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SMIC CSR 2009 Annual Report

Last year, SMIC released its first ever Corporate Social Responsibility (CSR) annual report, highlighting its achievements in the areas of environmental preservation, employee protection, community development, and management commitment. That report covered activities from the inception of the company until the end of 2008.

In 2009, despite the economic downturn, the company continued to do much work in these areas, keeping alive many of the traditions that had been established in the past. This 2009 CSR annual report includes updates on these past efforts but focuses primarily on new activities to preserve the environment and protect people at each of the sites (Shanghai, Beijing, Tianjin, Chengdu, and Wuhan).

SMIC hopes that other companies will be encouraged to also take part in related activities, believing firmly that a corporation is responsible not only for its bottom line but also for benefiting society at large.

Table of Contents

Preserving Environment	1
Protecting People	7

Since its founding, SMIC has strived for continuous improvement in the area of environmental protection, knowing that reducing the company's demand on water, energy, and resources is not only good for the environment, but good for the company as well. At the same time, waste reduction has been accomplished by reducing or recycling the waste generated.

As early as 2002, SMIC has been third-party certified as meeting ISO14001 standards. With this certificate, SMIC demonstrates it uses energy and materials responsibly, making improvements through recycling, waste reduction, and pollution prevention.

RESOURCE CONSERVATION

SMIC is continuously innovating in the area of energy and water saving, encouraging employees to explore further energy and water saving projects. Since its establishment, the energy conservation team has tracked domestic and international semiconductor energy saving developments, looking for mature and potential techniques to implement.

Water Saving Projects

SMIC has made great strides in the area of water use reduction. In 2009, several projects were implemented to conserve water. In total, these projects are estimated to save nearly 1,028,000 tons of water each year.

Shanghai local scrubber water re-use: The water used in the Shanghai scrubbers originally could not be recycled and could only be discharged. For this project, the water from local scrubbers was collected, treated, and rerouted back to the scrubbers. This reduced the consumption of city water.

Beijing Beijing Development Area (BDA) regeneration water reuse: The Beijing site reused BDA regeneration water for cooling towers and local scrubbers, reducing city water consumption.

Tianjin RO reject water reclamation: For the Tianjin facility, Reverse Osmosis (RO) reject water is collected and mixed with city water, and the mixture is then supplied to the central scrubbers, cooling towers, and other equipment

with lower water quality requirements, thereby reducing the city water demand.

Energy Saving Projects

SMIC also has implemented many energy saving projects. The projects implemented in 2009 will save an estimated equivalent of over 11,000 tons of coal annually.

Tianjin heat reclamation from RO reject: During winter, the residual heat from the Reverse Osmosis (RO) reject is used to pre-heat the water entering the Ultra-Pure Water (UPW) system. Fresh city water can be heated from 2-3 deg C to 17-18 deg C, greatly reducing the demand on steam and lowering the loading on the boiler.

Tianjin boiler heat recovery: Residual heat captured at the boiler is used to pre-heat the water entering the boiler, increasing the boiler's efficiency.

Tianjin compressor energy saving: The computer system used to control the compressed air system was upgraded, and some parameters were enhanced. This reduced variance in the system, resulting in energy savings.

Beijing heat reclamation from PCW: Heat from process cooling water (PCW) is used to heat fresh water for the UPW system, saving electricity and steam.

Beijing UPW enhancement: The Ultra-Pure-Water system was enhanced by adjusting the temperature at the heat exchanger in the pre-treatment system from 22 deg C to 20.5 deg C, reducing demand on hot water at the heat exchanger and demand for cooling water at a later stage.

Shanghai chilled water heat reclamation technology improvement: During the cooler seasons, city water averages 10 deg C. Heat generated from the chilled water process is used to warm this city water for the UPW system, from 10 deg C to 22 deg C, reducing demand for steam.

Shanghai fan and water pump enhancements: Variable frequency drive (VFD) units were installed in the ventilation fans and water pumps, reducing the demand for electricity

WATER SAVING PROJECT NAME	SAVINGS (tons/ year)
Shanghai local	480,000
Use	
Beijing BDA regen- eration water re- use	141,000
Tianjin RO reject	407,000
water reclamation	
TOTAL	1,028,000

SITE	ENERGY SAVING PROJECT NAME	SAVINGS (equivalent tons of coal/year)
Tianjin	Heat reclamation from RO reject	2,130
	Boiler heat recovery	1,140
	Compressor energy saving	110
Beijing	Heat reclamation from PCW	430
	UPW enhancement	470
Shanghai	Chilled water heat reclamation technology improvement	1,500
	Fan and water pump enhancements	2,420
	Chiller heat reclamation enhancement	1,200
	Cleanroom fresh air energy saving	820
	UPW energy saving	950
TOTAL		11,170

Shanghai chiller heat reclamation enhancement: Heat exchangers were added to transfer heat from chillers to the warm water system, thereby reducing the demand for steam.

Shanghai cleanroom fresh air energy saving: The hot water lines in the cleanroom Make-up Air (MAU) units were upgraded by connecting the hot water lines for the preheating coils and re-heating coils, setting up circulating loops and using variable frequency drive technology to control the system. In the summer months, the water for the pre-heating coils can continuously supply heat from the external ambient air to heat air that has been cooled for dehumidification purposes, reducing the need for steam. When the ambient temperature is low, the pre-cooling coils lower the demand on the chillers.

Shanghai UPW system energy saving: The temperature control system was upgraded, and the RO incoming water temperature was reduced. At the same time, steam condensate was used to pre-heat the fresh water. In the winter, the UPW system now uses less steam for heating incoming water and requires less chiller capacity for the outgoing water.

Raw Material Conservation Projects

Tianjin waste sodium hydroxide reduction project: The Tianjin Weak Base Anion (WBA) resin tower is regener-

ated twice each week. During regeneration, a large amount of 40% sodium hydroxide (NaOH) solution is used, and concentrated NaOH is flushed into the acid-base neutralization system. This system in turn requires a large amount of sulfuric acid to neutralize the NaOH, in order to ensure that it is within the discharge limits. Similarly, the hydrofluoric acid (HF) treatment system also requires a large amount of chemicals to neutralize the acid. Because of the waste reduction project, the concentrated waste NaOH is now reclaimed and used in the HF and acid-base neutralization systems, thereby reducing the impact that regeneration has on the acid-base neutralization system and reducing overall chemical consumption. After its completion, the system will save an estimated 100 tons of NaOH each year.

SMIC fluoride-containing waste water enhancement: Waste water that contains high concentrations of HF is treated off-site. The treatment system was adjusted to reduce the amounts of calcium chloride (CaCl₂) and NaOH needed. At the same time, waste water from Chemical Mechanical Planarization (CMP) can be directed to the HF treatment system, reducing the amount of polyaluminum chloride (PAC) needed. After the change, the annual savings are estimated to be nearly 6,700 tons for CaCl₂, 2,400 tons for NaOH, and 1,200 tons for PAC.

Awards

Conducting energy and emissions reduction projects not only helps the company save on resources and their associated costs, but also allows the company to win recognition and awards from the local government. The chiller heat reclamation project, cleanroom ventilation improvement, DI system improvement, and VFD installation were selected for subsidies by the Shanghai Economic and Information Energy Saving Committee. In particular, the VFD project was awarded as a "Model Energy Saving Project in Shanghai." The other three projects have been compiled into the registry of "Shanghai Energy Conservation Technological Transformation Projects."

The boiler heat recovery enhancement project in Tianjin was also selected by the municipal government for an award.



Award plaque for VFD project in Shanghai

Waste Reduction Projects

SMIC has put much emphasis on waste minimization and recycling, setting up a waste reduction committee to regularly review the waste reduction and recycling status.

In 2009, the committee targeted the top five waste types (by quantity) and set up control plans for each. In total, 30 waste reduction projects were completed, including waste solvent reduction and waste acid reduction projects. Moreover, through re-plumbing waste drainage lines, the company was able to reduce the total volume of waste generated. In many cases, the chemical concentration of the waste is now nearly the same as the concentration in the raw material. For example, the ratio of the concentration of NMP in the raw material to the concentration in the waste was reduced from 1:3 to 1:1.5 (down by about 100 tons from 2008 to 2009). EKC waste was also reduced, from 1:3 to 1:0.8 (down by over 500 tons from 2008 to 2009). Through other reduction projects, the concentration of waste sulfuric acid was increased from 45% to 69%, greatly reducing the total volume of waste acid. In 2009, the total amount of hazardous waste generated was reduced by 700 tons, and the hazardous waste generated per product was also reduced from 2.43 kg/wafer to 2.13 kg/wafer, a reduction of 12.3%.

OUTSIDE OF PRODUCTION



Resource Conservation Outside the Fab

In 2009, the Chengdu facility used rainwater to wash its fleet of vehicles, which was estimated to have saved 1500 tons of city water. Over 60,000 kg of regular office waste was recycled, and the wood from used shipping crates was converted into over 100 items for various uses, such as shelves and racks. In addition, disposable chopsticks were removed from the site. In these ways, the Chengdu site made significant strides in resource conservation outside the fab.



▲ Battery collection at Tianjian

The Tianjin site also held a battery recycling event. Prizes were given to employees who participated, including compact fluorescent bulbs and re-usable shopping bags. The batteries that were collected were handed to a qualified battery recycler. Also at the Tianjin facility, the shuttle buses in the company's fleet were assigned to individual drivers, and the diesel consumption was tied to their year-end performance. In 2009, the diesel consumption was more than 8000L less than the consumption in 2008.

Promotions

Various promotions were held throughout 2009 to educate employees and encourage them to be good stewards of natural resources. These events included:

- Second-hand markets
- Earth Hour (turning off all unnecessary lighting for one hour on March 28)
- Contest for artwork made from waste material
- Ban of plastic drinking bottles from the cafeteria for one month
- No Car Day on September 22
- Movies on environmental topics

Renewable Energy in the Employee Housing

The employee dormitory in Shanghai houses 1700 employees. The hot water needs for these residents previously relied solely on a natural gas boiler, expending 250,000 m³ of natural gas annually. In 2009, solar-thermal water heaters were installed on the roofs of the dormitories, covering 225 m³ of area. This system can provide 30 tons of 45 – 50 deg C water in the summer and 30 tons of 30 - 35 deg C water in the winter. The estimated annual natural gas savings are around 36,500 m³.



▲ Solar-thermal water heaters on top of the employee dormitory in Shanghai



▲ Paperclip holder constructed from waste aluminum can

From its inception, SMIC has placed much emphasis on empowering people. SMIC's commitment to people extends not just to the company's employees, but also to members of the neighborhoods surrounding SMIC's facilities, and even people living in rural villages far away. By organizing charity events, caring for its employees, and providing training opportunities, the company continues to demonstrate its care for people.

CHARITY ACTIVITIES

Solar Panel Installation in Rural Schools

In 2009, the company continued its tradition of supporting rural schools by donating and installing seven solar panel units in Ningxia province, mainly to provide lighting. In addition, 21 computers, 2300 books, and other supplies were donated.

With electricity, these schools can now take advantage of distance learning equipment, such as computers, televisions, and CDs, and the students no longer have to study by candlelight.



▲ Donated solar panels installed at a school in Ningxia

Protecting Peopl

Typhoon Donation Support

On August 8, 2009, Typhoon Morakot struck Taiwan, causing extensive flooding in the south. SMIC arranged for an employee donation. In total, 1,000,000 RMB was donated to the Shanghai Red Cross for the re-building of the affected regions.

SMIC Private School Events

SMIC Private School was established in 2001. The school was originally established for the children of employees, but in 2004, the school became open to the public, and in 2009 was recognized as one of the top private schools in China. The school started out with only 68 students and now has over 2000, with students coming from over 20 countries around the world. There are roughly 100 foreign teachers as well.

In addition to the unique educational opportunities that it provides, the SMIC Private School also offers many volunteer activities for its students.

Book drive

The SMIC Book Drive for Hope is a book drive dedicated raising money for needy children in China. The goal every year is to raise enough money so that at least one library can be donated to a rural school through a charity called The Library Project.

In 2009, the school raised over 5,100 RMB to "adopt" a library in Jiu Jian Fang Elementary in Lantian County in Xian.

Giving Tree bags

The Giving Tree project seeks to provide Christmas gifts to underprivileged children at Christmas time. Each sponsor is given a bag to fill with items designated for a particular child. In 2009, SMIC Private School participated for the first time. Over 200 bags (200 children) were sponsored. Of the bags, 28 went to Huge Grace Orphanage. The remainder when to LuBingHua Primary School in PuDong.



▲▼ Children line up for Christmas presents



2009 SMIC Employee Composition



2009 Overseas Staff Composition



CARING FOR EMPLOYEES

Employee Composition

SMIC values diversity and attracts talent from across the country and around world. As of the end of 2009, the company directly employs over 10,300 individuals. Of these, over 150 have PhD's, 1500 have Master's, and 3300 have Bachelor's. Over 800 employees, around 8% of the total population, are from overseas.

Job Opportunities

During the financial crisis of 2009, when the semiconductor industry was badly hit, SMIC management made a decision to not let go any employees, believing job creation was part of a corporation's responsibility to society.

Other evidence of job creation at SMIC can be seen in SMIC's active involvement in the hiring of disabled people. From 2006 to 2009, SMIC provided jobs to 240 disabled individuals.

Counseling

SMIC views its employees as its most precious asset. From the inception of the company, counselors have been on staff to help employees through difficulties they may face at work or at home.

In 2009, due to the world financial crisis and its impact on the semiconductor industry, the company paid even



% of Disabled Employees

more attention to counseling services, offering a host of events and training sessions.

In total, during the year, over 900 cases were handled by the counselors. In addition, these counselors helped to organize 6 teams of employees to help cover an additional 500 cases. SMIC's line workers also actively participated, forming 17 teams which covered another 500 cases.

The training sessions offered covered a variety of topics, such as arts, career development, self-awareness, and communication, all designed to help develop employees holistically. Furthermore, classes such as those offered to expecting women and classes on parenting helped employees with other aspects of their lives.



 Volunteers work with child with cerebral palsy at Home Sweet Home

Volunteers

SMIC offers opportunities for its employees to care for disadvantaged peoples. Shanghai, Beijing, and Tianjin sites each have a volunteer network of about 50 members who participate in such events throughout the year.

Caring for Line Workers

Many of the line workers in SMIC's fabs are young women far from home for the first time. To demonstrate its care and concern for these individuals, the company arranges for dormitory visits, holiday celebrations, and classes on personal growth, language skills, and various arts and handicrafts.



▲ Singing competition in Shanghai

SITE	VOLUNTEER EVENTS IN 2009	PARTICIPATION HOURS
Shanghai	Visiting Home Sweet Home, a center for disabled people and caring for patients with cerebral palsy	640
Beijing	Visiting Tree of Life Orphanage	200
	Donating clothing and books	320
	Visiting Blue Skies Orphanage	160
Tianjin	Caring for patients with cerebral palsy	100
TOTAL		1,420



▲ Team building event



Book club members in Tianjin

Special Programs

SMIC has set aside funding for programs to benefit employees, such as the New Year's party, carnival, sports day, and various art classes, hoping that through such events, employees can further develop a sense of camaraderie.

At the Shanghai site, employees participate in the annual New Year's Eve party, staging performances that are written and directed by themselves and showcasing skills and talents that aren't normally seen at work.

At the Beijing site, baking classes were held, as were other types of art classes.

At the Tianjin site, 35 employees have formed a book club, regularly sharing their thoughts on the company's intranet homepage.

At the Chengdu facility, 11 handicraft classes were held in 2009, including paper crafts, fabric crafts, and silk flowers. A class was even held to teach people how to convert waste material into artwork. These items were shown at an employee art exhibit, which was attended by 200 people.

Protection of the Work Environment

SMIC is committed to providing a safe and healthy work environment for its employees. This is accomplished through the following:

Installing safety equipment

Exhaust system: Process waste gas is channeled to one of four exhaust systems according to its properties: acidic and/or toxic, volatile organic, alkaline, or general. All hazardous waste gases are first treated by local scrubbers in the fab and then again by central scrubbers, before being released.

Gas monitoring system: Areas where toxic gases are in use are continuously monitored by a gas detection system. If accumulations beyond a pre-set limit are detected, the Emergency Response Center (ERC) is automatically notified and will control the situation, directing corresponding actions such as evacuations. Chemical storage cabinets: Most chemicals used in the production process are supplied centrally and piped directly to the tools, minimizing the exposure to employees. However, there are small amounts of liquid chemicals that need to be used on-site, such as the isopropanol used during tool maintenance and the photoresist chemicals used in the photolithography process. These chemicals are stored on-site in segregated cabinets, in quantities limited to what will be used within 24 hours.

Implementing safety management

SMIC has a dedicated division for Environment, Safety and Hygiene (ESH) management. In order to enhance safety and hygiene management and to reduce risk, ESH has standardized and implemented safety procedures for processes such as: turning on equipment that use hazardous process materials; management of change; vendor management; chemical delivery, storage, and usage; and high-hazard work.

Engineering departments need to follow these procedures when conducting preventive maintenance on their equipment, and are required to define processes and SOPs accordingly.

All such rules and flows are electronically controlled in the Document Management System (DMS). Employees can access the latest revisions through this system.

Controlling occurrence of incidents

SMIC sets annual goals each year for reducing the occurrence of significant incidents and injuries. Over the past few years, the rates of such incidents and injuries have steadily declined. In 2009, significant incidents decreased from 54 in 2008 to 32. Likewise, recordable injuries dropped from 16 to just 9 cases. These figures represent reductions of over 40% in both categories.

Implementing hygiene management

Regular health exams: ESH evaluates job posts annually to determine their hazards and arranges for occupational health examinations accordingly. Employees at hazardous posts are required to have examinations before, during, and after they hold the posts. If problems



 Exhaust ducts separate waste gases by type and protect employees from exposure



▲ Chemical storage cabinets ensure proper chemical segregation and protection

are found, corresponding actions can be taken. Employees can access the results of their examinations via the company intranet.

In 2009, SMIC in total conducted physical examinations for over 5000 employees. This includes occupational exams and general exams. The exams revealed no abnormalities.

LEARNING OPPORTUNITIES

Employee Training and Development

SMIC has a multi-prong approach to training and developing its employees, focusing on knowledge, skills, and attitudes to help the employee grow with the company. Training opportunities are offered within departments, and Human Resources also arranges for company-wide classes. Employees can even take advantage of online training courses to accommodate their work schedules. In 2009, over 2500 courses were arranged, totaling over 5000 hours of training that covered over 118,000 attendees. In addition, the online training system was utilized over 77,000 times.

Degree-Awarding Programs

SMIC has worked with local universities to provide opportunities for its employees to enroll in degree-awarding programs, believing that education is a way to change one's future. The instructors are brought on-site and classes are arranged to match the line workers' schedules. The tuition is even subsidized.

SITE	ASSOCIATE'S	BACHELOR'S	MASTER'S
Shanghai	261	176	172
Beijing	64	28	83
Tianjin	50	40	34
Chengdu	23	NA	NA
TOTAL	398	244	289



▲ Over 20 SMIC students obtaining degrees from Peking University participated in the university-wide graduation ceremony

Safety Training for School and Residents

To further a sense of community, the company has built a residential complex for its employees, complete with a bilingual K-12 school, the SMIC Private School, for their children.

Every year, the company conducts safety training for the residents, faculty, and students to increase their safety awareness and to instill a culture of safety.

For example, in 2009, fire extinguisher training was held three times at the Shanghai site, with almost 300 people participating. Evacuation drills were conducted four times, with over 2300 students and residents participating.

School Participation in 2009 ESH Promotion Month

SMIC's annual Environmental, Safety, and Hygiene (ESH) Promotion Month is observed each June. At each site, various activities are conducted around the themes of industrial safety and environmental protection. ESH topics are promoted through posters, lectures, and contests.





 Fire extinguisher training for teachers and students



▲ Students practice CPR



Students practice evacuating



 Energy saving lecture at ZhongShan University



▲ Students working on their solar car

from the SMIC Private School joined the events. They participated in fire hose spraying, evacuation from a smokefilled room, and CPR. The students who were involved not only became more aware of the dangers of fire, but also learned some valuable skills.

Assistance to Nearby Schools

SMIC cares about both the training that its employees receive in the areas of ESH, and the contributions to society that this can generate. In November of 2009, fire protection specialists at SMIC were invited by the nearby Shanghai Zhangjiang Experimental Elementary School to provide fire protection training to the 1200 students and faculty members at its two campuses (November 9th is Fire Protection Day). The training included an explanation of the different types of fires and their corresponding methods for suppression, as well as an introduction on fire extinguishers. The first-ever campus-wide evacuation was also conducted for the school.

Partnership with ZhongShan University

SMIC sent an instructor to teach a course on energy saving to local enterprises in ZhongShan in GuangDong province. Roughly 30 trainees attended. The course was co-sponsored by ZhongShan University and the Institute for Sustainable Communities (ICS). The course was wellreceived, and the university agreed to provide free training opportunities to SMIC in the future.

The Solar Vehicle Project

During the 2008-2009 school year, students from the SMIC Private School were given a unique learning opportunity: together with a team of engineers and technicians from the company, a group of middle-school students built four solar powered vehicles using solar panels constructed by SMIC. The students were each grouped with engineers to experience a real-life engineering project. The students were solely responsible for project management, which included the design, construction, and operation of their group's vehicle. The culminating event occurred during the 2009 SMIC Company Sports Day, when each vehicle was driven and displayed to the SMIC community.



Looking Forward

In 2009, as SMIC pursued what was best for the corporation, we also protected the interests of the people in our extended communities. We invested in people, executed energy saving projects, conducted training, and more, all to create a corporation with sustainability in mind, knowing that only sustainable corporations can create a sustainable future.

In 2010, SMIC has grown greener, with new management on board and the environmentally-themed ("Better City, Better Life") Shanghai World Exposition in our backyard. We will continue to develop energy and water reduction programs, push for greenhouse gas verification, promote a low carbon footprint in our daily lives, and support charity work. We will leverage our competitive advantage to reward our investors, provide better products for our customers, and offer more career development for our employees. The result will be a win-win situation for everyone involved. As we become a greener company, we are determined and we are able to ensure that what is good for society is good for the bottom line as well. It is our duty and privilege to contribute towards a sustainable future.

Rylli

Barry Quan Sr. Vice President Chief Administrative Officer





Community Accountability Target Inv Dialogue Baseline Principles Dignity S Environment Guidelines Integration S Management Preservation Footprint G Cycle Milestones Fair Stakeholders Min Renewable Protection Resources Trans Collaboration Ecosystem Rights Wet







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