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SAMSUNG

2006 Samsung Electronics Environmental & Social Report

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삼성보고서 영문 2007.2.21 2:56 PM 페이지1 1000 Dolev-2540-Color-S T

2006 Samsung Electronics Environmental & Social Report

삼성보고서 영문 2007.2.21 2:56 PM 페이지2 1000 Dolev-2540-Color-S T

About the 2006 Samsung Electronics Environmental & Social Report

Report Outline

Samsung Electronics issue an environmental & social report with accumulating the result in 2005. We review economic · environmental & social efforts that we made, and will take this report as a stepping stone for future success. This report includes our fruitful accomplishment that every production base made as of environment · safety · health activity and economic · environment · social efforts. It makes readers easily understand the mutual relationship between them.
This refers to the data of every production base, subsidiary company and overseas divisions.

Scope of the Report / Period Covered

This Samsung Electronics Environmental & Social Report concentrates on the fiscal year 2006, through for the sake of comparison with past performance, data from fiscal 2003 and 2004 are included where necessary. 'Review Opinion' made by BSI Korea is attached to enhance the reliability of this report.
Figures in US dollars have been converted from korea won at ₩1,000 : US $ 1.00

Scope

This report has been compiled using consolidated data of the Company and its subsidiaries. However, in order to provide more complete information, some parts of the report are based on parent basis. Plus, the report covers all three areas: economic, social, and environment. Index used in environment sector is based on parent sales basis from 2001 to 2005.

Illustration by Example

The achievements of Samsung Electronics are illustrated with real life examples.

삼성보고서 영문 2007.2.21 2:56 PM 페이지3 1000 Dolev-2540-Color-S T

For Further Reference

Here are some sources of additional information and individual reports:

Samsung Electronics Green Management Reports

The last Samsung Electronics Green Management Report gives full information on the environment, management & social contribution implemented by Samsung Electronics up until 2004. The reports published between 1999 and 2005 are available on the Samsung Electronics website(www.samsung.com) in the Green Management Corner of the Company Information page.

Samsung Community Relations White Book

Exact details on contributions to society by Samsung Electronics and its subsidiaries can be found in the Samsung Community Relations White Book published each year by the Samsung Social Service Team. Just visit the Team's homepage (www.samsunglove.co.kr) and click "Social Service White Book" under "Share Magazine".

Samsung Electronics Annual Report

Each year, Samsung Electronics furnishes its shareholders and customers with full information on managment, financial status, and stock information in the Annual Report. The last two Annual Reports can be downloaded in PDF format from the Company website (www.samsung.com) through 'Investor Relations' under 'Company Information' menu.

Contact Point

For more inquiries about this report, please e-mail,
E-mail : webmaster.sec@samsung.com
Or visit the Company websites :
www.sec.co.kr(Korean) www.samsung.com(English)

삼성보고서 영문 2007.2.21 2:56 PM 페이지4 1000 Dolev-2540-Color-S T

Contents

Samsung Electronics with the Global Communities

An up-to-date picture of Samsung Electronics' efforts to promote active involvement of all stakeholders in the management policies and systems related to environment and social contribution.

06 CEO Message

10 Profile of Samsung Electronics

13 Vision and Strategy

14 Corporate Governance and Management System

Economic Performance

Reveals statistics such as Samsung Electronics' net sales and total assets, employee welfare costs, and money set aside for social contributions.

20 Economic Performance

23 Net Sales

25 Capital Structure

27 Employee Welfare

28 Contribution to the National Economy and Global Communities

삼성보고서 영문 2007.2.21 2:56 PM 페이지5 1000 Dolev-2540-Color-S T

Environmental Performance

Samsung Electronicsis consolidating its corporate image as an environmentally friendly company by utilizing processes and producing products that focus on minimizing on environmental impact.

32 Green Management of Samsung Electronics
34 The Greening of Management
39 The Greening of Product
60 The Greening of Process
67 The Greening of Workplace
73 The Greening of Communities

Social Performance

Samsung Electronics meets its social responsibilities by providing employment and training for its staffs and a host of services to the community.

78 Employment
80 Diversity, Equal Opportunity and Human Rights
82 For Ideal Workplaces
85 Health and Safety
90 Training · Education
92 Social Contribution
104 Local Community
106 Management by Ethics
108 Partner Company Management
109 Customer's health · Safety · Product and Service
111 Advertisement
112 Review Opinion
114 Major Overseas Corporation Status
116 Certificates and Award
119 Questionnaire

삼성보고서 영문 2007.2.21 2:56 PM 페이지6 1000 Dolev-2540-Color-S T

We continue in pursuit of the world's admired and respectful model company.

삼성보고서 영문 2007.2.21 2:56 PM 페이지7 1000 Dolev-2540-Color-S T

CEO Message

Dear all,

Samsung Electronics strives to implement our corporate philosophy, 'social contribution through the best products and services', even in the dynamically changing management environment. We do our best not only to make distinguished management accomplishments but also to take the responsibility and the role in environmental and social activities. We make an effort to move forward with love and concern from our customers and stockholders.

As part of this effort, we issue this environmental & social report that includes achievements such as economic and social accomplishments added comprehensively to the 'Green management Report,' which issued the company's environment management performance. We're very pleased to provide this extensive context to those who adore our company.

The vision of Samsung Electronics is "Leading the Digital Convergence Revolution" to make customers feel pleasant and comfortable. With this vision, we will put all our efforts to be in the top 3 of the worldwide electronics industry, quality- and quantity-wise, by 2010. We will continue to propel the management innovation, sustaining the best competitiveness, together with「the seeding」to prepare for the future.

Meanwhile, in environmental side, we will acknowledge the Green Management as our core value and will continuously achieve environmental marks on more of our products. Furthermore through this, we will work to preserve the global environment as well as to make consumers feel comfortable and safe.

In 1992, Samsung Electronics launched the 'Environment Policy' in order to build an environment management system. In 1996, we declared the 'Green Management' as a determination to participate in the preservation of global environment. Adhering firmly to our management ethics, we will continue to sincerely keep safe and pleasant production base environment, and to develop environment-friendly product and service. Samsung Electronics' management principle declared in 2005 will be the basis of our philosophy, and all our employees will live up to it and try to get customer's love and respect. Our company will fully support various training programs, fare reward, welfare and other benefits for employees' self-development, and make fair, corruption-free, and transparent corporate culture.

Today, Samsung Electronics is already a world-class company, but we will not settle for current status but strive further to leap into a world-leading company. We will manage our company to share and concern for mutual growth, and contribute to fulfill a company's social responsibility for a more prosperous society. We look forward your continued interest.

Thank you

Vice Chairman & CEO | Jong-Yong Yun

삼성보고서 영문 2007.2.21 2:56 PM 페이지8 1000 Dolev-2540-Color-S T

Samsung Electronics with the Global Communities

삼성보고서 영문 2007.2.21 2:56 PM 페이지9 1000 Dolev-2540-Color-S T

Profile of Samsung Electronics

The digital technology of Samsung Electronics transforms our lives in everything from technology to shopping and culture. The ultimate objective of these changes is to make the lives of all mankind more convenient and satisfying. Samsung Electronics extends over four strategic business areas: home, mobile, office networks, and core components. Through a strategy of maximizing the differntiated competence unique to Samsung Electronics and the synergies among divisions, the Company is cultivating its four strategic business areas as competitive core operations in the age of digital convergence. Proclaiming itself a " Digital-ℰCompany , Samsung Electronics aims to become a leader in the digital convergence revolution. At the same time, Samsung Electronics strives to be a company in touch with humanity, fulfilling its sense of social responsibility. For the future, Samsung Electronics will make every effort to maintain its leadership among the world stop rank of companies under ethical and responsible management.

扶Profile of Samsung Electronics ·····10
扶Vision and Strategy ·····13
扶Corporate Governance and Management System ·····14

삼성보고서 영문 2007.2.21 2:56 PM 페이지10 1000 Dolev-2540-Color-S T

Samsung Electronics Overview

Samsung Electronics work hard to be 'a leading company of digital convergence innovation' considering stockholders, employee, customers and local community including the production base. We will do our best to complete our responsibility for management for customer and stockholders, making a great workplace, and a corporation citizen.

Samsung Electronics being a integrate electronic product company covers Semiconductor, Telecommunication, and Digital products. We have 26 Production bases, 38 Sales bases, 2 Distribution bases and 15 R&D centers in 55 countries worldwide as of now late 2005. Plus, we have integrate system for 8 countries overseas like North America, Europe, China, South-East Asia, South-West Asia, South America, CIS, Middle East and Africa. As a global corporation, differentiated R&D development, marketing and service for every country have been made. Headquater is located in Korea founded in 1969, Digital product comes from Suwon, Gwangju complex, Semiconductor comes from Giheung, Hwaseong, Onyang plant, LCD comes from Giheung, Cheonan, Tangjeong plant, Telecommunication comes from Gumi plant. Korea-based firm employs total 137,000 people worldwide, 90,000 in the nation and 47,000 overseas.

Ownership Structure

Shares of Samsung Electronics are owned by more than eighty thousand shareholders. As of the end of 2005, over 80% of total shares are owned by institutions, and over 50% are owned by foreign institutions. Major domestic and foreign shareholders are as follows.

Major domestic and foreign shareholders are as follows.

▶**Domestic** : Samsung Life Insurance(6.28%), Samsung Corporation(3.48%), Kun-Hee Lee and others, CEO of Samsung and others(3.03%), National Pension Service(2.84%), Samsung Fire & Marine Insurance (1.09%)

▶**Overseas** : Citibank N.A.(11.03%), NTC-GOV SPORE(1.85%)

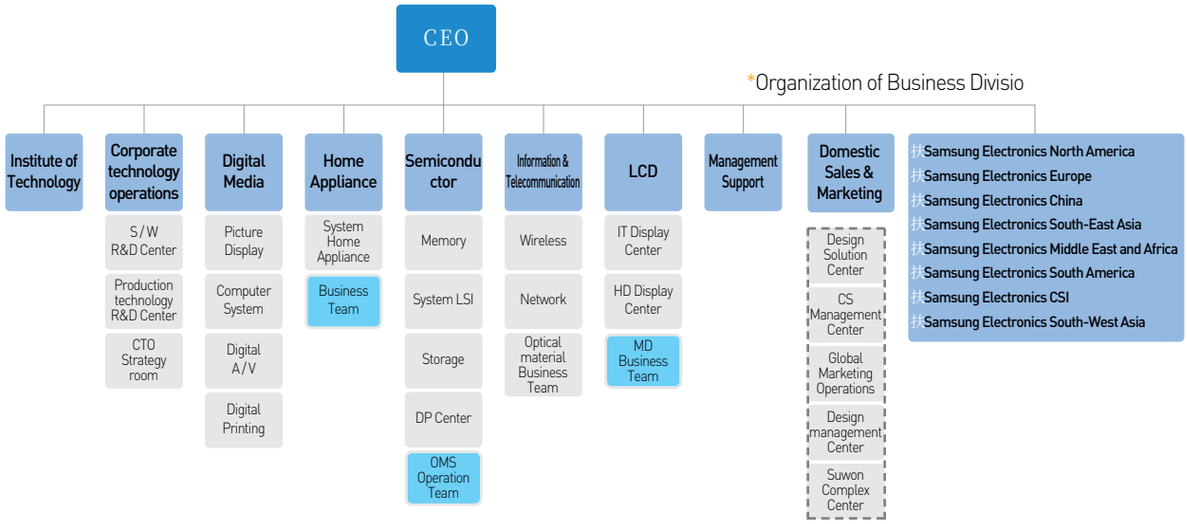
※ Citibank N.A. is our DR Depositary.

Stock Issuance

Company goes public	June 11, 1975
DR issuance	May 17, 1991: First issue of preferred stocks (Luxembourg Stock Exchange) June 27, 1995 : First issue of common stocks (London Sotck Exchange)
Total stocks issued (as of 2005)	(as of 2005) 170,132,764 扶Common stocks : 147,299,337 扶preferred stocks : 22,833,427

Major Business Partners

DELL, Fusitsu, GE, HP, IBM, Intel, Legend, Sony, Sun Microsystem, Toshiba and so on (in alphabetic order)



*OMS : Optical Media Solution *MD : Mobile Display *DP : Device Packaging

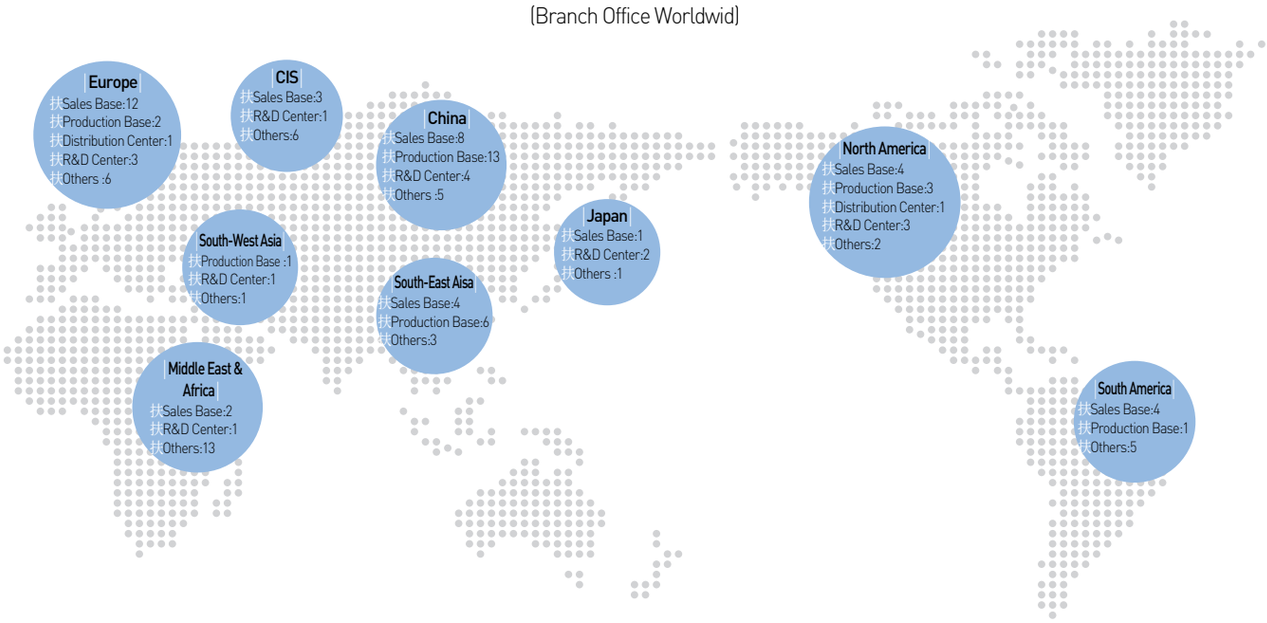
삼성보고서 영문 2007.2.21 2:56 PM 페이지11 1000 Dolev-2540-Color-S T

Global Network

(Electronics Global)

	North America	Europe	China	South-East Aisa	Japan	CIS	Middle East & Afric	South America	South-West Asia	Total
Sales Base	4	12	8	4	1	3	2	4	-	38
Production Base	3	2	13	6	-	-	-	1	1	26
Distribution Center	1	1	-	-	-	-	-	-	-	2
R&D Center	3	3	4	-	2	1	1	-	1	15
Others (Branch Office and etc)	2	6	5	3	1	6	13	5	1	42
Total	13	24	30	13	4	10	16	10	3	123

(Branch Office Worldwid)



※ See 114~115p or www.samsung.com for more specific details of global network

삼성보고서 영문 2007.2.21 2:56 PM 페이지12 1000 Dolev-2540-Color-S T

Major Products

As its Korean base and overseas subsidiaries, Samsung Electronics manufactures and markets a wide range of products. These include multimedia products such as monitors, CTVs, and PCs; communications products such as cellular phones, PDAs. and mobile communication equipment; semiconductor products such as DDR SDRAM, SDRAM, Flash memory, and Display Driver IC; LCD products of all sizes; and domestic appliances such as refrigerators, air conditioners, and microwave ovens.

Main Company in Korea

Business Area	Major Products
Digital Media Business	CTVs, monitors, DVDs, VCRs, camcorders, printers, PCs, etc
Digital Appliance Business	Refrigerators, air conditioners, microwave ovens, washing machines, vacuum cleaners, etc
Semiconductor Business	DDR SDRAM, SDRAM, flash memory, display driver IC, etc
Telecommunications Network Business	Cellular phones, mobile communications network systems, optical cables, etc
LCD Business	TFT LCD, OLED, etc

■ Outside these 5 businesses, the Company produces Mechatronics products, etc

Status of Overseas Production Base

(as of Dec. 2005)

Business Field	Nation/City	Base	Product
North America(3)	Mexico	SAMEX	CTV, C/M, HHP
	Mexico	SEM	REF, A/C, W/M
	USA	SAS	DRAM
Europe(2)	Hungary	SEH	CTV, C/M
	Slovakia	SESK	CTV, MP3, DVDP
China(13)	Tianjin	TTSEC	CTV
	Tianjin	TSED	C/M
	Tianjin	TSTC	HHP(GSM)
	Tianjin	TSEC	VCR, DVDP
	Huizhou	SEHZ	AUDIO
	Weihai	SST	PRT, FAX
	Shenzhen	SSKMT	HHP(CDMA)
	Shanghai	SSM	CDMA system
	Suzhou	SSEC	REF, W/M, A/C, MWO
	Suzhou	SESS	MEMORY, LSI, MODULE
	Suzhou	SESC	PC
	Suzhou	SESL	LCD
	Haikou	SEHF	Fiberoptics
South-East Asia(6)	Malaysia	SDMA	C/M
	Malaysia	SEMA	MWO
	Philippine	SEPHIL	ODD
	Indonesia	SEIN	VCR, ODD
	Vietnam	SAVINA	CTV, C/M
	Thailand	TSE	CTV, REF, A/C, MWO, W/M
South America(1)	Brazil	SEDA	C/M, HHP
South-West Asia(1)	India	SIEL	CTV, MWO

삼성보고서 영문 2007.2.21 2:56 PM 페이지13 1000 Dolev-2540-Color-S T

Vision & Strategy

As an aspiring leader in the Digital Convergence era, Samsung Electronics will develop technologies for the progress and prosperity of mankind. With ethical management that respects the needs of the shareholders, customers, and the society, and we will maintain the course of progressive and responsible management as we continue our push to be a leading firm of the 21st century.

VISION

Leading the Digital Convergence Revolution

MISSION

Digital-ℰCompany

Market leading products, innovative services | World-class production and management processes | Preferred and trusted company

The vision of SAMSUNG Electronics is "Leading the Digital Convergence Revolution," with the goal of becoming a top 3 firm in the electronics industry by 2010. Our mission to carry out this vision is "Digital- ℰ Company". "Digital" means using product and technology innovation to create new lifestyles and new business, product and service opportunities. The part " ℰ means to maximize management efficiency by building processes for world class production capabilities based on cost effectiveness.

The last part of 'company' is about being a trusted and preferred global company, one that attracts customers through dynamic culture of understanding and innovation. Samsung Electronics will be a world class corporation leading the digital convergence revolution through 6parts of innovation, product, technology, marketing, process, global operation, and organization culture.

Samsung Electronics well recognizes that coexistence and co-prosperity are the essence of corporate existence. Therefore, we strive to be an organization that places great importance on contributing to human society and social responsibility. Through charitable activities such as support for the disabled, environment preservation, and pro-bono IT services, we're making continuous efforts for societal advancement by working together with our customers, cooperators, various social groups.

Today's companies face endless competition and diverse changes. As time goes by, there will be increased need for corporation's role and responsibilities in the society as the calls for its greater social and environmental contributions grow.

Well aware of this reality, Samsung Electronics upkeeps and expands our responsibility to sustain the activities of environment preservation for the future human society, increase efforts to share our prosperity with the local community, and create new values for the customers as the leading digital company of the 21st century.

삼성보고서 영문 2007.2.21 2:56 PM 페이지14 1000 Dolev-2540-Color-S T

Corporate Governance & Management System

Samsung Electronics' decision-making and supervisory process enhances corporate transparency and accountable management and thus, constitutes an environment where creative and progressive enterpreneurship can be maximized. Samsung Electronics pursues the management philosophy favorable for every stakeholder in order to prevent certain stakeholders disadvantaged.

Corporate Governance

Board of Directors

Samsung Electronics' decision-making and supervisory process enhances corporate transparency as well as accountable management and thus, constitutes an environment where corporate value can be maximized.

The Board of Directors, the chief decision-making body of the company, consists of thirteen Directors, including six Executive Directors and seven Independent Directors. Independent Directors account for over 50% of BOD to secure independent and transparent decision-making processes.

There are two types of Board Meetings: regular and extraordinary Board Meetings. Regular Board Meeting is generally held once a quarter to make resolutions on issues including approval of quarterly financial statements and quarterly reports, and Extraordinary Board Meeting is held whenever deemed necessary. Total 8 Board Meetings were held in 2005.

The meeting of the Board of Directors shall be convened by the chairman. The chairman shall present agendas and reasons for the meeting 2 or 3 days before the meeting by mail, e-mail, or verbal notice provided that such notice may be omitted with the consent of all directors.

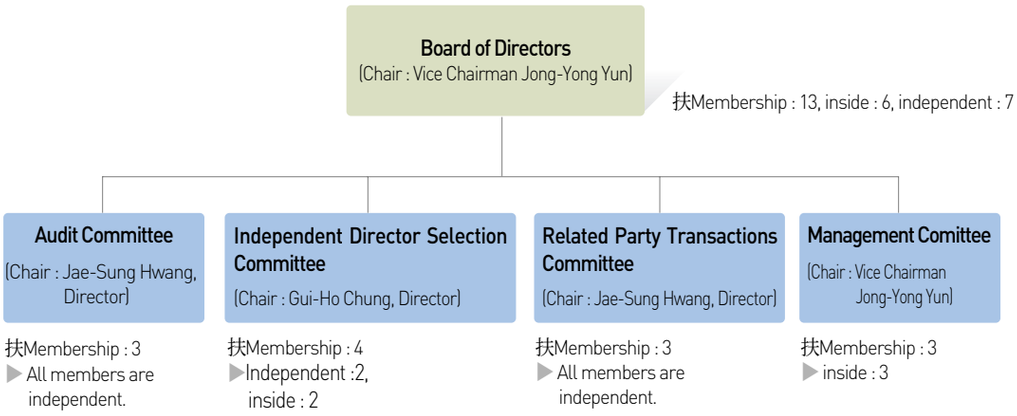
The presence of the majority of the Directors shall constitute a quorum for a meeting of the Board of Directors and the resolutions of the Board of Directors shall be adopted by a majority of the votes of the Directors attending the meeting; provided that Board meetings may take place via electronic means, such as conference call, within the scope provided by relevant laws. For fair review and reasonable decision-making, a Director having a special interest in the resolution of a general meeting can not exercise his/her voting rights thereupon. In such case, his/her voting shall not be counted.

BOD makes a resolution on matters provided for by the relevant laws and regulations or the Articles of Incorporation, matters delegated by generals meeting of shareholders, matters related to basic policies in the company management, and matters concerning directors.

BOD recognizes the significance of the issues related to the company's sustainability including environmental and social issues as well as business-related financial issues, and is fully serving as the chief decision-making body of the company.

삼성보고서 영문 2007.2.21 2:56 PM 페이지15 1000 Dolev-2540-Color-S T

Structure of the BOD



Board Committees

For enhanced efficiency in BOD operation, Board committees were established under the BOD in accordance with relevant laws and some of the Board authority was delegated to the committees, each of which is filled with Directors who can bring their expertise and experience to the assigned committee.

Each agenda approved by board committees is instantly notified to all Directors, and each Director may call for the convocation of Board meetings within two days from the notice. The Board of Directors may put the resolutions approved by the committees for voting at the Board meeting.

Besides Management Committee, Audit Committee, and Independent Director Recommendation Committee, committees which the BOD recognizes their necessity may be established in accordance with Articles of Incorporation.

Audit Committee

Audit Committee established in 2000 to replace the then existing auditors is a committee under the Board of Directors that supervises and supports management in a way that may maximize corporate value through checks and balances. The Audit Committee must be comprised of more than three directors and more than two thirds of whom shall be Independent Directors under the law. However, the Audit Committee is currently composed of committee members who are all Independent Directors to enhance independence of the Committee. It has authority to audit business of the Company, authority to request reports on the business status of the Company and investigate assets of the Company, authority to receive reports from Directors, authority to investigate subsidiaries of the Company, authority to request to stop any acts in violation of laws and regulations or the Articles of Incorporation, authority to request the convocation of a general meeting of shareholders, and authority to get professional assistance at the Company's expense.

Independent Director Recommendation Committee

The Independent Director Recommendation Committee is a committee under the Board of Directors to recommend independent director candidates in a transparent and independent way. The Independent Director Recommendation Committee shall comprise at least two but no more than four Directors, more than half of whom shall be Independent Directors. The committee was established in Feb. 2001 by creating the clauses related to its establishment in Articles of Incorporation in 2000. The Board decides on candidates for Independent Directors among the potential candidates recommended by the committee and submits the names of the final candidates for resolution at a general meeting of shareholders.

Related Party Transactions Committee

The Related Party Transactions Committee is a committee under the Board of Directors that was established in April of 2004 to enhance corporate transparency and promote fair transactions.

The Committee shall comprise three Independent Directors, and the head of the committee is appointed by resolution at a general

삼성보고서 영문 2007.2.21 2:56 PM 페이지16 1000 Dolev-2540-Color-S T

meeting of shareholders. It has authority to receive reports on related party transactions, authority to order investigations on related party transactions, and authority to recommend corrective measures for unfair related party transactions. For enhanced transparency, the company made it a rule that the Committee deliberates related party transactions in advance in case they are over KRW10 billion.

Management Committee

Management Committee is a decision-making body deliberating and deciding matters concerning management of the company, including management policies, strategies, and business plans. It deliberates and decide general management details such as business restructuring and strategic partnership with overseas partners and financial matters including overseas direct investment and investment on other corporations less than 10% of the capital. The Management Committee recognizes the significance of social and environmental issues which are not directly related to the management, and the focus on such issues is reflected when it deliberates capital spending and donation.

Other Special Committees (Non-BOD Committees)

These special committees are not under the BOD, but the committees comprised of experts discuss and decide on issues related to social contributions including environmental safety which Samsung Electronics focuses on.

Compensation Committee

The Compensation Committee is not a committee under the Board of Directors, but an internal management committee participated by CEO and CFO. It was established to evaluate the capabilities and performance of executives and decide on their remuneration.

The committee comprises of five members including CEO as a chairman, CFO, and Heads of the Human Resources, Management Support and Management Planning teams. The Compensation committee shall meet twice a year, one in the first half and the other in the second half. The committee shall evaluate each executive's attainment of their quantitative and non-quantitative business goals as well as their work capabilities and decide on the compensation.

Environment-Safety Committee

Samsung Electronics established Environment-Safety Committees for each complex, composed of a environment and safety representative of each complex for accident preventing and synergism maximization.The committees support the development of environment-friendly products as well as activities related to environment, safety, and health. For outside activities, the committee is taking a leading role in the industrial circle through studying domestic and foreign environment and safety policies, providing consulting and reports, attending at international conferences such as WBCSD, KBCSD, UNEP, and WSC, and building a partnership with civil environmental organizations. In particular, it successfully established a global standard in and out the country by establishing Industrial Safety & Health Committees at each complex under Environment-Safety Committee, and standardizing diverse standards which are essential for maintaining safety & health of the complexes.

Industrial Safety & Health Committee consisted of the equal ratio of members from labor and management is quarterly held to draw agreements on employees' health and safety on a regular basis.

Industrial Safety & Health Committee

Contribution Organization

As Chairman Kun-Hee Lee launched 'new management' in 1993, he asserted public works expansion and maximizing an activity to return profits to the society. Samsung started to understand social contribution as a core management factor. Therefore, we expand our range that has been confined to public utility foundation and move forward to understands the social contribution is 'a part of our lives' and have recommended volunteer activity for concretely materializing a morality and humanity. We launched social volunteer in 1995 and supports our employees' volunteer works. We made volunteer center at every local production base and prepared a professional and systematic organization for volunteer activities focused on the local area. Every head of overseas

삼성보고서 영문 2007.2.21 2:56 PM 페이지17 1000 Dolev-2540-Color-S T

corporation leads its employees to participate a volunteer works. Samsung Electronics expands diverse public works and volunteer activities on 4 fields, social welfare, scholarship education, environment preservation, and international exchange under the name of 'Full support of social evolution', 'Exchange in society', and 'Improvement of quality of life'.

Engagement of Stakeholder

Samsung Electronics seeks prosperity with diverse stakeholder and makes an effort to reflect their opinion and interests to our management through various methods and processes. In addition we strongly recommends active participation as of activities of social volunteer works like environment preservation. The Board of Director submits a proposal to general meeting of shareholders and get the shareholders admission if a man/woman who has certain amount of stocks suggests to be a shareholders. Besides, it is supposed to notify the result to a client, customer and employee who raise a difficulties and complaints on the website. Internal process is built that various opinions and interests gotten from IR activity are also immediately handed to top executives, and all interested parties who visit Samsung Electronics website can send an email including an opinion and difficulties to CEO.

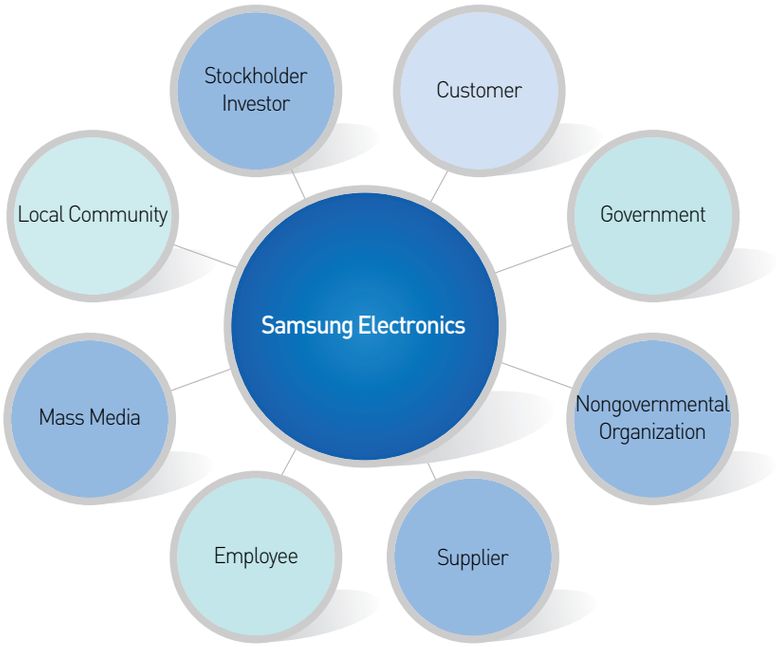
Major Activities

- Environment preservation activity for local community
- Participating in domestic and international symposiums of environment & safety
- Providing technological support for environment & safety of partner companies
- Creating environment-friendly ecological fountain
- Operating the sister school for environment
- Participating in major national strategic tasks

Policy and Management System

Samsung Electronics choose 3 major contribution fields, support for the disabled, environment preservation, information-oriented society for 'Life of living together'. Besides we perform diverse social contribution like support for juveniles, education exchange, culture/art and etc with our people, local NGO and so on. Especially we built and efficiently run environment safety management system to minimize an influence of environment · safety · health generated from our overall activities, prduct and service. Samsung Electronics not only evaluate environmental effect to surrounding area but regularly analyze environmental effect data and does our best to care about maintenance. Plus, emergency plan for possible environment safety accident is ready in 365 days a year.

(Communication Process)



삼성보고서 영문 2007.2.21 2:56 PM 페이지18 1000 Dolev-2540-Color-S T

Shareholders and Profit-wise Marketing

Economic Performance

삼성보고서 영문 2007.2.21 2:56 PM 페이지19 1000 Dolev-2540-Color-S T

Economic Performance

Samsung Electronics having world class brand power continuously develops high quality product raising digital competitiveness and fully supports our employees and investment to make a progress in local community. Our transparent management will keep endless development and world class corporation having global competition.

As a global corporation covers digital media, home appliance, semiconductor, telecommunication, LCD and etc, we put high quality product on the market across the nations focusing on profit and customer's advantage. Inside customer, employees' benefits are largely considered among our company's property. Samsung Electronics makes an outstanding contribution overseas and intends to live together with a local community through huge contribution.

扶Economic Performance 20
扶Net Sales 23
扶Capital Structure 25
扶Employee 27
扶Contribution to The Nation and Human Society 28

삼성보고서 영문 2007.2.21 2:56 PM 페이지20 1000 Dolev-2540-Color-S T

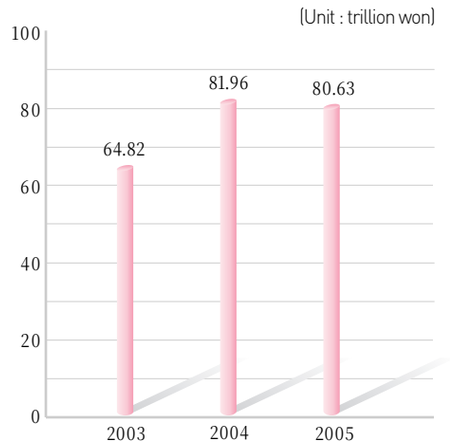
Economic Performance

Duruing the past three years the Company has achieved remarkable business results. Future-oriented investments, business diversification, and marketing innovation, along with the Company's increased brand value through breakthrough products and technologies, will help promote continuous sustainability.

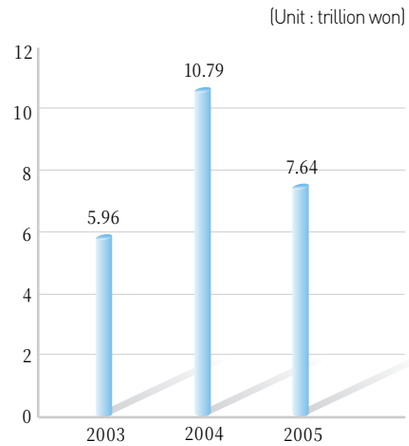
Business Results

In the face of the Korean foreign currency crisis near the end of 1997, Samsung Electronics took prompt measures to overcome greater difficulties than the Company had ever experienced. Restructuring began in all aspects of business that has enabled the Company to successfully transform into a globally competitive force.

[Sales(Connecting Sales)]



(Net profit)



Three-year Financial Overview

Classification	2003	2004	2005
Net Debt Equity Ratio	38%	19%	15%
Interest Earned Ratio	29.3	69.2	34.8
Capital adequacy ratio	44%	53%	56%
Debt Ratio	126%	90%	79%
Asset Turnover	0.97	1.20	1.12

Looking back the last 3 years management accomplishment, average 75trillion won sales a year record and getting more than 7trillion won net profit made our stable management accomplishment. We confirmed we are the one of the world class company by hitting the record $ 10 billion net profit in 2004 in the standard of our headquarter's net profit. Plus, net debt to equity ratio dropped to 15% from 38%.

삼성보고서 영문 2007.2.21 2:56 PM 페이지21 1000 Dolev-2540-Color-S T

Investment for The Future

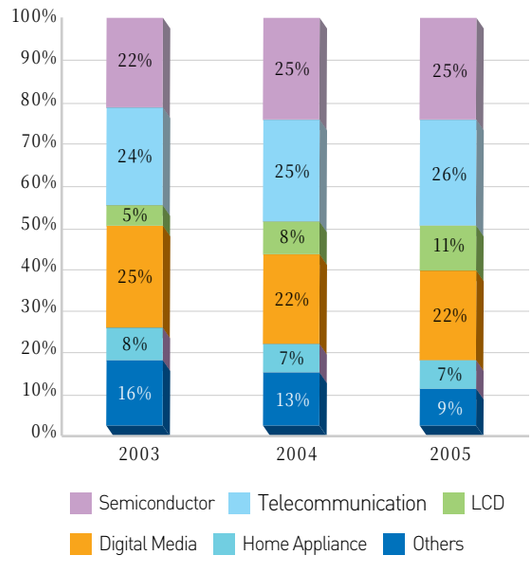
Samsung Electronics has been preparing for the future growth over a long period of time. This has been our intrinsic competence that leads to successful business performance and sound financial structure. Our core strategy for sustainable growth is an investment in technology. Through ongoing research and development activities, we achieve cost competitiveness for the future. R&D investment during 2005 amounted to 5.4 trillion Korean Won, taking 9.4% of sales, similar to the 8% allocations of the three-year rolling average. This figure will expand to 10% in the coming years. Keenly aware that global technology competitiveness sways the future of a company, Samsung pours efforts and investment in R&D to secure a strong viability no matter what changes occur in the business climate.

Efforts geared toward technology are evident in the many patents the Company has turned over in recent years. During the past three years. the Company registered 14,216 patents in Korea and 9,620 overseas. The Company belongs to a group of leading firms that register over a 1,000 patents per year in the United States. The Company has used its retained earnings as a sole source of the investment to further strengthen the business

Section	2003	2004	2005
Registered patents in Korea	2,732	4,039	6,762
Registered patents overseas	4,456	5,111	5,072
Registered patents in the USA	1,383	1,585	1,560

competitiveness and as a result, the core competence of the Company has grown every year. Ongoing investment has contributed to heightening competitiveness in products and business cores. Future investment has resulted in eight product groups.

Diversified Business Area



Memory chips have made Samsung Electronics a blue chip company during the past decade. However, the Company's dependence on the semiconductor industry has been vulnerable point because of the volatility of the semiconductor market. To overcome business and market risks, the business diversification has been actively pursued.

In 2005, the sales contribution from the telecommunications 26%, semiconductor 25% LCD 11%, Digital Media 22%, and Home Appliance 7%. The Company was able to establish a stable business structure, in which no single business unit's financial volatility has a significant impact on the overall performance of the Company.

Furthermore, the core component technology from Device Solution, both mobile handset and telecommunication network business of Telecommunications and manufacturing competitiveness from Digital Media and Appliances will create a tremendous synergy that will propel the company to lead the digital convergence era.

Marketing-driven Brand Promotions

The integral part of sustainable development besides unrivaled technology and product is a proactive apporach to the ever-changing market by grasping customer needs even before they realize exactly what they are. In order to actively cope with this change, Samsung

삼성보고서 영문 2007.2.21 2:56 PM 페이지22 1000 Dolev-2540-Color-S T

Electronics has adopted 'Market Driven Change' and utilized it in its marketing and to fulfill its social responsibilities. As more resources are being allocated in global marketing, the Company's brand identity in many global communities was enhanced. According to a prominent organization that specializes in brand-identity research service and survey, Samsung brand value was computed at US $14.9 billion in 2005, which placed brand power at 20th position among multinationals.

Samsung Electronics has grown to be a leading global company through an ongoing management innovation, emphasis on R&D, and improved financial structure. Furthermore, the current investment will serve as a foundation for the future growth. However, the Company will continue to seek for further growth and do our utmost to earn the respect from the people.

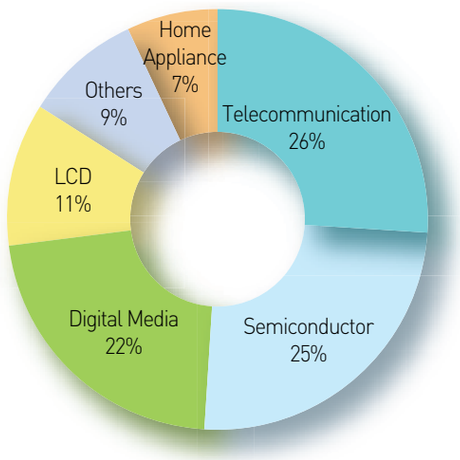
Digital Leader

삼성보고서 영문 2007.2.1 4:57 PM 페이지23 1000 Dolev-2540-Color-S T

Net Sales

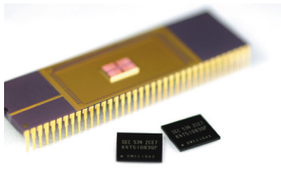
Samsung Electronics makes a sales growth based on a sturdy financial structure, especially in semiconductor, telecommunication, LCD, digital media, home appliance.

(2005 Net Sales)



Semiconductor

[Unit : 1 billion won]

	2003	2004	2005
Net Sales	14,190	20,206	20,332
Operating Profit	3,692	7,767	5,411
Major Products	DDR SDRAM, SDRAM, Flash memory and etc 		

In 2005, semiconductor department recorded 20.33 trillion net sales and 5.41 trillion operating profit, each 6%, 30% reduced from the previous year. Semiconductor's weight 25% on the whole sales in 2005, similar to the previous year. Semiconductor department is one of the strongest DRAM, SRAM, Flash memory in the world. It explores various core chips for system LSI, chip and mobile, and digital products and keep 1st rank in the industry for the past 14 years in DRAM product. Relevant products are system-on-chip, one of the highest-speed mobile AP across the nations, display drive IC, CMOS image sensor, the firstly developed combo drive of 52x RW in the world and so on.

Telecommunication

[Unit : 1 billion won]

	2003	2004	2005
Net Sales	15,303	20,726	20,915
Operating Profit	2,818	3,097	2,480
Major Products	Mobile Phone, Mobile Communication Network System, Optical Cable and etc.		

Telecommunication recorded 20.92 trillion net sales and 2.48 trillion operating profit, weight 26% on the whole sales in 2005. First of all, the mobile phone department hit the record as much as 100 times growth of 1 million sales in 1996 for just 10 years.

Telecommunication expects an improvement in sales, cost, and profit based on service competitiveness of next generation such as sustainable premium cellphone expansion, 3G, WiBro and etc.

Nework business took a superiority in CDMA2000-1x market in the country and expands service telecommunication area by successfully supplying EV-DO.

삼성보고서 영문 2007.2.1 4:57 PM 페이지24 1000 Dolev-2540-Color-S T

LCD

[Unit : 1 billion won]

	2003	2004	2005
Net Sales	4,367	7,758	8,715
Operating Profit	890	1,895	599
Major Products	TFT LCD		

LCD department develop and produce LCD display product of LCD TV, LCD panel of monitor sized over 17 inch, notebook PC and various mobile products. It got 20% of market share the world, and leads a large LCD panel supplier for the past 4 years. Thanks to restless development, Samsung Electronics leads a large LCD development market and finally produced 82 inch LCD panel in 2005.

Digital Media

[Unit : 1 billion won]

	2003	2004	2005
Net Sales	15,922	17,627	17,657
Operating Profit	567	442	248
Major Products	Color TV, Monitor,VCR,DVD Camcoder, PC, Printer and etc		

Digital Media recorded 17.66 trillion net sales and 0.25 trillion operating profit, weight 22% on the whole sales in 2005. Same amount to the previous year. Digital Media department develops and produces digital TV, color monitor, DVD recorder, laptop computer, printer and mobile entertainment gadget. Particularly we take a high market share in monitor and TV across the nations and develop lots of awarded product such as the largest PDP TV and LCD TV in the world, blue ray player, the world smallest color laser printer.

Home Appliance

[Unit : 1 billion won]

	2003	2004	2005
Net Sales	4,937	5,384	5,618
Operating Profit	-49	22	-29
Major Products	Refrigerator, Air Conditioner, Washing Machine Microwave oven, Cleaner and etc		

We lead a Home Appliance industry with superior technology and quality as of side by side and built-in refrigerators, air conditioner, air cleaner, microwave oven, robot cleaner, drum washing machine and home network system. Products considered high function, design, environment-friendly technology and user's convenience are being well received by customers.

삼성보고서 영문 2007.2.1 4:57 PM 페이지25 1000 Dolev-2540-Color-S T

Capital Structure

Samsung Electronics balances its capital and liability and hits the record more than 7trillion won net profit over the last 3 years and finally reserves 37trillion won of profit surplus.

Samsung Electronics has included its affiliated banking company, Samsung Card and Samsung Capital under the amendment of relevant law and its implementing ordinances as of outside audit since 2000.
However, Samsung Electronics aims to produce, sell, give a service and manage our electronic products such as semiconductor, telecommunication, home appliance under the articles of incorporation. We need a reflected amount by equity law as of accurate financial status like capital composition by considering an annual performance of its affiliate banking company - Samsung Card & Samsung Capital.

Over the last 3 years we did not increase the capital but some of it are up due to conversion of convertible bond that issued in the past to stock.
Considering its profit with financial affiliate's loan, it shows an increasing tendency over the last 3 years thanks to escalation of affiliated banking company's loan. In case of applying the equity law to the affiliated banking company, more than 2 trillion won is decreased.

As much as 713.9billion won comes to common stockholders and 114.7billion won to preferred stockholders, totally 834billion won-worth shares are paid. Plus, Samsung Electronics never delayed common and preffered stocks to provide. Interest of payment has decreased continuously thanks to a reduction of loan, and interest receipts are bigger than interest of payment in 2005.
Profit surplus steadily rise recording more than 7trillion won net profit over the last 3 years, and now reaches as much as 37trillion won by the late 2005.

(Unit : a billion won)

Classification		2003	2004	2005
Capital		895	898	898
Loan - Connection		23,466	17,655	16,432
Loan - Banking Institution - Equity		5,755	5,101	6,112
Dividend	Preferred Stock	118	210	115
	Common Stock	769	1,353	719
Payment Interest		215	170	218
Profit Surplus		24,416	30,577	37,369

삼성보고서 영문 2007.2.1 4:57 PM 페이지26 1000 Dolev-2540-Color-S T

Affiliated Banking Company Reflection of Equity Law Financial Statement

Statement of profit and loss

(Unit : a billion won)

Section	2003	2004	2005
Sales	59,682	78,904	78,234
Cost of sales	41,039	52,020	54,590
Selling and general administrative	10,762	13,415	14,693
Operating profit	7,881	13,469	8,951
Non-operating revenues	2,679	2,974	2,978
Non-operating expenses	3,456	2,984	2,893
Extraordinary gains and loseses	-	-	-
Pre-tax profit	7,104	13,459	9,036
Corporation tax	1,119	2,631	1,437
Foreign stockholder's equity	-23	-39	41
Net income for controlling interest	5,962	10,789	7,640

Balance Sheet

(Unit : a billion won)

Section	2003	2004	2005
Current assets	22,632	25,126	26,365
Fixed assets	25,715	29,627	35,886
Total assets	48,347	54,753	62,251
Current liability	17,547	17,791	18,168
Fixed liability	1,060	1,221	3,154
Total liability	18,607	19,012	21,322
Capital	895	898	898
Total capital	29,740	35,741	40,929

Financial Statement of Affiliated Banking Company

Statement of profit and loss

(Unit : a billion won)

Section	2003	2004	2005
Sales	64,817	81,963	80,629
Cost of sales	42,252	52,953	55,251
Selling and general administrative	16,269	17,249	17,802
Operating profit	6,296	11,761	7,576
Non-operating revenues	2,302	2,888	3,019
Non-operating expenses	2,169	2,273	2,470
Special profit and loss	-	-	-
Pre-tax profit	6,429	12,376	8,125
Corporation tax	1,076	2,207	1,218
Foreign stockholder's equity	609	620	733
Net income for controlling interest	5,962	10,789	7,640

Balance Sheet

(Unit : a billion won)

Section	2003	2004	2005
Current assets	35,555	31,992	33,399
Fixed assets	32,487	37,013	41,063
Total assets	68,042	69,005	74,462
Current liability	28,021	26,107	24,908
Fixed liability	9,861	6,497	7,946
Total liability	37,882	32,604	32,854
Capital	895	898	898
Total capital	30,160	36,401	41,608

삼성보고서 영문 2007.2.1 4:57 PM 페이지27 1000 Dolev-2540-Color-S T

Employee Welfare

Samsung Electronics helps support employees in the areas of family health, children's education, housing, retirement preparation. The Company allocates large sums of employee welfare investment to support their housing, children's tuition for high-quality educational opportunities, medical treatment, and leisure activities.

Employee Wage and Welfare

The total employee wages and bonuses totaled 2.7 trillion Korean Won in 2003, 3.3trillion Won in 2004, 3.6 Won in 2005. The Company also provided benefits such as family healthcare, children's education, housing, post-retirement plans, and other life needs to enhance the quality of life for each and every one of our employees.

Support for Housing

Samsung Electronics offers housing support to suit the lifestyles of employees. Dormitories or rental apartments are provided for singles. The Company flat is also provided for employees who are transferred away from their families.

Children's Education

The Company provides tuition for the children of employee from pre-school to college.

Support for Leisure Activities

The Company provides in-house cultural programs and sports and leisure facilities, paying for full or partial expenses when employee pursue cultural and leisure activities.

Medical Support

Top quality medical treatment, healthcare measures, and medical expenses are provided for employees' health concerns. The in-house health-screening center carries out a periodic medical examination.

Support for Retirement

So that retirees can live comfortable lives, the Company facilitates a retirement pension and other solutions.

Section	Budget Allocation in 2005	Details
Healthcare and Retirement	15.8 billion	Periodic health check up, support for medical expenses to prevent illness
Support for Working	123.1 billion	Operation of commuting shuttle bus, cafeteria, uniform, allowance(overtime, etc)
Support for Living	12.2 billion	Children's tuition, dormitories for employees working at regional offices and factories
Support for Culture and Leisure Activities	106 billion	Paid half-day work, expenses for summer and winter holidays and special interest group activities, operation of condominiums and resort facilities
Support for Individual Properties	35 billion	Operation of a community fund bank, pension for comfortable post-retirement living

삼성보고서 영문 2007.2.1 4:57 PM 페이지28 1000 Dolev-2540-Color-S T

Contribution to the National Economy and Global Communities

Samsung Electronics, known to be the largest business establishment in Korea, continues to strive toward achieving high-performance with every employee accepting responsibility for the betterment of the community and the national economy.

(According to headquarter's data)

		Unit	2003	2004	2005
Value-Adds	Samsung Electronics	trillion	14.1	22.3	18.8
	(%)		(1.9)	(2.9)	(2.3)
(GDP)	Korea		724.7	779.4	806.6
Export	Samsung Electronics	$100 million	286.0	456.3	465.6
	(%)		(14.8)	(18.0)	(16.4)
(National Export)	Korea		1938.1	2538.4	2844.2
Corporate Taxes Paid	Samsung Electronics	trillion	1.5	1.3	1.7
	(%)		(5.9)	(5.1)	(5.8)
(Total National Corporate Taxes Collected)	Korea		25.6	24.7	29.7
Samsung Electronics Market Capitalization	Samsung Electronics	trillion	75.8	73.2	108.3
	(%)		(21.3)	(17.7)	(16.5)
(Aggregate Market Capitalization)	Korea		355.4	412.6	655.1

Taking a broad view of the Company's contribution to the Korean economy in 2005, the Company's 18.8trillion Korean Won in value-adds represented 2.3% of the national GDP, and US$ 46.56 billion in export reached 16.4% of the total amount of national export. In the equity market, Samsung Electronics market capitalization amounted to 108.3 trillion Korean Won, representing 16.5% in 2005.

This is clear evidence of Samsung Electronics being a main driving force behind the economic development of the country. Samsung Electronics is keenly aware that it owes much of its success to the support of the national and global communities. Therefore, the Company is pleased to share corporate profits with communities far and wide.

삼성보고서 영문 2007.2.1 4:57 PM 페이지29 1000 Dolev-2540-Color-S T

Government Subsidies

In the past three years, Samsung Electronics has not accepted any form of Government Subsidies.

Social Contribution

The Company supports non-profit organizations for their social activities and welfare programs in the form of direct donations, funds, and partial sponsorship. When employees participate in social welfare and cultural programs, the Company also covers partial or full expenses. The Social Contribution Budget is allocated largely in six area: social welfare, culture and arts, academic research, environment preservation, international exchanges, and volunteer programs. About 120,000 employees participated to volunteer work of 410,000 hours and we gave 211.5 billion won away for social contribution.

Classification	2003	2004	2005
Expenses for Social Activities	146.9 billion	188.1 billion	211.5 billion
Total voluteering time	392,149	298,545	411,663
Participants of volunteer	186,738	95,643	119,170
Average volunteer work hours per person	6.4H	4.3H	5.1H

※ Volunteers increase due to support by Gumi plant for Daegu Subway Disaster in 2003

삼성보고서 영문 2007.2.1 4:57 PM 페이지30 1000 Dolev-2540-Color-S T

People and Nature

Environmental Performance

삼성보고서 영문 2007.2.1 4:57 PM 페이지31 1000 Dolev-2540-Color-S T

Environmental Performance

Samsung Electronics aggressively participate to take social responsibility as of environment, safety, health and put an effort to realize our philosophy to live together with the nature. We will lead a harmonious 21 century with human and nature by applying our philosophy to all over the world, cooperating company, and local community. We take the lead for preserving the globe with our 5 Green Management Structure, The greening of Management that makes a plan and opening of policy establishment and information, The greening of Product implementing responsible process for whole product, The greening of Process making a air cleaning, The greening of Workforce aiming to non-pollution, non-disease, non-accident, The greening of Communities managing with green partnership.

Samsung Electronics make various activities to reduce an influence to ecology and preserve our environment by saving our natural resources and developing alternative plan to minimize residue and energy consumption.

扶Green Management of Samsung Electronics 32
扶The Greening of Management 34
扶The Greening of Product 39
扶The Greening of Process 60
扶The Greening of Workplace 67
扶The Greening of Communities 73

삼성보고서 영문 2007.2.1 4:57 PM 페이지32 1000 Dolev-2540-Color-S T

Green Management of Samsung Electronics

Samsung Electronics takes coexistence and mutual prosperity with society is essence of survival of corporation in society, and strives to be a contributive company for human society. Particularly, we promote Greening of Management, product, process, workplace and communities by performing the Green Management valuing an environment, safety and health. Samsung Electronics will make a better life enables people to live more convenient and valuable life.

Green Management Composition

Samsung Electronics declared guideline for our environment in 1992 for preservation of the globe and prosperous human life, and promotes the activity integrating the concept of environment · safety · health · disaster prevention related green management after launching the Green Management in May, 1996.
Green Management has 5 concepts, the greening of Management, the greening of Product, the greening of Process, the greening of Workplace, the greening of Communities.

The Greening of Management

It takes environment · health · safety as a core factor in management of the company for sustainable development, constructs advanced environment · health · safety system, makes a strategy and proposes a method of performing for the greening of product, process, workplace, and local communities.

- Expanding a global standard certificate such as ISO 14001 and OHSAS 18001
- Promoting an efficient work by adopting a Green Management Information System(GMIS)
- Building and settling down of environmental accounting, evaluation system of environmental accomplishment by the year of 2007.

The Greening of Product

It is to minimize environmental impact and to make environment-friendly product considering the whole process through production, product usage and end-of-life disposal. By using Life Cycle Assessment(LCA) and Eco-Design software, we put our effort to develop environment-friendly product.

- Developing an environment-friendly products by driving Eco-Design and LCA
- Structuring an environment supply chain management and plan for hazardous substances regulation
- Expanding a process capability of waste product and plan for EPR(Extended Producer Responsibility).

The Greening of Process

It improves a process or facility, develops diverse green technology including alternative raw material, minimizes scrapped materials through managing contaminated materials, maximizes energy efficiency, and etc.

- Minimize toxic material discharge expanding a waste resource collection and reuse of waste water
- Take root of an environmental problems by applying clean producing technology
- Consider energy efficiency by collecting waste heat and managing each energy source unit

The Greening of Workplace

It is to materialize non-pollution, non-disease, non-accident in the workplace. Diverse activities are performed in every complex and plant such as pollution prevention activity, checking the basic facility for environment, and fire prevention through automatic monitoring network of environment. Plus, instruction of working ability improvement is performed to make the workplace has spontaneous environment and safety activity.

삼성보고서 영문 2007.2.1 4:57 PM 페이지33 1000 Dolev-2540-Color-S T

- Non-pollution, non-disease, non-accident workplace through automatic monitoring
- Promotion to reduce polluted materials through process improvement

The Greening of Communities

We do our social responsibility as of environment and safety and expands One company, one Mountain, one river preservation campaign, environment preservation activity with community members, ecology restoring activity and etc to meet coexistence and mutual prosperity demand through reliable management and respect from citizens and local community.

- Expanding the environment sister schools
- One company, one Mountain, one river preservation campaign
- Ecology Restoring Activity
- Volunteer work in local communities

Green Management Policy

Based on the reverence for Life all of our business activities observe our Green Management Policy, which encourages respect for nature and contributes to the prosperity of human life and conservation of the environment. The Company plays a leading role in creating a sustainable society by recognizing and implementing the environment, safety and health as crucial factors in all our business endeavors.

1. Operation of Green Management system

Under the Green Management system, we continue to make efforts to improve how we manage environment, safety and health impacts occurring in production and service. We have committed to periodically publish the performance results of our Green Management system.

2. Compliance with Local and International regulations

We apply rigorous standards in the management of matters pertaining to the environment and safety. In addition, we strive to faithfully observe relevant laws, regulations and international agreements in order to be a good corporate citizen.

3. Fulfillment of life cycle responsibility for products and services

We will fulfill our responsibilities for our products and service, with environment and safety conscious designs, use of environment-friendly materials and the recycling of end-of-life products.

4. Continuous improvement of environmental aspects

We will continue to minimize the use of resources and energy through clean production technologies. The development of new advanced technology is used to reduce the output of materials known to cause negative environmental impacts such as Carbon Dioxide.

5. Realization of a safe and pleasant workplace

We will do what we can to prevent environmental or safety-related accidents, foster the atmosphere of a safe and pleasant workplace to help improve employee health and the quality of our lives.

6. Solid partnership with suppliers and contribution to the community

We will cooperate with suppliers in fulfilling Green Management policies, and will maintain excellent partnerships with them. This includes carrying out activities for environmental conservation and development of the local communities together.

January, 2004

삼성보고서 영문 2007.2.1 4:57 PM 페이지34 1000 Dolev-2540-Color-S T

The Greening of Management

Samsung Electronics runs Environment and Safety committee in order to implement Green Management. Plus, we hardened the ground for sustainable development by building an international level of environment and safety system such as Green Management Information system and introduction of Environmental Accounting.

Organization of Green Management

Samsung Electronics reflects industry's opinion to make a policy, analyzes and participates international issue of environment and safety, supports to develop environment friendly products. Through a study of environment and safety policy, consultation, and partnership with private environment group, we leads the industry of environment and safety.

Samsung Electronics makes a long-term and specific purpose to promote the Green Management by composing a 'Environment and Safety Committee of Samsung Electronics' of which head is every top executive of the workplace. The committee regularly evaluates its accomplishment and continuously make it improved.

Environment and Safety Office composed of experts from each department runs a Committee of Practical Works as of environment and safety under Environment and Safety committee of Samsung Electronics. It takes a spiral role of greening of management.

Environment and Safety Committee of Samsung Electronics

- Deliberate and make a decision of environment and safety plan and strategy
- Support to produce environment-friendly products
- Evaluate Green Management program accomplishment and promote the sustainable development.
- Environment and safety check under participation of executives

Environment and Safety Office

- Establish environment and safety plan and strategy
- Analyze and cope with the trends of environment and safety in and out the country
- Promote a development of environment-friendly product
- Share a excellent case of Green Management and promote a common work through the company

Committee of Green Management at every workplace

- Encourage implementation of Green Management program and review its result under the participation of a representative of employees and executives putting head of the workplace in main position
- Settle down a major problem related environment and safety
- Share a excellent case of Green Management and promote the sustainable development

Green Management System

Certificate Guaranteed in and out the country workplace

Certificate Guaranteed for workplace in the nation (as of now, late December, 2005)

Complexes	Environment-friendly Corporation	ISO 14001	OHSAS 18001
Suwon	96.04	96.10	00.11
Giheung/Hwaseong/Onyang	95.8/02.8/95.11.	96.09	99.12
Cheonan	00.9	96.09	99.12
Gumi	96.1	96.11	01.10
Gwangju	96.1	96.10	02.10
Tangjeong	-	in progress	in progress

삼성보고서 영문 2007.2.1 4:57 PM 페이지35 1000 Dolev-2540-Color-S T

Certificate Guaranteed for overseas workplace

(as of now, late December, 2005)

Region	Name of Corporation	Product	Standard and Date of Certificate Guaranteed	
			ISO14001	OHSAS 18001
North America (3)	SAMEX	CTV, C/M, HHP	'00.12	'03.12
	SAS	DRAM	'01.01	in progress
	SEM	REF, A/C, W/M	'04.11	in progress
Europe (2)	SEH	CTV, C/M	'05.05	'05.11
	SESK	C/M, CTV, DVDP	'03.10	'03.10
China (12)	TTSEC	CTV	'05.11	'05.11
	TSED	C/M	'01.01	'03.12
	TSTC	HHP(GSM)	'04.08	'05.05
	TSEC	VCR, DVDP	'00.02	'04.10
	SEHZ	AUDIO	'05.05	'05.12
	SSDP	FAX, PRT	'04.09	'04.11
	SSKMT	HHP(CDMA)	'05.04	'05.04
	SSEC	REF, W/M, A/C, MWO	'03.11	'05.06
	SESS	MEMORY, LSI, MODULE	'04.05	'04.05
	SESC	PC	'04.02	'04.02
	SESL	LCD	'04.11	'04.11
	SEHF	Fiberoptics	in progress	in progress
South-East Asia (6)	SEIN	VCR, ODD, CTV, C/M	'03.04	'03.10
	TSE	CTV, REF, A/C, W/M, MWO	'01.12	'03.11
	SEMA	MWO	'05.12	'05.12
	SDMA	C/M	'99.08	'02.08
	SAVINA	CTV, C/M	'01.12	'02.12
	SEPHIL	ODD	'02.09	'03.10
South America(1)	SEDA	C/M, HHP	'01.02	in progress
South-West Asia(1)	SIEL	CTV, MWO, C/M	'00.06	'03.08

BVQI
Certification
Awarded to
SAMSUNG ELECTRONICS MAGYAR RT.
JÁSZFENYSZARU
HUNGARY
BVQI certifies that the Management System of the above organisation has been assessed and found to be in accordance with the requirements of the standards detailed below
Standard
OHSAS 18001:1999
Scope of supply
PRODUCTION OF VISUAL DISPLAY PRODUCTS
Original approval date: 09 NOVEMBER 2005
Date of certification: 09 NOVEMBER 2005
Subject to the continual satisfactory operation of the organisation's Management System, this certificate is valid until:
08 NOVEMBER 2008
To check this certificate validity you may contact BVQI.
Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organisation.
Date: 12 DECEMBER 2005
Certificate number: HU0043
BVQI Hungary
Váhot utca 6., H-1119 Budapest
www.bvqi.hu

EPREI
Environmental Management System Certificate
(Original)
This is to certify that
TIANJIN SAMSUNG TELECOM. TECHNOLOGY CO., LTD
NO.9 WEISI RD. MICRO-ELECTRONIC INDUSTRIAL
PARK XIQING DIST, TIANJIN, CHINA
Postcode:300385
Has implemented and maintains the Environmental Management System
for the following scope:
ACTIVITY CONCERNING ENVIRONMENT AND MANAGEMENT IN THE PROCESS OF MANUFACTURING MOBIL PHONE INCLUDED IN THE SCOPE OF THE FACTORY —TIANJIN SAMSUNG TELECOM. TECHNOLOGY CO.,LTD., WHICH LOCATED IN NO.9 WEISI RD. MICRO-ELECTRONIC INDUSTRIAL PARK XIQING DIST. TIANJIN, CHINA
In compliance with the requirements of:
GB/T 24001-1996 idt ISO 14001:1996
Registration Number: 01204E10509R0L
Initial Issuance Date: August 02, 2004
Issue Date: August 02, 2004
This certificate is valid during: August 02, 2004 – August 01, 2007
Director:
08/02/2004
CNAB012-E
CEPREI CERTIFICATION BODY
The annual surveillance status is as follows:
Annual surveillance 1
Annual surveillance 2
Annual surveillance 3

Samsung Electronics built an environment and safety management system that enable to solve environment and safety problem by making our people participate in. Based on the system we will understand possible influence and improve it by making a specific plan. For this system we instruct whole employees as of environment and safety and encourage to make them experts. Management system of environment and safety is operated in the order of plan → do → check → action.

In addition, we check its accomplishment by using internal audit system and promote continuos development through management review. We actively join the environment-friendly corporation system that the government promotes. We are appointed an environment-friendly company as of reducing polluted materials and whole process of the management so that we set precedent to others.

Case) ISO 14001 Certificate Aquisition for American service center

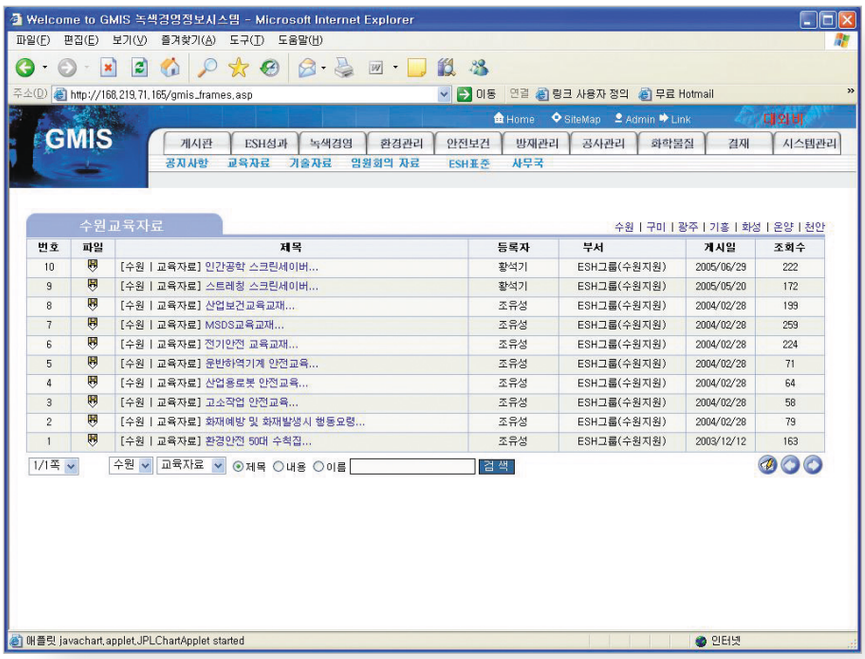
We are guaranteed ISO 14001 Certificate from BVQI in October, 2005 by building a Green Management system in American service center where provide a repair service of LCD products in North America. LCD service centers are located in Korea(Giheung),

삼성보고서 영문 2007.2.1 4:57 PM 페이지36 1000 Dolev-2540-Color-S T

Europe(Germany), North America(U.S.A.), Asia(Hong Kong, Japan, China), and expected to get ISO 14001 Certificates through whole service center.

Green Management Information System

Green Management Information System initially developed in 1998 by using intranet technology, totally supports the corporate work of environment and safety, systemizes relevant information, and enhances a competitiveness and support strategic use. This system manages every pollution generating source, discourages its discharge, cuts cost by systematically managing consuming expenses, and supports to make prompt decision by providing information to a manager. Plus, it is used to keep ISO 14001 and OHSAS 18001 through information management such as policy, specific purpose, and evaluation of influence and risk, ensures basic information to cope with national regulation, and maximizes efficiency through standardization of environment and safety work. Plus, it enhances environment and safety work, sets and evaluates a purpose of environment improvement. We conform to the international standards such as Environmental Performance Evaluation(EPE) and Environmental Accounting(EA) and framework an environment and safety workplace by considering the company's core capability, competitiveness of environment and safety.



Green Management Information System(GMIS)

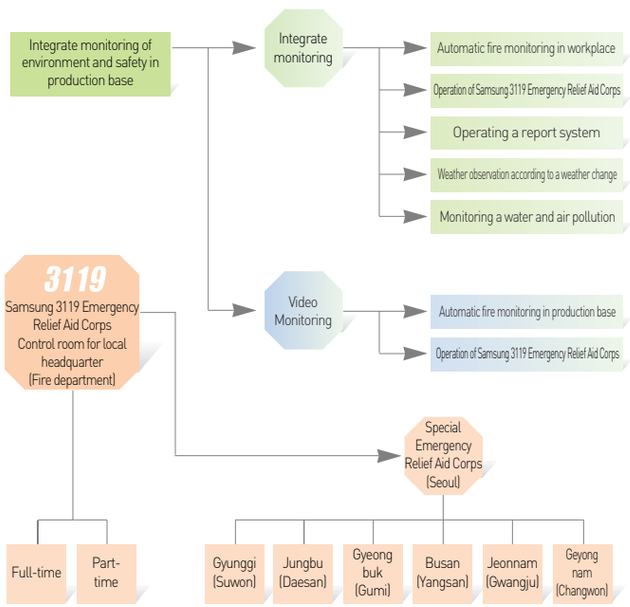
삼성보고서 영문 2007.2.1 4:57 PM 페이지37 1000 Dolev-2540-Color-S T

Legal Compliance and ESH Controls

Samsung Electronics abides by regulations related environment and safety, develops new technology beyond the management of pollution and make works relevant environment-friendly process improvement.

Samsung Electronics has not have any environmental accident such as violation of the regulation and chemical leakage. We make an advanced program of environment and safety based on analysis of affecting factors for environment and safety, and throughly manages pollution causing source. As abiding by the regulations, on the top of that we takes stable environment management by applying the standard of company itself that is stricter than the national regulations. Plus, we operate 24 hours monitoring system using TMS and self laboratory in order to manage a source and upgrades the environment-friendly process. Environment and safety management of Samsung Electronics appoints not only environment and safety manager at every department but environment and safety staffs and responsible executives at every workplace and every department. We let them manage their own line and hold a presentation competition of excellent cases of environment and safety more than once a year. In addition we prepare for emergency case such as operation of emergency water tank, scenario for possible risk, training, and computerize diverse environment and safety management so that employees are able to promptly cope with them.

Training of emergency



Environmental Accounting

Samsung Electronics introduced Environmental Accounting as an example in order to efficiently mange cost related environment activity and expands it step by step. Previously we managed environment cost considering certain classifications such as water, air, scrap, and now we participate in making a national assignment, encourage experts of environmental accounting at every production bases, apply a developed guideline of environmental accounting to production base in the nation, analyse the cost by a new classification type, and join a study that researches environmental efficiency, and promote 2nd level of national assignment as of Environmental Accounting.

Voluntary Agreement of Green Purchase

Samsung Electronics made a voluntary agreement of Green Purchase with the Ministry of Environment and actively supports Green Purchase(recycling product, Eco-mark certified product) for the society seeking for circulating resources.

삼성보고서 영문 2007.2.1 4:57 PM 페이지38 1000 Dolev-2540-Color-S T

Result of Environmental Accounting in 2005(summary)

(unit : a million won)

Section		Suwon	Giheung	Hwasung	Onyang	Cheonan	Tangjung	Gumi	Gwangju	Total
Pollution Process Facility Operation	Air	6,502	36,776	12,693	3,563	52,953	6,951	3,065	1,922	**124,425**
	Water									
	Scrap									
	Others									
Pollution prevention Activity	EMS operation activity	4,792	1,769	345	1,742	3,645	101	1,354	29,171	**42,919**
	Saving resources and recycling									
	Development activity									
	Greening of workplace									
Activities of interested party	Cooperating activities in and out the company	350	41	7	3	175	30	19	86	**711**
	Others									
Response to the law & restoring activity	Response to the law	338	66	144	1	0	0	166	1	**716**
	Restoring activity									
① Environment cost		11,982	38,652	13,189	5,309	56,773	7,082	4,604	31,180	**168,771**
② Investment		16,073	59,812	13,877	5,887	250	75,897	1,952	684	**174,432**
③ Environmental benefit		8,084	7,178	3,751	9,039	2,234	1,556	3,498	6,623	**41,963**

Voluntary Agreement of Green Purchase

산업계의 녹색구매 자발적 협약서

녹색구매의 확산은 자원을 절약하고 환경오염을 줄여 우리 사회가 환경적으로 지속가능한 성장을 추구하는데 필수적인 요소이다.

또한 제품 생산자인 동시에 건전한 소비자인 산업계는 기업의 사회적 책임을 완수함으로써 지속가능한 사회구현에 중추적 역할을 수행해야 한다는데 인식을 같이하고 있다.

이러한 시대적 요구를 바탕으로 기업은 친환경상품 구매와 생산에 앞장서고 정부는 기업의 환경경쟁력을 높일 수 있도록 지원함으로써 우리 사회의 녹색생산 · 소비문화가 확산되도록 노력할 것을 다짐한다.

1. 기업은 친환경상품을 전사적으로 우선구매 · 사용할 수 있도록 관련규정을 정비하고, 구매계획을 수립 · 이행 · 평가하며, 직원을 교육한다.
1. 기업은 환경성이 우수한 원료 · 부품을 조달 · 사용하고, 친환경 상품을 개발 · 생산 · 판매하기 위하여 노력하며, 협력업체를 지원한다.
1. 기업은 자발적 협약의 이행실적을 제3자가 알 수 있도록 지속가능경영 보고서, 인터넷 등을 통해 공개한다.
1. 기업과 정부는 국민의 건전한 녹색소비문화 창달을 위하여 올바른 환경정보를 제공하고, 공동 캠페인을 펼친다.
1. 정부는 기업에게 친환경상품 정보를 제공하고, 친환경상품 육성 시책을 마련하여 적극 시행한다.

1. 정부는 자발적 협약내용과 이행실적을 홍보하고 우수 기업을 표창하며, 협약기업의 활동성과를 널리 알려 녹색구매를 확산시킨다.
1. 기업과 정부는 자발적 협약 추진을 위한 실무위원회를 구성 · 운영한다.

2005년 9월 26일

삼성전자(주) 대표이사 尹鍾龍

환 경 부 장 관 이 재용

삼성보고서 영문 2007.2.1 4:57 PM 페이지39 1000 Dolev-2540-Color-S T

The Greening of Product

Influence of the product on environment is normally determined in the level of development. Therefore, evaluation and improvement as of environmental effect of the product shall be done during developing process as well as environment improvement considering life cycle of the product is needed. Samsung Electronics promote diverse technique and activity for this.

Policy of environment-friendly product development

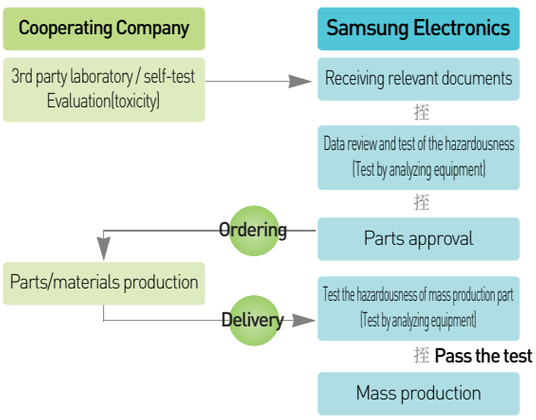
Samsung Electronics makes an effort to develop environment-friendly product that minimizing an impact to environment through whole process from getting raw materials, production, transportation, usage and end-of-life disposal by adding 'environment' on function, price, quality, and design that were the essence for product development. For this process, we takes a responsibility for whole process through LCA and recycle evaluation and by operating recycling center for dealing with an efficient treatment of the waste product.

Management System for Environment-friendly Product Development

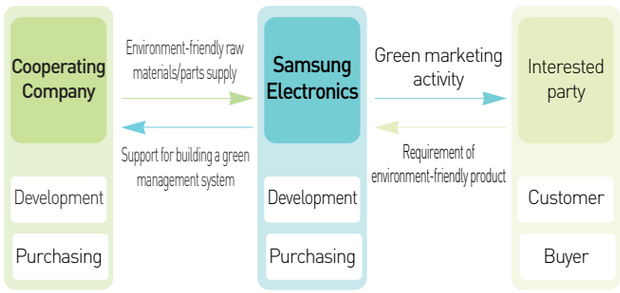
Hazardous Substances Management System(e-HMS)*)

It is an internal material information system to promptly and systematically manage hazardous substances in whole parts of the product that comes from whole cooperating companies. By using this system, the cooperating companies should register test reports of whole raw materials that supplier use, and from that information, relevant department of Samsung Electronics approve the registered parts and purchase them.

(flow chart of hazardous substances management)



(User of hazardous susbtances management system)



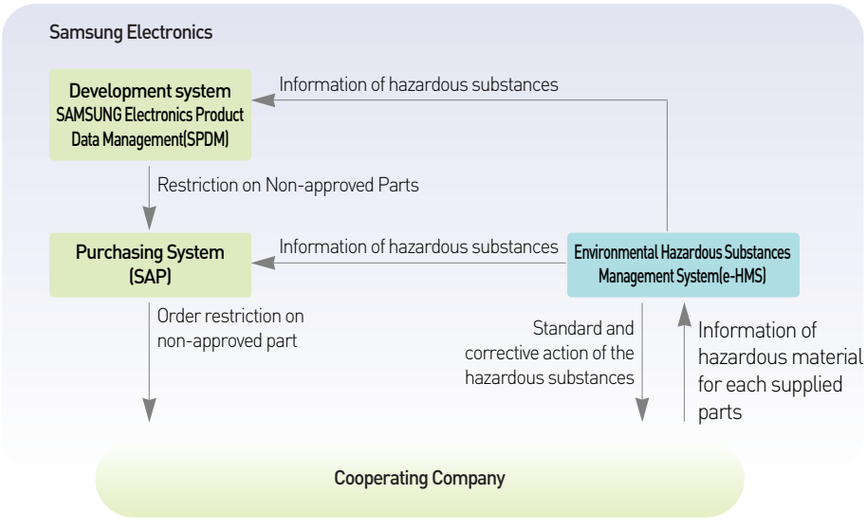
footnote *)e-HMS : environmental Hazardous Substances Management System

삼성보고서 영문 2007.2.1 4:57 PM 페이지40 1000 Dolev-2540-Color-S T

We integrated the e-HMS with product design system and purchasing system, and do not allow to use the parts that is not approved in development and purchasing level.
In the level of development, we check whether it complies with the operation rule of environment management materials in product or not through the information of hazardous substances management system in the approval process of the parts use. If failed, we manage it from the development stage not to approve the parts.

In addition, we automatically restrict the ordering as of the product that does not meet the approval demand by reviewing hazardousness in the level of purchasing. We built hazardousness management system in the process of development, purchase, quality management throughly, and every product unit, and made an environment-friendly product system.

(Flow chart between e-HMS, development system and purchasing system)



We make 'operation standard for environment management substance in the product' to reduce negative environmental influences that possibly are generated from producing and scrapping the product. This standard, amended 7th in Sep 2006, is applied to all global production sites of Samsung Electronics, and we substituted all hazardous substances that contained in products.
Substances restrained under the environment management substance standard are 20 kinds including 6 kinds of limited substances from RoHS(Cd, Hg, Pb, Cr+6, PBBs, PBDEs), EU Directive 76/769/EC and banned substances under each country's law and regulation. This regulation acknowledges the environment management substance that is included in part/raw material/package material/battery and so on and strictly limit to use. Also, it is applied to cooperating company's parts that supplies them to Samsung Electronics by connecting Eco-Partner certificate.

삼성보고서 영문 2007.2.1 4:57 PM 페이지41 1000 Dolev-2540-Color-S T

* List of Substances with Environmental Impacts for Control and Management

(Table 1. Banned and restricted substances)

Type	Substance/Material	Regulation and Agreement
Class Ⅰ	Cadmium and compounds	EU RoHS Directive EU Packaging Directive EU Battery Directive OSPAR Priority Chemicals
	Lead and compounds	EU RoHS Directive California Proposition 65 EU Packaging Directive EU Battery Directive OSPAR Priority Chemicals
	Mercury and compounds	EU RoHS Directive EU Packaging Directive EU Battery Directive OSPAR Priority Chemicals
	Hexavalent chromium and compounds	EU RoHS Directive EU Packaging Directive OSPAR Priority Chemicals
	Polybrominated biphenyls (PBBs)	EU RoHS Directive OSPAR Priority Chemicals
	Polybrominated diphenylethers (PBDEs)	EU RoHS Directive OSPAR Priority Chemicals
Class Ⅱ	Polychlorinated biphenyls (PCBs) Polychlorinated Terphenyls (PCTs) Polychlorinated naphthalences (PCNs more than three chlorine water)	EU Directive 76/769/EEC OSPAR Priority Chemicals
	Ozone layer depleting substances (CFCs,HCFCs, Halons)	Regulation EC 2037/2000 Montreal Protocol
	Asbestos	EU Directive 76/769/EEC
	Formaldehyde	Germany Chemical Material Directive
	Short-chain chlorinated paraffins (Alkane 10~13 Carbon chain)	EU Directive 76/769/EEC OSPAR Priority Chemicals
	Azo colorants	EU Directive 76/769/EEC
	Nickel and compounds	EU Directive 76/769/EEC
	Organic tin compounds	EU Directive 76/769/EEC OSPAR Priority Chemical
	Arsenic and compounds	EU Directive 76/769/EEC

The substances listed in Table 1 are restricted for use in Samsung Electronic Co., Ltd. These substances are prohibited for deliberate use in the production of products, parts and materials bought or manufactured by the company. For unintentional and inevitable uses (i.e. impurities), a threshold level is provided for each substance. If the concentrations of substances are less than the appropriate threshold levels, then the item can be considered as qualified for use in production.

Class Ⅰ Substances regulated by RoHS Directive 2002/95/EC. The substances are officially controlled from the implementation date and will be phased out by June 30, 2005.

Class Ⅱ Substances other than those regulated by RoHS Directive 2002/95/EC. Most of them are hardly used but their use will be officially controlled from the implementation dates.

삼성보고서 영문 2007.2.1 4:57 PM 페이지42 1000 Dolev-2540-Color-S T

(Table 2. Monitored and reportable substances)

Type	Substance/Material
Class III	Phthalate
	PVC
	beryllium and its compounds
	Other chlorinated flame retardants
	All Brominated Flame Retardants, BFRs
	DecaBDE
	TBBP-A

Class III Substances that Samsung Electronics is voluntarily phasing out due to potential harm to the environment or human health. These substances are not currently restricted by law.

* Declaration of RoHS Compliance

Declaration of RoHS Compliance

SAMSUNG

Samsung Electronics Co.Ltd
416, Maetan-3Dong, Suwon-City, Korea

Declaration of RoHS Compliance for Samsung Electronics' Products

Samsung Electronics Co. Ltd (the "Company") hereby declare that all Samsung Electronics' products placed on the European Community market by the Company &its subsidiaries after 1 July 2006 are compliant with EC Directive 2002/95/EC on the Restriction of Certain Hazardous Substances in Electrical and Electronic Equipment (commonly known as the EU RoHS Directive). RoHS compliance means that where the product falls under the scope of the EU RoHS Directive, this product does not contain the following substances:

扶 **Mercury (Hg) 0.1%** 扶 **Lead (Pb) 0.1%**
扶 **Cadmium (Cd) 0.01%** 扶 **Hexavalent Chromium (Cr+6) 0.1%**
扶 **Polybrominated Biphenyls (PBB) 0.1%**
扶 **Polybrominated Diphenyl Ethers (PBDE) 0.1%**

In excess of the indicated maximum concentration values by weight in homogenous materials, unless the substance is subject to an exemption specified in the Directive1

This declaration represents the Company's knowledge and belief which is partially based on information provided by third party suppliers.

Further details about Samsung Electronics' RoHS compliance programme can be found in the accompanying FAQ document or at: http://www.samsung-europe.com/sustainability

삼성보고서 영문 2007.2.1 4:57 PM 페이지43 1000 Dolev-2540-Color-S T

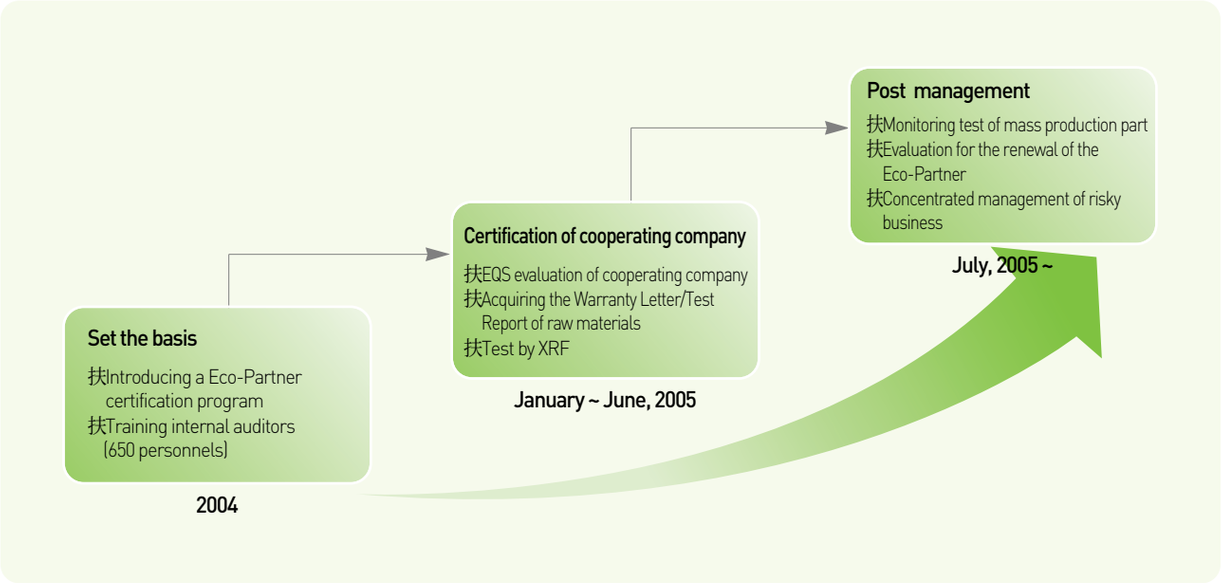
Eco-partner Certification program

Preparing for EU RoHS effected from July, 2006, we have taken Eco-Partner policy since May, 2004 in order to manage hazardous substances in parts, raw materials that consist of product, and make environmental quality management system of cooperating company. We trained internal auditors about 650 people in and out the country. Evaluated the environmental quality system and trained as well for all cooperating companies globally.

The Eco-Partner certification for all cooperating companies was completed in July, 2005 by encouraging active participation and cooperation from suppliers as to build a DataBase of hazardous substances for all parts that we use and evaluate the Environment Quality System(EQS) of suppliers and tested all parts by XRF equipment as well.

Through Eco-Partner certification program, we expand an activity to prevent possible environmental accident as well as to remove a hazardous substance from our products such as hazardous material management as of whole supply chain, incoming inspection, monitoring part test and improving a risky parts.

(Progress of Eco-Partner certificate)



Eco Design Evaluation

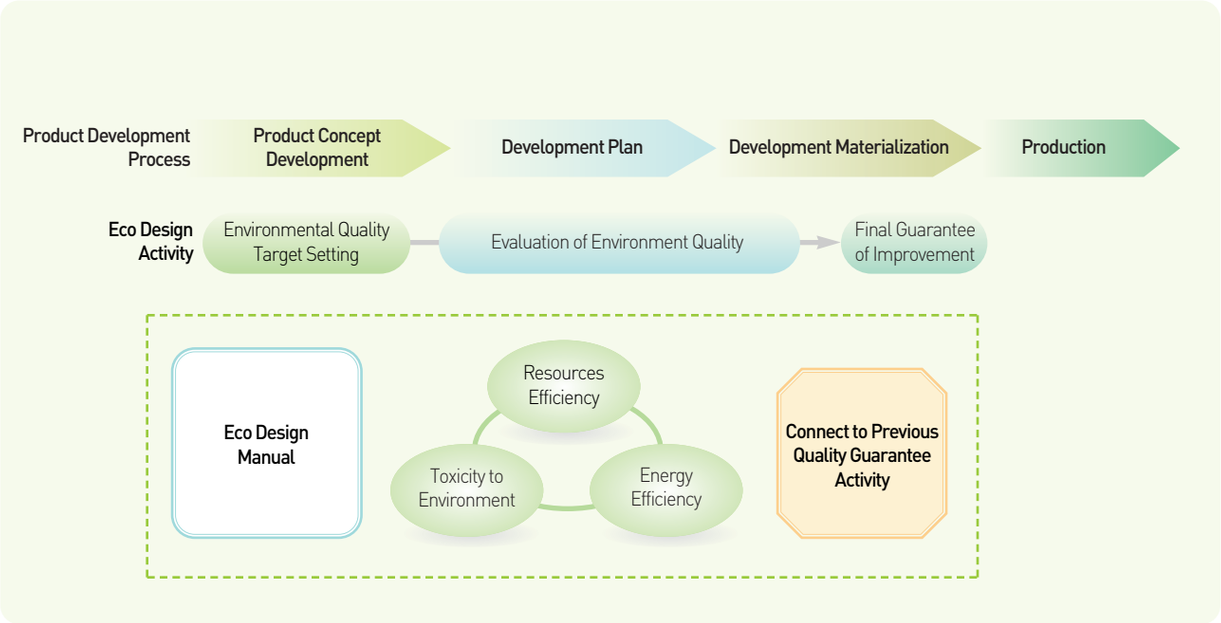
Product's environmental impact is usually determined in design and developing phase. Therefore, it is required to consider the environment during product developing process and develop a tool to support it systematically.

Samsung Electronics has applied Life Cycle Assessment(LCA) and DfX(Design for Assembly/Disassembly/Recycle/Service) supporting product development of whole product categories since 1995. The more environmental regulation is enforced and interested parties requiring environmental information of product increases, the more its importance of environment-friendly product is needed.

To efficiently evaluate and improve product environmental quality, we built the Eco-design evaluation system in 2004. For this system, multi-environmental impact potentially caused by electronic product was classified then detailed evauation items were identified under three general environmental evaluation categories including resource efficiency, environmental hazardousness, and energy efficiency.

삼성보고서 영문 2007.2.1 4:57 PM 페이지44 1000 Dolev-2540-Color-S T

(Eco Design Process)



These evaluation items with target value should be achieved is integrated into conventional quality assurance system in order to be operated as a mandatory activity.

Additionally, Eco-design process enables to generate environmental information of product.

This operating system is provisionally applied to printer and refrigerator in 2004, and is expanded to strategic product development projects. Evaluating items and target value for each item will be continuously upgraded in order to improve environmental features for the Samsung products.

Environment Analysis Laboratory

Samsung Electronics built one of the best laboratories in the world for organic & inorganic analysis, and VOCs testing, and they have 11 kinds of analysis equipments (in total 18 units). Plus, we built a system that consists of large-sized environmental chambers and precision instruments for analyzing the VOCs such as phenol and toluene which could be environmental or regulatory issues worldwide.

Environment Analyzing Laboratory

Large-sized Standard Chamber of VOC
(Volatile Organic Compounds)

삼성보고서 영문 2007.2.1 4:58 PM 페이지45 1000 Dolev-2540-Color-S T

Besides, we promote development and standardization of analysis methods for hazardous substances. Leading International Electrotechnical Commission(IEC) and the Korea Industrial Standard(KS) for brominated flame retardant analysis method and go public as KS(KS M 1062) in Nov. 2005. and IEC completed technical review. Now we expect the vote for final members in coming March. 2007. To ensure the reliability of the test results, our laboratory applied for the international accreditation program and it is accredited by Underwriter's Laboratories (UL) in Sep. 2005.

Regarding the standardization of our own analysis method, we registered Spot-test, precision analysis for 4 kinds of volatile organic compounds and organo tin, and qualitative analysis on hexavalent chromium as our own standard after reliability verification.
Plus, We operated an analysis capability verification program for testing lab by location in order to have our suppliers to get reliable test report with lower cost, and eventually certified 11 testing lab. as the Eco-Partner Lab. like Korea Testing Laboratory.

Certificate of Qualification issued for Underwriters Laboratories Inc.

Certification ceremony of Eco-Partner Lab.

Environment-friendliness Products Development Cases

RoHS free Optical Disk Drive

We completed to comply RoHS regulation as of the Optical Disk Drive that has produced since 2006 and proved our RoHS compliant action through verification of customers like MS and Sony. Also, content of halogen that is generated during the ODD to be burned has reduced by 1/60 of former PCB thanks to applying Halogen-free to a main PCB of DVD-Writer(TS-P532A/ TSP332A) drive that is supposed to be equipped with DVD player for recording.

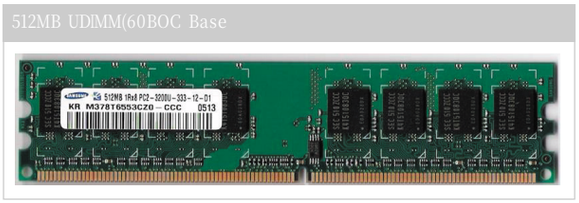
Halogen	content(wt%)
Br	less than 0.09
Cl	less than 0.09

Halogen-Free Semiconductor Module

Samsung Electronics developed halogen-free memory module for the first time in the memory nodule industry. This module did not contain BFR(Brominated Flame Retardants) and antimony as well as six hazardous substance material by RoHS regulation.
Halogen flame retardants may generate dioxin, difuran, HBr, HCl and so on during combustion. Especially SbO3 can cause damage because is accumulated in human's body so that we developed environment-friendly halogen free product.

삼성보고서 영문 2007.2.1 4:58 PM 페이지46 1000 Dolev-2540-Color-S T

Halogen to be contained in DRAM BGA PKG, Active chip, PCB, Solder Paste of previous memory module is alternated with plastics resin, flame retardant resin and organic acid. It ensures environment safety standard and reliability that regulated from IPC and boosted to accelerate environment-friendly product.



RoHS & Halogen-Free Memory Module

Reusable Notebook PC
(19 ”LCD Reusable Notebook PC firstly marked in the world)

SM70 model was announced by new concept notebook PC that can use by LCD monitor independently if LCD panel put up separating to exclusive cradle.

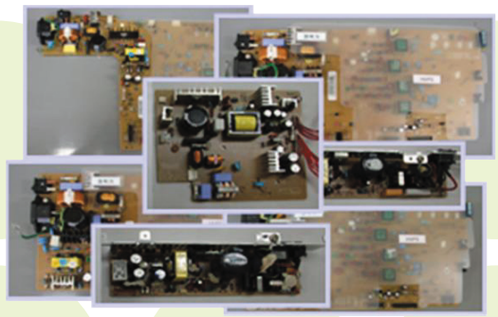
Users only change the PC and connect it to the LCD if PC becomes obsolete. The notebook with a relatively short life cycle can cause negative environmental effect. It is no more to scrap the whole notebook PC but it can enhance efficiency in environment and economy that can reduce the purchasing cost and environmental load.

SM70 Notebook PC

삼성보고서 영문 2007.2.1 4:58 PM 페이지47 1000 Dolev-2540-Color-S T

Resource reduction due to the standards of printer parts

Printed circuit boards, SMPS(Switching Mode Power Supply) and HVPS(high voltage power supply) are standardized through the technique of Modular Design and they are recomposed by five type. It helps to reduce cost as well as size and resource. Hereby 50% resource and 30% material cost are practically saved. In addition, we have been marked material information to more than 25g plastic parts so that recycling efficiency become a enhanced when they are exhausted.



Total 73 types of SMPS in the past

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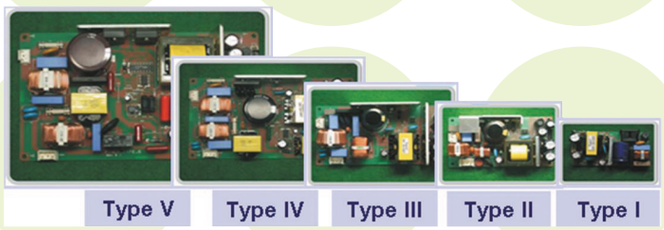


Total 5 types of SMPS in present

Application of environment-friendly packaging material for PDP-TV

Packaging material of 42inch PDP-TV is the first case that is considered from product design to packaging design in order to maximize delivery efficiency. Basically, the packaging volume decreased by changing external appearance of product. Accordingly, it helps to reduce packaging quantity and to improve delivery efficiency and so on. CAE and G-factor are added measurement to reduce trial and error for package development. It meet reliability test standard and one of the most slim packaging for 42inch PDP-TV in the world.

삼성보고서 영문 2007.2.1 4:58 PM 페이지48 1000 Dolev-2540-Color-S T

Development of Folding Stand (PDP TV)
(Idea for package material reduction and cost saving)

Fold the stand as following picture at packaging time for minimize its depth and unfold the stand when TV is installed.

Before folding the stand

After folding the stand

Exterior size of package

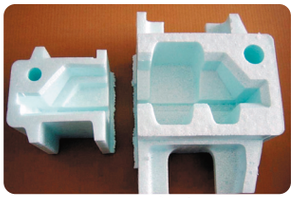
Halved its depth of previous model.
(Previous : 455mm , Improved : 228mm)

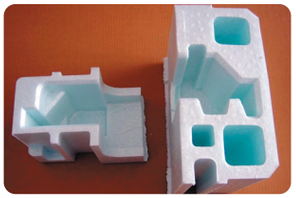
Efficiency : It brings 66% cost reduction of distribution when the shipment is from Korea to LA, U.S.A. thanks to the number of lightened TV has risen from 104 to 312 in container with 40ft-HC loaded weight.

Comparison of external package size reduction

Cushion volume

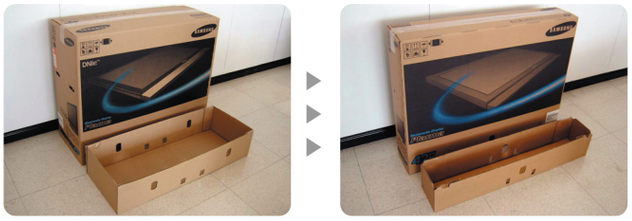
The weight of 503g of cushion reduced in comparison to the previous one.
(Previous : 986g, Improved : 483g)


Improved model Previous model
Case 1


Improved model Previous model
Case 2

corrugated cardboard usage

0.9775m² of corrugated cardboard usage is reduced based on outer box.

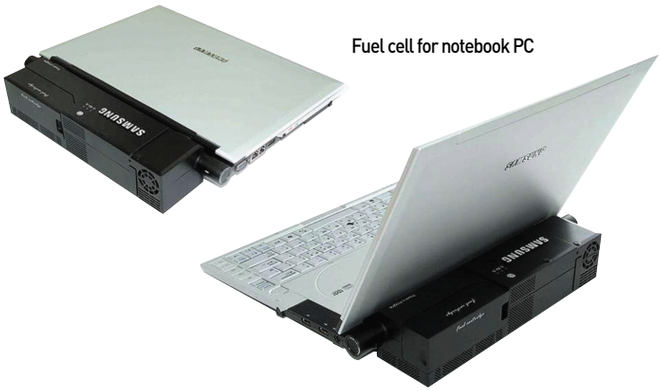

Before/After(Corrugated cardboard usage)

삼성보고서 영문 2007.2.1 4:58 PM 페이지49 1000 Dolev-2540-Color-S T

Standby power saving washing machine(Drum Type)

Hauzen drum washing machine dramatically reduced its standby power when the product is not operating state by changing innner circuit structure. In inactive state, previous power is 2.88W but now we brought it to 0.08W.

Save
24,455Wh
a year



Fuel cell for notebook PC

Next Generation Fuel Cell

We prepare our future through developing environment-friendly product and energy saving like new generation fuel cell. Fuel cell was equipped X1 notebook PC and it successfully operates for 10 hours by using methanol from its test.

Power saving unit for standby state

Adapter for Notebook PC & SMPS for Desktop PC

If notebook PC and desktop PC are in stand-by mode, adaptor and SMPS*) that are device supply power to notebook PC and desktop PC respectively been also in stand-by mode.

We saved 25% of stand-by power of Power Unit in order to reduce unnecessary power consumption.

Product	Before		After	
AC Adapter	AD-9019	1.0W	AD-9019S	0.75W
SMPS	ATX-300W	1.0W	ATX-300W(N)	0.75W

AC adapter

SMPS

*) SMPS : Switching Mode Power Supply

삼성보고서 영문 2007.2.1 4:58 PM 페이지50 1000 Dolev-2540-Color-S T

Power-saving Optical Disk Drive

Samsung Electronics promote diverse activities to reduce consumption power as of all products. Usually people think optical disk drive is a equipped part of computer so they do not consider its possibility of power saving on this. But through lots of improvement activities, we voluntarily reduced consumption power from 8% to as much as 76% compared to the previous model by operation mode. (TS-H552C)
We will strive to make a better product.

Section	Mode	TS-H552C		TS-H552B		Reduced rate(%)	
		5V	12V	5V	12V	5V	12V
CD	Sleep	122	11	532	19	77	42
	Standby	170	11	411	46	59	76
	Access & Read	510	880	830	969	39	9
DVD	Sleep	128	10	541	59	76	83
	Standby	155	28	479	57	71	51
	Access & Read	600	810	839	881	28	8

High Capacity Li-ion Battery Pack for Notebook PC

Diverse tries have been made to improve battery function that is core consideration when it comes that customers purchases notebook PC. We enhanced energy-saving and its life by upgrading 8.3% of charging&discharging frequency on account of expanding the battery pack capacity that applied to SX-20 model.

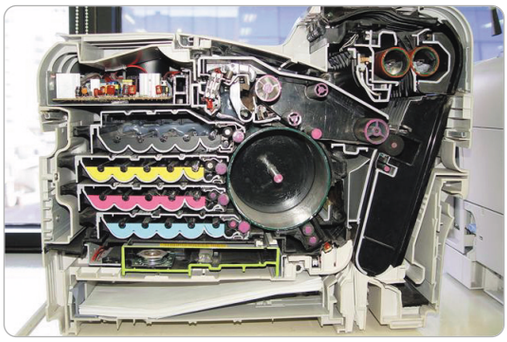
Li-ion battery pact for Notebook PC

Product	Before		After	
Battery Pack	53.28Wh (X20)	Cylinder type 18650, 6Cell, 2400mA	57.72Wh (M60)	Cylinder type 18650 6Cell, 2600mA
		9% improvement compared to the year of 2004		8.3% improved compared to X20

삼성보고서 영문 2007.2.1 4:58 PM 페이지51 1000 Dolev-2540-Color-S T

Color Laser Printer(CLP-511G)

NO-NOIS™, one of the superior core technology of Samsung, brought a lower noise level compared to that of the other company's in order to enhance customer's convenience. Different from the Turret type that makes noises which four toner cartridges, C, M, Y, and K equipped with OPC drum, NO-NOIS™. brought a noise level to the lowest by independently fixing four cartridges to drum so that it enhanced to focus on work. When it comes to CLP-511G, we prohibit to use cadmium, lead, mercury, selenium and their chemical compounds on OPC drum of the laser printer. Plus, it automatically changes its mode into power-saving mode when it goes into a standby status. As a result of these efforts, we acquired Eco label from Korea Eco-Products Institute.



CLP-511

Vacuum Cleaner(VC-BD915)

Samsung Electronics solely acquired A class(5 star) in Korea corporate as of excellent particulate dust collecting capacity from SLG, Quality Assessment Institute in Germany. It also has advanced HEPA filter (High Efficiency Particulate Air Filter) that filters particulate dust, house dust mite, bacteria and so on. With this, vacuum cleaner applied strongly sterilizing silver-nano coated on dust bag, dust bag filter and exhaust filter those directly contact to the dust so that removes the dust and prevent to propagation of bacteria.

Also, by considering user convenience, it embedded elbow supporting bar that helps for user not to bend his/her back and equipped with twin chamber that does not need a paper bag and enables to remove dusts easily.

VC-BD915

삼성보고서 영문 2007.2.1 4:58 PM 페이지52 1000 Dolev-2540-Color-S T

Certification of Environment-friendly Product

Eco Label

Eco-labelling program is an voluntary certification program to choose eco-products which use less material and energy or generate less environmental pollutant relatively among the products with same function and to award it Eco-Label. The program enable consumer to have environmental information of product and corporate to produce eco-product reflecting consumer's needs.

Eco-labelling program initially implemented in Germany in 1979, now spreads out to almost 40 countries including Japan, U.S., Canada, Nordic countries and European Union(EU). Korea Eco-labelling program has been conducted since April, 1992. This program provides consumer with opportunities to contribute environmental protection by buying eco-labelled product and corporation with opportunities to meet consumer's needs through developing eco-friendly product and technology so that realize sustainable production and consumption society.

Notebook PC, Desktop PC

In order Eco-label to be awarded, computer products shall have power-saving function, low-noise during operation, shall not contain hazardous substances such as lead, cadmium and harmful flame retardants like PBBs and PBDEs. they also should be designed to upgrade, disassemblability and recyclability. To meet this criteria, Samsung laptop and desktop PC is developed considering those matters from the design phase, and all of computers released in 2005 have been awarded Eco-label.

Notebook PC

Printer

All the printers delivered to the government and public institution have been awarded Eco-label. Besides fax machine, photo copier and toner cartridge have Eco-label.

Printer and Cartridge

Monitor, TV, Refrigerator, Air Cleaner

Almost all home appliances such as LCD monitor, CDT monitor, DLP TV, CRT TV, air cleaner, and refrigerator have Eco-label and efforts to improve the quality and minimize environmental effect are made.

삼성보고서 영문 2007.2.1 4:58 PM 페이지53 1000 Dolev-2540-Color-S T

* List of environment mark guaranteed product(as of Dec 31st, 2005)

Product	Model Name
Desktop PC	扶DMZ40/Z45/Z48/Z50/V40/V50/T40/T50/P40/Q50/X40 扶DB-P40/P45/P50/P53/V40/Z40/Z45/Z48/Z53 扶DN-Z40/Z45/Z50 扶ZDZ30, ZMZ28
Laptop Computer	扶SX-20, SP-26/28/29, SM40 plus 扶NT-M50/M70/Q26/Q30/Q31/P40I/P50/R50/X1/X06/X25/X50/X60
LCD Monitor	扶GH-15LS/17PS/17LS/GH19PS/GH19LS
CDT Monitor	扶PN-17AS/15VS, AN-19MS
CRT TV	扶GR29KO
DLP TV	扶HC-50KO/56KO/61KO/67L6/42L6/46KO, RC-46L3/50L3
Photocopier	扶SCX-7135/7135AG/7145/7145AG/7323/7328/7535/7545/7450
Multif-unction products	扶SCX-4216F/4216FG/4720FG
Printer	扶ML-2255G/3565G
Toner Cartridge	扶ML-2255GD5/3560DB/6060D6 扶SCX-4216D3/4720D3/7300DC/7500DC/7300DC 扶CLX-C7450A/M7450A/Y7450A/K7450A/Y7450A
Refrigerator	扶SRT-575LSI/686MSI
Air Cleaner	扶AC-T050W, HC-W100F/W101S/C130C/N130W

Environmental Declaration of Product

(Environmental Declaration of Product) :

It is a Type III Eco-labelling that marks natural resources that are throughly used in the whole process from collecting the resources, making the product, consuming the product to scrapping, and environmental effect as a number which is generated from discharged pollution factors.

See www.edp.or.kr for more information.

Samsung ODD(Optical Disc Drive) products including DVD-Writer are compliant with EU RoHS directive which restricts six hazardous substances and have provided environmental information of them transparently through Korea Environmental Declaration Program since 2003.

삼성보고서 영문 2007.2.1 4:58 PM 페이지54 1000 Dolev-2540-Color-S T

Energy Saving Mark

It is a voluntary agreement program to ensure electronic product have standby power saving mode so that minimize electricity consumption based on manufacturers' voluntary action. Energy saving mark can be awarded the product only meets national power-saving standard.

Samsung Electronics takes Energy Star and the domestic energy saving mark as a basic product policy of the company and contributes to reduce energy consumption when consumer use samsung product through these program.

Saving Energy

Eco mark

The Eco mark is used to effectively communicate Samsung's environmental friendly product activities to the interested parties such as the consumers, NGO, buyers, etc. by labeling the product's environmental friendly characteristics on the product or package with a simple symbol.

With the character 'e' from the word electronics and the leave expressing the environment, this design presents a bud, the symbol for the new life. The product with this mark means a environmental friendly electronic product. ECO stands for ecology and economy. It is an expression of recognizing the environmental needs early on and make the necessary steps to create new value added.

We are likely to attach Eco-mark to the products which ensure the basic environmental friendliness through Eco-design process during product development.

Various Samsung products including Laptop, desktop PC, camcoder (miniket), hard disk drives, optical disk drives, semiconductor products have been awarded Eco-mark and the mark is found on product itself, packaging box, and user manual. It is still being expanded other product categories as a tool for green marketing.
Eco-mark provides product information of self declaration type. It is strictly allowed to be attached to the product that has passed the standard of the company. We expect this would be guaranteed for whole product.

RoHS compliant
Samsung Electronics

삼성보고서 영문 2007.2.1 4:58 PM 페이지55 1000 Dolev-2540-Color-S T

Waste Electronic Products Collection And Treatment

In the nation

Recycling activity

Samsung Electronics has moved forward to promote environment preservation and resource recycle through collect · recycling activities as of all products we sold since 1992 as part of an effort to halt a pollution caused by obsolete electronic product that users throw away and to build resource circulating-oriented society.

Obsolete Electronic Product(packaging Material) Recycling System

Samsung Electronics runs collecting system in 1,560 sales agencies and 24 distribution centers nationwide to collect obsoleted product and packaging materials(styrofoam) that users throw away.

the collected products shall be delivered through self delivery system to Asan recycling center and seven specialized recycling center where are financed by the company. They are processed environmentally friendly into scrap iron, aluminum, copper and etc. Plus, twelve nationwide specialized recycling companies process thrown packaging materials into lightweight materials for construction and picture frame.

Nationwide recycling system

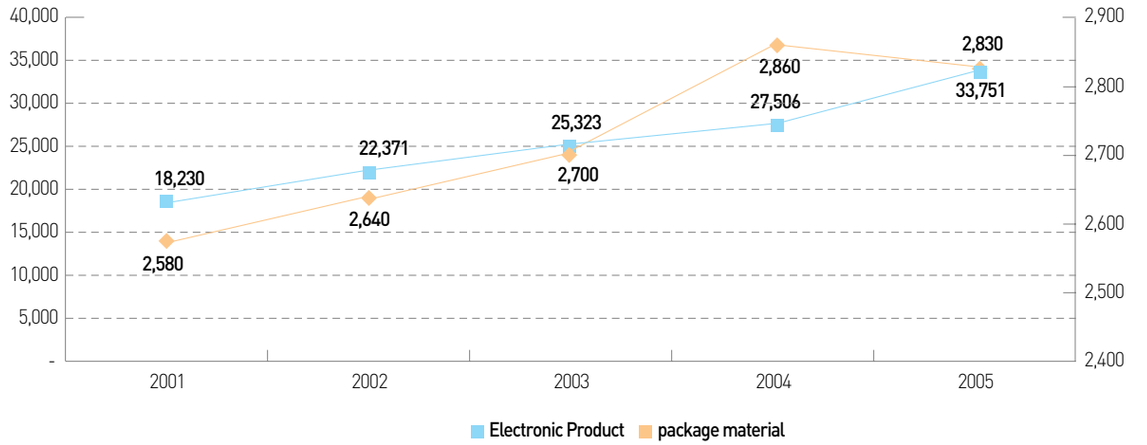
Waste Electronic Products Collection And Treatment/ Recycling Flow

삼성보고서 영문 2007.2.1 4:58 PM 페이지56 1000 Dolev-2540-Color-S T

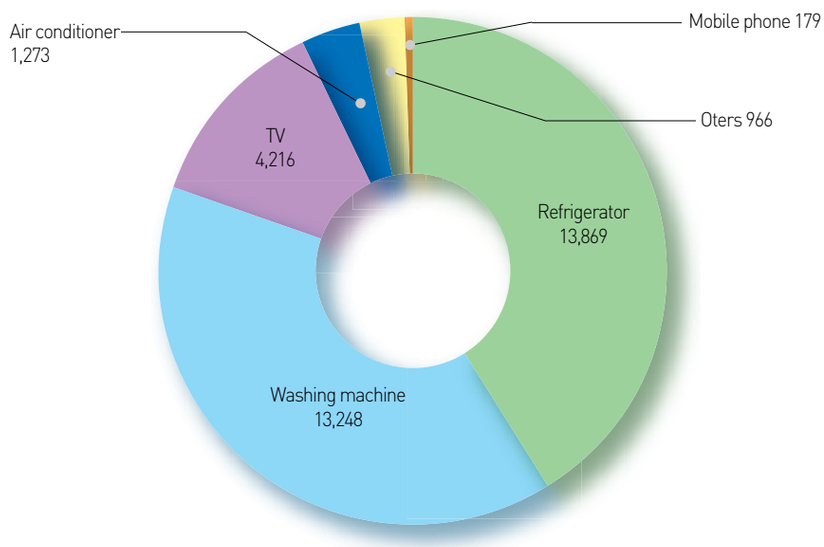
Recycling duty items of 'Extended Producer

Responsibility' has taken effect since 2003. Its 7 items are refrigerator, washing machine, air conditioner, TV, PC, monitor and packing material, and 2 more items, mobile phone and audio equipment in 2005, and now it is expanded to printer, copier and fax machine. Thereby we built recycling system for each product's character and successfully takes recycling responsibility through operating integrate recycling center. Especially, in 2005, we improved 133%, 33,751tons of waste electronics product and 105%, 2,830ton of packing materials compared to the 2003. Most of them are used to recycle valuable resources such as scrapped steel, aluminum, copper, and plastic. We put our effort to make resource recycling-oriented society through diverse activities such as environmental-friendly material use from the production development level and developing a recycling considered production.

(Recycling trend of obsolete electronic product/package material) (unit : ton)



(Recycling status of obsolete electronic product of in 2005) (unit : ton)



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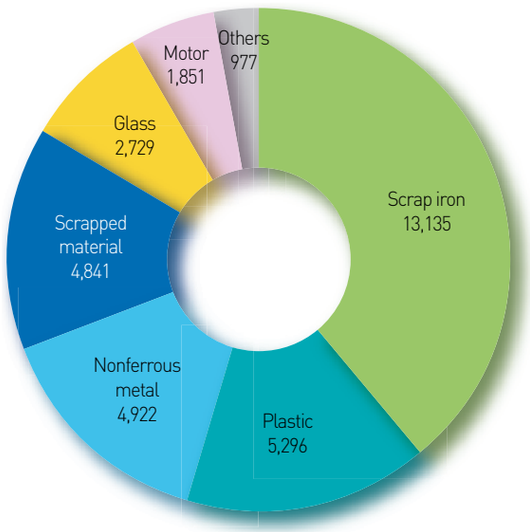
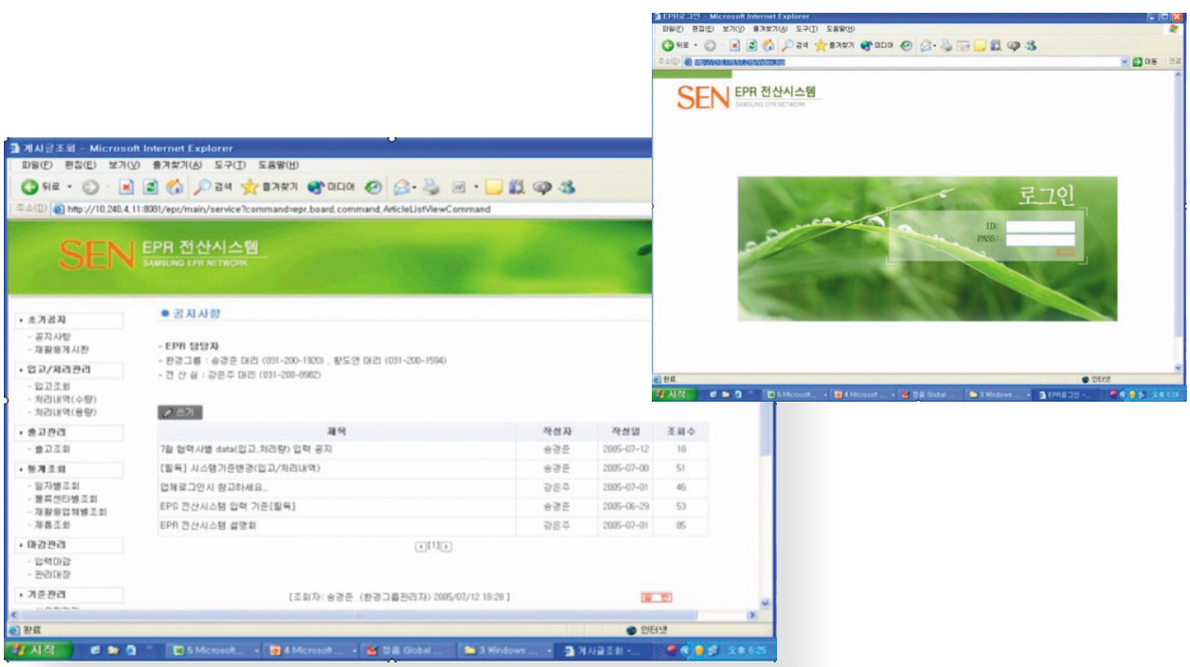
(Recycling the obsolete electronic product'(2005)) (unit : ton)



EPR information system Operation

Samsung Electronics operates EPR information system that enables to manage recycling status of obsolete electronic product and packaging material in realtime for the first time in Korea. Recycling agency in distribution center on EPR system basis, collects obsolete electronic product's packaging materials. It enhances material adjustment and operation efficiency referring to recycling information that registered in Samsung Electronics.

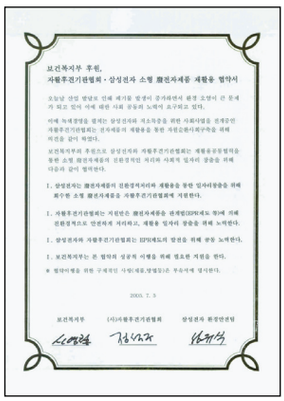


EPR information system

삼성보고서 영문 2007.2.1 4:59 PM 페이지58 1000 Dolev-2540-Color-S T

Samsung Electronics performs joint recycling project with Assistance Center for Self-support

Samsung Electronics promotes joint recycling project as of small-sized obsolete home appliance and PC in corporation with 'Assistance Center for Self-support' that supports low-income group. We donate the PC and small-sized obsolete home appliance collected by distribution center to Assistance Center for Self-support and put an effor to deal with them environment-friendly and help to create jobs. This is a case that we made a movement of environment preservation and social contribution by seeking mutual profit through environmental-friendly cooperation between electronic industry and non-profit group.



보건복지부 후원,
자활후견기관협회 · 삼성전자 소형 폐전자제품 재활용 협약식

2005. 7. 5

Expanding a process line of large-sized refrigerator in Asan recycling center

In tends to increase that process of obsolete refrigerator and large-sized refrigerator in recycling center. Previous refrigerator process facility only had Freon gas management, and it did not have prevention function of Cyclopentane explosion so it had low operation effectiveness and high risk of accident. Samsung Electronics now well prepares for the market change, firstly introduced in the nation a process line of only large-sized refrigerator and prevention function of Cyclopentane explosion, and they makes sure the saving a processing time and safety.

Operation Ceremony of Recycling Facility

삼성보고서 영문 2007.2.1 4:59 PM 페이지59 1000 Dolev-2540-Color-S T

Overseas

European Union(EU)

The Waste Electrical and Electronic Equipment (WEEE) directive, announced in the EU in February 2003, requires manufacturers to undertake responsibility for taking back and recycling their own products at the end of their life cycles, starting in August 2005. Samsung Electronics started marking of the Recycle symbol on products manufactured from May 2005, and provides information on environmentally safe recycling to the government authorities, consumers and recycling companies. Samsung Electronics is a member of the European Recycling Platform (ERP), a consortium established by major electronics companies (Sony, Hewlett-Packard, Gillette, and Electrolux). In the countries, not covered by ERP service, the Company is joining a local recycling scheme to fulfill recycling obligations.

Currently, we are operating take back and recycling systems in 16 member states and other countries are in process to set up a system.
The below is the list of take back & compliance schemes in place.

Europe	Take back & Compliance Scheme
Netherlands	NVMP, ICT Millieu
Belgium	Recupel
Sweden	El-Kresten
Hungary	Electro-Coord
Slovakia	Envidom, SEWA
Spain	Ecotic, ERP
Portugal	AMB3E
Czech Republic	Asekol, Electrowin
Finland	SERTY
Denmark	El-Retur
Greece	Product Recycling
Ireland	WEEE Ireland
Austria	ERP
Germany	ERP
Luxemburg	Ecotrel
Slovenia	ZEOS, Slopak

We are in progress to contract the system that is proper for the each country situation for the rest of countries.

삼성보고서 영문 2007.2.1 4:59 PM 페이지60 1000 Dolev-2540-Color-S T

The Greening of Process

Samsung Electronics strive to restrain a substance causing the global warming during process, especially CO_2 generation. Samsung Electronics also has been a model case for saving energies by decreasing the energy consumption throughout the company.

Consumption of energies and resources

Energy and Material Consumption (in 2005)

Section	Usage	Contaminants Emission Amount	Recycling
Power	6,426(thousand mwh/year)	CO_2 : 936(a thousand TC/year)	
LNG	132,513(a thousand m3/year)		
Water	50,121(a thousand ton/year)	扶Waste Water : 43,561(a thousand ton/year) ※Discharging Amount of Contaminants 扶Water Quality : 0.36(a thousand ton/year) 扶Air : 0.06(a thousand ton/year) 扶Scrapped Material(Wastes) : 360(a thousand ton/year)	扶Reuse of Water : 35,770(a thousand ton/year) 扶Wastes recycling : 299(a thousand ton/year)
Chemical	142 (a thousand ton/year)		
Raw Materials and etc	Structural equipment and wafer PCB board, Soldering PVC resin Parts, packing material		

Prevention of Global Warming

Samsung Electronics exert diverse efforts to prevent the global warming. We participated in mock trade project of CO_2 emission that sponsored by KBCSD(The Korea Business Council for Sustainable Development) and Korea Energy Management Corporation from December 2003 to January 2004. In addition, we got the opportunity to understand a management system of weather change agreement joining a test project, 'evaluation and certificate system for national greenhouse gas reduction' sponsored by Korea Energy Management Corporation from June 2003 to February 2004.

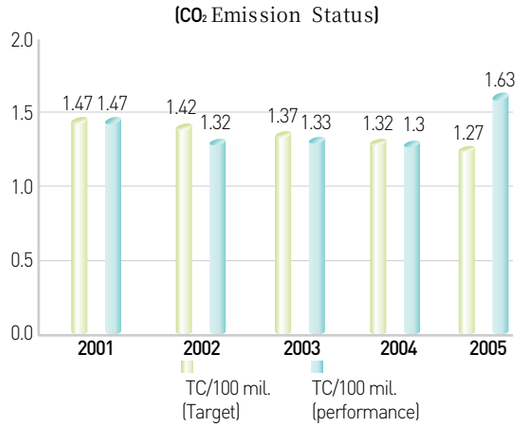
Samsung Electronics has been a leading role in anti-global warming activities by organizing TF to respect Kyoto Protocol and joining the voluntary convention on saving energies as a whole business base.

Catch CO_2 1030 Project

With a slogan of prevention of global warming, Samsung Electronics's project so called 'Catch CO_2 1030' has its aim to reduce the emission quantity of global warming substances up to the ratio 30% of 2001 by 2010. When it comes to PECs gas, we develop and apply the technology such as introduction of management system, application of alternative gas and optimization of manufacturing.

As a result, in 2004, we successfully reduced a won unit of 11% compared to 2001 and continuously put our all effort to meet our aiming standard, 30%.

삼성보고서 영문 2007.2.1 4:59 PM 페이지61 1000 Dolev-2540-Color-S T



Classification	TC/100 mil. (Target)	TC/100 mil. (performance)	TC/yea
2001	1.47	1.47	477.047
2002	1.42	1.32	552.885
2003	1.37	1.33	622.576
2004	1.32	1.30	750.487
2005	1.27	1.63	936.169

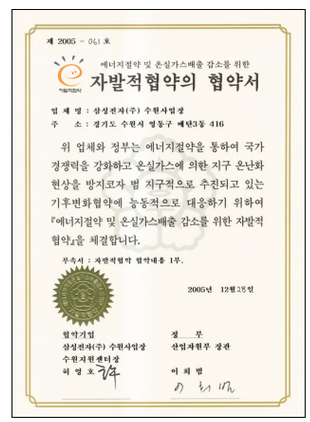
Join the Voluntary Agreement to reduce green house gas

Samsung Electronics agreed to join『Voluntary Agreement on reducing the green house gases』since 2000 as an effort to prevent global warming due to continuing increase of green house gas density in the air. And as one of efforts, each plant has joined the voluntary Agreement and accomplished a plan to save energies annually and reduce CO_2 emission.

※ What is Voluntary Agreement?

The Voluntary Agreement is a non regulative institution. For a company, it carries out the decreasing target of energy usage every 3 ~ 5 year based on the year of agreement accomplished in order to save energies and reduce green house gas emission between companies which spend annual energies over 2 thousands TOE (Ton of Oil Equivalent) and the government. Also for the government, it provide incentives such as funds, tax and technology education.

The joining ceremony of Voluntary Agreement


제 2005 - 041 호

에너지절약 및 온실가스배출 감소를 위한

자발적협약의 협약서

업 체 명 : 삼성전자(주) 수원사업장
주 소 : 경기도 수원시 영통구 매탄3동 416

위 업체와 정부는 에너지절약을 통하여 국가 경쟁력을 강화하고 온실가스에 의한 지구 온난화 현상을 방지코자 범 지구적으로 추진되고 있는 기후변화협약에 능동적으로 대응하기 위하여 『에너지절약 및 온실가스배출 감소를 위한 자발적 협약』을 체결합니다.

부속서 : 자발적협약 협약내용 1부.

2005년 12월 28일

협약기업
삼성전자(주) 수원사업장
수원지원센터장
허 영 호

정 부
산업자원부 장관
이 희 범

Efficiency Improvement of Greenhouse Gas Processing Facility

Tangjeong plant propels to improve efficiency of process equipment as a method of reducing green house gas since August 2005. The currently established process equipment has low ability to manage the green house gas because its original objective was to handle particulate matter and flammable gas in the exhaust gas during manufacturing. In order to improve greenhouse gas process efficiency, repeated Lab test found influential factors to the process efficiency with close cooperation with the facility maker. More than 90% of the process efficiency is expected to increase by applying the found factors to the process facility through changing driving condition.

삼성보고서 영문 2007.2.1 4:59 PM 페이지62 1000 Dolev-2540-Color-S T

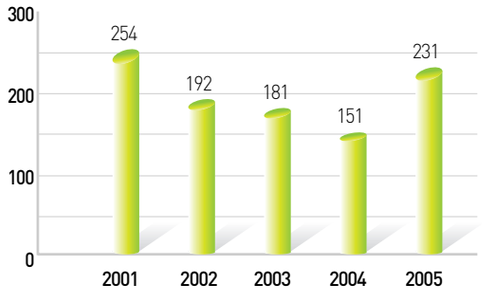
Energy

Samsung Electronics promotes eye-opening saving movements to save energy spent while manufacturing and also tries to save energies occurred when using consumer products by developing energy saving products. The Samsung Electronics products has been a leading model of effective usage of energies.

(Electricity Usage Status) (Unit : mwh/100 million won)

Classification	year	mwh/100 million won	a thousand mwh/yea
Electricity	2001	9.0	3,197
	2002	9.0	3,780
	2003	10.0	4,359
	2004	9.1	5,249
	2005	11.2	6,426

(LNG Usage Status) (Unit : Nm³/100 million won)



Classification	year	Nm³/100 million won	a thousand m³/year
LNG	2001	254	82,863
	2002	192	81,226
	2003	181	71,312
	2004	151	87,029
	2005	231	132,513

The sustainable saving of energies

Major activities

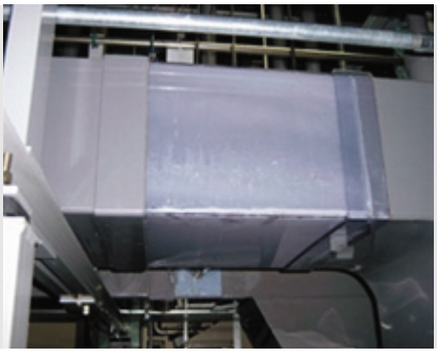
- Capturing sympathy with all employees for saving energies and expanding organized activities (selecting and operating 'save energy', coordinating meeting of chief manager of each energy saving equipment department, operating energy saving Wednesday and running the examining team, etc.)
- Propelling the efficiency maximization of energy saving equipment
- Removing wasting factor of energy.
- The optimization of facility operating conditions
- The organizational activity by applying SIGMA 6 method
- Installation of steam oil gauge, collection of condensed water, automatic controlling of air conditioning and management of optimized supply.
- Saving energy in all production bases
- Developing the ultra innocent Reduction Control
- Operating the ice thermal system
- Increasing the efficiency of energy usage such as refrigeration facility

삼성보고서 영문 2007.2.1 4:59 PM 페이지63 1000 Dolev-2540-Color-S T

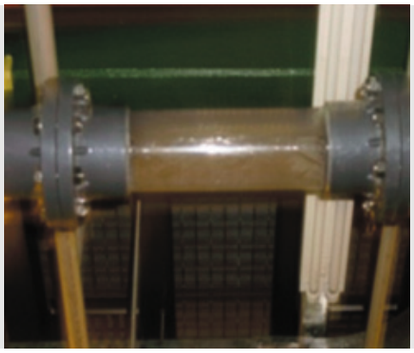
Process Improvement Activities

Process Improvement through Discharge Management

Cheonan plant of manufacturing improvement started to control environmentally contaminated material occurred from production process by managing discharge place(source). And the unit classifies the type of sewage, air and waste through pre-evaluation of chemical substance and environmental influence evaluation system. Also it solved problems such as blocking of exhaustion pipe and by powder occurred from ETCHING process and blocking of sewage pipe during PHOTO process



ETCHING process improvement case



PHOTOprocess improvement case

Improvement activity of foul smell for pleasant environment circumstance

Nowadays, the citizen's interest in the environment area has dramatically increased in this society. Samsung Electronics executes to cope with requests by outside stake holders.

Especially, the civil application related to foul smell has been aroused as a matter of concern throughout the society, therefore we operate continual improvement activities to configure a pleasant plant by establishing improvement plan in advance. The major accomplishments are the basic facility improvement, new installation of odor removal equipment, fundamental removal of origin of place, specialized/characterized contamination degree analysis and monitoring.

Dome type waste water purification control unit to prevent the odor scattering (Tangjeong Plant)

Tangjeong plant keeps operating activities to decrease foul smell occurred from waste water purification control unit. Each reactor of control unit is designed to absorb foul smell through exhaustion duct which separately installed and has covered upper part and then the foul smell is supposed to be eliminated after processed in the foul smell reduction facility. Also in order to eliminate residual foul smell which unexpected at the planning stage, we sealed the upper part of sedimentation chamber and limit the fundamental foul smell. For the efficient elimination of sulfur compounds, one of major components contained in the LCD waste water, it configured waste water purification control unit without odor by operating the wet scrubber which able to simultaneously execute liquid cleansing and chemical oxidation.

삼성보고서 영문 2007.2.1 4:59 PM 페이지64 1000 Dolev-2540-Color-S T

Reduction of contaminated substances discharge through managing the waste liquid

Tangjeong plant continues to minimize contaminated material discharge due to optimized classification of waste water, emission and waste solution, keep upgrading of recycling rate and promote new items. For major promotion, the unit reduced the discharge of waste water and air pollution substances by collecting chemical substances emission of PRS-2000 from LCD Strip process with a condensed solution. Also the unit has been recycling the condensed solution after purification. As much as 900 ton of the PRS-2000 condensed solution is recycled in 2005. We will continuously develop an improvement ITEM and apply it into process.

Efficient elimination system of waste gas

The particles of discharged substances in the air can be a factor of harmful gas, odor and the white led. The Semiconductor Business has developed the technology to reduce the particles more effectively than previously applied process system. The newly developed system has doubled the purification effect of semiconductor emission gas by adding the factor technology in order to eliminate both contaminated component in the air and particles.

Also we have the ability to eliminate developed particles after inducing cohesion and development of undeleted particles and new particles by expediting particle generation which includes contaminated substance. Samsung Electronics will make en effort to be a leading role in the environment friendly working with continuous technology development in the future.

The Calcium elimination technology development of waste water purification (Ca-Free)

Giheung and Hwaseong plant operates the waste water purification system in order to handle the waste water occurred while manufacturing semiconductor. For the waste water purification, we developed the new technology of Ca elimination, of which our own environment friendly process method. They contributed on prevention of environment pollution by reducing waste substances emission through using Na_2CO_3 instead of $Ca(OH)_2$, which was generally used in order to handle high density fluoric acid waste water(F.W.W) and reusing of sludge which occurred while handling waste water purification. Therefore the use of fluorine remover of high purity as well as $Ca(OH)_2$ became unnecessary. The new technology of handling waste water helps cost reduction and prevention of environment contamination.

The reduction of waste material through liquid crystal TRAY improvement

Giheung plant had made and used 126 kinds of trays for Device only for small and medium sized liquid crystal tray. But they developed the tray for common use and improved in terms of environment and safety such as reduction of tray and liquid crystal usage. Also especially, the liquid crystal was eliminated even though it is less harmful but emits much CO_2 during incineration.

The development of environment friendly stripper for reduction of foul smell and waste material

Giheung plant has drastically reduced using of chemical and waste material by developing 'functional New Chemical', which can replace 4 kinds of materials such as DMSO that cause odor during strip process. In addition, the plant makes a great effort to minimize environment load by running a test in order to make new chemical recycled. Previously used DMSO included the sulfur compounds and generated a little foul smell. But it didn't use DMSO this time so it can configure surrounding environment improvement and the clean plant by blocking causing factor of odor.

The development of TMA, TEMAHf Refill system

The semiconductor business has improved the supply system for new materials (TMA, TEMAHf) which have spontaneous combustion, explosion and high viscosity nature. And it accomplished the waste residual level to zero after changing stabilized chemical system which supplies TMA and TEMAHf at fixed amount. With this method, potential hazard factor such as the leakage of TMA and TEMAHf that can be generated while changing a vessel and worker's mistake had been eliminated. Therefore, we reduced the waste chemical amount.

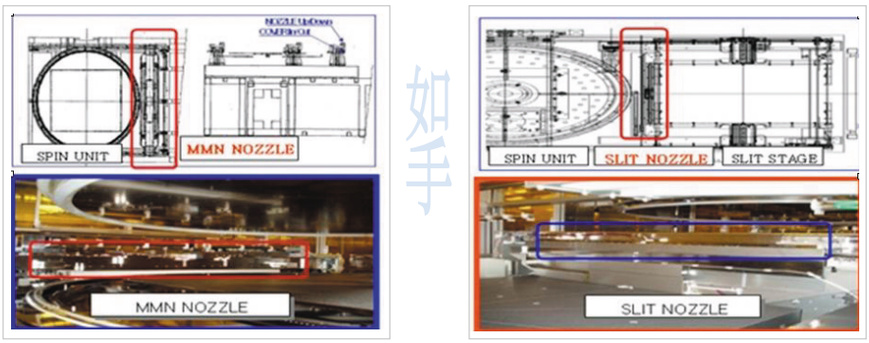
삼성보고서 영문 2007.2.1 4:59 PM 페이지65 1000 Dolev-2540-Color-S T

Reduction of CHEMICAL usage due to facility improvement

Cheonan plant has managed the reduction project of TFT PHOTO PR and CF PGMEA usage for a method of environment improvement activity by reducing chemical usage. In case of TFT PHOTO PR, the PR usage per GLASS was reduced from 80cc to 60cc by changing into SLIT nozzle while keeping regular Gap of MMN nozzle which continually sprays PR.

In case of C/F PGMEA, the PGMEA usage per GLASS was reduced from 178cc to 142cc by decrease of new liquid usage, increase of circulating liquid usage and identification of washing sequence.

Throughout running this project, we have decreased waste pollutants emission by405,900 liter.

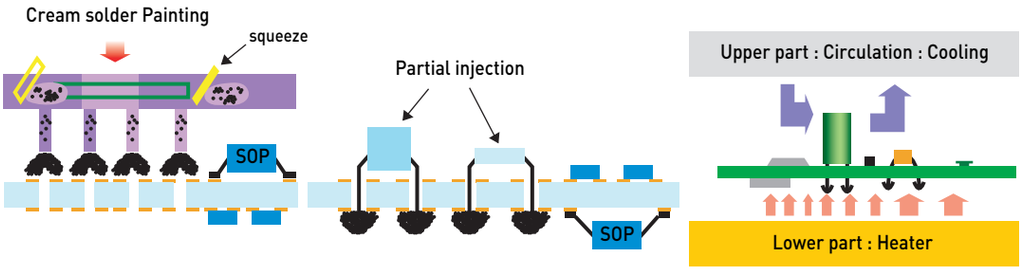


The Reduction of TFT PHOTO PR

The Reduction of CF PGMEA

Minimization of organic solvent usage due to innovation of PBA process

The wasting factor during PBA process such as defection rate, RETOUCH and solder JIG has been eliminated by altering from PBA solder method which used existing IPA & FLUX to Screen & Reflow method. Also we minimized the waste materials by reducing drastically IPA & FLUX usage which was used in process due to application of Screen & Reflow method.



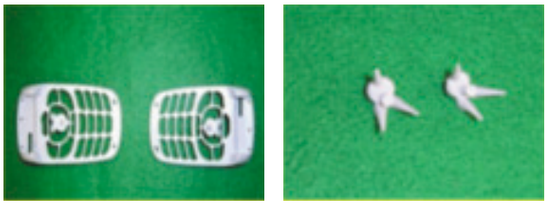
삼성보고서 영문 2007.2.1 4:59 PM 페이지66 1000 Dolev-2540-Color-S T

The reduction of mold scrap due to the development of machine pattern to decrease waste material.

Since the generation of mold scrap waste due to the machine pattern during mobile phone molding process has been a major factor of unit cost of product rise, for the purpose of environment improvement and unit cost reduction, Gumi plant has reduced the emission of waste mold due to Hot Runner technology application and the development of machine pattern technology for resized type of Gate-way Size.

Improved 2-cavity mold that is hard to materialize Hot Runner into 3-level mold structure that enables scrapped part to make Runner-less-type mold implemented Hot Runner. The improvement was applied to the whole partner companies of mobile phone injection molding. With this application, we saved the raw material usage at 9.2g/unit and 460 million/year

3 steps cold runner machine pattern



Runner Less Hot Runner machine pattern

Saving of material cost through recycling of hazardous materials

At Gumi plant, we applied the oxide splitter for waste solder in order to ensure environmental-friendliness and secure the product competitiveness during printing SMD manufacturing process. Waste solder analysis has been conducted to remove oxidant on the surface of smelting furnace during soldering M/C operation or to reduce an amount of solder disposal. 50% of them are considered to be possibly reused and we conducted classification work of oxidant and solder and improved re-usage rate of waste materials. Thereby 50% reduction of waste material and cutting cost(30million won/year) have been made.

The recycling equipment of waste solder

삼성보고서 영문 2007.2.1 4:59 PM 페이지67 1000 Dolev-2540-Color-S T

The Greening of Workplace

Samsung Electronics applies environment management program and in order to minimize contaminant discharge through strict management and process improvement of place of origin in order to minimize environment contamination material generated during manufacturing process. Under a principle of self management of waste materials by oneself, we operate the aggressive activity to preserve resources and nature by expanding process facility and recycling facility.

Management of environment pollution material

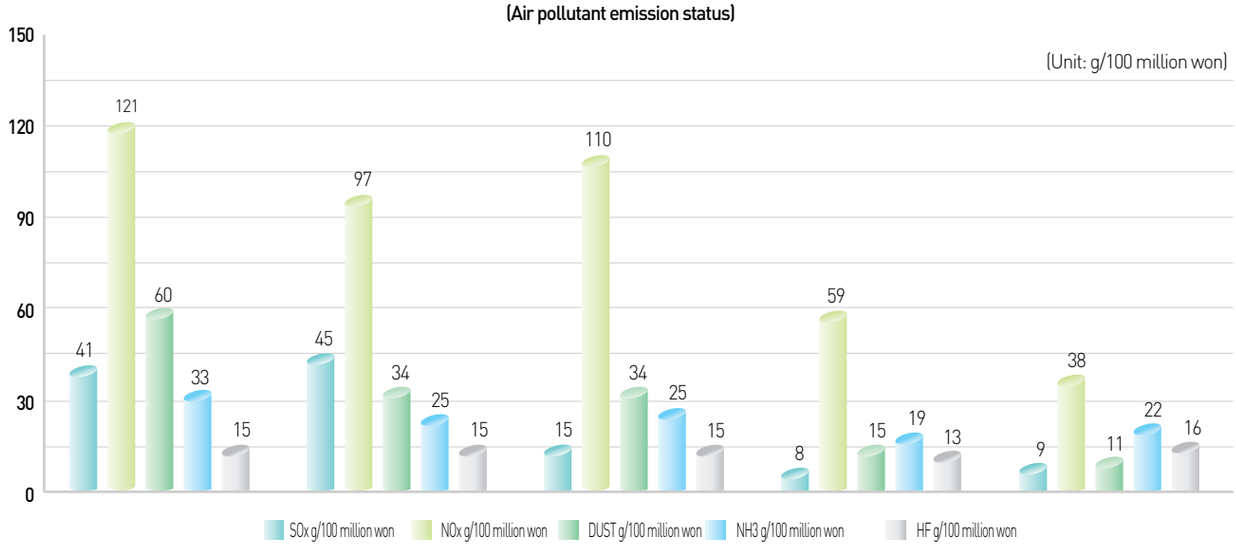
Pollutants by Raw Materials and Subsidiary Materials(used in the national workplaces) Unit: ton/year

Type	Volume
Air Pollutants	55
Waste Water	364
Waste	360,211

Management of air pollution material

Samsung Electronics has been making an great effort to preserve environment by altering the boiler fuel into LNG since 1994 to minimize air pollution material emission and managing contamination by real time base by introducing processing materials and new technology for prevention facility and also installing automatic environment measurement network.

(Air pollutant emission status)



삼성보고서 영문 2007.2.1 4:59 PM 페이지68 1000 Dolev-2540-Color-S T

(Unit: kg/year)

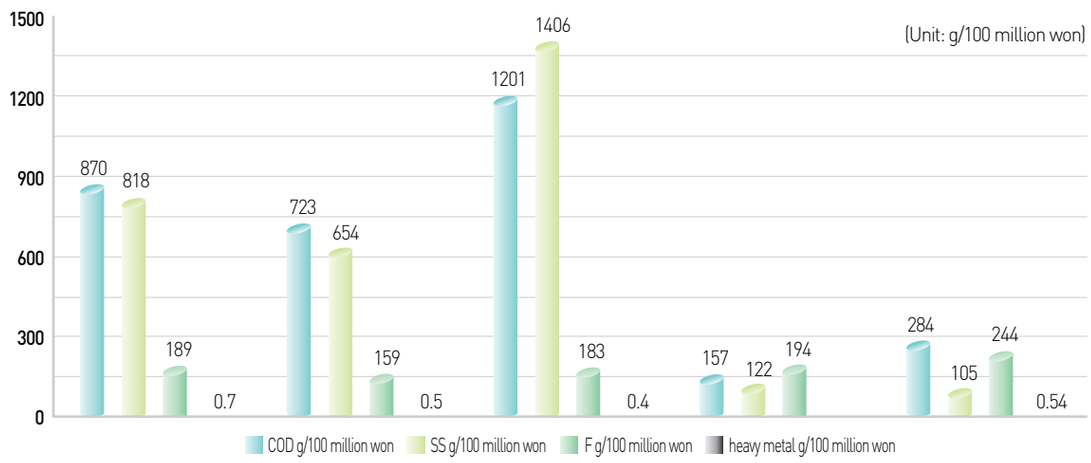
Type	SOx	NOx	Dust	NH_3	HF
2001	13,276	39,180	19,428	10,685	4,857
2002	18,230	39,297	13,774	10,128	6,077
2003	8,280	47,938	14,817	11,767	6,537
2004	4,611	34,003	8,645	10,950	7,492
2005	5,171	21,834	6,320	12,641	9,193

Management of Water pollutant

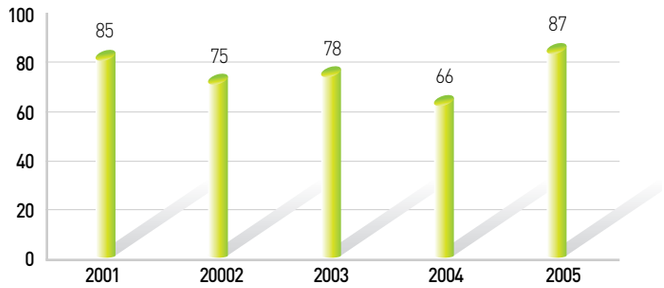
(Unit: kg/year)

Type	COD	SS	F	heavy metal
2001	281,706	264,868	61,198	227
2002	292,902	264,948	64,414	203
2003	523,396	612,735	79,751	179
2004	90,483	70,312	111,807	207
2005	163,181	60,331	140,198	310

(Water pollutant status)



(Industrial water usage) (Unit: m^3/100 million won)



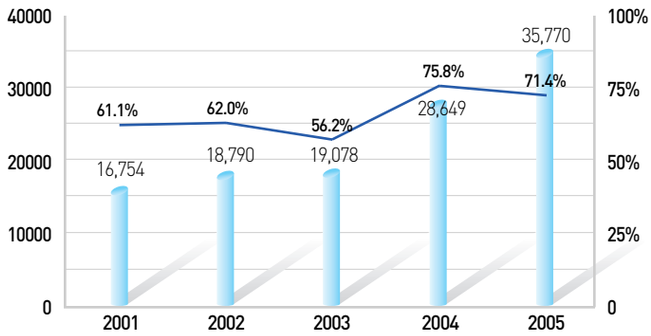
Type	m^3/million won	1,000 m^3/year
2001	85	27,439
2002	75	30,322
2003	78	32,745
2004	66	37,794
2005	87	50,121

삼성보고서 영문 2007.2.1 4:59 PM 페이지69 1000 Dolev-2540-Color-S T

Reduction of industrial water and waster water due to the expansion of reuse.

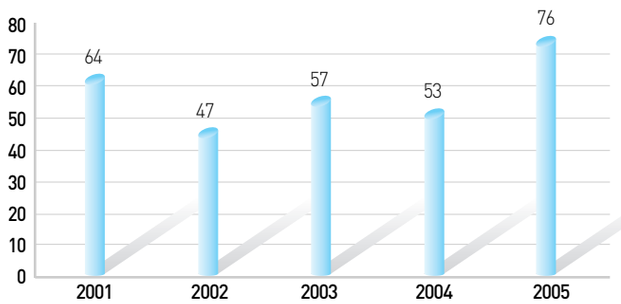
The water utility by Samsung Electronics is divided into industrial water and public water. And we continue to expand improvement to decrease water utility and decrease the water utility by process improvement and reusability technology. For example, we decrease the use of water utility by reusing processed water as sanitary water of restroom, gardening water, and graywater.

(Water usage amount and percentage by Reusing(%)) (Unit: ㎥/100 million Korean Won)



Type	Reusing (thousand m³/year)	Reusing Percentage
2001	16,754	61.1
2002	18,790	62.0
2003	19,078	56.2
2004	28,649	75.8
2005	35,770	71.4

(Waste water occurrence amount) (Unit: ㎥/100 million Korean Won)



Type	m³/million won	thousand m³/year
2001	64	20,666
2002	47	19,129
2003	57	24,132
2004	53	30,624
2005	76	43,501

Reduction cases of water pollutants

The application of membrane Bio system in waste water purification unit.

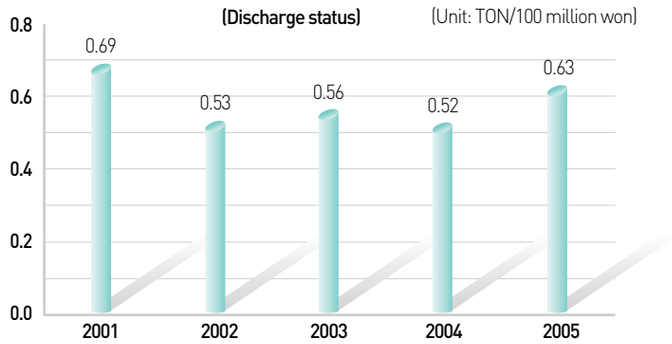
Suwon Complex has applied Membrane Bio System in order to minimize water pollutant emission during washing laboratory. Since it's not possible to process washing waste of 200 ton /day of which concentrations of ABS, the surfactant is equivalent to 58.40mg/L with general activated sludge process. Therefore, we installed high-cost membrane separation system into the aeration tank through numerous pilot test. Membrane Bio System is the high end ultra precision filter that enables to filter pollutants in the contaminated water through particulate port (0.1~0.4μm) which exists on the membrane surface.

According to testing results after installation, ABS treated water of pollutants is discharged at the level of 0.05mg/L Also COD and SS was drastically reduced so we plant to apply membrane bio system for the construction and expansion of waste water treatment and sewage management.

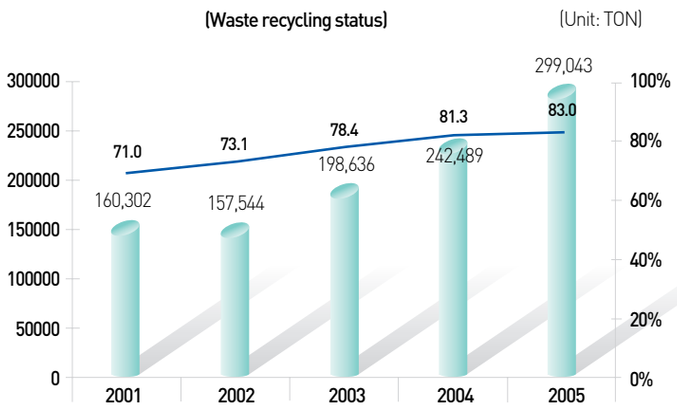
삼성보고서 영문 2007.2.1 4:59 PM 페이지70 1000 Dolev-2540-Color-S T

Waste management

Samsung Electronics promotes to reduce waste in all production bases. We recycle the waste organic solvent which was incinerated after being discharged with other materials by pipe separation process. In addition to this, we have recycled forty thousand ton/year of organic and inorganic sludge for raw materials of cement. By reusing waste facility, materials and parts at the plant through the recycling center so we achieved the reduction effect of waste occurrence and its cost. Also we applied the polluters-pay principle into each part of plant so reduced incinerated waste occurrence by cross checking separation and upgraded recycling rate by due to expansion of recycling waste.



waste	TON/100 million won	TON/year
2001	0.69	223,422
2002	0.53	214,714
2003	0.56	244,048
2004	0.52	299,688
2005	0.63	361,985



Type	Recycling amount (ton)	Recycling rate(%)
2001	160,302	71.0
2002	157,544	73.1
2003	198,636	78.4
2004	242,489	81.3
2005	299,043	83.0

Management of Hazardous chemicals

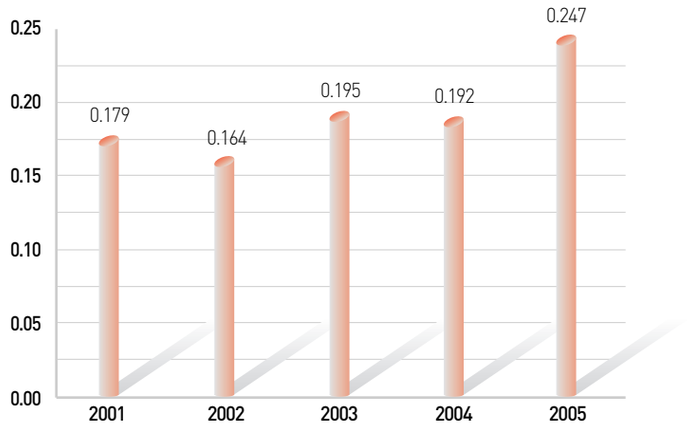
Pre-Safety Evaluation on New Chemicals

New chemicals needed in each process line or research are studied by the environmental safety and health(ESH) division to determine harmful effects prior to use. This pre-safety evaluation on chemicals restricts the quantity of use of forbids use to maintain safe workplaces. For instance, a toxic cleansing agent used in reflow ovens was replaced with a surface-active agent that dramatically reduced harmful effects. The use of volatile organic compounds(VOC), including solvents, were changed to non-volatile organic compounds which removed the problem of offensive odors. Raising the ignition porint from 12 °C to 120°C has minimized the risk of fire. These efforts reduced 26 tons of chemical use that returned 600.7 million Korean Won in cost reductions.

삼성보고서 영문 2007.2.1 4:59 PM 페이지71 1000 Dolev-2540-Color-S T

(Usage of Toxic Chemicals)

(Unit : TON/100 million won)



toxic substanc	TON/100 million won	TON/year
2001	0.179	57,960
2002	0.164	66,440
2003	0.195	84,981
2004	0.192	110,654
2005	0.247	141,921

Improvement cases of overseas branches

The expansion of waste water treatment control at SEMA corporation (Malaysia)

We actively promote activities in order to prevent environment pollution due to production increase by overseas branch. Samsung Electronics applies the strict management standard for pollutants emission standard and accordingly applied to whole global production plant. SEMA (Samsung Electronics Malaysia) which produces the microwave oven expanded the waste water purification control due to drastic increase of production facility in 2005. By managing the waste water at the amount of 50tom/Hr through expansion of the existing facility of 20tom/Hr, it contributes to observation of Malaysian law, satisfaction to Samsung Electronics standard and minimization of pollution.

SEMA waste water treatment

Improvement of waste management process of SESK corporation (Slovakia)

SESK which produces large size LCD, PDP TV, etc has saved the process cost and upgraded the recycling by establishing and operating waste reduction target and improving the management process. In 2005, it changed waste management of EPP, tray and the paper box into recycling. Also it accomplished the effect of cost saving of 600 million won/year and upgraded management efficiency through regular monitoring and efficient management of waste managing companies.

SESK waste collection container

삼성보고서 영문 2007.2.1 4:59 PM 페이지72 1000 Dolev-2540-Color-S T

SESK corporation (Slovakia) Cases of introducing energy saving facility at the beginning of construction.

SESK corporation promotes to introduce energy saving facility at the beginning of factory construction and operates high efficient energy saving.

- Improvement of working environment by saving energy and natural lighting effect due to application of sunlight in the material receiving areas.
- Blocking of exterior dust and injurious insects and improvement of interior air handling unit efficiency by application of shutter at both receiving & shipping dock
- Keeping proper inside temperature by application of AHU Invertor Control
- Maximization of energy efficiency due to the introduction of air handling unit facility of dispersion and concentration type.

SUNLIGHT at material receiving dock

SHUTTER at receiving and shipping dock

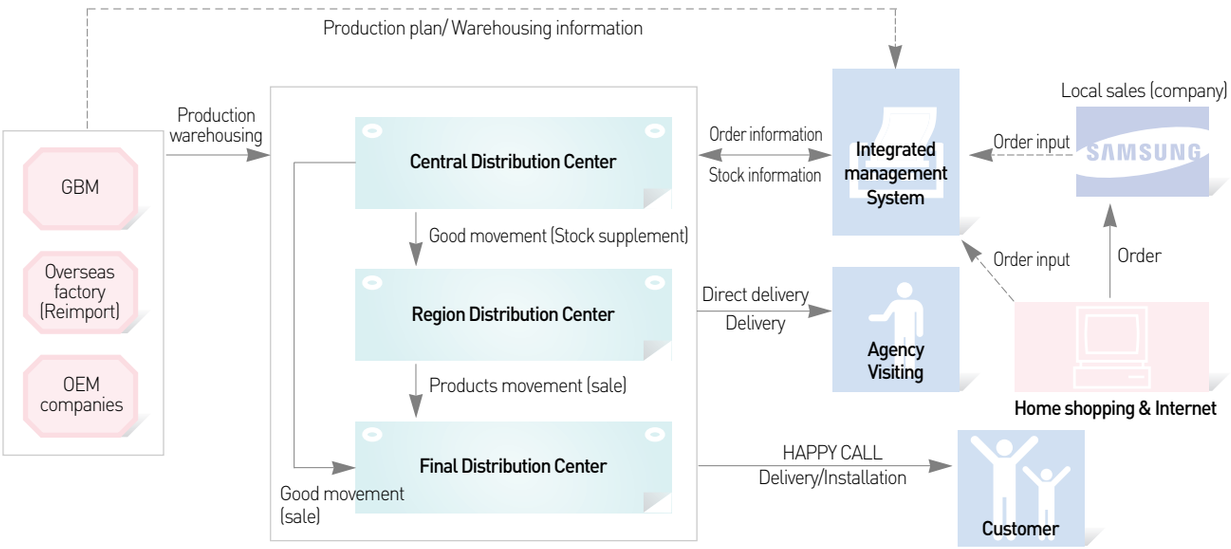
Transportation

Status of Distribution System Build-up

Samsung Electronics has reduced the air pollutant emission by decreasing transportation distance at the greatest due to improvement of distribution system. We observe the real time delivery promise considering distribution capacity by introducing the digital map and the transportation route optimization software due to DTPS(:Delivery Time Promise System) connected to retail distribution location measurement system. Also we observed the delivery date and reduced the paper waste by introducing PDA, the electronic certificate acquisition.

Samsung Electronics optimized the transportation plan by introducing the key distribution TMS (Transportation Management System) and set the optimized transportation route for shipping period by introducing professional TMS package. Also it changed fixed transportation route as flexible method and it expanded and applied WMS (Warehouse Management System) into the all distribution center step by step.

(Distribution system)



삼성보고서 영문 2007.2.1 4:59 PM 페이지73 1000 Dolev-2540-Color-S T

The Greening of Communities

At Samsung Electronics employees apply their environmental mindsets actively in practice by collaborating with the communities where the Company operates. Periodic environment monitoring, ecology-protection campaigns including the "one mountain, one river cleanup" are carried out by each unit as well as environmental education.

Preservation campaign of soil ecosystem

Samsung Electronics expands various and direct environmental preservation campaign not just confining to the production bases but covering the local society including neighboring area regarding as the community. These campaigns are not for just once event such as a day for World's water and a day for environment, but to manage events through volunteer by employees and also to upgrade effects by connecting to local citizens. Samsung Electronics promotes active campaigns to prevent environment pollution and preserve nature and also makes an effort to draw local citizens' interest in environment.

Monitoring Environment Changes

We regularly assess the water quality of the rain water course and the junction stream near plants in order to analyze how sewage and waste water treated water which is emitted from plants into water system nearby influent to the water quality of river and ecosystem.

Cases of monitoringUnderground Water Quality

We regularly assess the water quality of the rain water course and the junction stream near plants in order to analyze how sewage and waste water treated water which is emitted from plants into water system nearby influent to the water quality of river and ecosystem.

- The monitoring point: stream (Woncheon stream, Nongseo stream, Osan stream, the rain water system)
- The monitoring item: stream (pH, COD, BOD, turbidity, T-N, T-P, fluorine and etc.)

Measurement data of nearby streams (twice/month)

Section	Unit	Woncheon stream	Nongseo stream	Osan stream
pH	-	7.9	8.2	7.8
COD	mg/L	12.6	11.4	7
BOD	mg/L	9.8	9.1	3.6
SS	mg/L	21.1	14	20.6
T-N(Total nitrogen)	mg/L	9.2	13.5	4.5
T-P(Total prosphrous)	mg/L	0.4	1.7	0.2
Flourine	mg/L	0.5	0.9	0.3

삼성보고서 영문 2007.2.1 4:59 PM 페이지74 1000 Dolev-2540-Color-S T

One company, one Mountain, one river preservation campaign

Under the will of performing the principle of green management and accomplishing a corporate's social obligation on the environment preservation, Samsung Electronics practice 'One company, one mountain, one river preservation campaign'by each plant throughout the country. This campaign aims to recover the contaminated nature environment and configure greening of local society by connecting with public community or local citizens. Major campaigns of nature environment and eco preservation by Samsung Electronics are preservation of one mountain and one river, composition of the eco pond, feeding the migratory birds in winter, operating environment sister school and environment preservation campaign with local citizens together with Samsung Electronics.

Composition of nature friendly eco pond

Giheung plant has formed the nature friendly eco pond at green center in order to secure basic materials for the future-oriented waste water treatment technology and monitor diversification of creature's species according to treated water emission into a river. The nature friendly eco pond is about treated water emitted from waste water treatment facility and retreatment by a plant's purification capacity and is composed of water tank and plant purification tank system. The water tank provides the plant purification tank system with the treated water and the plant purification tank system. handles nitrogen, phosphorus and BOD by using purification plant which has excellent water purification capacity.

Also, organics connected by the food chain living in the eco pond keep balance in the eco system and function purification as symbiosis and synergy between plants and microorganism. Currently in this place, six kinds of emerged plants and hygrophytes such as typha angustata, zizania latifolia and eleocharis kuroguwai and also insects such as dragon flies, grasshoppers and beetles exist.

Samsung Electronics stresses the importance of nature by giving opportunities to nearby elementary school students and citizens to observe and experience the food chain and plant's purification

Eco pond in Giheung plant

function of the eco system by operating the environment education program using another small nature, the eco pond.

Establishment of Environmental Sistership

Samsung Electronics practices the environment friendliness campaign through various sisterhood projects. Samsung Electronics induces local citizens to participate in campaigns by operating various programs and joining thesister school with nearby schools by each plant. Especially we inspire them environment preservation and saving mind through the events such as writings about environment preservation, public announcement of posters, public announcement of environment and safety slogans, recycling exhibition and presentation of scholarship.

Also Samsung Electronics joined the sisterhood with companies under environment friendliness campaign and educated and instructed them with Samsung Electronics's high end technology, we take a role in leading the greening of local society. Moreover, Samsung Electronics keeps the cooperative relationship with fire stations by joining sisterhood and expands the environment friendliness campaign of more advanced companies through information exchanges.

The first step of loving nature, experiences of wild animals protection campaign

Gumi plant takes an active role in the preservation campaign of wild animals. The plant expands the campaign of feeding wild animals which has participants of total 100 people including employees, environment related agency and the children of sister school. Also the plant has distributed foods for wild animals such as Korean squirrel and chipmunks who need protection under the fear of

삼성보고서 영문 2007.2.1 4:59 PM 페이지75 1000 Dolev-2540-Color-S T

destruction of the eco system due to food shortage during the winter season so they can survive in the winter. In addition, the plant has expanded the campaign of cleaning nearby environment for the wild animals so they can live in the safe environment.

These volunteer environment protection campaigns highly contributed to raise concerns on the environment preservation in the local society with companies and local communities. These also have been a good opportunity for growing children to understand the importance of environment the eco system by managing with the local schools and we provided books on environment for children in order to them understand the nature eco system easily. We plan to stabilize the campaign to give a love to the local community and be approved by them through the sustainable nature protection campaign.

The eco recovery campaign of the Garak rock reservoir

The Garak rock reservoir (total area, appr.37,228m^2) which located in Myungam-ri, Tangjeong-myun, Asan-si, Chungchung province of south near Tangjeong industrial plant has been deteriorating due to an inflow of pollutants from nearby private houses'non-point source pollution. Therefore, Tangjeong plant improved the water quality of the reservoir by applying the water quality purification engineering of spot flotation separation as the environment engineering 2 times in 2005 and operated environment purification activities and seminars with participation of public agency, environment community and related companies and operated the eco recovery campaign of the Garak rock reservoir. Thanks to the water quality improvement work, the water quality has been upgrade to over the 3rd grade from less than 5th grade based on the standard water quality in a river.

Sponsorship of construction of Gwangdeok mountain eco education hall

The planned construction of Gwangdeok mountain eco education hall under Cheonan · Asan environment campaign association in 2006 is environment friendly education institute that utilizes good eco resource and clean zone of Cheonan · Asan, Gwangdeok mountain. As the site area of 481 pyong and the gross floor area of 93 pyong, the eco education hall establishes the aim to suggest the 21C environment education as the cradle of the systematic environment education such as research on environment preservation, training of environment guide and development of programs for school environment education. With agreement of aim of education hall construction for environment preservation, the total 300 of professors from Daejeon and Chungcheong province of south as well as Cheonan · Asan and environment activists, politicians and officialsbased on the environment campaign association take part in the campaign. Both south Chungcheong province and Cheonan city has established the plan to support 600 million won for 2 years. Therefore Samsung Electronics joined the board of construction promotion in order to participate in the project that lead a vision for environment education of local community, schools and citizen community and also provides sponsorship for the construction of Gwangdeok mountain eco education hall. Also Samsung Electronics plansto take an active role in participation of environment friendliness campaign by both citizen community and the government to hand down the heritage of green nature to the next generation.

The supporting activities by cooperating companies.

As a part of performing environment sharing management, Cheonan plant supported Clean World Co.,Ltd which runs the 3rd industrial complex waste water treatment area with certification acquisition of environment management system and finally the company acquired the final certification in May 205. The plant will provide sustainable sponsorship for cooperation companies to acquire ISO 14001 certificaiton in the future.

ISO 14001 certificate

Posting on the local newspaper