6.7	6.8	6.6	5-10
Temperature (°C)		25.0	23.4	30.1	28.3	35
Suspended Solid (mg/L)		129.0	35.5	23.5	24.4	300
COD (mg/L)		406.0	317.0	216.0	338.0	500
BOD (mg/L)		67.5	57.8	69.7	68.7	300
Fluoride (mg/L)		11.0	10.4	9.8	11.1	15

Items	Fab Date	Fab 14				SPA Standard
		February	May	August	November	
pH		7.4	7.0	7.5	6.4	5-10
Temperature (°C)		26.8	29.6	27.2	21.4	35
Suspended Solid (mg/L)		84.0	104.0	91.0	104.0	300
COD (mg/L)		230.0	236.0	83.3	174.0	500
BOD (mg/L)		125.0	146.0	25.0	86.1	300
Fluoride (mg/L)		4.0	7.0	5.0	3.0	15

Fab Items Date	TSMC Shanghai, China				Standard
	March	June	September	December	
pH	7.3	6.9	7.6	7.4	6-9
Temperature (°C)	27.0	28.0	26.0	17.0	—
Suspended Solid (mg/L)	136.0	69.3	40.3	85.7	350
COD (mg/L)	86.2	50.2	65.2	90.4	300
BOD (mg/L)	27.5	21.8	26.1	27.5	150
Fluoride (mg/L)	10.0	12.5	8.3	9.0	20

Fab Items Date	WaferTech, USA				Permit Limit
	March	June	September	December	
pH	6.4	6.4	6.7	6.4	6-11
Fluoride (mg/L)	15.7	11.9	10.7	14.6	17.4

Note:

1. SPA: Science Park Administration, Taiwan

2. The qualities of all the effluent meet standards.

### 6.6.2 Air Pollution Control

TSMC installs local scrubbers behind process tools in order to optimize waste gases treatment efficiency. First, high temperatures or other physical and chemical measures are used to significantly reduce the concentration of pollutants in tool exhaust. The gas is then inducted to central waste gas treatment equipment for end-point treatment. End point treatment includes zeolite-rotary-wheel absorbing equipment for volatile organic chemicals (VOC) treatment and wet scrubber equipment for acid or base gases. All equipment can minimize pollutant concentrations to ensure complete compliance with environmental regulations.

TSMC has installed effective air pollution control equipment, including backup systems, for all pollution control equipment to continue waste gas control in the event of equipment breakdown and lower the risk of air pollutant emission. To ensure normal equipment operations, TSMC has installed backup fuel supply systems for VOC pollution control equipment that will engage if the original fuel supply system experiences difficulties.

Operational status of all of TSMC air pollution control systems is monitored 24 hours a day by shift personnel. Data collected by system efficiency monitoring have been classified as an important tracking item in order to ensure air exhaust quality.



Air emissions periodical measurement



Air emission stacks inspection

All TSMC fabs continuously monitor the real-time concentration of VOCs and conduct annual emission measurements as required by environmental laws. Emissions have been far below EPA standards every year.



## 2007 TSMC Exhaust Analysis Results

Fab	Fab 2						Fab 5				Fab 8			
Stack No.	P004	P006	P007	P009	P011	P013	P101	P102	P104	P106	P106	P110	P115	P117
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	0.0023	-	0.0048	-	-	0.0063	-	-	0.0072	-	0.0058	-	-	-
Fluoride (kg/hr)	0.007	-	0.001	-	-	0.026	-	-	0.02	-	0.023	-	-	-
HCl (kg/hr)	0.0068	-	0.00052	-	-	0.035	-	-	0.0068	-	0.0062	-	-	-
Cl <sub>2</sub> (kg/hr)	0.0072	-	0.0051	-	-	0.021	-	-	0.023	-	0.0096	-	-	-
NH <sub>3</sub> (kg/hr)	-	0.017	-	-	-		-	-	-	0.005	-	0.0016	-	-
HNO <sub>3</sub> (kg/hr)	0.0045	-	0.0014	-	-	0.011	-	-	0.013	-	0.0039	-	-	-
H <sub>3</sub> PO <sub>4</sub> (kg/hr)	<0.00012	-	<0.00028	-	-	<0.0003	-	-	<0.00084	-	0.00035	-	-	-
VOC DRE	-	-	-	92.0%	91.9%	-	95.5%	96.9%	-	-	-	-	95.5%	95.1%

Fab	Fab 6													
Stack No.	P101	P102	P105	P115	P120	P122	P107	P108	P116	P117	P109	P110	P119	P123
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	0.000737	0.000275	0.000622	0.000341	-	-	-	-	-	-	-	-	-	-
Fluoride (kg/hr)	0.11	0.000873	0.000834	0.00049	-	-	-	-	-	-	-	-	-	-
HCl (kg/hr)	0.0196	0.0018	0.000777	0.00118	-	-	-	-	-	-	-	-	-	-
Cl <sub>2</sub> (kg/hr)	0.0107	0.0113	0.00854	-	-	-	-	-	-	-	-	-	-	-
NH <sub>3</sub> (kg/hr)	-	-	-	-	0.00269	0.00594	-	-	-	-	-	-	-	-
HNO <sub>3</sub> (kg/hr)	0.0106	0.000316	-	0.000351	-	-	-	-	-	-	-	-	-	-
H <sub>3</sub> PO <sub>4</sub> (kg/hr)	0.000409	0.000323	-	0.00025	-	-	-	-	-	-	-	-	-	-
VOC DRE	-	-	-	-	-	-	97.7%	98.5%	97.4%	93.7%	97.7%	99.4%	97.8%	96.9%

Fab	Fab 3												
Stack No.	P101	P103	P104	P105	P106	P107	P108	P109	P110	P111	P112	P113	P114
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	0.00039	-	0.00011	0.0044	0.00069	0.00019	0.002	0.00054	0.00085	0.00026	-	-	-
Fluoride (kg/hr)	0.058	-	0.000031	0.015	0.0029	0.0017	0.02	0.000038	0.036	0.000059	-	-	-
HCl (kg/hr)	0.0025	-	0.000078	-	-	-	-	0.00063	0.017	-	-	-	-
Cl <sub>2</sub> (kg/hr)	-	-	-	0.015	0.0074	0.0072	0.012	-	-	0.0072	-	-	-
NH <sub>3</sub> (kg/hr)	0.021	0.024	0.0023	0.01	-	0.026	-	0.028	0.013	-	-	-	-
HNO <sub>3</sub> (kg/hr)	-	-	-	0.0069	0.00051	0.00091	0.004	-	-	0.00026	-	-	-
H <sub>3</sub> PO <sub>4</sub> (kg/hr)	-	-	-	0.00046	0.00032	0.00027	0.001	0.00013	-	0.00021	-	-	-
VOC DRE	-	-	-	-	-	-	-	-	-	-	96.8%	96.6%	96.8%

Fab	Fab 3												
Stack No.	P115	P116	P117	P118	P119	P201	P209	P210	P212	P213	P217	P218	P219
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	-	0.00028	0.00031	-	-	0.001	0.000054	0.00072	-	-	-	-	-
Fluoride (kg/hr)	-	0.01	0.014	-	-	0.003	0.000018	0.000055	-	-	-	-	-
HCl (kg/hr)	-	-	0.0024	-	-	0.00082	0.00006	0.00047	-	-	-	-	-
Cl <sub>2</sub> (kg/hr)	-	0.0012	-	-	-	0.018	-	0.0044	-	-	-	-	-
NH <sub>3</sub> (kg/hr)	-	-	0.004	0.015	0.0022	0.027	-	0.0043	-	-	-	-	-
HNO <sub>3</sub> (kg/hr)	-	0.0004	0.001	-	-	0.00061	0.000036	0.00025	-	-	-	-	-
H <sub>3</sub> PO <sub>4</sub> (kg/hr)	-	0.000063	0.00018	-	-	0.00048	0.000042	0.00019	-	-	-	-	-
VOC DRE	96.6%	-	-	-	-	96.0%	-	-	93.7%	96.0%	93.7%	96.4%	96.4%

Fab	Fab 12										
Stack No.	P003	P004	P008	P011	P012	P013	P016	P017	P018	P009	P022
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	0.0032	0.0044	0.0029	0.0007	0.0023	-	0.003	0.003	0.007	-	-
Fluoride (kg/hr)	<0.022	<0.019	<0.02	<0.02	<0.012	-	<0.021	<0.027	<0.028	-	-
HCl (kg/hr)	0.0055	0.0074	0.0017	0.0006	0.0025	-	0.004	0.004	0.005	-	-
Cl <sub>2</sub> (kg/hr)	0.048	0.024	0.034	0.034	0.018	-	0.034	0.037	0.048	-	-
NH <sub>3</sub> (kg/hr)	-	-	-	-	-	-	-	-	-	0.014	0.086
HNO <sub>3</sub> (kg/hr)	0.022	0.033	0.032	0.004	0.0007	-	0.046	0.034	0.044	-	-
H <sub>3</sub> PO <sub>4</sub> (kg/hr)	<0.0005	<0.00044	<0.00047	<0.0004	<0.00029	-	<0.00047	<0.00062	<0.00066	-	-
VOC DRE	-	-	-	-	-	97%	-	-	-	-	-

Fab	Fab 14										
Stack No.	P101	P102	P104	P107	P108	P109	P113	P114	P118	P119	P120
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	0.00059	-	-	-	0.00046	-	-	-	0.00026	-	-
Fluoride (kg/hr)	0.00084	-	-	-	0.00164	-	-	-	0.0005	-	-
HCl (kg/hr)	0.00235	-	-	-	0.00133	-	-	-	0.00093	-	-
Cl <sub>2</sub> (kg/hr)	0.0124	-	-	-	0.00987	-	-	-	0.00863	-	-
NH <sub>3</sub> (kg/hr)	-	-	-	-	-	-	-	-	-	0.0033	0.0113
HNO <sub>3</sub> (kg/hr)	0.00012	-	-	-	0.00013	-	-	-	0.0001	-	-
H <sub>3</sub> PO <sub>4</sub> (kg/hr)	0.00036	-	-	-	0.00029	-	-	-	0.00025	-	-
VOC DRE	-	98.9%	98.9%	97.7%	-	98.4%	96.6%	97.7%	-	-	-

Note:  
1. Treatment of H<sub>2</sub>SO<sub>4</sub>, Fluoride, HCl, HNO<sub>3</sub>, and H<sub>3</sub>PO<sub>4</sub> meet the control factors of wet scrubber of "Air Pollution Control and Emission Standards for Semiconductor Manufacturing Industry".  
2. Treatment of VOC meets the DRE (Destruction Removal Efficiency) (>90%) or factory emission (<0.6kg/hr) of "Air Pollution Control and Emission Standards for Semiconductor Manufacturing Industry".  
3. Treatment of NH<sub>3</sub> and Cl<sub>2</sub> meets the "Air Pollutants Emission Standards for Stationary Pollution Sources".  
4. -: Analysis not required.

Fab	TSMC Shanghai, China							Standard
Stack No.	FQ01400901	FQ01400902	FQ01400903	FQ01400904	FQ01400905	FQ01400906	FQ01400907	
H <sub>2</sub> SO <sub>4</sub> (kg/hr)	0.068	-	-	0.018	-	-	0.043	10
Fluoride (kg/hr)	<0.04	-	-	<0.009	-	-	<0.02	0.672
HCl (kg/hr)	0.025	-	-	0.0042	-	-	0.016	1.64
Cl <sub>2</sub> (kg/hr)	0.0014	-	-	0.00032	-	-	0.00073	1.27
NH <sub>3</sub> (kg/hr)	-	0.0169	-	-	0.00502	-	-	20
VOC (kg/hr)	-	-	0.306	-	-	0.0849	-	62.4

Fab	WaferTech, USA								Standard lbs/yr site wide	Standard ppm
Stack No.	1P5-SCR-02	1F2-SCR-01	1F1-SCR-01	1F1-SCR-02	1F1-SCR-03	1F1-SCR-04	1F1-SCR-15	Site wide lbs/yr		
Fluoride (kg/hr)	0.0007	0.0009	0.0059	0.0077	0.01816	0.0454	0.0173	1,856	4,500	6
HCl (kg/hr)	0.0004	0.003	0.001	0.0016	0.00499	0.0041	0.002	330	6,310	3
NH <sub>3</sub> (kg/hr)	0.035	0.0054	0.0024	0.0018	0.00953	0.0032	0.0037	1,180	15,000	15
HNO <sub>3</sub> (kg/hr)	0.0008	0.001	0.0021	0.0021	0.0168	0.0123	0.0054	782	1,750	0.35



### 6.6.3 Waste Management and Resource Recycling

#### Establishment of a Designated Unit

TSMC has transitioned from traditional "treatment and disposal" to the concept of effective resource management, and treats waste as valuable resource to be managed effectively. To apply the concept of waste resource management, TSMC led the Taiwan semiconductor industry in 2001 in establishing a designated unit responsible for planning and management of waste recycling and disposal.

#### Waste Reduction

To reach the goal of sustainable resource utilization, TSMC balances feasible technology with economic cost and then sets its priority on process waste reduction and pollution prevention to continuously minimize waste production. TSMC has made great efforts in raw material usage reduction with significant achievements that have not only reduced waste but also saved costs for the company.

#### Recycle and Reuse

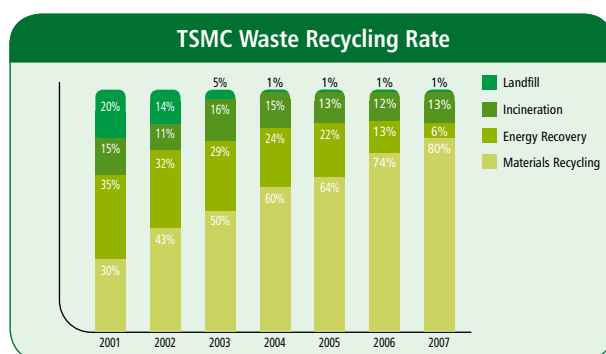
Once a substance is no longer suitable for its original purpose, TSMC first considers material recycling, followed by energy recycling and finally proper disposal. TSMC's R&D, manufacturing, facility, ESH and waste management departments have all participated in continuous improvement programs and have made significant achievements.

#### Ensure Final Disposal Destination

To effectively track disposal of waste materials, TSMC carefully selects waste treatment and recycling contractors, and sets annual audit plans using regular and spot

audits of certification documents, site operations, and transportation routes to ensure legal and appropriate treatment of waste to be recycled. In addition to the self-management described above, TSMC also complies with related legal requirements.

TSMC continued to carry out waste reduction and recycling programs in 2007, improving our waste recycling rate from 65% in 2001 to 86% (not including office general waste) in 2007. The improvement in our waste recycling rate both increases our income from resource recycling and also reduces waste treatment cost. TSMC is targeting a 90% combined rate of material recovery and energy recovery in first half of 2009.



TSMC's recyclable waste and post-recycling products are detailed below. TSMC was the first company in Taiwan to receive approval from the Ministry of Economic Affairs and National Science Council for recycling calcium fluoride ( $\text{CaF}_2$ ) sludge into cement additive, recycling residual polishing liquid into potassium silicate, and converting waste hydrofluoric acid into calcium fluoride (flux).

Recyclable Waste	Post-recycling Products	Recycled Amount in 2007 (Tons/year)
Scrap wafer	Repurposed to produce solar cells	18
	Reproduced control or dummy wafer	83
Waste Sulfuric acid	Turned into Aluminum Sulfate	8,118
Calcium fluoride ( $\text{CaF}_2$ ) sludge	Cement Additive	9,317
Residual Polishing Liquid	Potassium Silicate	20
Waste Cupric Sulfate	Industrial Grade Cupric Sulfate	1,551
Waste Cupric Liquid	Recycled for production of new etching liquid	1,319
Photo resist thinner	Distilled for Reuse	4,943
Waste Isopropyl Alcohol (IPA)	Distilled for Reuse	736
Stripper used to remove photo resistant layers	Distilled for Reuse	811
Solvent used to remove photo resistant layers	Cement kiln supplementary fuel	4,809
Waste Phosphoric acid	Industrial Grade Phosphate, Calcium Phosphate	94
Empty chemical drum	Refilled by suppliers	2,047
Empty Toner/Cartridge	Recycled Toner/Cartridge	1
Kitchen scraps	Animal feed	1,415

## 6.7 Ecological Preservation

All TSMC wafer fabs in Taiwan and Shanghai are located in industrial parks, which conducted environmental impact assessment (EIA) before development, and continue to meet EIA commitments for environmental protection after development. Therefore, all TSMC wafer fabs in Taiwan and Shanghai are operating under the industrial parks' or its own EIA commitments, and do not have a significant environmental impact on their local ecological environments. Although TSMC's U.S. subsidiary fab WaferTech is not located in an industrial park, it maintains a designated department to take responsibility for monitoring and maintaining on-site ecological preservation. Their approaches are detailed below.

WaferTech preserves and enhances 8.0 acres of wetlands mitigation area near the fab site as per the requirements of a 10-year wetlands permit. This preservation and enhancement project is due to be completed in 2008. WaferTech's 8.0 acres of wetlands enhancement mitigation area is part of the Lower Grass Valley Swale, which includes 29.05 acres of WaferTech-owned wetlands. These 29.05 acres of wetlands are preserved and include the 8.0 acres of wetland enhancement mitigation. Another 14.82 acres of upland (non-wetland) buffer is also preserved within and adjacent to the mitigation plots.

WaferTech has enhanced the 8.0 acres of wetland with native wetland plants and controlled invasive plant species (weeds) for 10 years, as of this year. For the first 5 years, mitigation plots were cleared of non-native plants, planted with native wetland plants and kept free from weeds. In the next 5 years, WaferTech controlled non-native plants to allow the wetland plants to grow and establish. This area was reviewed by government agencies in 2006 and found to be quite healthy and successful. A number of animals make this area their home, including: deer, beaver, coyotes, rabbits, and 23 types of birds, including 3 wetland associated species: the great blue heron, red-winged blackbird, and song sparrow. Other birds include tree swallow, chesnut-backed chickadee, black-capped chickadee, downy woodpecker, northern flicker, common yellowthroat, black headed grosbeak, ruby crowned kinglet, Swainson's thrush, orange crowned warbler,

rufous hummingbird, willow flycatcher, red-tailed hawk, scrub jay, American crow, American robin, rufous-sided towhee, Bewick's wren, American goldfinch, and mourning dove.



WaferTech wetland preservation project

## 6.8 Green Promotion Activities

TSMC communicates the most up-to-date environmental concepts to its employees, collaborates closely with scholars and governments in the countries where we operate, and is systematically building a green supply chain. These activities are all aimed at using our influence as a corporation to protect the environment meeting our corporate social responsibilities. The following details TSMC's environmental promotion programs:

### Enhancement of Employee Environmental Awareness

TSMC frequently holds environmental training courses and promotional activities. Besides the professional environmental education courses required by law, we also make good use of designated environmental bulletin boards in each fab as well as promotional materials in elevators, restrooms, and employee publications to embed environmental concepts in employees' everyday work and life.

### Climate Change Specialist Lecture

TSMC invited National Taipei University of Technology Professor Young Ku to TSMC for a speech on "Looking at environmental management thinking from international protocols". Participants gained a deeper understanding of the influences of international protocols such as the Kyoto Protocol and EU environmental laws on businesses, and how businesses have responded.

TSMC also cooperated with the Science Park Administration to provide TSMC employees sixteen hours of professional lectures on environmental management in total, 167 participants from TSMC's Hsinchu and Tainan sites participated in the following lectures:

Lectures	Lecturers
"Climate change and Response"	Professor Shaw Chen Liu, National Taiwan University
"Analysis of international environmental protection trends and strategies"	General manager Eddie Shiao, Hui-Kuo Consulting, Ltd.
"International green building promulgation and Taiwan's current status"	Professor K.P. Lee, National Taipei University of Technology
"International energy saving trends and practices"	Professor Chien-Ming Lee, National Taipei University

In addition, TSMC invited two Taiwan non-governmental organizations, the "Society of Wilderness" and the "Green Livability Association" to deliver speeches on ecological preservation and energy-saving at home, attracting an audience of 180 participants from TSMC.

## Promotion of Energy Conservation



Energy saving poster

Climate changes caused by the greenhouse effect are already making a clear impact on the environment; every company and individual can help slow down

the greenhouse effect by reducing emissions. To help employees understand the importance of personal energy conservation, TSMC held several showings of the film "An Inconvenient Truth", as well as other activities such as turning off the lights for one hour at noon, and a summer energy-saving campaign. The promotions have received an enthusiastic response from TSMC employees, and they are detailed below:

- In support of "Earth Day", all TSMC fabs held showings of the film "An Inconvenient Truth", with seven showings in April and an additional six showings in May due to popular demand. In total, 1,467 employees watched the film, which is also filed in our document center and can be lent to employees for viewing at any time.
- Office lights are shut off from 12:00 to 13:00 on the fourth Friday of every even-numbered month.
- To support Taiwan's "summer energy saving program" of wearing lighter clothing, raising thermostats by 1°C, and eliminating air conditioning leakage, TSMC raised air conditioning temperatures in public areas such as the lobby and canteen by 1°C to (26-28°C) to encourage employees to develop energy-saving habits.
- To support Taiwan's "pull the plug, go outside" program, TSMC held a "lights off on the summer solstice" activity. We shut off all exterior lights in all fabs for two hours at 19:00 on June 22, 2007, set hallway lighting to power-saving mode, and encouraged employees to turn off lighting, air conditioning, and PCs after use.

### TSMC "Sunshine Forest" Program

TSMC employees collaborated with the National Taiwan University Experimental Forest Center and the Environmental Quality Protection Foundation to initiate the "Sunshine Forest Adoption Program". Under the program, TSMC employees donated 4,500 trees to the NTU Experimental Forest Center's Se-Tau center. Thanks

Our employees donated **4,500** trees to the NTU Experimental Forest Center's Se-Tau center.

to enthusiastic employee response, TSMC reached its target of 4,500 within one week with participation from 2,527 employees, showing our colleagues' enthusiasm to do their part for the environment.



Professor Wang of NTU accepted the donated trees from TSMC.

## Keeping in Touch with the Most up-to-date Developments in Global Environmental Protection

TSMC actively keeps abreast of international environmental protection information and developments, and often sets policies and takes actions on environmental issues before domestic regulations are established. TSMC also uses the environmental protection actions of top global semiconductor companies as a reference for its own policies by participating in international semiconductor industry organizations.

### Participation in External Environmental Protection Activities

Besides focusing on its own environmental protection work, TSMC also interacts closely with governments where the company operates, academia, and communities to act as a positive influence in environmental protection. Through active participation in organizations such as the environmental protection committee of the Association of Science Park Industries, the ESH Committees of the Taiwan Semiconductor Industry Association (TSIA) and the Taiwan Electric and Electrical Manufacturers' Association (TEEMA), and the Taiwan Business Council for Sustainable Development (BCSD-Taiwan; TSMC is one of the initial founders of BCSD-Taiwan, and has been a board member since it was launched in 1997.), TSMC is connected with the latest in environmental thinking and shares its experience with local industries.

### External invitations to Speak on Environmental Subjects

TSMC environmental managers also accept invitations from government agencies and academic organizations to share TSMC's environmental policy experience. Each speech has attracted a large and enthusiastic audience.

### Hosting Factory Visits

TSMC also actively shares its environmental management experience by hosting factory visits by government agencies and academic organizations such as the Taiwan Ministry of Economic Affairs (MOEA) and the Environmental Protection Agency (EPA). TSMC personnel showed visitors our environmental equipment and facilities and answered related questions. Visitors in 2007 included:



- 34 students from the National Taiwan University Civil Engineering Department and EMBA program visited Fab 12
- Corporate Synergy Development Center visited Fab 14
- 16 Masters and Ph.D. students from the National Cheng Kung University architectural graduate school visited Fab 14
- 68 visitors from the National Taiwan University Civil Engineering Department visited the Fab 14 phase 3 construction site

### Science Park "ESH Month" Activities



Science Park "ESH Month" activities

TSMC is an active participant in community environmental protection activities, such as the "ESH Month" held by the Science Park Administration and

the Association of Science Park Industries. The goal of "ESH Month" is to give Science Park Employees a deeper understanding of workplace safety and sustainable development. It brings together companies around the Science Park as well as residents living in the communities around the science park.

### Hsinchu Science Park "ESH Month" Activities

In 2007, TSMC took charge of the annual safety instruments exhibition and the quiz contest for the Hsinchu Science Park "ESH Month". TSMC and a supplier partner provided on-site demonstrations of safety equipment and safety protection measures used in Science Park factories.

### Tainan Science Park "ESH Month" Activities

In the Tainan Science Park, a TSMC senior manager serves as the chairman of Tainan Science Park Environmental Protection Development Foundation. The foundation took charge of the Tainan Science Park "ESH Month", arranging disaster prevention training, fire fighting drill courses, and gained enthusiastic participation of employees from many companies. Activities included an ESH forum, baseball camp, movie show, environmental tour, TMAH leakage and spill hazardous response drill, personal and organizational awards for outstanding environmental protection performance, and a music festival, drawing a total of 732 participants.

### Tainan Science Park River Patrol and Guard Team

TSMC led the establishment of the Tainan Science Park river patrol and guard team, and works together with environmental authorities to control and rectify activity that may endanger environmental water quality. The team patrols waterways upstream and downstream from the Science Park once a month and makes random inspections for water effluents. If pollution incidents are discovered, the team will take pictures and report to the Science Park Administration and Tainan Environmental Protection Bureau.

### WaferTech ESH Community Activities

To promote concern for the environment and for employee safety and health, WaferTech participates in ESH events organized by both WaferTech and the community. These activities help WaferTech employees integrate the concepts of wellness, safety, and environmental protection into work and their daily lives. In 2007, WaferTech organized or participated in the following major activities:

- Participation in the Camas Fire Department Open House. During this event WaferTech displayed information on the on-site Emergency Response Team, OSHA Voluntary Protection Plan (VPP) membership, the EH&S Policy, and membership in U.S. EPA Performance Track.
- Held a celebration ceremony at WaferTech to celebrate WaferTech's acceptance into OSHA's VPP. Local dignitaries attended as well as mayors of the Cities of Camas and Vancouver. WaferTech's president and safety committee members accepted the award and flag from members of the Washington State Department of Occupational Safety and Health on behalf of all WaferTech employees. During this week, information was shared with employees regarding safety in the home.
- The ERT held a joint drill with gas contractor BOC to further improve response to gas-related incidents.
- WaferTech promoted home environmental knowledge and also communicated progress on WaferTech's environmental Objectives & Targets and EPA Performance Track commitments through the annual Earthweek event, whereby various community environmental displays, as well as WaferTech internal EMS and ERT displays, are posted for a week in April in WaferTech's cafeteria. This provides the county solid waste reduction specialists, Green Lights Energy program, natural gardening/composting groups, and others an opportunity to communicate environmental awareness company-wide. Employees could also enter into a door prize drawing for a free composter.
- WaferTech environmental engineers have performed off-site audits to final destination locations for all hazardous and solid waste sites and also all recycler sites. This has provided WaferTech the opportunity to communicate WaferTech's requirements related to EMS directly with these sites.
- Held a site tour and informational session on WaferTech's EMS for the Portland chapter of the Certified Hazardous Materials Managers monthly meeting. Members visited WaferTech and toured the air abatement equipment and wastewater treatment plant.

## 6.9 Environmental Compliance Record

There were no environmental penalties or fines in 2007.

# Global Reporting Initiative (GRI) Content Index

●: covered in report ○: not available or not disclosed

GRI Indicators	Status	Related TSMC CSR Report Section	Page(s)	Explanatory Notes
<b>1</b>	<b>Strategy and Analysis</b>			
1.1	●	1. Letter from the President and Chief Executive Officer	4	
1.2	●	1. Letter from the President and Chief Executive Officer 2.2.3 Industry Outlook, Opportunities, and Threats	4, 7	
<b>2</b>	<b>Organizational Profile</b>			
2.1	●	2.1 An Introduction to TSMC	6	
2.2	●	2.2 Market/Business Summary	7	
2.3	●	2.1 An Introduction to TSMC	6	
2.4	●	2.1 An Introduction to TSMC	6	
2.5	●	2.1 An Introduction to TSMC	6	
2.6	●	2.1 An Introduction to TSMC	6	
2.7	●	2.2 Market/Business Summary	7	
2.8	●	2.4 Financial Highlights	8	
2.9	●	2.5 Corporate Development	9	
2.10	●	2.6 Awards Received in the Reporting Period	9	
<b>3</b>	<b>Report Parameters</b>			
3.1	●	Overview	2	
3.2	●	Overview	2	
3.3	●	Overview	2	
3.4	●	Contact Information	63	
3.5	●	Overview	2	
3.6	●	Overview	2	
3.7	●	Overview	2	
3.8	●	2.1 An Introduction to TSMC	6	
3.9	○			Most of the financial and environmental data in this report are conducted or verified by third parties.

GRI Indicators		Status	Related TSMC CSR Report Section	Page(s)	Explanatory Notes
3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g., mergers/acquisitions, change of base years/periods, nature of business, measurement methods).	○			This is TSMC's first CSR report.
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	○			This is TSMC's first CSR report.
3.12	Table identifying the location of the Standard Disclosures in the report.	●	Global Reporting Initiative (GRI) Content Index	57	
3.13	Policy and current practice with regard to seeking external assurance for the report. If not included in the assurance report accompanying the sustainability report, explain the scope and basis of any external assurance provided. Also explain the relationship between the reporting organization and the assurance provider(s).	○			Financial and greenhouse gas data are verified by third parties. TSMC will seek external assurance for the report in next year.
4	<b>Governance, Commitments, and Engagement</b>				
4.1	Governance structure of the organization, including committees under the highest governance body responsible for specific tasks, such as setting strategy or organizational oversight.	●	2.10 Corporate Governance	11	
4.2	Indicate whether the Chair of the highest governance body is also an executive officer (and, if so, their function within the organization's management and the reasons for this arrangement).	●	2.10 Corporate Governance	11	
4.3	For organizations that have a unitary board structure, state the number of members of the highest governance body that are independent and/or non-executive members.	●	2.10 Corporate Governance	11	
4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	●	2.9 Investor Engagement	10	
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance).	●	2.10 Corporate Governance	11	
4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided.	●	2.10 Corporate Governance	11	
4.7	Process for determining the qualifications and expertise of the members of the highest governance body for guiding the organization's strategy on economic, environmental, and social topics.	●	2.10 Corporate Governance	11	
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.	●	2.10 Corporate Governance	11	
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.	●	2.10 Corporate Governance	11	
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	●	2.10 Corporate Governance	11	
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	●	2.10 Corporate Governance	11	
4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.	●	3. Employee 4. Supply Chain Management 5. Social Contribution 6. Environmental Protection	14, 26, 32, 40	
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations.	●	2.8 Membership in Industry Associations	10	



GRI Indicators		Status	Related TSMC CSR Report Section	Page(s)	Explanatory Notes
4.14	List of stakeholder groups engaged by the organization.	●	2.9 Investor Engagement 3.4 Employee Relations 4.6 SCM Forum and Excellent Supplier Award 4.7 Customer Service and Satisfaction 5.4 Community-Building 6.8 Green Promotion Activities	10, 16, 30, 37, 54	
4.15	Basis for identification and selection of stakeholders with whom to engage.	●	2.9 Investor Engagement 3.4 Employee Relations 4.6 SCM Forum and Excellent Supplier Award 4.7 Customer Service and Satisfaction 5.4 Community-Building 6.8 Green Promotion Activities	10, 16, 30, 37, 54	
4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	●	2.9 Investor Engagement 3.4 Employee Relations 4.6 SCM Forum and Excellent Supplier Award 4.7 Customer Service and Satisfaction 5.4 Community-Building 6.8 Green Promotion Activities	10, 16, 30, 37, 54	
4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	●	3.4 Employee Relations 4.6 SCM Forum and Excellent Supplier Award 4.7 Customer Service and Satisfaction 5.4 Community-Building 6.8 Green Promotion Activities	16, 30, 37, 54	
<b>Economic Performance Indicators</b>					
EC1	Economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.(Core)	●	2.4 Financial Highlights	8	
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change. (Core)	●	6.2 Climate Change and Greenhouse Gas Reduction	42	
EC3	Coverage of the organization's defined benefit plan obligations. (Core)	●	3.3 Compensation and Benefits	16	
EC4	Significant financial assistance received from government. (Core)	●	2.4 Financial Highlights	8	
EC5	Range of ratios of standard entry level wage compared to local minimum wage at significant locations of operation. (Additional)	○			TSMC's total compensation is positioned at the 75th percentile of comparable benchmarked companies in the same industry and is far above minimum wage of the local market.
EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation. (Core)	●	4. Supply Chain Management	26	
EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation. (Core)	●	3.1 Employment	14	
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement. (Core)	●	5. Social Contribution	32	
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts. (Additional)	○			TSMC does not evaluate indirect economic impacts.
<b>Environment Performance Indicators</b>					
EN1	Materials used by weight or volume. (Core)	●	6.5 Water Resource Management 6.6 Pollution Prevention	46, 47	
EN2	Percentage of materials used that are recycled input materials. (Core)	○			TSMC uses reclaimed wafers as control and dummy wafers.
EN3	Direct energy consumption by primary energy source. (Core)	●	6.2.1 Greenhouse Gases Inventory	42	
EN4	Indirect energy consumption by primary source. (Core)	●	6.2.1 Greenhouse Gases Inventory	42	
EN5	Energy saved due to conservation and efficiency improvements. (Additional)	●	6.2.2.2 Energy Conservation	43	

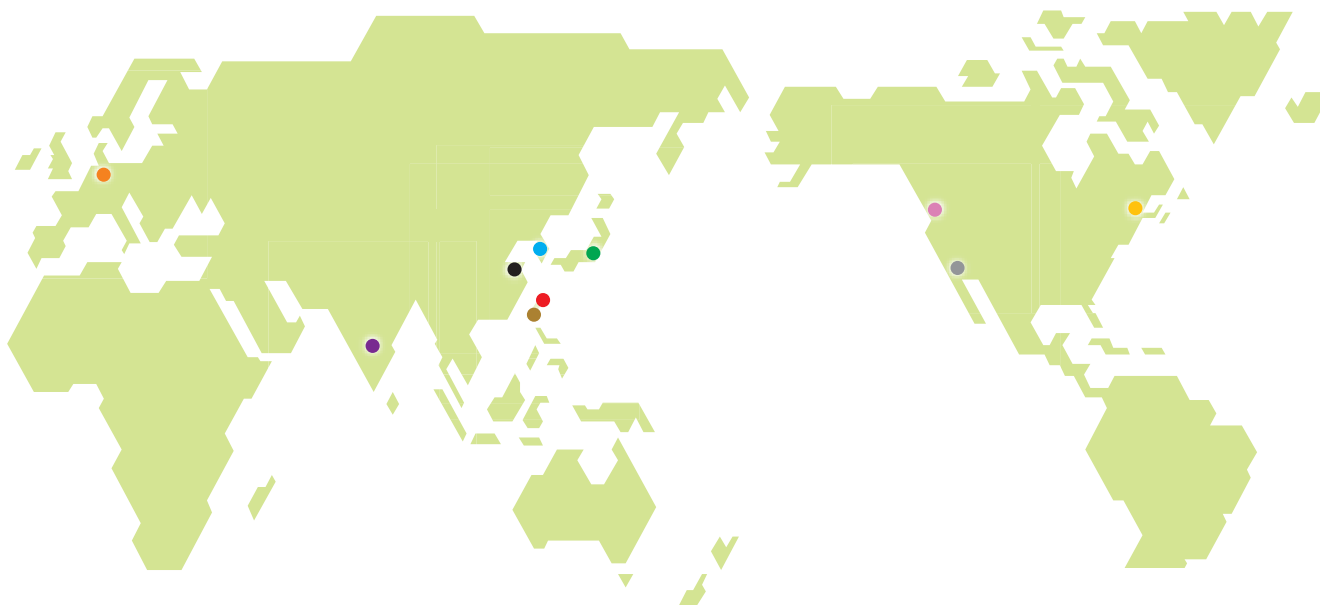
GRI Indicators		Status	Related TSMC CSR Report Section	Page(s)	Explanatory Notes
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives. (Additional)	●	6.4.2 Design for Low Power Consumption Green Product	45	
EN7	Initiatives to reduce indirect energy consumption and reductions achieved. (Additional)	●	6.2.2.2 Energy Conservation	43	
EN8	Total water withdrawal by source. (Core)	●	6.5 Water Resource Management	46	
EN9	Water sources significantly affected by withdrawal of water. (Additional)	●	6.5 Water Resource Management	46	
EN10	Percentage and total volume of water recycled and reused. (Additional)	●	6.5 Water Resource Management	46	
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas. (Core)	●	6.7 Ecological Preservation	54	
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas. (Core)	●	6.7 Ecological Preservation	54	
EN13	Habitats protected or restored. (Additional)	●	6.7 Ecological Preservation	54	
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity. (Additional)	●	6.7 Ecological Preservation	54	
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk. (Additional)	●	6.7 Ecological Preservation	54	
EN16	Total direct and indirect greenhouse gas emissions by weight. (Core)	●	6.2.1 Greenhouse Gases Inventory	42	
EN17	Other relevant indirect greenhouse gas emissions by weight. (Core)	●	6.2.1 Greenhouse Gases Inventory	42	
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved. (Additional)	●	6.2.2 GHG Emission Reduction	42	
EN19	Emissions of ozone-depleting substances by weight. (Core)	○			TSMC does not use class 1 or 2 ozone-depleting substances.
EN20	NOx, SOx, and other significant air emissions by type and weight. (Core)	●	6.6.2 Air Pollution Control	49	
EN21	Total water discharge by quality and destination. (Core)	●	6.6.1 Water Pollution Control	47	
EN22	Total weight of waste by type and disposal method. (Core)	●	6.6.3 Waste Management and Resource Recycling	53	
EN23	Total number and volume of significant spills. (Core)	○			There were no significant spills in 2007.
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally. (Additional)	○			TSMC is compliant with environmental laws for hazardous waste disposal.
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff. (Additional)	○			TSMC's treated wastewater is discharged to the Science Park wastewater treatment plant. There is no significant environmental impact.
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation. (Core)	●	6.4.1 Wafer Life Cycle Assessment	45	
EN27	Percentage of products sold and their packaging materials that are reclaimed by category. (Core)	●	6.6.3 Waste Management and Resource Recycling	53	
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations. (Core)	●	6.9 Environmental Compliance Record	56	
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce. (Additional)	●	6.4.1 Wafer Life Cycle Assessment	45	
EN30	Total environmental protection expenditures and investments by type. (Additional)	●	6.1.2 Environmental Accounting	41	
<b>Labor Practices and Decent Work Performance Indicators</b>					
LA1	Total workforce by employment type, employment contract, and region. (Core)	●	3.1 Employment	14	

GRI Indicators		Status	Related TSMC CSR Report Section	Page(s)	Explanatory Notes
LA2	Total number and rate of employee turnover by age group, gender, and region. (Core)	●	3.1.1 Employee Retention	14	
LA3	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations. (Additional)	●	3.3 Compensation and Benefits	16	
LA4	Percentage of employees covered by collective bargaining agreements. (Core)	○			Zero cases.
LA5	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements. (Core)	○			Compliance with the notification process rule across all organizations.
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs. (Additional)	●	3.7.1 Safety and Health Management	19	
LA7	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities by region. (Core)	●	3.7.4 Occupational Injury/Illness Statistics	22	
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases. (Core)	●	3.7.3 Corporate Contagious Disease Prevention Project	22	
LA9	Health and safety topics covered in formal agreements with trade unions. (Additional)	●	6.8 Green Promotion Activities	54	
LA10	Average hours of training per year per employee by employee category. (Core)	●	3.2 Employee Development	15	
LA11	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings. (Additional)	●	3.2 Employee Development	15	
LA12	Percentage of employees receiving regular performance and career development reviews. (Additional)	●	3.2 Employee Development	15	
LA13	Composition of governance bodies and breakdown of employees per category according to gender, age group, minority group membership, and other indicators of diversity. (Core)	●	3.1 Employment	14	
LA14	Ratio of basic salary of men to women by employee category. (Core)	●	3.3 Compensation and Benefits	16	
<b>Human Rights Performance Indicators</b>					
HR1	Percentage and total number of significant investment agreements that include human rights clauses or that have undergone human rights screening. (Core)	○			TSMC's site selection criteria includes: geography, population & transportation survey, public utility, climate survey, labor regulations, environmental protection regulations, and labor union status.
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken. (Core)	○			TSMC partners only with suppliers or contractors who have received government certification of compliance with all human right regulations.
HR3	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. (Additional)	●	3.4.3 Human Rights	17	
HR4	Total number of incidents of discrimination and actions taken. (Core)	○			Zero violations.
HR5	Operations identified in which the right to exercise freedom of association and collective bargaining may be at significant risk, and actions taken to support these rights. (Core)	●	3.4.3 Human Rights	17	Employees' human rights are not only protected by government labor law, but also by the Association of Science Park Industries (The Science Park Administration does not permit labor unions in science park companies).
HR6	Operations identified as having significant risk for incidents of child labor, and measures taken to contribute to the elimination of child labor. (Core)	●	3.1.4 Abolition of Child Labor	14	
HR7	Operations identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of forced or compulsory labor. (Core)	○			Operation risks are well-managed and supervised according to government law. No relevant cases were identified.



GRI Indicators		Status	Related TSMC CSR Report Section	Page(s)	Explanatory Notes
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations. (Additional)	●	3.6 Corporate Security and Risk Control	18	
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken. (Additional)	○			Zero violations.
<b>Society Performance Indicators</b>					
S01	Nature, scope, and effectiveness of any programs and practices that assess and manage the impacts of operations on communities, including entering, operating, and exiting. (Core)	●	5.4 Community-Building	37	
S02	Percentage and total number of business units analyzed for risks related to corruption. (Core)	●	2.10.5 Corporate Compliance	12	
S03	Percentage of employees trained in organization's anti-corruption policies and procedures. (Core)	●	2.10.5 Corporate Compliance	12	
S04	Actions taken in response to incidents of corruption. (Core)	●	2.10.5 Corporate Compliance	12	
S05	Public policy positions and participation in public policy development and lobbying. (Core)	●	2.10.6 Political Contributions	12	
S06	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country. (Additional)	●	2.10.6 Political Contributions	12	
S07	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes. (Additional)	●	2.10.5 Corporate Compliance	12	
S08	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations. (Core)	●	2.10.5 Corporate Compliance	12	
<b>Product Responsibility Performance Indicators</b>					
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures. (Core)	●	6.4 Green Product	45	
PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes. (Additional)	○			There were no incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle in 2007.
PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements. (Core)	○			TSMC provides product and service information based on its customers' specifications.
PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes. (Additional)	○			TSMC does not provide products and services to general consumers directly. Thus, there were no incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling.
PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction. (Additional)	●	4.7 Customer Service and Satisfaction	30	
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship. (Core)	●	2.10.5 Corporate Compliance	12	
PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes. (Additional)	○			TSMC does not provide products and services to general consumers directly. Thus, there were no incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship.
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data. (Additional)	○			There were no substantiated complaints regarding breaches of customer privacy and losses of customer data in 2007.
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services. (Core)	●	2.10.5 Corporate Compliance	12	

# Contact Information



## **Corporate Headquarters & Fab 12**

8, Li-Hsin Rd. 6, Hsinchu Science Park, Hsinchu  
Taiwan 300-77, R.O.C.  
Tel: 886-3-5636688 Fax: 886-3-5637000

## **Fab 2, Fab 5**

121, Park Ave. 3, Hsinchu Science Park, Hsinchu  
Taiwan 300-77, R.O.C.  
Tel: 886-3-5636688 Fax: 886-3-5781546

## **Fab 3**

9, Creation Rd. 1, Hsinchu Science Park, Hsinchu  
Taiwan 300-77, R.O.C.  
Tel: 886-3-5636688 Fax: 886-3-5781548

## **Fab 8**

25, Li-Hsin Rd., Hsinchu Science Park, Hsinchu  
Taiwan 300-77, R.O.C.  
Tel: 886-3-5636688 Fax: 886-3-5662051

## **Fab 6**

1, Nan-Ke North Rd., Tainan Science Park, Tainan  
Taiwan 741-44, R.O.C.  
Tel: 886-6-5056688 Fax: 886-6-5052057

## **Fab 14**

1-1, Nan-Ke North Rd., Tainan Science Park, Tainan  
Taiwan 741-44, R.O.C.  
Tel: 886-6-5056688 Fax: 886-6-5051262

## **TSMC North America**

2585 Junction Avenue, San Jose, CA 95134, U.S.A.  
Tel: 408-382-8000 Fax: 408-382-8008

## **TSMC Europe B.V.**

World Trade Center, Zuidplein 60, 1077 XV Amsterdam  
The Netherlands  
Tel: 31-20-3059900 Fax: 31-20-3059911

## **TSMC Japan Limited**

21F, Queen's Tower C, 2-3-5, Minatomirai, Nishi-ku  
Yokohama, 220-6221, Japan  
Tel: 81-45-6820670 Fax: 81-45-6820673

## **TSMC (Shanghai) Company Limited**

4000, Wen Xiang Road, Songjiang, Shanghai, China  
Postcode: 201616  
Tel: 86-21-57768000 Fax: 86-21-57766363

## **TSMC Korea Limited**

15F, AnnJay Tower, 718-2, Yeoksam-dong, Gangnam-gu  
Seoul 135-080, Korea  
Tel: 82-2-20511688 Fax: 82-2-20511669

## **TSMC Liaison Office in India**

1st Floor, Pine Valley, Embassy Golf-Links Business Park  
Bangalore-560071, India  
Tel: 91-99809-91826 Fax: 91-80-41764568

## **TSMC Design Technology Canada Inc.**

349 Terry Fox Drive, Kanata, ON K2K 2V6, Canada  
Tel: 1-613-5667011 Fax: 1-613-2713643

## **WaferTech L.L.C.**

5509 N.W. Parker Street, Camas, WA 98607-9299 U.S.A.  
Tel: 1-360-8173000 Fax: 1-360-8173590

<http://www.tsmc.com>







**Taiwan Semiconductor  
Manufacturing Company, Ltd.**

8, Li-Hsin Rd. 6, Hsinchu Science Park, Hsinchu, Taiwan 300-77, R. O. C.

Tel: 886-3-5636688 Fax: 886-3-5637000

<http://www.tsmc.com>



This report is printed with recycled paper meeting Forest Stewardship Council certification standards and non-toxic soy ink.